



pennsylvania
DEPARTMENT OF EDUCATION

**2022 PENNSYLVANIA SYSTEM OF SCHOOL ASSESSMENT TECHNICAL REPORT
MATHEMATICS, ENGLISH LANGUAGE ARTS, AND SCIENCE**

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GLOSSARY OF COMMON TERMS

The following table contains some terms used in this technical report and their meanings. Some of these terms are used universally in the assessment community, and some of these terms are used commonly by psychometric professionals. A glossary of accommodation terms as applied to the PSSA is provided in Chapter Ten.

Table G–1. Glossary of Terms

| Term | Common Definition |
|--------------------------------------|--|
| Ability | In Rasch scaling, ability is a generic term indicating the level of an individual on the construct measured by an exam. As an example for the PSSA, a student's reading ability is measured by how the student performed on the PSSA Reading test. A student who answered more items correctly has a higher ability than a student who answered fewer items correctly. |
| Adjacent Agreement | A score/rating difference of one (1) point in value usually assigned by two different raters under the same conditions (e.g., two independent raters give the same scores that differ by one point). |
| Alternate Forms | Two or more versions of a test that are considered exchangeable, i.e., they are developed using the same test specifications, they measure the same constructs in the same ways, are intended for the same purposes, and they are administered using the same directions. More specific terminology may apply depending on the degree of statistical similarity between the test forms (e.g., parallel forms, equivalent forms, and comparable forms) where parallel forms refers to the situation in which the test forms have the highest degree of similarity to each other. |
| Average | A measure of central tendency in a score distribution that usually refers to the arithmetic mean of a set of scores. In this case, it is determined by adding all the scores in a distribution and then dividing the obtained value by the total number of scores. Sometimes people use the word average to refer to other measures of central tendency such as the median (the score in the middle of a distribution) or mode (the score value with the greatest frequency). |
| Bias | In a statistical context, bias refers to any source of systematic error in the measurement of a test score. In discussing test fairness, bias may refer to construct-irrelevant components of test scores that differentially affect the performance of different groups of test takers (e.g., gender, ethnicity, etc.). Attempts are made to reduce bias by conducting item fairness reviews and various differential item functioning (DIF) analyses, detecting potential areas of concern, and either removing or revising the flagged test items prior to the development of the final operational form of the test (see also Differential Item Functioning). |
| Constructed-Response Item | A constructed-response (CR) item is an item that requires examinees to create their own responses, which can be expressed in various forms (e.g., written essay, created table/graph, formulated calculation, etc.). Such items are frequently scored using more than two score categories, that is, items are polytomously scored (e.g., 0, 1, 2, and 3). This item format is in contrast to when students make a choice from a supplied set of answer options (e.g., multiple-choice (MC) items which are typically dichotomously scored as right = 1 or wrong = 0). It is important to consider whether an item is scored polytomously or dichotomously when interpreting item difficulty and discrimination indices. |
| Content Validity Evidence | Evidence regarding the extent to which a test provides an appropriate sampling of a content domain of interest (e.g., assessable portions of a state's Grade 6 mathematics curriculum in terms of the knowledge, skills, objectives, and processes sampled). |
| Core-Linking Item | Items that are utilized during the linking and equating process (see also Linking and Equating). They are a subset of the PSSA operational items and so they 1) are the same on all test forms for any grade/subject-area test and 2) contribute to students' total raw scores and scaled scores. |
| Criterion- Referenced Interpretation | When a score is interpreted as a measure of a student's performance with respect to an expected level of mastery, educational objective, or standard. The types of resulting score interpretations provide information about what a student knows or can do with respect to a given content area. |
| Cut Score | A specified point on a score scale such that scores at or above that point are interpreted or acted upon differently from scores below that point (e.g., a score designated as the minimum level of performance needed to pass a competency test). One or more cut scores can be set for a test, which results in differentiating among various proficiency levels. Methods for establishing cut scores vary. For the PSSA, three cut scores are used to place students into one of four performance levels (see also Performance Level Setting). |

| Term | Common Definition |
|--|--|
| Decision Consistency | The extent to which classifications based on test scores would match the decisions based on scores from a second, parallel form of the same test. It is often expressed as the proportion of examinees who are classified consistently across the two test administrations. |
| Differential Item Functioning (DIF) | A statistical property of a test item in which different groups of test takers (who have the same total test score) have different average item scores. In other words, students with the same ability level but different group memberships do not have the same probability of answering the item correctly (see also Bias). |
| Distractor | An incorrect option in a multiple-choice item. |
| Equating | The process that results in scores that can be used interchangeably across different test forms and/or test administrations. Equated test scores are considered exchangeable. Consequently, the requirements for equating are strong and somewhat complex (equal construct and precision, equity, and invariance). In practical terms, it is often stated that students should perceive no differences regardless of the test form administered (see also Scale Linking, Pre-equating, and Post-equating). |
| Equating Block (EB) Items | The PSSA uses multiple test forms for each grade/subject-area test. Each form is composed of operational (OP) items, equating block (EB) items, and field-test (FT) items. EB items are utilized during the linking process (see also Linking). Each test form includes a set of EB items. EB items are not part of any student scores. |
| Error of Measurement | The amount by which the score actually received (an observed score) differs from a hypothetical true score (see also Standard Error of Measurement). |
| Evidence-Based Selected-Response (EBSR) Item | A type of item that has two parts and requires the test taker to select a response from a group of possible answer choices in Part One, one of which is the correct answer (or key) to the question posed, and to then select one or two responses from a group of possible answer choices in Part Two, which provide evidence to support the correct answer in Part One. |
| Exact Agreement | When identical scores/ratings are assigned by two different raters under the same conditions (e.g., two independent raters give a paper the same score). |
| Field-Test (FT) Items | The PSSA uses multiple test forms for each grade/subject-area test. Each form is comprised of operational (OP) items, equating block (EB) items, and field-test (FT) items. An FT item is a newly developed item that is ready to be tried out to determine its statistical properties (see also <i>P</i> -value and Point-Biserial Correlation). Each test form includes a set of FT items. FT items are not part of any student scores. |
| Frequency | The number of times that a certain value or range of values (score interval) occurs in a distribution of scores. |
| Frequency Distribution | A tabulation of scores from low to high or high to low showing the number and/or percent of individuals who obtain each score or who fall within each score interval or category. |
| Infit/Outfit | Statistical indicators of the agreement of the data and the measurement model (see also Outfit/Infit). |
| Item Difficulty | For the Rasch model, the dichotomous item difficulty represents the point along the latent trait continuum where an examinee has a 0.50 probability of correctly responding. For a polytomous item, the difficulty is the average of the item's step difficulties (see also Step Difficulty). |
| Key | The correct response option or answer to a test item. |
| Linking | A generic term referring to a number of processes by which scores from one or more tests are made comparable to some degree. Linking includes several classes of transformations (equating, scale alignment, prediction, etc.). Equating is associated with the strongest degree of comparability (exchangeable scores). Other linkages may be very strong but fail to meet one or more of the strict criteria required of equating (see also Equating). PSSA scores are equated. |
| Logit | In Rasch scaling, logits are units used to express both examinee ability and item difficulty. When expressing examinee ability, a student who answers more items correctly has a higher logit than a student who answers fewer items correctly. Logits are transformed into Scaled Scores through a linear transformation. When expressing item difficulty, logits are transformed <i>p</i> -value (see also <i>P</i> -value). The logit difficulty scale is inversely related to <i>p</i> -values. A higher logit value would represent a relatively harder item, while a lower logit value would represent a relatively easier item. |
| Mean | Also referred to as the arithmetic mean of a set of scores, is found by adding all the score values in a distribution and dividing by the total number of scores. For example, the mean of the set {66, 76, 85, 97} is 81. The value of a mean can be influenced by extreme values in a score distribution. |

| Term | Common Definition |
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| Measure | In Rasch scaling, measure generally refers to a specific estimate of an examinee's ability (often expressed as logits) or an item's difficulty (again, often expressed as logits). As an example for the PSSA, a student's reading measure might be equal to 0.525 logits. Or, a PSSA Reading test item might have logit equal to -0.905. |
| Median | The middle point or score in a set of rank-ordered observations that divides the distribution into two equal parts such that each part contains 50 percent of the total data set. More simply put, half of the scores are below the median value and half of the scores are above the median value. As an example, the median for the following ranked set of scores {2, 3, 6, 8, 9} is 6. |
| Multiple-Choice Item | A type of item that requires the test taker to select a response from a group of possible choices, one of which is the correct answer (or key) to the question posed (see also Constructed-Response Item). |
| N-count | Sometimes designated as N or n , it is the number of observations (usually individuals or students) in a particular group. Some examples include the number of students tested, the number of students tested from a specific subpopulation (e.g., females), the number of students who attained a specific score, etc. In the follow set {23, 32, 56, 65, 78, 87}, $n = 6$. |
| Open-Ended Item | A type of constructed-response item found in the mathematics and science assessments that requires examinees to create their own responses, which can be expressed in various forms (e.g., written description, created table/graph, formulated calculation, etc.). Such items are frequently scored using more than two score categories, that is, polytomously (e.g., 0, 1, 2, 3, and 4). This format is in contrast to when students make a choice from a supplied set of answer options (e.g., multiple-choice (MC) items which are typically dichotomously scored as right = 1 or wrong = 0.) When interpreting item difficulty and discrimination indices it is important to consider whether an item is polytomously or dichotomously scored. |
| Operational Item | The PSSA uses multiple test forms for each grade/subject-area test. Each form is composed of operational (OP) items, equating block (EB) items, and field-test (FT) items. OP items are the same on all forms for any grade/subject-area test. Student total raw scores and scaled scores are based exclusively on the OP items. |
| Outfit/Infit | Statistical indicators of the agreement of the data and the measurement model. Infit and Outfit are highly correlated, and both are highly correlated with the point-biserial correlation. Underfit can be caused when low-ability students correctly answer difficult items (perhaps by guessing or atypical experience) or high-ability students incorrectly answer easy items (perhaps because of carelessness or gaps in instruction). Any model expects some level of variability, so overfit can occur when nearly all low-ability students miss an item while nearly all high-ability students get the item correct. |
| Percent Correct | When referring to an individual item, the percent correct is the item's p -value expressed as a percent (instead of a proportion). When referring to a total test score, it is the percentage of the total number of points that a student earned. The percent correct score is obtained by dividing the student's raw score by the total number of possible points and multiplying the result by 100. Percent Correct scores are often used in criterion-referenced interpretations and are generally more helpful if the overall difficulty of a test is known. Sometimes Percent Correct scores are incorrectly interpreted as Percentile Ranks. |
| Percentile | The score or point in a score distribution at or below which a given percentage of scores fall. It should be emphasized that it is a value on the score scale, not the associated percentage (although sometimes in casual usage this misinterpretation is made). For example, if 72 percent of the students score at or below a Scaled Score of 1500 on a given test, then the Scaled Score of 1500 would be considered the 72nd percentile. As another example, the median is the 50th percentile. |
| Percentile Rank | The percentage of scores in a specified distribution falling at/below a certain point on a score distribution. Percentile Ranks range in value from 1 to 99, and indicate the status or relative standing of an individual within a specified group by indicating the percent of individuals in that group who obtained equal or lower scores. An individual's percentile rank can vary depending on which group is used to determine the ranking. As suggested above, Percentiles and Percentile Rank are sometimes used interchangeably; however, strictly speaking, a percentile is a value on the score scale. |
| Performance Level Descriptors | Descriptions of an individual's competency in a particular content area, usually defined as ordered categories on a continuum, often labeled from Below Basic to Advanced, that constitute broad ranges for classifying performance. The exact labeling of these categories, and narrative descriptions, may vary from one assessment or testing program to another. |

| Term | Common Definition |
|----------------------------|---|
| Performance Level Setting | Also referred to as standard setting, a procedure used in the determination of the cut scores for a given assessment that is used to measure students' progress towards certain performance standards. Standard setting methods vary (e.g., modified Angoff, Bookmark Method, etc.), but most use a panel of educators and expert judgments to operationalize the level of achievement students must demonstrate in order to be categorized within each performance level. |
| Point-Biserial Correlation | In classical test theory this is an item discrimination index. It is the correlation between a dichotomously scored item and a continuous criterion, usually represented by the total test score (or the corrected total test score with the reference item removed). It reflects the extent to which an item differentiates between high-scoring and low-scoring examinees. This discrimination index ranges from -1.00 to $+1.00$. The higher the discrimination index (the closer to $+1.00$), the better the item is considered to be performing. For multiple-choice items scored as 0 or 1, it is rare for the value of this index to exceed 0.5. |
| Post-Equating | Post-equating refers to the method of utilizing data from the current administration for scale linking and equating. Post-equating relies heavily on collecting data from a representative sample, estimating new item parameters, linking the item parameters to the base scale, and estimating student ability based on the linked item parameters. PSSA utilized a post-equated test design prior to 2019, but now employs pre-equating (see also Pre-Equating). |
| Pre-Equating | Pre-equating refers to the method of utilizing previously estimated and linked item parameters for equating. Because item parameters have already been linked to the base scale, pre-equated solutions are generated prior to the testing window and validated with current data during pre-equating verification. The main purpose of pre-equating verification is to ensure that the data fits the model within expectation (see Chapter Fifteen). PSSA employed pre-equating beginning in 2019 in order to reduce the reporting window (see also Post-Equating). |
| <i>P</i> -value | An index indicating an item's difficulty for some specified group (perhaps grade). It is calculated as the proportion (sometimes percent) of students in the group who answer an item correctly. <i>P</i> -values range from 0.0 to 1.0 on the proportion scale. Lower values correspond to more difficult items and higher values correspond to easier items. <i>P</i> -values are usually provided for multiple-choice items or other items worth one point. For open-ended items or items worth more than one point, difficulty on a <i>p</i> -value-like scale can be estimated by dividing the item mean score by the maximum number of points possible for the item (see also Logit). |
| Raw Score (RS) | An unadjusted score usually determined by tallying the number of questions answered correctly, or by the sum of item scores (i.e., points). (Some rarer situations might include formula-scoring, the amount of time required to perform a task, the number of errors, application of basal/ceiling rules, etc.). Raw scores typically have little or no meaning by themselves and require additional information—like the number of items on the test, the difficulty of the test items, norm-referenced information, or criterion-referenced information. |
| Reliability | The expected degree to which test scores for a group of examinees are consistent over exchangeable replications of an assessment procedure, and therefore, are considered dependable and repeatable for an individual examinee. A test that produces highly consistent, stable results (i.e., relatively free from random error) is said to be highly reliable. The reliability of a test is typically expressed as a reliability coefficient or by the standard error of measurement derived by that coefficient. |
| Reliability Coefficient | A statistical index that reflects the degree to which scores are free from random measurement error. Theoretically, it expresses the consistency of test scores as the ratio of true score variance to total score variance (true score variance plus error variance). This statistic is often expressed as correlation coefficient (e.g., correlation between two forms of a test) or with an index that resembles a correlation coefficient (e.g., calculation of a test's internal consistency using Coefficient Alpha). Expressed this way, the reliability coefficient is a unitless index. The higher the value of the index (closer to 1.0), the greater the reliability of the test (see also Standard Error of Measurement). |
| Scale Linking | The first step in any equating process in which independent item estimates are placed on the same scale of measurement (the logit scale). Scale linking results in item parameters that are on the same scale of measurement. Equating procedures can only be implemented once scale linking is achieved (see also Equating). The data used for scale linking can either be from the current administration (see Post-Equating) or from previous administrations (Pre-Equating). |

| Term | Common Definition |
|-------------------------------------|--|
| Scaled Score | A mathematical transformation of a logit score developed through a process called scaling. Scaled scores are most useful when comparing test results over time. Several different methods of scaling exist, but each is intended to provide a continuous and meaningful scaled score across different test forms and test administrations. |
| Selected-Response Item | See Multiple-Choice Item. |
| Short-Answer Item | A type of constructed-response item found in the grade 3 ELA assessment that requires the test taker to compose an answer based on a passage or passage set the student has read. Each short-answer (SA) item is scored using an item-specific scoring guideline based on a 0–3 point general scoring guideline. Also referred to as Constructed-Response (CR) or Open-ended (OE) Response items. |
| Spiraling | A packaging process used when multiple forms of a test exist and it is desired that each form be tested in all classrooms (or other grouping unit (e.g., schools)) participating in the testing process. This process allows for the random distribution of test booklets to students. For example, if a package has four test forms labeled A, B, C, and D, the order of the test booklets in the package would be A, B, C, D, A, B, C, D, A, B, C, D, etc. |
| Standard Deviation (SD) | A statistic that measures the degree of spread or dispersion of a variable (e.g., set of scores). The standard deviation is a commonly used method of examining a distribution’s variability since the standard deviation is expressed in the same units as the data. The value of this statistic is always greater than or equal to zero. If all of the scores in a distribution are identical, the standard deviation is equal to zero. The further the scores are away from each other in value, the greater the standard deviation. This statistic is calculated using the information about the deviations (distances) between each score and the distribution’s mean. It is equivalent to the square root of the variance statistic. |
| Standard Error of Measurement (SEM) | The amount an observed score is expected to fluctuate around the true score. As an example, across replications of a measurement procedure, the true score will not differ by more than plus or minus one standard error from the observed score about 68 percent of the time (assuming normally distributed errors). The SEM is frequently used to obtain an idea of the consistency of a person’s score in actual score units or to set a confidence band around a score in terms of the error of measurement. Often a single SEM value is calculated for all test scores. On other occasions, however, the value of the SEM can vary along a score scale. Conditional standard errors of measurement (CSEMs) provide an SEM for each possible scaled score. |
| Step Difficulty | Step difficulty is a parameter estimate in Master’s Partial Credit Model (PCM) that represents the relative difficulty of each score step (e.g., going from a score of 1 to a score of 2). The higher the value of a particular step difficulty, the more difficult a particular step is relative to other score steps (e.g., is it harder to go from a 1 to a 2, or to go from a 2 to a 3). |
| Strand | On score reports, a strand often refers to a set of items on a test measuring the same contextual area (e.g., Number Sense in Mathematics). Items developed to measure the same reporting category would be used to determine the strand score (sometimes called “subscale” score). |
| Technical Advisory Committee (TAC) | A group of individuals, most often professionals in the field of testing, who are either appointed or selected to make recommendations for and to guide the technical development of a given testing program. |
| Text-Dependent Analysis Item | A type of constructed-response item found in the ELA assessment in Grades 4–8 that requires the test-taker to compose an essay based on a passage or passage set that the student has read during the test event. Test-takers must draw on basic writing skills while inferring and synthesizing information from the passage in order to develop the response. The text-dependent analysis (TDA) item is scored on a holistic scoring guideline on a 4-point scale and is weighted for scoring purposes. |
| Validity | The degree to which accumulated evidence and theory support specific interpretations of test scores entailed by the purposed uses of a test. There are various ways of gathering validity evidence. |

PREFACE: AN OVERVIEW OF ASSESSMENTS FROM 2003 TO THE PRESENT

The period from 2003 through 2006 brought significant structural changes to the test blueprint for the Pennsylvania System of School Assessment (PSSA). These changes necessitated extensive test development and field testing activity along with phased-in implementation of the operational assessment. Included in this process was the development and implementation of assessments at additional grade levels.

For mathematics and reading, content changes for Grades 5, 8, and 11 were developed in 2003, field tested in spring 2004, and implemented in spring 2005. The *2005 PSSA Technical Report for Reading and Mathematics* provides a description of test development activities including a review of open-ended tasks and multiple-choice items, field testing, selection of items, statistical analysis of assessment data, reliability, validity, standard setting, and other technical characteristics of the operational 2005 PSSA. Test development for the new grade levels of 4, 6, and 7 began in 2004, with field testing in 2005, and full implementation in 2006. Similarly, the *2006 PSSA Technical Report for Reading and Mathematics: Grades 4, 6, and 7* provides a complete description of test development activities, item review, field testing, statistical analysis, item selection, and technical characteristics of the operational 2006 PSSA for these grade levels. In 2007, the Grade 3 reading and mathematics assessment became DRC's responsibility and is covered in the *2007 PSSA Technical Report for Reading and Mathematics*, along with the remaining grades.

Changes implemented in the writing assessment of spring 2006 were designed to sharpen the focus on what is assessed with respect to Academic Standards 1.4 and 1.5. To support this effort, a shift in grade levels assessed was made, moving from Grades 6 and 9 to Grades 5 and 8, thereby aligning assessment to the end of elementary and middle school years. The writing testing window was changed from fall to February 2006 for Grades 5 and 8, making it consistent with Grade 11. Mode-specific scoring guidelines replaced domain scoring, and the introduction of stimulus-based passages and associated multiple-choice items measuring revising and editing expanded the basis of the conventions score. An account of the development of writing prompts and stimulus-based, multiple-choice items, review processes, field testing and item analysis, standard setting, and other technical characteristics of the operational 2006 PSSA may be found in the *2006 PSSA Technical Report for Writing*.

The introduction of an operational science assessment in 2008 moved closer to reality with a major standalone field test at Grades 4, 8, and 11 in April–May of 2007. A description of the development of science scenarios and related multiple-choice, short-answer open-ended, and extended open-ended questions, item review processes, statistical analysis of field test data, and selection of items for the 2008 operational science test may be found in the *2008 PSSA Preliminary Technical Report for Science*. Subsequently, the first operational science assessment took place in the spring of 2008, along with standard setting and reporting of results.

With the exception of some shifting of test windows, the spring assessments of 2009, 2010, 2011, and 2012 were conducted without change in content structure of the PSSA test instruments.

A transition to begin measuring the Pennsylvania Core Standards (PCS) in Mathematics and English Language Arts was initiated with standalone and embedded field test events in 2013 for Grades 3, 4, and 5. The transition continued in 2014 with standalone field tests in Grades 6, 7, and 8 and embedded field tests in Grades 3 through 8. As a part of this transition, starting in spring 2013, the Grade 11 PSSA and the Grade 12 PSSA Retest were dropped in favor of the Keystone Exams in Algebra I, Biology, and Literature. The 2015 administration of the PSSA marked the completion of the transition to the PCS in Mathematics and English Language Arts. Mathematics and ELA were administered in separate testing windows as separate test and answer booklets (in contrast to the combined Mathematics and Reading test and answer booklets used previously) and students in all grades participated in both the Writing and Reading portions of the ELA assessment.

In 2017 and 2018 the PSSA test designs underwent a reevaluation. In an effort to reduce testing time in the classroom the Mathematics, English Language Arts, and Science tests were reduced in overall length. For mathematics and science, the test length was shortened by reducing the number of test questions by reporting category proportionally. For ELA, in contrast, reducing the length of the test meant removing the writing prompt and a group of approximately nine multiple-choice items.

The following pages provide an overview of the year-to-year changes to the PSSA. Tables and descriptions show the subject areas assessed, time of year the testing activity took place, and the type of testing that occurred (e.g., operational, field testing, Grade 12 retest) for each year.

To access any of the PSSA technical reports referenced in the Preface, please go to the Pennsylvania Department of Education website, www.education.pa.gov.

ASSESSMENT ACTIVITIES OCCURRING IN THE 2003–04 SCHOOL YEAR

Table P–1 outlines the operational assessments and field tests administered during the 2003–04 school year. (A spring operational assessment in mathematics and reading took place at Grades 3, 5, 8, and 11.)

As a result of new Assessment Anchor Content Standards (Assessment Anchors) developed by the Pennsylvania Department of Education (PDE) during 2003, new test items were developed (see Chapter Two of the *2005 PSSA Technical Report for Reading and Mathematics*). Following the spring operational assessment, a separate, standalone field test of new items for Grades 5, 8, and 11 was conducted. Note that Grade 11 students also took an operational writing assessment in February, and Grades 6 and 9 students participated in a fall writing assessment. Lastly, Grade 12 students who as 11th graders in the preceding spring failed to attain at least the Proficient level in any subject area were offered an opportunity to retest.

Table P–1. Operational Assessment and Field Testing During the 2003–04 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------------------|
| 3 | Operational mathematics and reading with embedded field test (conducted by CTB/McGraw-Hill) | April 2004 |
| 5 | Operational mathematics and reading | April 2004 |
| 5 | Standalone field test in mathematics and reading | April/May 2004 |
| 6 | Operational writing | October 2004 |
| 8 | Operational mathematics and reading | April 2004 |
| 8 | Standalone field test in mathematics and reading | April/May 2004 |
| 9 | Operational writing | October 2004 |
| 11 | Operational mathematics and reading | April 2004 |
| 11 | Standalone field test in mathematics and reading | April/May 2004 |
| 11 | Operational writing | February 2004 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2003 failed to reach at least the Proficient level in mathematics, reading, or writing | October/ November 2004 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2004–05 SCHOOL YEAR

Table P–2 displays the operational assessments and field tests that took place during the 2004–05 school year. The operational assessment at Grades 5, 8, and 11 used items chosen from the spring 2004 field test. This was the first operational assessment that reflected the Pennsylvania Assessment Anchors and Eligible Content. Fulfilling the No Child Left Behind Act of 2001 (NCLB) requirement that states must implement a test at Grades 3–8, a major field test in mathematics and reading was administered at Grades 4, 6, and 7. Item development for these new grade levels took place during 2004.

The Grades 6 and 9 writing assessment was reevaluated in favor of moving the writing assessment to Grades 5 and 8. This accounts for the separate (standalone) field test at these grade levels. There was also a test administration change from October to February. In addition, the writing assessment underwent changes to align the test to the Academic Standards for writing. New writing prompts and stimulus-based multiple-choice items were also field tested at Grade 11 as part of the operational assessment, hence the reference to an embedded field test. No assessment activity of any kind occurred at Grade 9. As in fall 2003, the retest opportunity at Grade 12 continued.

Table P-2. Operational Assessment and Field Testing During the 2004–05 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------------------|
| 3 | Operational mathematics and reading with embedded field test (conducted by CTB/McGraw-Hill) | April 2005 |
| 4 | Standalone field test for mathematics and reading | April 2005 |
| 5 | Operational mathematics and reading with embedded field test | April 2005 |
| 5 | Standalone field test in writing | February 2005 |
| 6 | Standalone field test for mathematics and reading | April 2005 |
| 7 | Standalone field test for mathematics and reading | April 2005 |
| 8 | Operational mathematics and reading with embedded field test | April 2005 |
| 8 | Standalone field test in writing | February 2005 |
| 11 | Operational mathematics and reading with embedded field test | April 2005 |
| 11 | Operational writing with embedded field test | February 2005 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2004 failed to reach at least the Proficient level in mathematics, reading, or writing | October/ November 2004 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2005–06 SCHOOL YEAR

Table P-3 shows the assessment activities that occurred during the 2005–06 school year. Note that the reading and mathematics operational assessments ran consecutively in Grades 3–8 and Grade 11. For Grades 4, 6, and 7, it was the first year for operational assessments. Field testing for mathematics and reading was embedded as part of the operational assessment at each grade level. At Grade 3, the reference to field testing with items developed by DRC reflects the transition of shifting the assessment from CTB/McGraw-Hill to DRC in 2007. As in previous years, the retest opportunity at Grade 12 continued.

The first operational assessments for writing at Grades 5 and 8 took place in the 2005–06 school year, while the Grade 11 writing assessment continued in the same February testing window. For all three grade levels, the operational writing assessments featured mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis shift in writing modes assessed. See the *2006 PSSA Technical Report for Writing: Grades 5, 8, and 11* for further information about the new writing assessments. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts were field tested in 2006. However, new multiple-choice items were field tested in the 2006 writing assessment.

Table P-3. Operational Assessment and Field Testing During the 2005–06 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------------------|
| 3 | Operational mathematics and reading with embedded field test of DRC-written items (conducted by CTB/McGraw-Hill) | April 2006 |
| 4 | Operational mathematics and reading with embedded field test | March 2006 |
| 5 | Operational mathematics and reading with embedded field test | March 2006 |
| 5 | Operational writing with embedded field test | February 2006 |
| 6 | Operational mathematics and reading with embedded field test | March 2006 |
| 7 | Operational mathematics and reading with embedded field test | March 2006 |
| 8 | Operational mathematics and reading with embedded field test | March 2006 |
| 8 | Operational writing with embedded field test | February 2006 |
| 11 | Operational mathematics and reading with embedded field test | March 2006 |
| 11 | Operational writing with embedded field test | February 2006 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2005 failed to reach at least the Proficient level in mathematics, reading, or writing | October/ November 2005 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2006–07 SCHOOL YEAR

Table P-4 shows the assessment plan for the 2006–07 school year. Note that the mathematics and reading assessments ran consecutively in Grades 3–8 and Grade 11. For Grades 4, 6, and 7, it was the second year for operational assessments and the first year in which these grade levels were included in the adequate yearly progress (AYP) calculations. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. This was the first year in which DRC was responsible for the Grade 3 assessment, as the transition from CTB/McGraw-Hill was complete. As in previous years, the retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued in the same February testing window featuring the mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed, which were introduced in 2006. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts needed to be field tested in 2007. However, new multiple-choice items were field tested in the 2007 writing assessment.

Following the spring operational assessments in writing, reading, and mathematics, a separate, standalone field test in science was administered for Grades 4, 8, and 11 with full implementation scheduled for 2008.

Table P-4. Operational Assessment and Field Testing During the 2006–07 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------------------|
| 3 | Operational mathematics and reading with embedded field test | March 2007 |
| 4 | Operational mathematics and reading with embedded field test | March 2007 |
| 4 | Standalone field test in science | April/May 2007 |
| 5 | Operational mathematics and reading with embedded field test | March 2007 |
| 5 | Operational writing with embedded field test | February 2007 |
| 6 | Operational mathematics and reading with embedded field test | March 2007 |
| 7 | Operational mathematics and reading with embedded field test | March 2007 |
| 8 | Operational mathematics and reading with embedded field test | March 2007 |
| 8 | Operational writing with embedded field test | February 2007 |
| 8 | Standalone field test in science | April/May 2007 |
| 11 | Operational mathematics and reading with embedded field test | March 2007 |
| 11 | Operational writing with embedded field test | February 2007 |
| 11 | Standalone field test in science | April/May 2007 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2006 failed to reach at least the Proficient level in mathematics, reading, or writing | October/ November 2006 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2007–08 SCHOOL YEAR

Table P-5 shows the assessment plan for the 2007–08 school year. Note that the mathematics and reading assessments ran consecutively in Grades 3–8 and Grade 11. For Grades 4, 6, and 7, it was the third year for operational assessments and the second year in which these grade levels were included in the AYP calculations. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. This was the second year in which DRC was responsible for the Grade 3 assessment. As in previous years, the retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued in the same February testing window featuring the mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed, which was introduced in 2006. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts needed to be field tested in 2007. However, new multiple-choice items were field tested in the 2008 writing assessment.

Joining the spring operational assessments in writing, reading, and mathematics was science at Grades 4, 8, and 11. See the *2008 PSSA Technical Report for Science: Grades 4, 8, and 11* for further information about the new science assessments.

Table P-5. Operational Assessment and Field Testing During the 2007–08 School Year

| Grade | Assessment Activity | Date |
|--------------|--|------------------------|
| 3 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 4 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 4 | Operational science with embedded field test | April/May 2008 |
| 5 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 5 | Operational writing with embedded field test | February 2008 |
| 6 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 7 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 8 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 8 | Operational writing with embedded field test | February 2008 |
| 8 | Operational science with embedded field test | April/May 2008 |
| 11 | Operational mathematics and reading with embedded field test | March/April 2008 |
| 11 | Operational writing with embedded field test | February 2008 |
| 11 | Operational science with embedded field test | April/May 2008 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2007 failed to reach at least the Proficient level in mathematics, reading, or writing | October/ November 2007 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2008–09 SCHOOL YEAR

Table P-6 shows the assessment plan for the 2008–09 school year. The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued with a February testing window featuring mode-specific scoring guidelines; stimulus-based, multiple-choice items; and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was incorporated in the 2009 assessment along with a set of embedded field test multiple-choice items.

The second operational assessment in science took place in April/May. Similar to the other operational assessments, field testing for science was embedded as part of the operational assessments at each grade level.

Table P-6. Operational Assessment and Field Testing During the 2008–09 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------------------|
| 3 | Operational mathematics and reading with embedded field test | March 2009 |
| 4 | Operational mathematics and reading with embedded field test | March 2009 |
| 4 | Operational science with embedded field test | April/May 2009 |
| 5 | Operational mathematics and reading with embedded field test | March 2009 |
| 5 | Operational writing with embedded field test | February 2009 |
| 6 | Operational mathematics and reading with embedded field test | March 2009 |
| 7 | Operational mathematics and reading with embedded field test | March 2009 |
| 8 | Operational mathematics and reading with embedded field test | March 2009 |
| 8 | Operational writing with embedded field test | February 2009 |
| 8 | Operational science with embedded field test | April/May 2009 |
| 11 | Operational mathematics and reading with embedded field test | March 2009 |
| 11 | Operational writing with embedded field test | February 2009 |
| 11 | Operational science with embedded field test | April/May 2009 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2008 failed to reach at least the Proficient level in mathematics, reading, or writing | October/ November 2008 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2009–10 SCHOOL YEAR

Table P-7 shows the assessment plan for the 2009–10 school year. A notable change from previous years was that all assessments and make-ups were completed during the testing window from April through the first week of May.

The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was included in the 2010 assessment along with a set of embedded field test multiple-choice items.

The operational assessment for science at Grades 4, 8, and 11 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice (Grades 8 and 11) and open-ended (Grade 11 only) questions. Field testing was embedded as part of the operational assessments at each grade level.

Table P-7. Operational Assessment and Field Testing During the 2009–10 School Year

| Grade | Assessment Activity | Date |
|--------------|---|------------------------|
| 3 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 4 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 4 | Operational science with embedded field test | April/May 2010 |
| 5 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 5 | Operational writing with embedded field test | April/May 2010 |
| 6 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 7 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 8 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 8 | Operational writing with embedded field test | April/May 2010 |
| 8 | Operational science with embedded field test | April/May 2010 |
| 11 | Operational mathematics and reading with embedded field test | April/May 2010 |
| 11 | Operational writing with embedded field test | April/May 2010 |
| 11 | Operational science with embedded field test | April/May 2010 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2009 failed to reach at least the Proficient level in mathematics, reading, science, or writing | October/ November 2009 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2010–11 SCHOOL YEAR

Table P-8 shows the assessment plan for the 2010–11 school year. A change from the previous year is an earlier testing window, beginning in mid-March for mathematics and reading, late-March to April for writing, and early April for science. A make-up period extended into mid-April for all assessments.

The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was included in the 2011 assessment along with a set of embedded field test multiple-choice items.

The operational assessment for science at Grades 4, 8, and 11 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice (Grades 8 and 11) and open-ended (Grade 11 only) questions. Field testing was embedded as part of the operational assessments at each grade level.

Table P–8. Operational Assessment and Field Testing During the 2010–11 School Year

| Grade | Assessment Activity | Date |
|--------------|---|------------------------|
| 3 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 4 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 4 | Operational science with embedded field test | March/April 2011 |
| 5 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 5 | Operational writing with embedded field test | March/April 2011 |
| 6 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 7 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 8 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 8 | Operational writing with embedded field test | March/April 2011 |
| 8 | Operational science with embedded field test | March/April 2011 |
| 11 | Operational mathematics and reading with embedded field test | March/April 2011 |
| 11 | Operational writing with embedded field test | March/April 2011 |
| 11 | Operational science with embedded field test | March/April 2011 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2010 failed to reach at least the Proficient level in mathematics, reading, science, or writing | October/ November 2010 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2011–12 SCHOOL YEAR

Table P–9 shows the assessment plan for the 2011–12 school year. The testing window for mathematics and reading began in mid-March, while writing and science began in mid to late April. The make-up period for mathematics and reading extended into late March, while writing and science extended into early May.

The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was included in the 2012 assessment along with a set of embedded field test multiple-choice items.

The operational assessment for science at Grades 4, 8, and 11 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice (Grades 8 and 11) and open-ended (Grade 11 only) questions. Field testing was embedded as part of the operational assessments at each grade level.

Table P–9. Operational Assessment and Field Testing During the 2011–12 School Year

| Grade | Assessment Activity | Date |
|--------------|---|------------------------|
| 3 | Operational mathematics and reading with embedded field test | March 2012 |
| 4 | Operational mathematics and reading with embedded field test | March 2012 |
| 4 | Operational science with embedded field test | April 2012 |
| 5 | Operational mathematics and reading with embedded field test | March 2012 |
| 5 | Operational writing with embedded field test | April 2012 |
| 6 | Operational mathematics and reading with embedded field test | March 2012 |
| 7 | Operational mathematics and reading with embedded field test | March 2012 |
| 8 | Operational mathematics and reading with embedded field test | March 2012 |
| 8 | Operational writing with embedded field test | April 2012 |
| 8 | Operational science with embedded field test | April 2012 |
| 11 | Operational mathematics and reading with embedded field test | March 2012 |
| 11 | Operational writing with embedded field test | April 2012 |
| 11 | Operational science with embedded field test | April 2012 |
| 12 | Retest opportunity for students who as Grade 11 students in the spring of 2011 failed to reach at least the Proficient level in mathematics, reading, science, or writing | October/ November 2011 |

TRANSITION TO THE PENNSYLVANIA CORE STANDARDS

The 2012–13 school year began the initial transition for the PSSA Mathematics, Reading, and Writing tests to align to the newly-developed Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards (PCS). The two-stage transition from the Legacy PSSA Mathematics, Reading, and Writing tests to the new PCS-based PSSA tests was proposed to occur during the operational 2013–14 and 2014–15 administrations, with Grades 3, 4, and 5 part of the first phase, and Grades 6, 7, and 8 part of the second phase. (The final decision was made for a single operational transition, to occur during the operational 2014–15 administration.)

As a part of the PCS transition, the Legacy PSSA Reading test and the Legacy PSSA Writing test were phased out and were replaced with an English Language Arts test aligned to the PCS. As part of this transition, there was a standalone field test for the Writing component of the English Language Arts test. This standalone field test included standalone multiple-choice items (as opposed to stimulus-based multiple-choice items on the Legacy Writing test) and writing prompts at each grade. In addition, at Grade 3 there were open-ended items on the standalone ELA Writing test. For Grades 3, 4, and 5, this standalone field test took place during a two-week testing window in early to mid-February 2013. A similar standalone field test took place in February 2014 for Grades 6, 7, and 8. The Reading component of the new PCS ELA test was embedded in the 2013 Reading field test in Grades 3 through 5; additional items for the Reading component of the new PCS ELA test were embedded in the 2014 Reading field test in Grades 3 through 5. The Reading component of the new PCS ELA test in Grades 6 through 8 was embedded in the 2014 Reading field test.

ASSESSMENT ACTIVITIES OCCURRING IN THE 2012–13 SCHOOL YEAR

Table P–10 shows the assessment plan for the 2012–13 school year. PDE modified the order of the testing windows for writing, reading and mathematics, and science. Writing took place earlier than reading and mathematics instead of at the same time as science. The testing window for writing began mid-March; mathematics and reading began early to mid-April, while science began mid to late April. The make-up period for writing extended into mid to late March, while mathematics, reading, and science extended into early May. These operational assessments were all offered in an online format in addition to the paper/pencil format used in previous assessments.

An additional change from previous years was the removal of Grade 11 from the Mathematics, Reading, Science, and Writing. As Grade 11 was no longer a part of the assessments, the fall retest opportunity at Grade 12 was no

longer available. Operational tests continued to be available for Mathematics and Reading at Grades 3–8, Science at grades 4 and 8, and Writing at grades 5 and 8.

Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. The embedded field test items for Grades 3, 4, and 5 were aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards, while the embedded field test items for Grades 6, 7, and 8 continued to be aligned to the previous Assessment Anchor Content Standards.

The operational assessment for Science at Grades 4 and 8 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

The operational assessment for Writing at Grades 5 and 8 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts along with a set of embedded field test multiple-choice items was included in the 2013 assessment at Grade 8. The operational assessment at Grade 5 included placeholder multiple-choice items for consistency in the length of the multiple-choice section of the assessment; however, students responded to only two writing prompts at Grade 5, as a field-test writing prompt was not needed due to the standalone field test at that grade.

Table P–10. Operational Assessment and Field Testing During the 2012–13 School Year

| Grade | Assessment Activity | Date |
|-------|--|---------------|
| 3 | Operational mathematics and reading with embedded field test (field test aligned to the PCS) | April 2013 |
| 3 | Standalone field test in ELA: writing (aligned to the PCS) | February 2013 |
| 4 | Operational mathematics and reading with embedded field test (field test aligned to the PCS) | April 2013 |
| 4 | Operational science with embedded field test | April 2013 |
| 4 | Standalone field test in ELA: writing (aligned to the PCS) | February 2013 |
| 5 | Operational mathematics and reading with embedded field test (field test aligned to the PCS) | April 2013 |
| 5 | Operational writing | March 2013 |
| 5 | Standalone field test in ELA: writing (aligned to the PCS) | February 2013 |
| 6 | Operational mathematics and reading with embedded field test | April 2013 |
| 7 | Operational mathematics and reading with embedded field test | April 2013 |
| 8 | Operational mathematics and reading with embedded field test | April 2013 |
| 8 | Operational writing with embedded field test | March 2013 |
| 8 | Operational science with embedded field test | April 2013 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2013–14 SCHOOL YEAR

Table P–11 shows the assessment plan for the 2013–14 school year. The 2013–14 school year continued the transition for the PSSA Mathematics, Reading, and Writing tests to align to the newly-developed Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards (PCS), as field-test items were aligned to the PCS-aligned Assessment Anchors and Eligible Content. The operational assessments in Mathematics, Reading, and Writing were comprised of items that align to both the PCS and the existing Assessment Anchors and Eligible Content. Reporting in 2013–14 continued to use the previous content structure. The transition from the Legacy PSSA Mathematics, Reading, and Writing tests to the new PCS-based PSSA tests was planned to occur during the operational 2014–15 administration.

As a part of the PCS transition, the Legacy PSSA Reading test and the Legacy PSSA Writing test were phased out and were replaced with an English Language Arts test aligned to the PCS. As part of this transition, there was a standalone field test at Grades 6, 7, and 8 for the Writing component of the English Language Arts test. This standalone field test included standalone multiple-choice items (as opposed to stimulus-based multiple-choice

items on the Legacy Writing test) and writing prompts at Grades 6, 7, and 8. This standalone field test took place during a two-week testing window in early to mid-February. The Reading component of the new PCS ELA test was embedded in the 2014 Reading field test for Grades 6, 7, and 8 and in the 2013 and 2014 Reading field test for Grades 3, 4, and 5.

Writing took place after reading and mathematics but before science. The testing window for mathematics and reading began mid-March; writing began late March to early April; and science began late April. The make-up period for mathematics and reading extended into early April, while the make-up period for writing extended into early to mid-April and science extended into early May. These operational assessments continued to be offered in an online format in addition to the paper/pencil format used in previous assessments.

Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. The embedded field test items were aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

The operational assessment for writing at Grades 5 and 8 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. Students responded to only two writing prompts, as a field-test writing prompt was not needed due to the upcoming transition to the ELA assessments.

Table P-11. Operational Assessment and Field Testing During the 2013–14 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------------|
| 3 | Operational mathematics and reading with embedded field test | March 2014 |
| 4 | Operational mathematics and reading with embedded field test | March 2014 |
| 4 | Operational science with embedded field test | April-May 2014 |
| 5 | Operational mathematics and reading with embedded field test | March 2014 |
| 5 | Operational writing | March-April 2014 |
| 6 | Operational mathematics and reading with embedded field test | March 2014 |
| 6 | Standalone field test in ELA: writing | February 2014 |
| 7 | Operational mathematics and reading with embedded field test | March 2014 |
| 7 | Standalone field test in ELA: writing | February 2014 |
| 8 | Operational mathematics and reading with embedded field test | March 2014 |
| 8 | Operational writing with embedded field test | March-April 2014 |
| 8 | Operational science with embedded field test | April-May 2014 |
| 8 | Standalone field test in ELA: writing | February 2014 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2014–15 SCHOOL YEAR

Table P-12 shows the assessment plan for the 2014–15 school year. The 2014–15 school year completes the transition for the PSSA Mathematics, Reading, and Writing tests to align to the newly-developed Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards (PCS), as both operational and field-test items were aligned only to the PCS-aligned Assessment Anchors and Eligible Content. Reporting in 2014–15 also transitioned to the new content structure. The transition from the Legacy PSSA Mathematics, Reading, and Writing tests to the new PCS-based PSSA Mathematics and ELA tests occurred during the operational 2014–15 administration.

The testing window for English Language Arts began in mid-April followed by the testing windows for Mathematics in mid to late April and then Science in late April to early May. These operational assessments continued to be offered in an online format in addition to the paper/pencil format used in previous assessments. The online assessment became available for students to take on iPads and Chromebooks beginning with the 2015 administration.

Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. The embedded field test items continued to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

Table P–12. Operational Assessment and Field Testing During the 2014–15 School Year

| Grade | Assessment Activity | Date |
|-------|--|----------------|
| 3 | Operational mathematics with embedded field test | April 2015 |
| 3 | Operational ELA with embedded field test | April 2015 |
| 4 | Operational mathematics with embedded field test | April 2015 |
| 4 | Operational ELA with embedded field test | April 2015 |
| 4 | Operational science with embedded field test | April-May 2015 |
| 5 | Operational mathematics embedded field test | April 2015 |
| 5 | Operational ELA with embedded field test | April 2015 |
| 6 | Operational mathematics with embedded field test | April 2015 |
| 6 | Operational ELA with embedded field test | April 2015 |
| 7 | Operational mathematics with embedded field test | April 2015 |
| 7 | Operational ELA with embedded field test | April 2015 |
| 8 | Operational mathematics with embedded field test | April 2015 |
| 8 | Operational ELA with embedded field test | April 2015 |
| 8 | Operational science with embedded field test | April-May 2015 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2015–16 SCHOOL YEAR

Table P–13 shows the assessment plan for the 2015–16 school year. The PSSA tests administered in the 2015–16 school year will continue to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts began early to mid-April followed by the testing windows for Mathematics in mid-April and then Science in late April. Makeup assessments were available through early May. These operational assessments continued to be offered in an online format in addition to the paper/pencil format used in previous assessments. The online assessments were available for students to take on iPads and Chromebooks.

Field testing for mathematics and English language arts continued to be embedded as part of the operational assessments at each grade level. The embedded field test items continued to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

Table P–13. Operational Assessment and Field Testing During the 2015–16 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------|
| 3 | Operational mathematics with embedded field test | April 2016 |
| 3 | Operational ELA with embedded field test | April 2016 |
| 4 | Operational mathematics with embedded field test | April 2016 |
| 4 | Operational ELA with embedded field test | April 2016 |
| 4 | Operational science with embedded field test | April 2016 |
| 5 | Operational mathematics embedded field test | April 2016 |
| 5 | Operational ELA with embedded field test | April 2016 |
| 6 | Operational mathematics with embedded field test | April 2016 |
| 6 | Operational ELA with embedded field test | April 2016 |
| 7 | Operational mathematics with embedded field test | April 2016 |
| 7 | Operational ELA with embedded field test | April 2016 |
| 8 | Operational mathematics with embedded field test | April 2016 |
| 8 | Operational ELA with embedded field test | April 2016 |
| 8 | Operational science with embedded field test | April 2016 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2016–17 SCHOOL YEAR

Table P–14 shows the assessment plan for the 2016–17 school year. The PSSA tests administered in the 2016–17 school year will continue to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts began early April followed by the testing windows for Mathematics in mid-April and then Science in early May. Makeup assessments were available through early to mid-May. These operational assessments continued to be offered in an online format in addition to the paper/pencil format used in previous assessments. The online assessments were available for students to take on PCs, iPads, and Chromebooks.

Field testing for mathematics and English language arts continued to be embedded as part of the operational assessments at each grade level. The embedded field test items continued to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

Table P–14. Operational Assessment and Field Testing During the 2016–17 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------|
| 3 | Operational mathematics with embedded field test | April 2017 |
| 3 | Operational ELA with embedded field test | April 2017 |
| 4 | Operational mathematics with embedded field test | April 2017 |
| 4 | Operational ELA with embedded field test | April 2017 |
| 4 | Operational science with embedded field test | May 2017 |
| 5 | Operational mathematics embedded field test | April 2017 |
| 5 | Operational ELA with embedded field test | April 2017 |
| 6 | Operational mathematics with embedded field test | April 2017 |
| 6 | Operational ELA with embedded field test | April 2017 |
| 7 | Operational mathematics with embedded field test | April 2017 |
| 7 | Operational ELA with embedded field test | April 2017 |
| 8 | Operational mathematics with embedded field test | April 2017 |
| 8 | Operational ELA with embedded field test | April 2017 |
| 8 | Operational science with embedded field test | May 2017 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2017–18 SCHOOL YEAR

Table P–15 shows the assessment plan for the 2017–18 school year. The PSSA tests administered in the 2017–18 school year continued to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts was in early to mid-April followed by the testing windows for Mathematics in mid-April and then Science in late-April into early May. The makeup assessments were available through early May. These operational assessments continued to be offered in an online format in addition to the paper/pencil format.

Field testing for mathematics and English language arts will continue to be embedded as part of the operational assessments at each grade level. The embedded field test items continued to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 continued to include multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

Table P–15. Operational Assessment and Field Testing During the 2017–18 School Year

| Grade | Assessment Activity | Date |
|-------|--|------------|
| 3 | Operational mathematics with embedded field test | April 2018 |
| 3 | Operational ELA with embedded field test | April 2018 |
| 4 | Operational mathematics with embedded field test | April 2018 |
| 4 | Operational ELA with embedded field test | April 2018 |
| 4 | Operational science with embedded field test | April 2018 |
| 5 | Operational mathematics embedded field test | April 2018 |
| 5 | Operational ELA with embedded field test | April 2018 |
| 6 | Operational mathematics with embedded field test | April 2018 |
| 6 | Operational ELA with embedded field test | April 2018 |
| 7 | Operational mathematics with embedded field test | April 2018 |
| 7 | Operational ELA with embedded field test | April 2018 |
| 8 | Operational mathematics with embedded field test | April 2018 |
| 8 | Operational ELA with embedded field test | April 2018 |
| 8 | Operational science with embedded field test | April 2018 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2018–19 SCHOOL YEAR

Table P–16 shows the assessment plan for the 2018–19 school year. The PSSA tests administered in the 2018–19 school year continued to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts was in mid-April followed by the testing windows for Mathematics and science in late-April into early May. The makeup assessments were available through late-April into early May. These operational assessments continued to be offered in an online format in addition to the paper/pencil format.

Field testing for mathematics and English language arts continued to be embedded as part of the operational assessments at each grade level. The embedded field test items continued to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 continued to include multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

Table P–16. Operational Assessment and Field Testing During the 2018–19 School Year

| Grade | Assessment Activity | Date |
|--------------|--|-------------|
| 3 | Operational mathematics with embedded field test | April 2019 |
| 3 | Operational ELA with embedded field test | April 2019 |
| 4 | Operational mathematics with embedded field test | April 2019 |
| 4 | Operational ELA with embedded field test | April 2019 |
| 4 | Operational science with embedded field test | April 2019 |
| 5 | Operational mathematics embedded field test | April 2019 |
| 5 | Operational ELA with embedded field test | April 2019 |
| 6 | Operational mathematics with embedded field test | April 2019 |
| 6 | Operational ELA with embedded field test | April 2019 |
| 7 | Operational mathematics with embedded field test | April 2019 |
| 7 | Operational ELA with embedded field test | April 2019 |
| 8 | Operational mathematics with embedded field test | April 2019 |
| 8 | Operational ELA with embedded field test | April 2019 |
| 8 | Operational science with embedded field test | April 2019 |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2019–20 SCHOOL YEAR

The spring 2020 PSSA was cancelled in March 2020 due to the Covid-19 pandemic. No test materials were delivered to the Local Education Agencies (LEAs) for test administration; therefore, no tests were administered and there are no results to analyze for the 2020 PSSA. Additional analyses were conducted following the spring 2021 PSSA administration to evaluate the impact of school closures and absence of a test administration in 2020. The results from these analyses are included in Appendix V of the 2021 PSSA Technical Report.

Because the PSSA test materials were not delivered to the LEAs nor administered to students, the Pennsylvania Department of Education decided to not release form-level or item-level information in order to save items and/or forms for future use. Consequently, the sections of the technical report that identify specific information related to test construction were delayed until the completion of the 2021 PSSA.

Table P–17. Operational Assessment and Field Testing During the 2019–20 School Year

| Grade | Assessment Activity | Date |
|-------|--|-----------|
| 3 | Operational mathematics with embedded field test | Cancelled |
| 3 | Operational ELA with embedded field test | Cancelled |
| 4 | Operational mathematics with embedded field test | Cancelled |
| 4 | Operational ELA with embedded field test | Cancelled |
| 4 | Operational science with embedded field test | Cancelled |
| 5 | Operational mathematics embedded field test | Cancelled |
| 5 | Operational ELA with embedded field test | Cancelled |
| 6 | Operational mathematics with embedded field test | Cancelled |
| 6 | Operational ELA with embedded field test | Cancelled |
| 7 | Operational mathematics with embedded field test | Cancelled |
| 7 | Operational ELA with embedded field test | Cancelled |
| 8 | Operational mathematics with embedded field test | Cancelled |
| 8 | Operational ELA with embedded field test | Cancelled |
| 8 | Operational science with embedded field test | Cancelled |

ASSESSMENT ACTIVITIES OCCURRING IN THE 2020–2021 SCHOOL YEAR

Table P–18 shows the assessment plan for the 2020–2021 school year. The PSSA tests administered in the 2020–21 school year continued to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts was in mid-April followed by the testing windows for Mathematics and science in late-April into late September. The makeup assessments were available through late-April into late September. These operational assessments continued to be offered in an online format in addition to the paper/pencil format.

Field testing for mathematics and English language arts continued to be embedded as part of the operational assessments at each grade level. The embedded field test items continued to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 continued to include multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing was embedded as part of the operational assessments at each grade level.

Table P–18. Operational Assessment and Field Testing During the 2020–21 School Year

| Grade | Assessment Activity | Date |
|--------------|--|----------------------|
| 3 | Operational mathematics with embedded field test | April–September 2021 |
| 3 | Operational ELA with embedded field test | April–September 2021 |
| 4 | Operational mathematics with embedded field test | April–September 2021 |
| 4 | Operational ELA with embedded field test | April–September 2021 |
| 4 | Operational science with embedded field test | April–September 2021 |
| 5 | Operational mathematics embedded field test | April–September 2021 |
| 5 | Operational ELA with embedded field test | April–September 2021 |
| 6 | Operational mathematics with embedded field test | April–September 2021 |
| 6 | Operational ELA with embedded field test | April–September 2021 |
| 7 | Operational mathematics with embedded field test | April–September 2021 |
| 7 | Operational ELA with embedded field test | April–September 2021 |
| 8 | Operational mathematics with embedded field test | April–September 2021 |
| 8 | Operational ELA with embedded field test | April–September 2021 |
| 8 | Operational science with embedded field test | April–September 2021 |

ASSESSMENT ACTIVITIES PLANNED FOR THE 2021–22 SCHOOL YEAR

Table P–19 shows the assessment plan for the 2021–22 school year. The PSSA tests administered in the 2021–22 school year will continue to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts will be in mid-April followed by the testing windows for Mathematics and science in late-April into early May. The makeup assessments will be available through early late-April into early May. These operational assessments will continue to be offered in an online format in addition to the paper/pencil format.

Field testing for mathematics and English language arts will continue to be embedded as part of the operational assessments at each grade level. The embedded field test items will continue to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 will continue to include multiple-choice and open-ended questions. Students will respond to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing will be embedded as part of the operational assessments at each grade level.

Table P–19. Operational Assessment and Field Testing During the 2021–22 School Year

| Grade | Assessment Activity | Date |
|--------------|--|-------------|
| 3 | Operational mathematics with embedded field test | May 2022 |
| 3 | Operational ELA with embedded field test | April 2022 |
| 4 | Operational mathematics with embedded field test | May 2022 |
| 4 | Operational ELA with embedded field test | April 2022 |
| 4 | Operational science with embedded field test | May 2022 |
| 5 | Operational mathematics embedded field test | May 2022 |
| 5 | Operational ELA with embedded field test | April 2022 |
| 6 | Operational mathematics with embedded field test | May 2022 |
| 6 | Operational ELA with embedded field test | April 2022 |
| 7 | Operational mathematics with embedded field test | May 2022 |
| 7 | Operational ELA with embedded field test | April 2022 |
| 8 | Operational mathematics with embedded field test | May 2022 |
| 8 | Operational ELA with embedded field test | April 2022 |
| 8 | Operational science with embedded field test | May 2022 |

ASSESSMENT ACTIVITIES PLANNED FOR THE 2022–23 SCHOOL YEAR

Table P–20 shows the assessment plan for the 2022–23 school year. The PSSA tests administered in the 2022–23 school year will continue to be aligned to the Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The testing window for English Language Arts will be in mid-April followed by the testing windows for Mathematics and science in late-April into early May. The makeup assessments will be available through early late-April into early May. These operational assessments will continue to be offered in an online format in addition to the paper/pencil format.

Field testing for mathematics and English language arts will continue to be embedded as part of the operational assessments at each grade level. The embedded field test items will continue to be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards.

The operational assessment for science at Grades 4 and 8 will continue to include multiple-choice and open-ended questions. Students will respond to standalone multiple-choice and open-ended questions (both grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing will be embedded as part of the operational assessments at each grade level.

Table P-20. Operational Assessment and Field Testing During the 2022-23 School Year (Planned)

| Grade | Assessment Activity | Date |
|--------------|--|-------------|
| 3 | Operational mathematics with embedded field test | May 2023 |
| 3 | Operational ELA with embedded field test | April 2023 |
| 4 | Operational mathematics with embedded field test | May 2023 |
| 4 | Operational ELA with embedded field test | April 2023 |
| 4 | Operational science with embedded field test | May 2023 |
| 5 | Operational mathematics embedded field test | May 2023 |
| 5 | Operational ELA with embedded field test | April 2023 |
| 6 | Operational mathematics with embedded field test | May 2023 |
| 6 | Operational ELA with embedded field test | April 2023 |
| 7 | Operational mathematics with embedded field test | May 2023 |
| 7 | Operational ELA with embedded field test | April 2023 |
| 8 | Operational mathematics with embedded field test | May 2023 |
| 8 | Operational ELA with embedded field test | April 2023 |
| 8 | Operational science with embedded field test | May 2023 |

CHAPTER ONE: BACKGROUND, PURPOSE, AND INTENDED USES OF THE PENNSYLVANIA SYSTEM OF SCHOOL ASSESSMENT (PSSA)

This brief overview of the Pennsylvania System of School Assessment (PSSA) summarizes the history of the current program's development process, the program's intent and purpose, recent changes to the program, and the student population that participates in the assessments. Pennsylvania's involvement in state-wide assessment actually began in the 1969–70 school year with a purely school-based assessment known as *Educational Quality Assessment (EQA)*, which continued through the 1987–88 school year. A state mandated student competency testing program called *Testing for Essential Learning and Literacy Skills (TELLS)* also operated from the school years of 1984–85 through 1990–91.

THE PENNSYLVANIA SYSTEM OF SCHOOL ASSESSMENT

The Pennsylvania System of School Assessment program was instituted in 1992 as a school evaluation model with reporting at the school level only. Test administration took place in February/March, and school district participation was every third year based on the strategic planning cycle. Mathematics and reading were assessed at Grades 5, 8, and 11; districts could choose to participate in the writing assessment at Grades 6 and 9. The State Board of Education's revisions to Chapter 5 in November 1994 brought major changes to the PSSA, beginning with the spring 1995 assessment. These changes included the following:

- All districts were required to participate in the mathematics and reading assessment each year.
- Student-level reports were generated in addition to school reports.
- The Grades 6 and 9 writing assessments became mandatory on a three-year cycle corresponding with the district's strategic planning cycle.

Yearly administration of the PSSA in 1996, 1997, and 1998 continued at the assessed grades for mathematics and reading, utilizing essentially the same test structure, reporting practices, and testing window. Writing assessment continued on the established mandatory cycle; however, an increasing number of districts chose to participate every year on a voluntary basis.

PENNSYLVANIA ACADEMIC STANDARDS AND THE PSSA

A major structural change took place in test content with the State Board of Education's adoption of the Pennsylvania Academic Standards for Reading, Writing, Speaking and Listening, and Mathematics in January 1999 (Pennsylvania State Board of Education, 1999). These new, more rigorous standards aimed to better prepare students for the 21st century work force. The Academic Standards, which are part of *Chapter 4 Regulations on Academic Standards and Assessment*, detailed what students should know (knowledge) and be able to do (skills) at various grade levels. Subsequently, the State Board approved a set of criteria defining Advanced, Proficient, Basic, and Below Basic levels of performance. Mathematics and reading performance level results were reported at both the student and school levels for the 2000 PSSA. At that point, the PSSA became a standards-based, criterion-referenced assessment measuring student attainment of the Academic Standards while simultaneously determining the extent to which school programs enabled students to achieve proficiency of the Academic Standards. The regulations also stipulated that appropriate results be broadly disseminated to an array of audiences including students, parents, educators, citizens, and state policymakers, including the State Senate, the General Assembly, and the State Board. School reporting was to include the aggregate performance of all students and for relevant subgroups, such as those students with an Individualized Education Plan (IEP). Finally, the data was intended to inform educators regarding school program strengths and weaknesses in order to guide the improvement of curricula and instructional strategies. The data was also intended to be used in the development of strategic plans.

The mathematics and reading assessments from 2001 through 2004 underwent various content enhancements to improve alignment to the Academic Standards. For example, the reading assessment transitioned to utilizing more passages of shorter length and fewer items to improve the range of topics to which students responded. Various reporting modifications were introduced to more effectively communicate results.

ASSESSMENT ANCHOR CONTENT STANDARDS, CONTENT STRUCTURE, AND NEW GRADE LEVELS FOR MATHEMATICS AND READING

Assessment in 2005 was marked by major structural changes to the PSSA. Assessment Anchor Content Standards (Assessment Anchors) developed during the previous school year to clarify content structure and improve articulation between assessment and instruction were implemented in terms of test design and reporting. At the same time, field testing of mathematics and reading occurred at Grades 4, 6, and 7. As specified by PL 107–110, the *No Child Left Behind Act of 2001* (NCLB), states, school districts, and schools must achieve a minimum level of improvement each year, known as adequate yearly progress, or AYP. Accordingly, the third year of calculations for AYP were conducted and reported for Grades 5, 8, and 11.

The 2006 operational mathematics and reading assessment incorporated Grades 4, 6, and 7 for the first time. The assessed grade levels for 2006 included Grades 3–8 and 11. The fourth year of calculations for AYP were conducted and reported for Grades 5, 8, and 11 and, for the first time, Grade 3.

In 2007 the operational mathematics and reading assessment continued in Grades 3–8 and 11. AYP calculations for Grades 4, 6, and 7 took place in 2007 when they were assessed for the second time.

The operational mathematics and reading assessments of 2008, 2009, 2010, 2011, and 2012 continued in Grades 3–8 and 11, utilizing the same content structure. AYP calculations continued for all grades. The operational mathematics and reading assessments continued for Grades 3–8 in 2013 utilizing the same content structure.

TRANSITION TO PENNSYLVANIA CORE STANDARDS-ALIGNED ASSESSMENTS IN ENGLISH LANGUAGE ARTS AND MATHEMATICS

As a part of the transition to align to the Pennsylvania Core Standards, the operational mathematics and reading assessments for Grades 3–8 in 2014 aligned to both the previous Assessment Anchors (those aligned to the Pennsylvania Academic Standards) and the newly developed Assessment Anchors aligned to the Pennsylvania Core Standards. The operational assessments of 2015 in Grades 3–8 marked the completion of the transition to alignment with the Pennsylvania Core Standards in mathematics and English language arts. The 2021 PSSA had nine field-test forms per grade in Grades 3–8, each with core items as well as placeholder items to ensure consistency in the length of the assessment in future years when equating block items are again included in the test design. More information about the operational layout for mathematics and English language arts can be found in Chapter Three.

Preliminary performance level descriptors were developed for mathematics and English language arts in the spring of 2012. These descriptions of the expectations of students at each performance level (Basic, Proficient, and Advanced) were used to guide development of items aligned to the PCS-aligned Assessment Anchors and Eligible Content that were field tested in 2013 (Grades 3, 4, and 5) and in 2014 (Grades 3–8). These performance level descriptors were validated by committees of Pennsylvania educators in February 2015 prior to standard setting in June 2015.

More information regarding the mathematics and reading tests may be found in Chapter Two and in the following Pennsylvania Department of Education publications available on the PDE website: *PSSA Assessment Handbook*, *PSSA English Language Arts Preliminary Item and Scoring Sampler* (one per assessed grade level), and *PSSA Mathematics Preliminary Item and Scoring Sampler* (one per assessed grade level). These handbooks can be accessed by going to www.education.pa.gov.

THE PENNSYLVANIA SCIENCE ASSESSMENT

In accordance with the NCLB requirement to implement an operational science assessment in 2008, a major test development effort in science took place during 2006, followed by a large-scale, standalone field test in April/May of 2007. A full implementation of an operational science assessment at Grades 4, 8, and 11 first occurred in April–May 2008. The 2009 PSSA operational science assessment continued with the same content structure and testing window as in 2008.

Several historical milestones were significant to the development of a science test in Pennsylvania. These include the following:

- The adoption of Act 16 or Pennsylvania Senate Bill 652 in 2000, which redefined the PSSA “as a test developed and implemented by the Department of Education to determine only academic achievement relating directly to objective Academic Standards in the areas of reading, mathematics, and science.” (See the *Science Assessment Handbook*, PDE, November 2006).
- Pennsylvania State Board of Education adoption of the *Science and Technology Standards* on July 12, 2001, and the *Environment and Ecology Standards* on January 5, 2002.

Aligned to the *Pennsylvania Science Assessment Anchor Content Standards* and Eligible Content, the science test is designed to measure and report results in four major categories:

- The Nature of Science
- Biological Sciences
- Physical Sciences
- Earth and Space Sciences

Students use their content knowledge and science process skills to answer a set of multiple-choice items and open-ended questions that are standalone or related to a scenario. A science scenario consists of a description of a class project, an experiment, or other research and typically contains text, graphs, charts, and/or tables. Science test questions at Grade 4 consist of standalone multiple-choice and 0–2-point short-answer open-ended items. At Grade 8, multiple-choice questions consist of both standalone and scenario-based items. All open-ended items at Grade 8 are standalone 0–2-point questions. More information may be found in Chapter Two and in the following Pennsylvania Department of Education publications available on the PDE website: *PSSA Assessment Handbook* and *PSSA Science Item and Scoring Sampler Supplement* (one per assessed grade level). These handbooks can be accessed by going to www.education.pa.gov. The establishment of performance levels for science, utilizing the Bookmark method, took place during the summer of 2008. For additional details about sciences standard setting event, refer to the PSSA science performance level setting technical report in 2008.

PURPOSE AND INTENDED USES OF THE PSSA

The preceding discussion provides some important background and rationale for the development of the PSSA. Although the topic of test validity is covered in detail in Chapter Nineteen of this report, some introductory remarks to frame how a validity argument is linked to test purpose and use is appropriate here. Validity is often defined as, the degree to which theory and evidence support the intended purpose and use of test scores. As such, the beginning of any validation process is to clearly articulate test purpose and intended uses. The purpose of the PSSA is to measure how well students acquire the knowledge and skills described in the *Pennsylvania Assessment Anchor Content Standards* (Assessment Anchors) as defined by the Eligible Content for mathematics, ELA, and Science. The intended uses of the PSSA are to:

1. Provide information for use in school and district accountability systems
2. Improve curricular and instructional practices in order to help students reach proficiency in the Pennsylvania Core Standards (ELA and Mathematics) or the Pennsylvania Academic Standards (Science)

It follows, then, that a validity argument must be developed to support claims that PSSA test scores are appropriate for these uses. The *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014) links the concept of validity, test purpose, and test use to this need for evidence that test scores are appropriate for their intended purpose and uses. Briefly, a validity argument is characterized as an accumulation of five sources, or types, of evidence that test scores are appropriate for their intended use, including evidence related to test content, its internal structure and relation to other variables, examinee response processes, and testing consequences. Complete definitions of these sources, and corresponding evidence that PSSA scores may be interpreted as intended is provided in Chapter Nineteen.

CHAPTER TWO: OVERVIEW OF THE PSSA FRAMEWORK

PENNSYLVANIA CORE STANDARDS, PENNSYLVANIA ACADEMIC STANDARDS, ASSESSMENT ANCHOR CONTENT STANDARDS, AND ELIGIBLE CONTENT

PSSA ENGLISH LANGUAGE ARTS, MATHEMATICS, AND SCIENCE

The PSSA Assessment Anchor Content Standards and Eligible Content are based on the Pennsylvania Core Standards in English language arts and mathematics and the Pennsylvania Academic Standards in science. Although the Academic Standards indicated what students should know and be able to do, educator concerns regarding the number and breadth of Academic Standards led to an initiative by the Pennsylvania Department of Education (PDE) to develop Assessment Anchor Content Standards (Assessment Anchors) to indicate which parts of the Academic Standards (Instructional Standards) would be assessed on the PSSA. Based on recommendations from Pennsylvania educators, the Assessment Anchors were designed as a tool to improve the articulation of curricular, instructional, and assessment practices.

With Pennsylvania’s decision to adopt the Pennsylvania Core Standards based on the Common Core State Standards, committees of Pennsylvania educators met in October 2011 to write, review, and approve the Assessment Anchors and Eligible Content statements. To provide initial focus, each content and grade span committee was presented with materials specific to the content and grade span in question, including a basic blueprint structure, the Pennsylvania Academic Standards, the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Academic Standards, the Common Core State Standards, and draft Eligible Content statements. Committees then completed an iterative process of reviewing and revising the draft Eligible Content statements followed by discussions across grade-span committees to ensure vertical articulation across the grades. The results from the committee work were evaluated by national, state, and local subject experts, and following revisions, they were ultimately validated by another committee of Pennsylvania educators. Following committee approval, the Pennsylvania Core Standards-aligned Assessment Anchors and Eligible Content for English Language Arts and Mathematics were approved by the State Board of Education in September 2013.

The Assessment Anchors clarify what is expected across each grade span and focus the content of the standards into what is assessable on a large-scale test. The Assessment Anchor documents also serve to communicate Eligible Content, also called assessment limits, or the range of knowledge and skills from which the PSSA would be designed.

The Assessment Anchor’s coding is read like an outline. The coding includes the content, grade level, Reporting Category, Assessment Anchor, descriptor (Sub-Assessment Anchor), and Eligible Content. Thus, S.4.A.1.3.1 would be Science, Grade 4, Reporting Category A, Assessment Anchor 1, descriptor (Sub-Assessment Anchor) 3, and Eligible Content 1.

Each of the Assessment Anchors has one or more descriptors (Sub-Assessment Anchors) and Eligible Content varying to reflect grade-level appropriateness. The Assessment Anchors form the basis of the test design. In turn, this hierarchy is the basis for organizing the total content scores (based on the core [common] sections).

Achieve, Inc., Washington, D.C., conducted a preliminary review of the science Assessment Anchors in 2003 to evaluate the alignment with the Academic Standards and produced a follow-up report on the anchors in 2005.

The complete set of Assessment Anchors and Eligible Content aligned to the Pennsylvania Academic Standards can be referenced at PDE’s website: www.education.pa.gov.

OVERVIEW OF THE 2022 PSSA MATHEMATICS ASSESSMENT MEASURES

The Assessment Anchors are organized into four classifications, as listed below.

- A = Numbers and Operations
- B = Algebraic Concepts
- C = Geometry
- D = Data Analysis and Probability

These four classifications are used throughout the grade levels. In addition to these classifications, there are five Reporting Categories for each grade level. The first letter of each Reporting Category represents the classification, and the second letter represents the Domain as stated in the Pennsylvania Core Standards for Mathematics. These Reporting Categories are listed below.

- A = Numbers and Operations
 - A-T = Numbers and Operations in Base Ten (grades 3–5)
 - A-F = Numbers and Operations—Fractions (grades 3–5)
 - A-N = The Number System (grades 6–8)
 - A-R = Ratios and Proportional Relationships (grades 6, 7)
- B = Algebraic Concepts
 - B-O = Operations and Algebraic Thinking (grades 3–5)
 - B-E = Expressions and Equations (grades 6–8)
 - B-F = Functions (grade 8)
- C = Geometry
 - C-G = Geometry (grades 3–8)
- D = Data Analysis and Probability
 - D-M = Measurement and Data (grades 3–5)
 - D-S = Statistics and Probability (grades 6–8)

The PSSA mathematics assessment employs two types of test items: multiple-choice and open-ended. These item types assess different levels of knowledge and provide different kinds of information about mathematics achievement. Psychometrically, multiple-choice items are very useful and efficient tools for collecting information about a student's academic achievement. Open-ended performance tasks generally generate fewer scoreable points than multiple-choice items in the same amount of testing time; however, they provide tasks that are more realistic and are better at sampling higher-level thinking skills. Furthermore, well-constructed scoring guides have made it possible to include open-ended tasks in large-scale assessments such as the PSSA. Trained scorers can apply the scoring guides to efficiently score large numbers of student papers in a highly reliable way. The design of the PSSA attempts to achieve a reasonable balance between the two item types.

Furthermore, the Standards for Mathematical Practice is included in the development and review process of each item. Some items may align to none of the practices while others may align to multiple practices. The Standards for Mathematical Practice originated in the Common Core State Standards for Mathematics and were adopted by Pennsylvania as part of the Academic Standards for Mathematics.

MATHEMATICS MULTIPLE-CHOICE ITEMS

The majority of the mathematics items included on the PSSA are multiple-choice (selected-response) items. This item type is especially efficient for measuring a broad range of content. In the PSSA mathematics assessment, each multiple-choice item has four response options, only one of which is correct. The student is awarded one point for choosing the correct response. Distractors typically represent incorrect concepts, incorrect logic, incorrect application of an algorithm, or computational errors.

Multiple-choice items are used to assess a variety of skill levels, from short-term recall of facts to problem solving. PSSA items involving application emphasize the requirement to carry out some mathematical process to find an answer, rather than simply recalling information from memory.

OPEN-ENDED TASKS FOR MATHEMATICS

Open-ended, or constructed-response, tasks require students to read a problem description and to develop an appropriate solution. The open-ended items are designed to take about ten minutes per item. Most of the open-ended items have several components to the overall task that may enable students to enter or begin the problem at different places. In some items, each successive component is designed to assess progressively more difficult skills or higher knowledge levels. Certain components ask students to explain their reasoning for engaging in particular mathematical operations or for arriving at certain conclusions. The types of tasks utilized do not necessarily require computations. Students may also be asked to perform such tasks as constructing a graph, shading some portion of a figure, or listing object combinations that meet specified criteria.

Open-ended tasks are especially useful for measuring students' problem-solving skills in mathematics. They offer the opportunity to present real-life situations that require students to solve problems using mathematics abilities learned in the classroom. Students must read the task carefully, identify the necessary information, devise a method of solution, perform the calculations, enter the solution directly in the response space, and, when required, offer an explanation. This provides insight into the students' mathematical knowledge, abilities, and reasoning processes.

The open-ended mathematics items are scored on a 0–4 point scale using an item-specific scoring guideline. The item-specific scoring guideline outlines the requirements for each score point. Item-specific scoring guidelines are based on the "General Description of Mathematics Scoring Guidelines for Open-Ended Items". The general guidelines describe a hierarchy of responses, which represent the five score levels. See Appendix A or the *Mathematics Item and Scoring Samplers* available on the PDE website.

ENGLISH LANGUAGE ARTS ASSESSMENT MEASURES

The content blueprints for the English language arts assessment are shown in the following tables. The blueprints are organized around three Reporting Clusters (Reading, Writing, and Text-Dependent Analysis) based on the expressed emphasis contained within the Pennsylvania Core Standards.

- Reading
 - A = Literature Text
 - B = Informational Text
 - A-K and B-K = Key Ideas and Details
 - A-C and B-C = Craft and Structure/Integration of Knowledge and Ideas
 - A-V and B-V = Vocabulary Acquisition and Use
- Writing
 - D = Conventions of Standard English
- Text-Dependent Analysis
 - E = Text-Dependent Analysis (Grades 4–8 only)

Within the Reading Reporting Cluster, each Eligible Content aligns to a Genre Reporting Category (Literature Text or Informational Text) as well as a Core Competency Reporting Category (Key Ideas and Details; Craft and Structure/Integration of Knowledge and Ideas; or Vocabulary Acquisition and Use) as shown in the table below.

Table 2–1. English Language Arts Eligible Content Blueprint

| Genre | Key Ideas and Details (Key Ideas) | Craft and Structure/Integration of Knowledge and Ideas (CSI) | Vocabulary Acquisition and Use (Vocabulary) |
|--------------------|--|---|--|
| Literature Text | A-K.1.1.1 | A-C.2.1.1 | A-V.4.1.1 |
| Literature Text | A-K.1.1.2 | A-C.3.1.1 | A-V.4.1.2 |
| Literature Text | A-K.1.1.3 | NA | NA |
| Informational Text | B-K.1.1.1 | B-C.2.1.1 | B-V.4.1.1 |
| Informational Text | B-K.1.1.2 | B-C.2.1.2 | B-V.4.1.2 |
| Informational Text | B-K.1.1.3 | B-C.3.1.1 | NA |
| Informational Text | NA | B-C.3.1.2 | NA |
| Informational Text | NA | B-C.3.1.3 | NA |

The English language arts assessment employs several types of test questions, including standalone and passage-based Multiple-Choice questions (MC), Evidence-Based Selected-Response (EBSR) questions, Short-Answer (SA) questions (Grade 3 only) and Text-Dependent Analysis (TDA) questions (Grades 4–8).

PASSAGE-BASED MULTIPLE-CHOICE ITEMS

Passage-based multiple-choice items measure how well students comprehend the overall meaning of a passage or make basic inferences about it. At times, asking students to choose a preferred answer is the best way to determine whether they have gleaned certain information from a story. Such information may include setting, central idea, or main events and their sequence. These multiple-choice items are aligned to Reporting Categories within the Reading Reporting Cluster.

Each reading multiple-choice item has four response options, only one of which is correct. The student is awarded one point for choosing the correct response. Incorrect response choices, or distractors, typically represent some kind of misinterpretation, predisposition, unsound reasoning, or casual reading of the item and/or stimuli.

STANDALONE MULTIPLE-CHOICE ITEMS

Standalone multiple-choice items require that a student demonstrate both passive (recognizing and identifying grammatical and mechanical errors in text, such as misspellings, errors in word choice, errors in verb tense, or pronoun usage) and active (choosing the appropriate correction of an embedded error, such as deleting an irrelevant detail, changing the sequence of details, or placing correct marks of punctuation) language skills related to conventions of standard English and knowledge of language. These multiple-choice items are aligned to the Language Reporting Category within the Writing Reporting Cluster.

All language multiple-choice items have four response options that include only one correct answer. The student is awarded one raw score point for choosing the correct response. Incorrect response choices, or distractors, typically represent some kind of misinterpretation or predisposition, unsound reasoning, or casual reading of the item and/or stimuli.

EVIDENCE-BASED SELECTED-RESPONSE ITEMS

Each two-part evidence-based selected-response (EBSR) question is designed to elicit an evidence-based response from a student who has read either a Literature or Informational Text passage. In Part One, which is similar to a multiple-choice question, the student analyzes a passage and chooses the best answer from four answer choices. In Part Two, the student elicits evidence from the passage to select one or more answers based on his/her response to Part One. Part Two is different from a multiple-choice question in that there may be more than four answer options and more than one correct answer. Each EBSR test question is worth either two or three points, and students can receive partial credit for providing a correct response to Part One or for providing one or more correct responses in Part Two. The student is awarded one raw score point for choosing each correct response. Incorrect response choices, or distractors, in both Part One and Part Two typically represent some kind of misinterpretation, predisposition, unsound reasoning, or casual reading of the item and/or stimuli.

SHORT-ANSWER ITEMS (GRADE 3)

Constructed-response tasks such as the short-answer questions included on the assessment for Grade 3 require written responses. These items are designed to address comprehension of text in ways that multiple-choice items cannot. These short written responses require about five minutes per item and allow a student to prepare an answer using supporting details or examples derived from the text. Prior to 2013, these test questions were called “open-ended” items due to the many possible responses students could construct compared to the four static options available in a multiple-choice item. These items began to be labeled as short-answer items during the 2013 administration. The shift in labeling, from “open-ended” to “short-answer,” was implemented to draw a greater contrast to the new “Text-Dependent Analysis” questions which require substantial student writing. By comparison, responses to the short-answer items are simpler and require less explication and almost no analysis.

The reading short-answer items are scored on a 0–3-point scale using an item-specific scoring guideline. This scale is consistent with the scale used on the National Assessment of Educational Progress (NAEP). The change from the former 0–4-point scale improves the alignment with the types of tasks required. Each task is text-dependent and is carefully constructed with the scoring guideline reflecting the task requirements. All item-specific scoring guidelines are based on the “General Scoring Guidelines for Short-Answer Reading Items.” The general guidelines describe a hierarchy of responses, which represent the four score levels. See Appendix A or the *English Language Arts Item and Scoring Samplers* available on the PDE website.

TEXT-DEPENDENT ANALYSIS ITEMS (GRADES 4–8)

Text-dependent analysis questions require students to draw on basic writing skills while inferring and synthesizing information from a passage or passage set they have read during the test event, in order to develop a comprehensive, holistic essay response. Both Literature and Informational Texts are addressed through this item type. The demand required of a student’s reading and writing skills in response to a TDA coincides with the similar demands required for a student to be college and career ready. The essay responses developed for this item type require approximately thirty minutes. These items are reported under the Text-Dependent Analysis Reporting Category, which is found in the Reporting Cluster of the same name.

The text-dependent analysis items are scored on a 1–4-point scale using the holistic “PSSA Text-Dependent Analysis Scoring Guidelines.” The TDA scoring guidelines describe a hierarchy of responses, which represent the four score levels, and include comprehension, writing, and analysis skills. See Appendix A or the *English Language Arts Item and Scoring Samplers* available on the PDE website.

PASSAGE COMPLEXITY

The Pennsylvania Core Standards require students to read increasingly complex texts with greater independence and proficiency as they progress toward college- and career-readiness. DRC has worked with PDE to develop a process that measures (1) the quantitative evaluation of the text, and (2) the qualitative evaluation of the text that is reported out on a passage placemat. In addition, a third component, matching reader to text and task, is also taken into consideration during passage evaluation and teacher committee reviews.

QUANTITATIVE EVALUATION

Evaluating the complexity of a passage is essentially a judgmental process by individuals familiar with the classroom context and what is developmentally and linguistically appropriate for students at a given grade level. Although readability indices will be computed and made available on the passage placemat for each passage, we believe that these indices measure different aspects of readability and can result in various interpretations. Because no readability formula is perfect, qualitative measures have been implemented to help determine placement and appropriateness for passages used in the Pennsylvania assessments. These measures include: 1) rubric-based qualitative evaluations, and 2) teacher content review committees to provide expert opinions on grade-level appropriateness as part of matching the reader to text and task considerations.

QUALITATIVE EVALUATION

Rubrics provide the qualitative measures for literary and informational passages. As indicated on these placemats, the quantitative measures suggest the appropriate grade band of the text, while the qualitative rubrics pinpoint the specific grade level. These rubrics provide a powerful and comprehensive way of evaluating a range of stimulus materials that cover the literary and informational scope outlined in the Pennsylvania Core Standards. Passages selected for the Pennsylvania assessments should have evidence of their complexity determination and grade-level placement, based on both quantitative and qualitative measures as specified above.

SCIENCE ASSESSMENT MEASURES

The PSSA science assessment has four major reporting categories: The Nature of Science, Biological Sciences, Physical Sciences, and Earth and Space Sciences. These categories are similar to those used by the National Assessment of Educational Progress (NAEP) and The Third International Mathematics and Science Study (TIMSS). However, the PSSA organizes the categories differently. The science assessment anchors cover seventeen major categories from two sets of standards: Science and Technology Standards (3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8) and Environment and Ecology Standards (4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, and 4.9).

The Assessment Anchors are organized into four classifications, as listed below.

- A = Nature of Science
- B = Biological Sciences
- C = Physical Sciences
- D = Earth and Space Sciences

These four reporting categories are used in both grades four and eight. In addition to these reporting categories, there are additional Assessment Anchors for each grade level. The first letter of each Assessment Anchors represents the reporting category, and the second letter represents the Assessment Anchors. These Assessment Anchors are listed below.

- A. The Nature of Science
 - S.A.1. Reasoning and Analysis
 - S.A.2. Processes, Procedures, and Tools of Scientific
 - S.A.3. Systems, Models, and Patterns
- B. Biological Sciences
 - S.B.1. Structure and Function of Organisms
 - S.B.2. Continuity of Life
 - S.B.3. Ecological Behavior and Systems

- C. Physical Sciences
 - S.C.1. Structure, Properties and Interactions of Matter and Energy
 - S.C.2 Forms, Sources, Conversions, and Transfer of Energy
 - S.C.3 Principles of Force and Motion
- D. Earth and Space Sciences
 - S.D.1 Earth Features and Processes that Change Earth and Its Resources
 - S.D.2 Weather, Climate, and Atmospheric Processes
 - S.D.3 Composition and Structure of the Universe

The science assessment employs two types of test items: multiple-choice and open-ended. These item types assess different levels of knowledge and provide different kinds of information about science achievement. The design of the PSSA for science achieves a reasonable balance between the two item types. Concepts include

SCIENCE MULTIPLE-CHOICE ITEMS

The majority of the science items included on the PSSA are multiple-choice (selected-response) items, either as standalone multiple-choice items or as scenario-based multiple-choice items. (Scenario-based multiple-choice items are found in Grade 8 only.) Multiple-choice items are especially efficient for measuring a broad range of content. In the PSSA science assessment, each multiple-choice item has four response options, only one of which is correct. The student is awarded one point for choosing the correct response. Distractors typically represent incorrect concepts, incorrect logic, or incorrect application of a scientific principle.

Multiple-choice items are used to assess a variety of skill levels, from short-term recall of facts to the application of science content. PSSA items involving application emphasize the requirement to utilize science content to find an answer rather than simply recalling information from memory.

OPEN-ENDED ITEMS FOR SCIENCE

At all grades, standalone open-ended science items require students to read a description of a scientific problem and to develop an appropriate solution. Standalone open-ended items require about five minutes per task.

Open-ended tasks are especially useful for measuring students' skills in science. These tasks may present real-life situations that require students to solve problems using science abilities learned in the classroom. Students must read a task carefully, identify the necessary information, devise a method of solution, enter the solution directly into the answer document, and when required, offer an explanation. This provides insight into students' science knowledge, abilities, and reasoning processes.

The open-ended science items are scored on a 0–2-point scale with an item-specific scoring guideline, and each task is carefully constructed with a scoring guideline reflecting the task requirements. The general guidelines describe a hierarchy of responses, which represent the three score levels. Each item-specific scoring guideline outlines the requirements at each score point, and each item-specific scoring guideline is based on the "Science Scoring Guidelines for Open-Ended Items." See Appendix A or the *Science Item and Scoring Samplers* available on the PDE website.

SCIENCE SCENARIOS FOR GRADE 8

In addition to standalone multiple-choice and open-ended items, the science assessment includes scenarios at Grade 8. In consideration of the multidisciplinary and interdisciplinary nature of science content, science scenarios create stronger connections between The Nature of Science/Science Content and the multiple-choice items associated with a scenario. As a result, science scenarios allow the assessment to efficiently address and utilize the connections among the science content domains. A science scenario contains text, graphics, charts, and/or tables and uses these elements to describe the results of a class project, an experiment, or other similar research. Students use the information found in a science scenario as a platform from which to answer multiple-choice questions. Scenarios and questions reach beyond simple fact recollection; they are designed to challenge students to think and to apply the knowledge and skills learned in their classrooms. Scenarios are designed to reflect multi-dimensional classroom activities that incorporate higher cognitive levels of understanding. Science scenarios challenge students to interpret stimulus content and to apply existing knowledge to new data, while using science knowledge and process skills to arrive at their answers.

CHAPTER THREE: ITEM DEVELOPMENT PROCESS

The core portion of the 2022 PSSA operational administration is made up of items that were field-tested primarily in the 2019 PSSA administration. Therefore, the activities that led to the 2022 PSSA operational administration began with the development of the test items that appeared in the field-test portion of the 2019 operational administration. In turn, items that appeared on the field-test portion of the 2019 operational administration were developed during and prior to 2019. (See Table 3–1 for a graphic representation of the basic process flow and overlap of the development cycles.)

Table 3–1. General Development Timeline Pattern of the PSSA

| Operational Admin Year | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|------------------------|----------------------|--------------------|---|---|--|---|---|
| 2017 | Initial Item Dev → | Field Test → | Operational Core Admin with embedded equating block items → | Core-to-Core Link | | | |
| 2018 | | Initial Item Dev → | Field Test → | Operational Core Admin with embedded equating block items → | Core-to-Core Link | | |
| 2019 | | | Initial Item Dev → | Field Test → | Operational Core Admin with embedded equating block items ¹ | Core-to-Core Link | |
| 2020 | No testing occurred. | | | | | | |
| 2021 | | | | Initial Item Dev → | Field Test → | Operational Core Admin with embedded equating block items | Core-to-Core Link |
| 2022 | | | | Initial Item Dev → | Field Test → | | Operational Core Admin with embedded equating block items |

Table 3–2. General Timeline Associated with 2013 and 2014 Field Test and 2015–2022 Operational Assessment of ELA and Mathematics at Grades 3, 4, 5, 6, 7, and 8

| Time Frame | Assessment | Activity |
|-----------------------------|----------------------------|---|
| January 2012–July 2012 | '13 FT for '15 OP | Item development for items to embed in 2013 operational test (Grades 3–5 only) |
| July 2012 | '13 FT for '15 OP | Item review for the embedded field test in 2013 operational assessment (Grades 3–5 only) |
| September 2012–January 2013 | '13 OP & '13 FT for '15 OP | Forms construction for 2013 operational assessment with embedded field test (Grades 3–5 only) |
| January 2013–June 2013 | '14 FT for '15 OP | Item development for items to embed on 2014 operational assessment |
| February 2013 | '13 FT for '15 OP | 2013 standalone field test for ELA: Writing Grades 3–5 |
| March 2013–May 2013 | '13 FT for '15 OP | 2013 embedded field test in 2013 operational test (Grades 3–5 only) |
| June 2013 | '14 FT for '15 OP | Item review for the embedded field test in 2014 operational assessment |
| July 2013 | '13 FT for '15 OP | Statistical review of 2013 field-tested items (Grades 3–5 only) |
| September 2013–January 2014 | '14 OP & '14 FT for '15 OP | Forms construction for 2014 operational assessment |
| January 2014–July 2014 | '15 FT for '16 OP | Item development for items to embed in 2015 operational test |
| February 2014 | '14 FT for '15 OP | 2014 standalone field test for ELA: Writing Grades 6–8 |
| April 2014–May 2014 | '14 OP & '14 FT for '15 OP | 2014 embedded field test in 2014 operational assessment |
| June 2014 | '15 FT for '16 OP | Item review for the embedded field test in 2015 operational assessment |
| July 2014 | '14 FT for '15 OP | Statistical review of 2014 field-tested items |
| September 2014–January 2015 | '15 OP & '15 FT for '16 OP | Forms construction for 2015 operational assessment |
| April 2015–May 2015 | '15 OP & '15 FT for '16 OP | 2015 operational assessment |
| January 2015–July 2015 | '15 FT for '16 OP | Item development for items to embed in 2016 operational test |
| April 2015–May 2015 | '14 OP & '14 FT for '15 OP | 2015 embedded field test in 2015 operational assessment |
| June 2015 | '15 FT for '16 OP | Item review for the embedded field test in 2016 operational assessment |
| July 2015 | '14 FT for '15 OP | Statistical review of 2015 field-tested items |
| September 2015–January 2016 | '16 OP & '16 FT for '17 OP | Forms construction for 2016 operational assessment |
| April 2016–May 2016 | '16 OP & '16 FT for '17 OP | 2016 operational assessment |
| January 2016–July 2016 | '17 FT for '18 OP | Item development for items to embed in 2017 operational test |
| April 2016–May 2016 | '15 OP & '15 FT for '16 OP | 2016 embedded field test in 2016 operational assessment |
| June 2016 | '16 FT for '17 OP | Item review for the embedded field test in 2017 operational assessment |
| July 2016 | '15 FT for '16 OP | Statistical review of 2016 field-tested items |
| September 2016–January 2017 | '17 OP & '17 FT for '18 OP | Forms construction for 2017 operational assessment |
| April 2017–May 2017 | '17 OP & '17 FT for '18 OP | 2017 operational assessment |
| January 2017–July 2017 | '17 FT for '18 OP | Item development for items to embed in 2018 operational test |
| April 2017–May 2017 | '16 OP & '16 FT for '17 OP | 2017 embedded field test in 2017 operational assessment |
| June 2017 | '17 FT for '18 OP | Item review for the embedded field test in 2018 operational assessment |
| July 2017 | '16 FT for '17 OP | Statistical review of 2017 field-tested items |

Table 3–2 (continued). General Timeline Associated with 2013 and 2014 Field Test and 2015–2022 Operational Assessment of ELA and Mathematics at Grades 3, 4, 5, 6, 7, and 8

| Time Frame | Assessment | Activity |
|-----------------------------|----------------------------|--|
| September 2017–January 2018 | '18 OP & '18 FT for '19 OP | Forms construction for 2018 operational assessment |
| April 2018–May 2018 | '18 OP & '18 FT for '19 OP | 2018 operational assessment |
| January 2018–July 2018 | '18 FT for '19 OP | Item development for items to embed in 2019 operational test |
| April 2018–May 2018 | '18 OP & '18 FT for '19 OP | 2018 embedded field test in 2018 operational assessment |
| June 2018 | '18 FT for '19 OP | Item review for the embedded field test in 2019 operational assessment |
| July 2018 | '17 FT for '18 OP | Statistical review of 2018 field-tested items |
| September 2018–January 2019 | '18 OP & '18 FT for '19 OP | Forms construction for 2019 operational assessment |
| April 2019–May 2019 | '18 OP & '18 FT for '19 OP | 2019 operational assessment |
| January 2019–July 2019 | '19 FT for '21 OP | Item development for items to embed in 2021 operational test |
| April 2019–May 2019 | '19 OP & '19 FT for '21 OP | 2019 embedded field test in 2019 operational assessment |
| June 2019 | '19 FT for '21 OP | Item review for the embedded field test in 2021 operational assessment |
| July 2019 | '19 FT for '21 OP | Statistical review of 2019 field-tested items |
| September 2019–January 2021 | '19 OP & '19 FT for '21 OP | Forms construction for 2021 operational assessment |
| April 2021–September 2021 | '19 OP & '19 FT for '21 OP | 2021 operational assessment |
| January 2019–July 2019 | '19 FT for '22 OP | Item development for items to embed in 2022 operational test |
| April 2019–May 2019 | '19 OP & '19 FT for '22 OP | 2019 embedded field test in 2019 operational assessment |
| June 2019 | '19 FT for '22 OP | Item review for the embedded field test in 2022 operational assessment |
| July 2019 | '19 FT for '22 OP | Statistical review of 2019 field-tested items |
| September 2021–January 2022 | '21 OP & '19 FT for '22 OP | Forms construction for 2022 operational assessment |
| April 2021–September 2021 | '21 OP & '19 FT for '22 OP | 2022 operational assessment |

Table 3–3. Participating Districts by Region

| Region of Commonwealth | School District |
|------------------------|--|
| Western | Athens Area, Grove City Area, Penn Hills, Pittsburgh Public Schools |
| Central | Manheim Township, Newport, State College Area, West Shore, Wilkes-Barre Area |
| Eastern | Haverford Township, Lower Merion, Mid-Valley, Philadelphia City SD, Upper Merion |

PROCESS AND PROCEDURES FOR THE 2006 ITEM PILOT

Two parallel forms of the science assessment were designed for each grade level, with a designated administration time of thirty minutes. No attempt was made to replicate the design of a PSSA science operational test for the cognitive lab or pilot test because of testing-time limitations and the objectives of this study. The items were representative of items from each of the proposed PSSA's four reporting categories (i.e., The Nature of Science, Biological Sciences, Physical Sciences, and Earth and Space Sciences). All test items were approved by PDE before inclusion in the PSSA Science Item Tryout Project.

In Grade 4, each form of the test consisted of ten multiple-choice items, 70 percent of which included graphs, graphics, charts, or tables with relevant information associated with the item. All four reporting strands were assessed in each Grade 4 test form. In Grades 8 and 11, age/grade-appropriate science scenarios were developed. The scenarios included graphics, charts, tables, graphs, and diagrams to support the scenario text. A set of test

items associated with each science scenario was developed. In Grade 8, each test form included items from all four reporting strands. In Grade 11, scenarios in test Form A assessed the biological, earth and space, and nature of science reporting strands, while test Form B assessed the physical, earth and space, and nature of science reporting strands.

Scenarios and questions reached beyond simple fact recollection; they were designed to challenge students to think and to apply knowledge and skills learned in their classrooms. The science scenarios were based on Pennsylvania Assessment Anchors and Eligible Content. Scenarios were designed to reflect multi-dimensional classroom activities that incorporate higher cognitive levels of understanding. Each scenario was stimulus-based and included passages with graphics, charts, graphs, or a combination of all three media. Science scenarios challenged students to interpret passage content while using science knowledge and process skills to determine their answers.

IMPLEMENTATION AND TEST ADMINISTRATION FOR 2006 ITEM PILOT

Two classrooms within one geographic region participated in the project each day. At least two test development specialists were present at all but one school district during the pilot study project sessions; in addition, representatives from PDE attended most sessions. The PSSA Science Item Tryout Project field work occurred during a three-week window, beginning on February 27 and concluding on March 16.

TEST DEVELOPMENT CONSIDERATIONS: ALL ASSESSMENTS

The major considerations in the item development process were the alignment to the Pennsylvania Core Standards-aligned Assessment Anchors and Eligible Content (mathematics and ELA), alignment to the Pennsylvania Academic Standards-aligned Assessment Anchors and Eligible Content (science only), grade-level appropriateness (reading/interest level, etc.), depth of knowledge, cognitive level, item/task level of complexity, estimated difficulty level, relevancy of context, rationale for distractors, style, accuracy, and correct terminology. The *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 2014) and the *Principles of Universal Design* (Thompson, Johnstone, & Thurlow, 2002) guided the development process. In addition, DRC's manual, *Fairness in Testing: Guidelines for Training on Bias, Fairness, and Sensitivity Issues* was used for developing items. All items were reviewed for fairness by bias and sensitivity committees and for content by Pennsylvania educators and field-specialists. Items were also reviewed for adherence to the Principles of Universal Design by representatives from the National Center for Educational Outcomes (NCEO). In addition, the items were reviewed for adherence to the guidelines outlined in the Pennsylvania publication *Principles, Guidelines and Procedures for Developing Fair Assessment Systems: Pennsylvania Assessment Through Themes* (PATT).

BIAS, FAIRNESS, AND SENSITIVITY: ALL ASSESSMENTS

At every stage of the item and test development process, DRC employs procedures that are designed to ensure that items and tests met Standard 7.4 of the Standards for Educational and Psychological Testing (AERA, APA, NCME, 2014).

Standard 7.4: Test developers should strive to identify and eliminate language, symbols, words, phrases, and content that are generally regarded as offensive by members of racial, ethnic, gender, or other groups, except when judged to be necessary for adequate representation of the domain.

To meet Standard 7.4, DRC employs a series of internal quality steps. DRC provides specific training for test developers, item writers, and reviewers on how to write, review, revise, and edit items for issues of bias, fairness, and sensitivity (as well as for technical quality). Training also includes an awareness of and sensitivity to issues of cultural diversity. In addition to providing *internal* training in reviewing items in order to eliminate potential bias, DRC also provides *external* training to the review panels of minority experts, teachers, and other stakeholders.

DRC's guidelines for bias, fairness, and sensitivity include instruction concerning how to eliminate language, symbols, words, phrases, and content that might be considered offensive by members of racial, ethnic, gender, or other groups. Areas of bias that are specifically targeted include, but are not limited to, stereotyping, gender, regional/geographic, ethnic/cultural, socioeconomic/class, religious, and biases against a particular age group (ageism) or persons with disabilities. DRC catalogues topics that should be avoided and maintains balance in gender and ethnic emphasis within the pool of available items and passages.

UNIVERSAL DESIGN: ALL ASSESSMENTS

As stated above, the Principles of Universal Design were incorporated throughout the item development process to allow participation of the widest possible range of students in the PSSA. The following checklist was used as a guideline:

- Items measure what they are intended to measure.
- Items respect the diversity of the assessment population.
- Items have a clear format for text.
- Stimuli and items have clear pictures and graphics.
- Items have concise and readable text.
- Items allow changes to other formats, such as Braille, without changing meaning or difficulty.
- The arrangement of the items on the test has an overall appearance that is clean and well organized.

A more extensive description of the application of the Principles of Universal Design is described in Chapter Four.

DEPTH OF KNOWLEDGE: ALL ASSESSMENTS

An important element in statewide assessment is the alignment between the overall assessment system and the state’s standards. A methodology developed by Norman Webb (1999) offers a comprehensive model that can be applied to a wide variety of contexts. With regard to the alignment between standards statements and the assessment instruments, Webb’s criteria include five categories, one of which deals with content. Within the content category is a useful set of levels for evaluating depth of knowledge (DOK). According to Webb (1999), “depth-of-knowledge consistency between standards and assessments indicates alignment if what is elicited from students on the assessment is as demanding cognitively as what students are expected to know and do as stated in the standards” (p. 7–8). The four levels of cognitive complexity (i.e., depths of knowledge) are as follows:

- Level 1: Recall
- Level 2: Application of Skill/Concept
- Level 3: Strategic Thinking
- Level 4: Extended Thinking

Depth-of-knowledge levels were incorporated in the item writing and review process, and items were coded with respect to the level they represented. Generally, multiple-choice items are written to DOK levels 1 and 2, evidence-based selected-response items are written to DOK levels 2 and 3, and constructed-response items are written to DOK level 3.

PASSAGE READABILITY

Evaluating the readability of a passage is essentially a judgmental process by individuals familiar with the classroom context and what is linguistically appropriate at a given grade level as described in the section on reading passage selection later in this chapter. Although various readability indices were computed and reviewed, it is recognized that such methods measure different aspects of readability and are often fraught with particular interpretive liabilities. Thus, the commonly available readability formulas were not used in a rigid way, but more informally to provide for several snapshots of a passage that senior test development staff considered along with experience-based judgments in guiding the passage selection process. In addition, passages were reviewed by committees of Pennsylvania educators who evaluated each passage for readability and grade-level appropriateness.

TEST ITEM READABILITY: ALL ASSESSMENTS

Careful attention was given to the readability of the items to make certain that the assessment focus of the item did not shift based on the difficulty of reading the item. Subject areas such as mathematics or science contain many content-specific vocabulary terms. As a result, readability formulas were not used. However, wherever it was practicable and reasonable, every effort was made to keep the vocabulary one grade level below the tested grade level for non-reading tests. There was a conscious consideration made to ensure that each test question was evaluating a student’s ability to build toward mastery of the mathematics standards or the science standards versus the student’s reading ability. Resources used to verify the vocabulary level were the *EDL Core Vocabularies* and the *Children’s Writer’s Word Book*.

In addition, every test question is brought before several different committees comprised of grade-level experts in the field of mathematics education and science education. They review each question from the perspective of the students they teach, and they determine the validity of the vocabulary used and work to minimize the level of reading required.

Vocabulary was also addressed at the Bias, Fairness, and Sensitivity Review, although the focus was on how certain words or phrases may represent a possible source of bias or issue of fairness or sensitivity.

TEST DEVELOPMENT PROCESS: ALL ASSESSMENTS

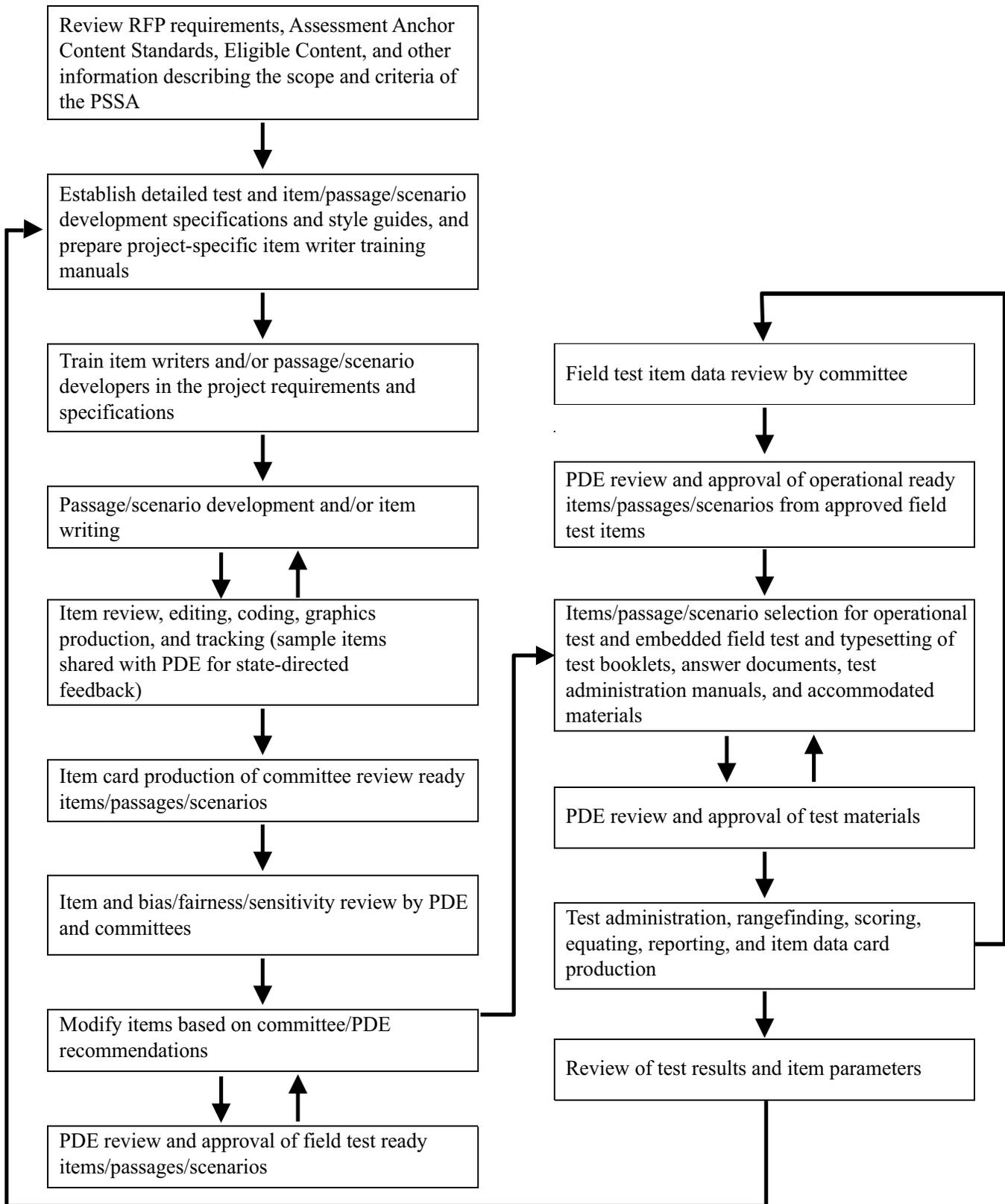
The test development process for passages, scenarios, and items followed a logical timeline, which is outlined below in Table 3–4. On the front end of the schedule, tasks were generally completed with the goal of presenting field-test candidate items to committees of Pennsylvania educators. On the back-end of the schedule, all tasks lead to the field-test data review.

Table 3–4. Item and Test Development Cycle and Timeline

| Steps in Development Cycle | Timeline Before/After New Item Review | | |
|---|---------------------------------------|---|-------------------|
| Development planning | Fall | ↓ | -12 to -9 months |
| Reading passage selection | Fall | ↓ | -12 to -9 months |
| Item writer training | Fall/Winter | ↓ | -9 months |
| Initial item authoring | Winter/Spring | ↓ | -9 to -4 months |
| Internal reviews and PDE reviews | Spring/Summer | ⇅ | -8 to -1 month |
| Bias, Fairness, and Sensitivity Review | Summer/Fall | ↓ | +/- 0 months |
| New Item Content Review | Summer/Fall | ⇒ | +/- 0 months |
| Post-review resolution and clean-up | Summer/Fall | ↓ | +1 to +2 months |
| Build test forms | Fall | ↓ | +2 to +4 months |
| Internal form reviews and PDE reviews | Fall/Winter | ⇅ | +3 to +4 months |
| Form printing, packaging, and shipping | Winter/Spring | ↓ | +4 to +8 months |
| Test administration | Spring | ↓ | +9 months |
| Material/data processing, rangefinding, and scoring | Spring/Summer | ↓ | +10 to +12 months |
| Field-Test Item Data Review | Summer | ⇒ | +12 months |
| Select operational items | Summer/Fall | ↓ | +13 to +15 months |

The process flowchart in Figure 3–1 illustrates the interrelationship among the steps in the process that occur in a normal year of development (i.e., when the items for field testing are primarily from new development, as opposed to being selected from an existing item bank). In addition, a detailed process table describing the item and test development processes also appears in Appendix C.

Figure 3–1. DRC Item and Test Development Process



The following paragraphs describe the processes which lead up to the operational test in a normal round of development. These processes were used to develop field-test items used as operational items for all administrations.

ITEM DEVELOPMENT PLANNING MEETING: ALL ASSESSMENTS

Prior to the start of any item development work, DRC’s test development staff meets with PDE’s assessment office to discuss the test development plans for the next PSSA administration, including the test blueprint, the field-test plan (including development counts), procedures, timelines, etc. With a complete development cycle lasting several years (from item authoring through field test, data review, and operational usage), the initial planning begins well in advance of the anticipated administration. For the 2021 operational administration, the initial planning meeting for the item authoring process for the 2021 field test occurred in fall 2018. Item authoring began early in 2019, with the item review meetings occurring in June 2019. See Table 3–2.

ITEM WRITER TRAINING: ALL ASSESSMENTS

Item writers were selected and trained for the content areas of mathematics, English language arts, and science. Qualified writers were college graduates with teaching experience and a demonstrated base of knowledge in the content area. Many of these writers were content assessment specialists and curriculum specialists. The writers were trained individually and had previous experience in writing selected-response and constructed-response items. Prior to developing items for the PSSA, the cadre of item writers was trained with regard to the following:

- Pennsylvania Core Standards, Assessment Anchors, and Eligible Content (mathematics and ELA)
- Pennsylvania Academic Standards, Assessment Anchors, and Eligible Content (science)
- Webb’s Four Levels of Cognitive Complexity: Recall, Basic Application of Skill/Concept, Strategic Thinking, and Extended Thinking
- General Scoring Guidelines for Each Content Area
- Specific and General Guidelines for Item Writing
- Bias, Fairness, and Sensitivity Guidelines
- Principles of Universal Design
- Item Quality Technical Style Guidelines
- Reference Information
- Sample Items

READING PASSAGE SELECTION

The task of searching for passages was conducted by DRC professionals with classroom experience in reading/ language arts. These professionals also underwent specialized training (provided by DRC) in the characteristics of acceptable passages. Guidelines for passage selection included appropriate length, text structure, density, and vocabulary for the grade level. A judgment was also made about whether the reading level required by a particular passage was at the independent level, that is, where the average student should be able to read 90 percent of words in the text independently. Passage finders were given the charge to search for a specified number of passages for each genre. Generally, at least twice as many passages as needed were sought. Most passages acquired for the 2021 field test were authentic in that they were culled from published materials. Approval to reprint was secured from the publishers as necessary. Passages underwent an internal review by several test development content editors to judge their merit with regard to the following criteria:

- Passages have interest value for students.
- Passages are grade-appropriate in terms of text complexity, vocabulary, and language characteristics.
- Passages are free of bias, fairness, and sensitivity issues.
- Passages represent different cultures.
- Passages are from a variety of sources.
- Passages are able to stand the test of time.
- Passages are sufficiently rich to generate a variety of SR and CR items.

- Passages are complete with all necessary permissions documentation.
- Passages avoid dated subject matter unless a relevant historical context is provided.
- Passages should not require students to have extensive background knowledge in a certain discipline or area to understand a text.

Once through the internal review process, those passages deemed potentially acceptable were reviewed by the Reading Content Committee and Bias, Fairness, and Sensitivity Committee for final approval.

ITEM AUTHORIZING AND TRACKING: ALL ASSESSMENTS

Initially, items are generated with software-prepared PSSA Item Cards, which allows for preliminary sorting and reviewing. Although very similar, the PSSA Item Card for Multiple-Choice Items differs from the PSSA Item Card for Evidence-Based Selected-Response Items and the PSSA Item Card for Constructed-response Items in that the former has a location at the bottom of the card for comments regarding the distractors. Examples of these three cards are shown in Appendix D. In both instances a column against the right margin includes codes to identify the subject area, grade level, content categories, passage information (in the case of reading), item type, depth of knowledge (cognitive complexity), estimated difficulty, answer key (for MC items), and calculator use (for mathematics items).

All items undergoing field testing in 2021 were entered into the DRC Item Development and Educational Assessment System (IDEAS), which is a comprehensive, secure, online item banking system. It accommodates item writing, item viewing and reviewing, and item tracking and versioning. IDEAS manages the transition of an item from its developmental stage to its approval for use within a test form. The system supports an extensive item history that includes item usage within a form, item-level notes, content categories and subcategories, item statistics from both classical and Rasch item analyses, and classifications derived from analyses of differential item functioning (DIF). A sample IDEAS Data Card is presented in Appendix D.

INTERNAL REVIEWS AND PDE REVIEWS: ALL ASSESSMENTS

To ensure that the items produced were sufficient in number and adequately distributed across subcategories and levels of difficulty, item writers were informed of the required quantities of items. As items were written, an item authoring card was completed. It contained information about the item, such as grade level, content category, and subcategories. Based on the item writer’s classroom teaching experience, knowledge of the content area curriculum, and cognitive demands required by the item, estimates were recorded for level of cognitive complexity and difficulty level. Items were written to provide for a range of difficulty.

As part of the item construction process, each item was reviewed by content specialists and editors at DRC. Content specialists and editors evaluated each item to make sure that it measured the intended Eligible Content and/or Assessment Anchor Content Standard. They also assessed each item to make certain that it was appropriate for the intended grade and that it provided and cued only one correct answer (MC items only). In addition, the difficulty level, depth of knowledge, graphics, language demand, and distractors were also evaluated. Other elements considered in this process included, but were not limited to, Universal Design, bias, source of challenge, grammar/punctuation, and PSSA style.

Following this internal process, items were reviewed by content specialists at the Pennsylvania Department of Education. PDE staff then consulted with DRC about any general issues or concerns (e.g., style, format, interpretation of Assessment Anchors and Eligible Content) and about edits to specific items. Following PDE’s review, the items were prepared for the content review meetings conducted with Pennsylvania educators.

ITEM CONTENT REVIEW IN SUMMER 2020: ALL ASSESSMENTS

Prior to field testing, all newly-developed test items were submitted to content committees for review. The content committees consisted of Pennsylvania educators from school districts throughout the Commonwealth of Pennsylvania, some with postsecondary university affiliations. The primary responsibility of the content committee was to evaluate items with regard to quality and content classification, including grade-level appropriateness, estimated difficulty, depth of knowledge, and source of challenge. With source of challenge, items are identified where the cognitive demand is focused on an unintended content, concept, or skill (Webb, 2002). In addition, source of challenge may be attributed if the reason that an answer could be given results from a cultural bias, an inappropriate reading level, or a flawed graphic in an item, or if an item requires specialized, non-content related knowledge to answer. Source of challenge could result in a student who has mastered the intended content or skill answering the item incorrectly or a student who has not mastered the intended content or skill answering the item correctly. Committee members were asked to note any items with a source of challenge and to suggest revisions to remove the source of challenge. They also suggested revisions and made recommendations for reclassification of items. In some cases when an item was deleted, the committee suggested a replacement item and/or reviewed a suggested replacement item provided by the facilitators. The committee also reviewed the items for adherence to the Principles of Universal Design, including language demand and issues of bias, fairness, and sensitivity.

The content review was held June 23–24, 2020, for science, June 23–25, 2020, for ELA, and June 23–26, 2020, for mathematics. Committee members were approved by PDE, and PDE-approved invitations were sent to them by DRC. PDE also selected internal staff members for attendance. The meeting commenced with a welcome by PDE and DRC. This was followed by an overview of the test development process by DRC. PDE, along with DRC, also provided training on the procedures and forms to be used for item content review.

DRC content assessment specialists facilitated the reviews and were assisted by representatives of PDE. Committee members, grouped by grade level and content area, worked through and reviewed the items for quality and content, as well as for the following categories:

- Assessment Anchor Alignment (classified as Full, Partial, or No)
- Content Limits (classified as Yes or No)
- Grade-Level Appropriateness (classified as At Grade Level, Below Grade Level, or Above Grade Level)
- Difficulty Level (classified as Easy, Medium, or Hard)
- Depth of Knowledge (classified as Recall, Application, Strategic Thinking)
- Appropriate Source of Challenge (classified as Yes or No)
- Correct Answer (classified as Yes or No)
- Quality of Distractors (classified as Yes or No)
- Graphics (classified as Yes or No) in regards to appropriateness
- Appropriate Language Demand (classified as Yes or No)
- Freedom from Bias (classified as Yes or No)

The members then came to a consensus and assigned a status to each item as a group: Approved, Accepted with Revision, Move to Another Assessment Anchor or Grade, or Rejected. All comments were recorded, and a master rating sheet was completed. Committee facilitators recorded the committee consensus on the Item Review Rating Sheet. A sample form and rating criteria may be found in Appendix E.

Security was addressed by adhering to a strict set of procedures. Items were distributed for committee review by number and signed for by each member on a daily basis. All attendees, with the exception of PDE staff, were required to sign a confidentiality agreement.

BIAS, FAIRNESS, AND SENSITIVITY REVIEWS IN JULY AND AUGUST 2020: ALL ASSESSMENTS

Prior to field testing, all newly-developed test items for English language arts, mathematics, and science were also submitted to a Bias, Fairness, and Sensitivity Committee for review. This took place from July 27-30, 2020. The committee’s primary responsibility was to evaluate items with regard to bias, fairness, and sensitivity issues. They also made recommendations for changes to or deletion of items in order to remove the potential for issues of bias, fairness, and/or sensitivity. Included in the review were proposed reading passages. An expert, multi-ethnic committee composed of men and women was trained by a DRC test development lead to review items for bias, fairness, and sensitivity issues. Training materials included a manual developed by DRC (DRC, 2003–2016). Members of the committee also had expertise with students with special needs and English Learners. PDE staff members were also trained and participated in the review. All mathematics, English language arts, and science items were read by a cross-section of committee members. Each member noted bias, fairness, and/or sensitivity comments on tracking sheets and on the item, if needed for clarification. Committee members individually categorized any concerns as related to ageism, disability, ethnicity/culture, gender, region, religion, socioeconomic status, or stereotyping. These categories were then the framework through which recommendations for modification or rejection of items occurred during the subsequent committee consensus process. The committee then discussed each of the issues as a group and came to a consensus as to which issues should represent the view of the committee. All consensus comments were then compiled, and the suggested actions on these items were recorded and submitted to PDE. Table 3–5 shows the gender and race/ethnicity composition of the members of the bias committee who reviewed the PSSA items and passages.

Table 3–5. Demographic Composition of the 2020 Bias, Fairness, and Sensitivity Committee

| Member # | Gender | Race/Ethnicity | Background |
|----------|----------------------|--|--|
| 1. | Female | Asian American | Pennsylvania Administrator |
| 2. | Female | Caucasian American | Pennsylvania Educator (SPED) |
| 3. | Male | Caucasian American | National Consultant (Educator) |
| 4. | Female | Hispanic American | Migrant Education Specialist |
| 5. | Female | Hispanic American | National Consultant (Community Leader) |
| 6. | Female | African American | National Consultant (Educational Consultant) |
| Totals | 5 Females, 1 Male | 2 Hispanic Americans, 1 Asian American, 2 Caucasian Americans, 1 African American | |

The results from the Bias, Fairness, and Sensitivity Committee review of mathematics are summarized in Table 3–6.

Table 3–6. Number of Items—2020 Bias, Fairness, and Sensitivity Committee Review for Mathematics

| Grade | Total items reviewed per grade | Accepted As Is | Accepted With Revision | Rejected |
|-------|--------------------------------|----------------|------------------------|----------|
| 3 | 70 | 69 | 1 | 0 |
| 4 | 70 | 69 | 1 | 0 |
| 5 | 72 | 72 | 0 | 0 |
| 6 | 72 | 72 | 0 | 0 |
| 7 | 72 | 72 | 0 | 0 |
| 8 | 72 | 71 | 1 | 0 |
| Total | 428 | 425 | 3 | 0 |

The results from the Bias, Fairness, and Sensitivity Committee review of science are summarized in Table 3–7.

Table 3–7. Number of Items—2020 Bias, Fairness, and Sensitivity Committee Review for Science

| Grade | Total scenarios reviewed per grade | Total items reviewed per grade | Accepted As Is | Accepted With Revision | Rejected |
|-------|------------------------------------|--------------------------------|----------------|------------------------|----------|
| 4 | n/a | 100 | 100 | 0 | 0 |
| 8 | 8 | 129 | 129 | 0 | 0 |
| Total | 8 | 229 | 229 | 0 | 0 |

The results from the Bias, Fairness, and Sensitivity Committee review of ELA: Reading are summarized in Table 3–8.

Table 3–8. Number of Items—2020 Bias, Fairness, and Sensitivity Committee Review for ELA: Reading

| Grade | Total passages reviewed per grade | Total items or prompts reviewed per grade | Accepted As Is | Accepted With Revision | Rejected |
|-------|-----------------------------------|---|----------------|------------------------|----------|
| 3 | 10 | 148 | 148 | 0 | 0 |
| 4 | 10 | 150 | 150 | 0 | 0 |
| 5 | 10 | 150 | 150 | 0 | 0 |
| 6 | 10 | 149 | 141 | 8 | 0 |
| 7 | 10 | 148 | 148 | 0 | 0 |
| 8 | 10 | 146 | 142 | 4 | 0 |
| Total | 80 | 891 | 879 | 12 | 0 |

CHAPTER FOUR: UNIVERSAL DESIGN PROCEDURES APPLIED IN THE PSSA TEST DEVELOPMENT PROCESS

Universally designed assessments allow participation of the widest possible range of students and contribute to valid inferences about participating students. Principles of Universal Design are based on the premise that each child in school is a part of the population to be tested and that testing results should not be affected by disability, gender, race, or English language ability (Thompson, Johnstone, & Thurlow, 2002). At every stage of the item and test development process, including the 2014 field test, procedures were employed to ensure that items and subsequent tests were designed and developed using the elements of universally designed assessments developed by the National Center for Educational Outcomes (NCEO).

Federal legislation addresses the need for universally designed assessments. The No Child Left Behind Act (Elementary and Secondary Education Act) requires that each state must “provide for the participation in [statewide] assessments of all students” [Section 1111(b)(3)(C)(ix)(I)]. Both Title 1 and IDEA regulations call for universally designed assessments that are accessible and valid for all students, including students with disabilities and English Learners. The benefits of universally designed assessments not only apply to these groups of students, but to all individuals with wide-ranging characteristics.

DRC’s test development team was trained in the elements of Universal Design as it relates to developing large-scale statewide assessments. Team leaders were trained directly by NCEO, and other team members were subsequently trained by team leaders. Committees involved in content review included some members who were familiar with the unique needs of students with disabilities and English Learners. Likewise, some members of the Bias, Fairness, and Sensitivity Committee were conversant with these issues. What follows are the Universal Design guidelines followed during all stages of the item development process for the PSSA.

ELEMENTS OF UNIVERSALLY DESIGNED ASSESSMENTS

After a review of research relevant to the assessment development process and the Principles of Universal Design (Center for Universal Design, 1997), NCEO has produced seven elements of Universal Design as they apply to assessments (Thompson, Johnstone, & Thurlow, 2002). These elements served to guide PSSA item development.

- **Inclusive Assessment Population**

The PSSA target population includes all students at the assessed grades attending Commonwealth schools. For state, district, and school accountability purposes, the target population includes all students except those who will participate in accountability through an alternate assessment.

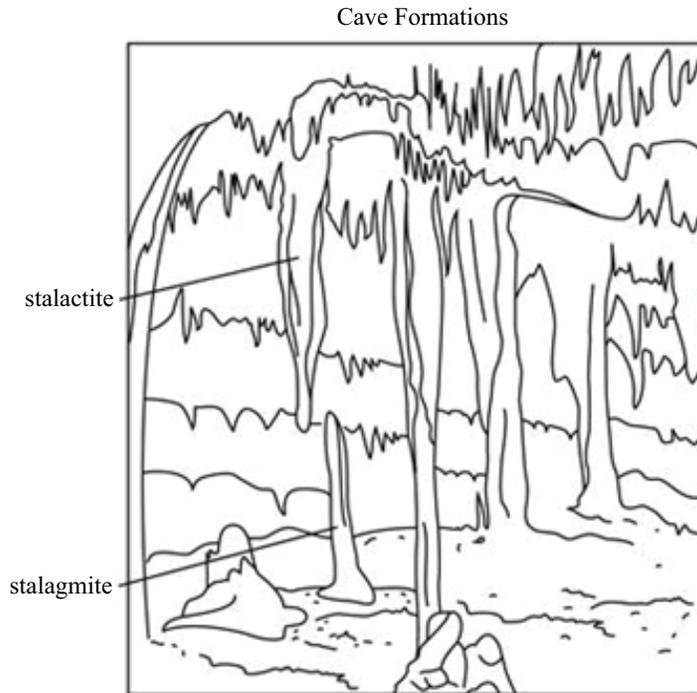
- **Precisely Defined Constructs**

An important function of well-designed assessments is that they actually measure what they are intended to measure. The Pennsylvania Assessment Anchors and Eligible Content provided clear descriptions of the constructs to be measured by the PSSA at the assessed grade levels. Universally designed assessments must remove all non-construct-oriented cognitive, sensory, emotional, and physical barriers.

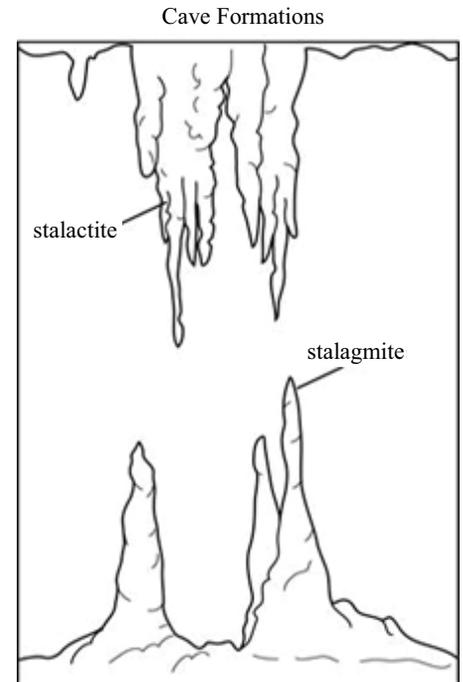
- **Accessible, Non-biased Items**

DRC conducted both internal and external reviews of items and test specifications to ensure that they did not create barriers because of lack of sensitivity to disability, culture, or other subgroups. Items and test specifications were developed by a team of individuals who understand the varied characteristics of items that might create difficulties for any group of students. Accessibility is incorporated as a primary dimension of test specifications, so accessibility was woven into the fabric of the test rather than added after the fact. The following examples show two graphics with the same construct, example 1 being less accessible and example 2 being more accessible.

Example 1 – Less Accessible:



Example 2 – More Accessible:



- **Amenable to Accommodations**

Even though items on universally designed assessments are accessible for most students, there are some students who continue to need accommodations. This essential element of a universally designed assessment requires that the test is compatible with accommodations and a variety of widely used adaptive equipment and assistive technology. (See the section on Assessment Accommodations later in Chapter Four.)

- **Simple, Clear, and Intuitive Instructions and Procedures**

Assessment instructions should be easy to understand, regardless of a student's experience, knowledge, language skills, or current concentration level. Questions that are posed using complex language can invalidate the test if students cannot understand how they are expected to respond to a question. To meet this guideline, directions and questions were prepared in simple, clear, and understandable language that underwent multiple reviews.

- **Maximum Readability and Comprehensibility**

A variety of guidelines exist to ensure the maximum readability and comprehensibility of a test. These features go beyond what is measured by readability formulas. Readability and comprehensibility are affected by many factors, including student background, sentence difficulty, text organization, and others. All of these features were considered as item text was developed.

Plain language is a concept now being highlighted in research on assessments. Plain language has been defined as language that is straightforward and concise. The following strategies for editing text to produce plain language were used during the editing process of the new PSSA items:

- Reduction of excessive length
- Use of common words
- Avoidance of ambiguous words
- Avoidance of irregularly spelled words
- Avoidance of proper names

- Avoidance of inconsistent naming and graphic conventions
- Avoidance of unclear signals about how to direct attention
- **Maximum Legibility**

Legibility is the physical appearance of text, the way that the shapes of letters and numbers enable people to read text easily. Bias can result when tests contain physical features that interfere with a student’s focus on or understanding of the constructs that test items are intended to assess. A style guide developed and updated annually (DRC, 2004–2013) was utilized, with PDE approval, which included dimensions of style consistent with universal design.

GUIDELINES FOR UNIVERSALLY DESIGNED ITEMS

All test items written and reviewed adhered closely to the following guidelines for Universal Design. Item writers and reviewers used a checklist during the item development process to ensure that each aspect was attended to. For more information on the checklist, see the Universal Design: All Assessments section in Chapter Three of this report.

1. **Items measure what they are intended to measure.** Item writing training included ensuring that writers and reviewers had a clear understanding of Pennsylvania’s Core Standards (ELA and mathematics) or Academic Standards (science) and the Assessment Anchors. During all phases of test development, items were presented with content-standard information to ensure that each item reflected the intended Assessment Anchor. Careful consideration of the content standards was important in determining which skills involved in responding to an item were extraneous and which were relevant to what was being tested. In certain types of items an additional skill is necessary, such as the mathematics test, which requires the student to read.
2. **Items respect the diversity of the assessment population.** To develop items that avoid content that might unfairly advantage or disadvantage any student subgroup, item writers, test developers, and reviewers were trained to write and review items for issues of bias, fairness, and sensitivity. Training also included an awareness of, and sensitivity to, issues of cultural and regional diversity.
3. **Items have a clear format for text.** Decisions about how items are presented to students must allow for maximum readability for all students. Appropriate fonts and point sizes were employed with minimal use of italics, which is far less legible and is read considerably more slowly than standard typeface. Captions, footnotes, keys, and legends were at least a 12-point size.¹ Legibility was enhanced by sufficient spacing between letters, words, and lines. Blank space around paragraphs and between columns and staggered right margins were used.
4. **Stimuli and items have clear pictures and graphics.** When pictures and graphics were used, they were designed to provide essential information in a clear and uncluttered manner. Illustrations were placed directly next to the information to which they referred, and labels were used where possible. Sufficient contrast between background and text, with minimal use of shading, increased readability for students with visual impairments. Color was not used to convey important information.
5. **Items have concise and readable text.** Linguistic demands of stimuli and items can interfere with a student’s ability to demonstrate knowledge of the construct being assessed. During item writing and review, the following guidelines were used.
 - Simple, clear, commonly-used words were used whenever possible.
 - Extraneous text was omitted.
 - Vocabulary and sentence complexity were appropriate for the grade level being assessed.
 - Technical terms and abbreviations were used only if they were related to the content being measured.
 - Definitions and examples were clear and understandable.
 - Idioms were avoided unless idiomatic speech was being assessed.
 - The questions to be answered were clearly identifiable.

¹ While font size follows specific requirements during online setup of an assessment, the screen resolution used at the local level can impact whether the effective font size is visible to the student.

6. **Items allow changes to format without changing meaning or difficulty.** A Braille version of the PSSA was available at each assessed grade. Attention was given to using items that allow for Braille. Specific accommodations were permitted, such as signing to a student, the use of oral presentation under specified conditions, and the use of various assistive technologies. Spanish versions of the PSSA mathematics and PSSA science tests were available for use by English Learners who would benefit from this accommodation. In the online format, permitted accommodations included text-to-speech audio, a color overlay, contrasting text options, and American Sign Language videos.
7. **The test has an overall appearance that is clean and organized.** Images, pictures, and text that may not be necessary (e.g., sidebars, overlays, callout boxes, visual crowding, shading) and that could be potentially distracting to students were avoided. Also avoided were purely decorative features that did not serve a purpose. Information was organized in a left-right, top-bottom format.

ITEM DEVELOPMENT

DRC worked closely with the Pennsylvania Department of Education to help ensure that PSSA tests complied with nationally recognized Principles of Universal Design. The implementation of accommodations on large-scale statewide assessments for students with disabilities was supported in the development of the PSSA. In addition to the Principles of Universal Design described in the Pennsylvania Technical Report, DRC applied to each content area assessment the standards for test accessibility described in *Tests Access: Making Tests Accessible for Students with Visual Impairments—A Guide for Test Publishers, Test Developers, and State Assessment Personnel* (Allman, 2004). To this end, DRC embraced the following precepts:

Test directions were carefully worded to allow for alternate responses to constructed-response (e.g., open-ended or short-answer) questions.

- During item and bias reviews, test committee members were made aware of the Principles of Universal Design and of issues that might adversely affect students with disabilities, with the goal of ensuring that PSSA tests were bias-free for all students.
- With the goal of ensuring that the PSSA tests are accessible to the widest range of diverse student populations, PDE instructed DRC to limit item types that were difficult to format in Braille and that might become distorted when published in large print. DRC was instructed to limit the following on the PSSA.
 - Mathematics: Complicated tessellations; charts or graphs that extended beyond one page
 - Reading: Graphics and illustrations that were not germane to the content presented
 - All content areas: Unnecessary boxes and framing of text, unless enclosing the text provided necessary context for the student; use of italics (limited to only when it was absolutely necessary, such as with variables)

ITEM FORMATTING

For all content areas, DRC formatted PSSA tests to maximize accessibility for all students by using text that was in a size and font style easily readable. DRC limited shading, graphics, charts, and the number of items per page so that there was sufficient white space on each page. Whenever possible, DRC ensured that graphics, pictures, diagrams, charts, and tables were positioned on the page with the associated test items. DRC used high contrast for text and background where possible to convey pertinent information. Tests were published on dull-finish paper to avoid the glare encountered on glossy paper. DRC paid close attention to the binding of the PSSA test booklets to ensure that they laid flat for two-page viewing and ease of reading and handling.

DRC ensured consistency across PSSA assessments by following these Principles of Universal Design:

- High contrast and clarity was used to convey detailed information.
- Typically, shading was avoided; when necessary for content purposes, 10 percent screens were used as the standard.
- Overlaid print on diagrams, charts, and graphs was avoided.
- Charts, graphs, diagrams, and tables were clearly labeled with titles and with short descriptions where applicable.
- Only relevant information was included in diagrams, pictures, and graphics.
- Symbols used in keys and legends were meaningful and provided reasonable representations of the topics they depicted.
- Pictures that required physical measurement were true to size.

ASSESSMENT ACCOMMODATIONS

While universally designed assessments provide for participation of the widest range of students, many students require accommodations in order to participate in the regular assessment. Clearly, the intent of providing accommodations for students is to ensure that students are not unfairly disadvantaged during testing and that the accommodations used during instruction, if appropriate, are made available as students take the test. The literature related to assessment accommodations is still evolving and often focuses on state policies regulating accommodations rather than on providing empirical data that supports the reliability and validity of the use of accommodations. On a yearly basis, the Pennsylvania Department of Education examines accommodations policies and current research to ensure that valid, acceptable accommodations are available for students. *Accommodations manuals, Accommodations Guidelines and Accommodations Guidelines for English Learners*, were developed for use with the PSSA. The PDE guideline manuals can be accessed by going to www.education.pa.gov.

In addition, Spanish-language versions, translated from the original English versions, were made available for both the mathematics and science PSSAs. The Spanish-translation versions are discussed in Chapter Six.

CHAPTER FIVE: EMBEDDED FIELD TEST

Every PSSA administration, field-test items are embedded in PSSA's operational forms. The main purposes of field-testing items prior to future operational use are (a) to calculate item statistics, (b) to determine whether items meet the criteria with respect to statistical properties for future operational use, and (c) to obtain item parameters for pre-equating purposes. In comparison to standalone field testing, embedded field testing allows for more accurate item statistics and item parameters by alleviating concerns of whether students may perceive differences between field-test and operational items. The embedded-field-test approach allows item parameters to be used for future pre-equating purposes and is based on the assumption that students should be equally motivated to take the operational and embedded field-test items, especially when they are not aware of which item is a field-test item. To minimize item context and item position effects (e.g., fatigue and lack of motivation), field-test items were interspersed within the operational sections. With this design, students have a lesser chance of knowing the field-test item positions.

The 2022 PSSA test forms contained common operational items that were identical on all forms along with embedded field-test items. In most instances, the field-test items were unique embedded items within a form; however, there were instances in which an embedded field-test item appeared on more than one form. More information on the field-test designs for all subjects can be found in the content-specific portions of Chapter Three. In general, the field test for each year represents about 50% of the following year's operational form. For example, items from the field test in 2018 represented about half of the operational form in 2019. This chapter presents information about the 2022 embedded field test, including classical item analyses, differential item functioning (DIF) analyses, identification of items for data review, and outcomes from data review.

CLASSICAL ITEM ANALYSIS

Classical item analyses of field-test items are conducted in order to assess the quality of the field-test items and to identify items for data review. Specifically, item difficulty and item-total correlations (the relationship between answering an item correctly and total test score) are estimated for each item, for each option for selected-response (SR) items, and for each score point for multi-point items. SR items include multiple-choice (MC) items for ELA, mathematics, and science and evidence-based selected-response (EBSR) items and MC items for ELA.

ITEM DIFFICULTY

At the most general level, an item's difficulty is indicated by its mean score in some specified group (e.g., grade level).

$$\bar{x} = \frac{1}{n} \cdot \sum_{i=1}^n x_i$$

In the mean score formula above, the individual item scores (x_i) are summed and then divided by the total number of students (n). For multiple-choice items, student scores are represented by 0s and 1s (0 = wrong, 1 = right). With 0–1 scoring, the equation above also represents the number of students correctly answering the item divided by the total number of students. Therefore, this is also the proportion correct for the item, or the p -value. In theory, p -values can range from 0.00¹ to 1.00 on the proportion-correct scale. For example, if an item has a p -value of 0.89, it means 89 percent of the students answered the item correctly. Additionally, this value might also suggest that the item was relatively easy and/or that the students who attempted the item were relatively high achievers. In other words, item difficulty and student ability are somewhat confounded.

For open-ended (OE) items, mean scores can range from the minimum possible score (usually zero) to the maximum possible score (e.g., four points in the case of some mathematics, ELA, and science items). Sometimes a pseudo p -value is provided for an OE item. This is done by dividing the mean item score by the maximum possible item score.

The minimum and maximum extremes of the difficulty scale are typically not seen in applied practice. However, understanding the extremes helps illustrate that relatively lower values correspond to more difficult items and

¹ For MC items with four response options, pure random guessing would lead to an expected p -value of 0.25.

that relatively higher values correspond to easier items. (As a result, some assert that this index would be more accurately referred to as the item’s easiness.)

Item difficulty is an important consideration for the PSSA tests because of the range of achievement levels of students in Pennsylvania (Below Basic, Basic, Proficient, and Advanced). Items that are either very hard or very easy provide little information about student differences in achievement. However, an item answered correctly by a high percentage of students would suggest that the knowledge or skill the item taps has been mastered by most students. Conversely, an item answered incorrectly by a high percentage of students would suggest few students have mastered the knowledge or skill the item taps. On a standards-referenced test like the PSSA, a test development goal is to include a wide range of item difficulties.

ITEM DISCRIMINATION

At the most general level, item discrimination² indicates an item’s ability to differentiate between high and low achievers. It is expected that students with high ability (i.e., those who perform well on the PSSA overall) would be more likely to answer any given PSSA item correctly, while students with low ability (i.e., those who perform poorly on the PSSA overall) would be less likely to answer the same item correctly. For the PSSA tests, Pearson’s product-moment correlation coefficient between item scores and test scores is used to indicate discrimination. (As commonly practiced, DRC removes the item score from the total score such that the resulting correlations will not be spuriously high.) The correlation coefficient can range from -1.0 to +1.0. If this expectation is met (i.e., high-ability students tend to answer the item correctly while low-ability students answer the item incorrectly), the correlation between the item score and the total test score will be both positive and noticeably large in its magnitude (i.e., well above zero), meaning the item is a good discriminator between high- and low-ability students. This should be the case for all PSSA operational test items.

In summary, the correlation will be positive in value when the mean test score of the students answering the item correctly is higher than the mean test score of the students answering the item incorrectly.³ In other words, the relationship between student test performance and item performance is expected to be consistent. However, an interaction can exist between item discrimination and item difficulty. Items answered correctly (or incorrectly) by a large proportion of examinees (i.e., the items have extreme *p*-values) can have reduced power to discriminate, and thus, can have lower correlations.

CLASSICAL ITEM ANALYSIS RESULTS

Table 5–1 provides the summary statistics for the difficulty and discrimination for the 2022 field-test items with respect to subject, grade, and item type (see Chapter Eleven for summary statistics for operational items). There is a range of *p*-values across all subjects and grade levels, where mean *p*-values were between 0.38 and 0.59 for SR items and between 0.18 and 0.53 for OE items. The mean item-total correlations were between 0.18 and 0.38 for SR items and between 0.43 and 0.71 for OE items (see Table 5–1).

² As noted earlier, the discrimination index for PSSA dichotomous MC items is typically referred to as the point-biserial correlation coefficient. For OE items, the term item-test correlation is sometimes used.

³ It is legitimate to view the point-biserial correlation as a standardized mean difference. A positive value indicates that students who chose that response had a higher mean score than the average student; a negative value indicates that students who chose that response had a lower-than-average mean score.

Table 5–1. Summary Statistics of Difficulty and Discrimination by Subject, Grade and Item Type

| Subject | Grade | Item Type | N | Mean <i>p</i> -val. | Min <i>p</i> -val. | Median <i>p</i> -val. | Max <i>p</i> -val. | Mean I-T Corr. | Min I-T Corr. | Median I-T Corr. | Max I-T Corr. |
|-------------|-------|-----------|-----|---------------------|--------------------|-----------------------|--------------------|----------------|---------------|------------------|---------------|
| Mathematics | 3 | OE | 9 | 0.37 | 0.24 | 0.4 | 0.46 | 0.70 | 0.63 | 0.72 | 0.75 |
| Mathematics | 3 | SR | 72 | 0.49 | 0.17 | 0.51 | 0.85 | 0.35 | -0.04 | 0.39 | 0.63 |
| Mathematics | 4 | OE | 9 | 0.25 | 0.14 | 0.24 | 0.43 | 0.69 | 0.61 | 0.68 | 0.77 |
| Mathematics | 4 | SR | 72 | 0.44 | 0.18 | 0.39 | 0.86 | 0.32 | -0.17 | 0.34 | 0.55 |
| Mathematics | 5 | OE | 9 | 0.28 | 0.16 | 0.29 | 0.51 | 0.68 | 0.59 | 0.68 | 0.75 |
| Mathematics | 5 | SR | 72 | 0.45 | 0.11 | 0.43 | 0.8 | 0.33 | -0.03 | 0.35 | 0.55 |
| Mathematics | 6 | OE | 9 | 0.27 | 0.17 | 0.23 | 0.46 | 0.70 | 0.65 | 0.71 | 0.75 |
| Mathematics | 6 | SR | 72 | 0.46 | 0.09 | 0.46 | 0.88 | 0.36 | -0.16 | 0.4 | 0.56 |
| Mathematics | 7 | OE | 9 | 0.18 | 0.11 | 0.18 | 0.25 | 0.68 | 0.63 | 0.67 | 0.75 |
| Mathematics | 7 | SR | 72 | 0.38 | 0.18 | 0.37 | 0.65 | 0.31 | -0.06 | 0.33 | 0.52 |
| Mathematics | 8 | OE | 9 | 0.21 | 0.14 | 0.21 | 0.33 | 0.71 | 0.65 | 0.70 | 0.79 |
| Mathematics | 8 | SR | 72 | 0.42 | 0.19 | 0.38 | 0.69 | 0.36 | -0.01 | 0.36 | 0.60 |
| ELA | 3 | OE | 12 | 0.42 | 0.34 | 0.43 | 0.50 | 0.60 | 0.49 | 0.59 | 0.67 |
| ELA | 3 | SR | 160 | 0.55 | 0.24 | 0.53 | 0.87 | 0.39 | -0.05 | 0.40 | 0.58 |
| ELA | 4 | OE | 12 | 0.47 | 0.43 | 0.46 | 0.50 | 0.55 | 0.49 | 0.54 | 0.61 |
| ELA | 4 | SR | 160 | 0.56 | 0.17 | 0.57 | 0.93 | 0.37 | -0.13 | 0.39 | 0.62 |
| ELA | 5 | OE | 12 | 0.52 | 0.49 | 0.52 | 0.54 | 0.59 | 0.54 | 0.59 | 0.61 |
| ELA | 5 | SR | 161 | 0.59 | 0.18 | 0.61 | 0.88 | 0.40 | 0.01 | 0.41 | 0.68 |
| ELA | 6 | OE | 12 | 0.49 | 0.46 | 0.49 | 0.53 | 0.58 | 0.53 | 0.58 | 0.62 |
| ELA | 6 | SR | 154 | 0.56 | 0.22 | 0.56 | 0.91 | 0.35 | 0.06 | 0.37 | 0.68 |
| ELA | 7 | OE | 12 | 0.51 | 0.49 | 0.51 | 0.53 | 0.59 | 0.55 | 0.60 | 0.63 |
| ELA | 7 | SR | 159 | 0.55 | 0.11 | 0.57 | 0.89 | 0.36 | -0.18 | 0.38 | 0.64 |
| ELA | 8 | OE | 12 | 0.53 | 0.5 | 0.53 | 0.55 | 0.61 | 0.57 | 0.62 | 0.64 |
| ELA | 8 | SR | 160 | 0.55 | 0.13 | 0.55 | 0.9 | 0.35 | -0.16 | 0.38 | 0.61 |
| Science | 4 | OE | 12 | 0.41 | 0.10 | 0.48 | 0.61 | 0.43 | 0.27 | 0.43 | 0.59 |
| Science | 4 | SR | 96 | 0.55 | 0.17 | 0.56 | 0.83 | 0.36 | 0.00 | 0.37 | 0.54 |
| Science | 8 | OE | 12 | 0.34 | 0.13 | 0.33 | 0.65 | 0.44 | 0.36 | 0.44 | 0.56 |
| Science | 8 | SR | 120 | 0.52 | 0.24 | 0.52 | 0.77 | 0.38 | 0.06 | 0.40 | 0.54 |

Note. I-T Corr. is the item-test score correlation.

DIFFERENTIAL ITEM FUNCTIONING

Differential item functioning (DIF) occurs when examinees with the same ability level but different group memberships do not have the same probability of answering an item correctly. When the probability differs, it is important for content experts to review the relevant items for any potential *item bias*. It is important to note that, as a statistical concept, DIF is different from item bias. DIF detects a difference in performance after controlling for student ability, whereas bias is a content issue that can arise in situations where something other than the intended construct of measurement affects the probability of a correct response for a particular group. For example, bias is likely present when an item presents negative group stereotypes that draw the attention of the examinee, uses non-construct-relevant language that is more familiar to one subpopulation than to another, or is presented in a non-construct-relevant format that disadvantages certain learning styles. While the source of item bias can be plain to trained judges, DIF may have no clear cause. In such cases, something other than bias, including construct-relevant content, may be explaining the differential performance on the item. Flagging items with DIF provides an opportunity for reviewers to assess and correct potential bias, but DIF does not necessarily mean that bias is present.

LIMITATIONS OF STATISTICAL DETECTION

No statistical procedure should be used as a substitute for rigorous, hands-on reviews by content and bias specialists. The statistical results can help organize the review so the effort is concentrated on the most problematic cases. Further, no items should be automatically rejected simply because a statistical method flagged them or accepted because they were not flagged.

Statistical detection of DIF is also not an exact science. There have been a variety of methods proposed for detecting DIF, but no single statistic can be considered either necessary or sufficient. Different methods are more or less successful but can also detect DIF at different rates. No analysis can guarantee that a test is free of bias, but thoughtful item development and field-test analysis can prevent potentially biased items from unfairly impacting student scores.

A fundamental shortcoming of all statistical methods used in DIF evaluation is that all are intrinsic to the test being evaluated. If a test is unbiased overall but contains one or two DIF items, any method can identify DIF. However, because all current methods use total test performance as the measure on which to control for group abilities, a test with all DIF items will not be able to separate DIF effects from differences in achievement on the test.

MANTEL-HAENSZEL PROCEDURE FOR DIFFERENTIAL ITEM FUNCTIONING

For MC items, the Mantel-Haenszel procedure (Mantel & Haenszel, 1959) for detecting DIF is a commonly used technique in educational testing. It does not depend on the application or the fit of any specific measurement model. However, it does have significant philosophical overlap with the Rasch model since it uses a test's total score for the analysis.

The procedure as implemented by DRC contrasts a focal group with a reference group. While it makes no practical difference in the analysis which group is defined as the focal group, the group most apt to be disadvantaged by a biased measurement is typically defined as the focal group. In these analyses, the focal groups were female for gender-based DIF and Black for ethnicity-based DIF; reference groups were male and White, respectively. The Mantel-Haenszel (MH) statistic for each item is computed from a contingency table. It has two groups (focal and reference) and two outcomes (right and wrong). The ability groups are defined using the test score distribution for the total examinee population.

The basic MH statistic is a single degree of freedom chi-square that compares the observed number in each cell to the expected number. The expected counts are computed to ensure that the analysis is not confounded with differences in the achievement level of the two groups.

For OE items, a comparable statistic is computed based on the standardized mean difference (SMD) (Dorans, Schmitt, & Bleistein, 1992), which is computed as the differences in mean scores for the focal and reference groups if both groups had the same score distribution.

To assist the review committees in interpreting the analyses, the items are assigned a severity code (A, B, or C) based on the magnitude of the MH statistic, and a direction (minus or plus) based on the direction of the MH statistic. Items classified as A+ or A- have little or no statistical indication of DIF. Items classified as B+ or B- have some indication of DIF but may be judged to be acceptable for future use. Items classified as C+ or C- have strong evidence of DIF and should be reviewed and possibly rejected from the eligible item pool. The plus sign indicates that the item favors the focal group and a minus sign indicates that the item favors the reference group.

RESULTS AND OBSERVATIONS

DIF analyses were conducted on the 2022 field-test items. The number of items from each subject and grade that were assigned to each severity code is shown in Table 5–2 for SR items and Table 5–3 for OE/TDA items. Few SR items were identified as having moderate (B) or severe (C) DIF for gender or ethnicity. The MC results indicate that there is a balance in the number of items with moderate DIF favoring males and females; however, these results do not hold true for ethnicity.

Table 5–2A. DIF Summary for Male/Female—SR Items*

| Subject | Grade | A+ | A- | B+ | B- | C+ | C- | Total |
|-------------|-------|-----|----|----|----|----|----|-------|
| Mathematics | 3 | 32 | 35 | 1 | 4 | 0 | 0 | 72 |
| Mathematics | 4 | 35 | 37 | 0 | 0 | 0 | 0 | 72 |
| Mathematics | 5 | 32 | 38 | 0 | 2 | 0 | 0 | 72 |
| Mathematics | 6 | 37 | 35 | 0 | 0 | 0 | 0 | 72 |
| Mathematics | 7 | 28 | 43 | 0 | 1 | 0 | 0 | 72 |
| Mathematics | 8 | 32 | 37 | 1 | 1 | 0 | 1 | 72 |
| ELA | 3 | 73 | 85 | 1 | 1 | 0 | 0 | 160 |
| ELA | 4 | 98 | 61 | 0 | 1 | 0 | 0 | 160 |
| ELA | 5 | 101 | 58 | 1 | 1 | 0 | 0 | 161 |
| ELA | 6 | 63 | 78 | 2 | 8 | 0 | 3 | 154 |
| ELA | 7 | 78 | 68 | 5 | 5 | 0 | 3 | 159 |
| ELA | 8 | 82 | 72 | 3 | 3 | 0 | 0 | 160 |
| Science | 4 | 38 | 57 | 0 | 1 | 0 | 0 | 96 |
| Science | 8 | 69 | 45 | 5 | 0 | 0 | 1 | 120 |

*SR items include multiple-choice items for ELA, mathematics, and science and multiple-choice and evidence-based selected-response items for ELA.

Table 5–2B. DIF Summary for White/Black—SR Items*

| Subject | Grade | A+ | A- | B+ | B- | C+ | C- | Total |
|-------------|-------|----|-----|----|----|----|----|-------|
| Mathematics | 3 | 19 | 51 | 0 | 2 | 0 | 0 | 72 |
| Mathematics | 4 | 28 | 44 | 0 | 0 | 0 | 0 | 72 |
| Mathematics | 5 | 16 | 55 | 0 | 1 | 0 | 0 | 72 |
| Mathematics | 6 | 25 | 47 | 0 | 0 | 0 | 0 | 72 |
| Mathematics | 7 | 22 | 50 | 0 | 0 | 0 | 0 | 72 |
| Mathematics | 8 | 23 | 48 | 0 | 1 | 0 | 0 | 72 |
| ELA | 3 | 48 | 104 | 0 | 7 | 0 | 1 | 160 |
| ELA | 4 | 59 | 96 | 2 | 3 | 0 | 0 | 160 |
| ELA | 5 | 58 | 98 | 0 | 4 | 0 | 1 | 161 |
| ELA | 6 | 58 | 90 | 1 | 4 | 0 | 1 | 154 |
| ELA | 7 | 61 | 95 | 0 | 3 | 0 | 0 | 159 |
| ELA | 8 | 69 | 89 | 0 | 2 | 0 | 0 | 160 |
| Science | 4 | 21 | 73 | 0 | 1 | 0 | 1 | 96 |
| Science | 8 | 58 | 59 | 0 | 3 | 0 | 0 | 120 |

*SR items include multiple-choice items for ELA, mathematics, and science and multiple-choice and evidence-based selected-response items for ELA.

Table 5–3A. DIF Summary Male/Female—OE Items*

| Subject | Grade | A+ | A- | B+ | B- | C+ | C- | Total |
|-------------|-------|----|----|----|----|----|----|-------|
| Mathematics | 3 | 7 | 2 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 4 | 8 | 1 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 5 | 7 | 2 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 6 | 4 | 4 | 0 | 0 | 1 | 0 | 9 |
| Mathematics | 7 | 8 | 1 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 8 | 7 | 2 | 0 | 0 | 0 | 0 | 9 |
| ELA | 3 | 8 | 1 | 3 | 0 | 0 | 0 | 12 |
| ELA | 4 | 11 | 0 | 1 | 0 | 0 | 0 | 12 |
| ELA | 5 | 5 | 0 | 7 | 0 | 0 | 0 | 12 |
| ELA | 6 | 7 | 0 | 4 | 0 | 1 | 0 | 12 |
| ELA | 7 | 1 | 0 | 5 | 0 | 6 | 0 | 12 |
| ELA | 8 | 4 | 0 | 5 | 0 | 3 | 0 | 12 |
| Science | 4 | 8 | 4 | 0 | 0 | 0 | 0 | 12 |
| Science | 8 | 8 | 2 | 2 | 0 | 0 | 0 | 12 |

*OE items include open-ended items for mathematics, science, and ELA grade 3 and text-dependent analysis items for ELA grades 4–8.

Table 5–3B. DIF Summary White/Black—OE Items*

| Subject | Grade | A+ | A- | B+ | B- | C+ | C- | Total |
|-------------|-------|----|----|----|----|----|----|-------|
| Mathematics | 3 | 1 | 3 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 4 | 1 | 3 | 0 | 1 | 0 | 0 | 9 |
| Mathematics | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 6 | 0 | 3 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 7 | 1 | 4 | 0 | 0 | 0 | 0 | 9 |
| Mathematics | 8 | 1 | 2 | 0 | 0 | 0 | 0 | 9 |
| ELA | 3 | 0 | 6 | 0 | 1 | 0 | 0 | 12 |
| ELA | 4 | 1 | 5 | 0 | 6 | 0 | 0 | 12 |
| ELA | 5 | 0 | 8 | 0 | 1 | 0 | 2 | 12 |
| ELA | 6 | 0 | 3 | 0 | 7 | 0 | 2 | 12 |
| ELA | 7 | 0 | 7 | 0 | 4 | 0 | 1 | 12 |
| ELA | 8 | 2 | 5 | 0 | 3 | 0 | 2 | 12 |
| Science | 4 | 0 | 4 | 0 | 0 | 0 | 3 | 12 |
| Science | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 12 |

*OE items include open-ended items for mathematics, science, and ELA grade 3 and text-dependent analysis items for ELA grades 4–8.

CRITERIA FOR IDENTIFYING ITEMS

As previously discussed, all field-test items were analyzed statistically using conventional item-analysis methods. For SR items, classical item statistics included the corrected point-biserial correlation (Pt. Bis.) for the correct and incorrect responses (distractors), percent correct (p -value), and the percent responding to incorrect responses. For constructed-response (CR) items (including open-ended questions, short-answer questions, and text-dependent analysis questions), the statistical indices included the item-test correlation, the point-biserial correlation for each score point, the percent of responses at each score point, and the percent of non-scoreable responses.

In general, more capable students are expected to respond correctly to easy items and less capable students are expected to respond incorrectly to difficult items. If either of these situations does not occur, the item will be reviewed by DRC test development staff and committees of Pennsylvania educators to determine the nature of the problem and the characteristics of the students affected. The primary way of detecting such conditions is through the point-biserial correlation coefficient for dichotomously scored items (MC) and the item-total correlation for polytomously scored items (EBSR and CR). In each case the statistic will be positive if the total test mean score is higher for the students who respond correctly to MC items (or attain a higher CR item score) and negative when the reverse is true.

The following set of criteria was used to identify items for additional review.

For an MC item to be flagged, the criteria included any of the following:

- Percent correct (p -value) less than 0.3 or greater than 0.9
- Point-biserial correlation for the correct response less than 0.25 for ELA and mathematics and less than 0.20 for science
- Point-biserial correlation for any incorrect response greater than 0.0
- Percent responding to any incorrect responses greater than the p -value
- Gender or ethnic DIF code of either C- or C+

For an EBSR item to be flagged, the criteria included any of the following:

- p -value less than 0.3 or greater than 0.9
- Part One point-biserial correlation for the correct response less than 0.25
- Part One point-biserial correlation for any incorrect response greater than 0.0
- Part One percent responding to any incorrect responses greater than Part One p -value
- Gender or ethnic DIF code of either C- or C+
- Score proportion less than 0.05

For a CR item to be flagged, the criteria included any of the following:

- p -value less than 0.3 or greater than 0.9 for ELA and mathematics and p -value less than 0.1 and greater than 0.9 for science
- Score proportion less than 0.05
- Gender or ethnic DIF code of C- or C+

REVIEW OF ITEMS WITH DATA

In the preceding section, it was stated that test development content-area specialists used certain statistics from classical item analyses and DIF analyses of the 2022 field test to identify items for review by Pennsylvania educators. Items not identified for this review had good statistical characteristics and, consequently, were entered into the eligible pool for future item selection. Likewise, items of extremely poor statistical quality were regarded as unacceptable and needed no additional review. DRC content-area test development specialists and DRC psychometric specialists identified the remaining items for further review by a committee of Pennsylvania educators. The intent was to capture all items that needed a closer review; thus, the criteria employed tended to over-identify rather than under-identify items.

The review of the items with associated data was conducted by over 50 Pennsylvania educators (teachers and PDE staff) broken out into subject-area and/or grade-level or grade-span committees. The review for mathematics and ELA grades 3–8 and science grades 4 and 8 took place in August 2022. In these sessions, committee members were first trained by a representative from DRC’s psychometrics staff with regard to the statistical indices used in item evaluation. This was followed by a discussion with examples concerning reasons that an item might be retained regardless of the statistics. The committee review process involved a brief exploration of possible reasons for the statistical profile of an item (e.g., possible bias, grade appropriateness, instructional issues) and a decision regarding acceptance. DRC content-area test development specialists facilitated the review of the items. Each committee reviewed the pool of field-tested items and made recommendations on each item and/or scenario/ passage. Further discussion on how this information was used is covered in Chapter Six. Data review details and results are shown in Table 5–4.

Table 5–4. 2022 Data Review Committee Results

| Subject | Grade | Total No. of Items | Reviewed SR* | Reviewed OE* | Reviewed DIF only | Reviewed Total | Reviewed % of Total | No. of Items Rejected by Committee | % of Items Rejected by Committee | No. of Items Classified as Rejected** | % of Items Classified as Rejected** |
|-------------|-------|--------------------|--------------|--------------|-------------------|----------------|---------------------|------------------------------------|----------------------------------|---------------------------------------|-------------------------------------|
| Mathematics | 3 | 81 | 23 | 3 | 0 | 26 | 32% | 9 | 11% | 9 | 11% |
| Mathematics | 4 | 81 | 34 | 8 | 0 | 42 | 52% | 8 | 10% | 8 | 10% |
| Mathematics | 5 | 81 | 30 | 8 | 0 | 38 | 47% | 4 | 5% | 4 | 5% |
| Mathematics | 6 | 81 | 19 | 8 | 1 | 27 | 33% | 2 | 2% | 2 | 2% |
| Mathematics | 7 | 81 | 30 | 9 | 0 | 39 | 48% | 6 | 7% | 6 | 7% |
| Mathematics | 8 | 81 | 27 | 9 | 0 | 36 | 44% | 6 | 7% | 6 | 7% |
| ELA | 3 | 146 | 32 | 7 | 0 | 39 | 27% | 11 | 8% | 11 | 8% |
| ELA | 4 | 152 | 44 | 13 | 0 | 57 | 38% | 11 | 7% | 11 | 7% |
| ELA | 5 | 152 | 30 | 13 | 1 | 43 | 28% | 7 | 5% | 7 | 5% |
| ELA | 6 | 147 | 43 | 14 | 1 | 57 | 39% | 6 | 4% | 6 | 4% |
| ELA | 7 | 151 | 38 | 14 | 0 | 52 | 34% | 7 | 5% | 7 | 5% |
| ELA | 8 | 152 | 47 | 14 | 0 | 61 | 40% | 8 | 5% | 8 | 5% |
| Science | 4 | 108 | 16 | 5 | 4 | 21 | 19% | 2 | 2% | 4 | 4% |
| Science | 8 | 132 | 18 | 3 | 1 | 21 | 16% | 2 | 2% | 4 | 3% |
| Totals | N/A | 1626 | 431 | 128 | 8 | 559 | 34% | 89 | 5% | 93 | 6% |

*SR includes multiple-choice items and EBSR items; OE includes open-ended items for mathematics, science, and ELA grade 3 and text-dependent analysis items for ELA grades 4–8.

**Items classified as “Rejected” from 2022 field test (all sources: data review committee, PDE, and DRC)

CHAPTER SIX: OPERATIONAL FORMS CONSTRUCTION FOR 2022

FINAL SELECTION OF ITEMS AND 2022 PSSA FORMS CONSTRUCTION

When the final selection of items for the operational 2022 test was ready to begin, the candidate items that emerged, including those from the spring 2019 field test, had undergone multiple reviews, including:

- Reviews by DRC content-area test development specialists and curriculum specialists to ensure that all items were properly aligned with content standards
- Formal bias, fairness, and sensitivity review by the Bias, Fairness, and Sensitivity Committee consisting of a multi-ethnic group of men and women having expertise with students with special needs and English Learners
- Formal review by the content committees consisting of Pennsylvania educators, including teachers as well as district personnel
- PDE review
- Item data review by members of the PDE subject-area teacher committees

The item and bias reviews are detailed in Chapter Three. The results of the data review are summarized in Chapter Five.

The end product of the above process was an item status designation for each field-tested item. All items having an item status code of Acceptable/Active were candidates to be selected for the 2022 PSSA. To have an item status code of Acceptable/Active meant that the item met the following criteria:

- Appropriately aligned with its designated Assessment Anchor Content Standard (Assessment Anchor) and sub-classifications
- Acceptable in terms of bias/fairness/sensitivity issues, including differential item functioning (for gender and ethnicity)
- Acceptable in terms of psychometric standards, including a special review of flagged items

Next, all relevant information regarding the acceptable items, including associated graphics, was entered into the item banking system known as IDEAS (Item Development and Education Assessment System). From IDEAS and other database sources, Microsoft Excel files were created for each content area at each grade. These files contained all relevant content codes and statistical characteristics. IDEAS also created an item card displaying each acceptable item, any associated graphic, and all relevant content codes and item statistics for use by the content-area test development specialists and psychometric services staff.

DRC test development specialists reviewed the test design blueprint, including the number of items per strand for each content-area test. Special considerations, such as calculator use and manipulatives, were noted.

Psychometricians provided content-area test development specialists with an overview of the psychometric guidelines for forms construction, including guidelines for selecting linking items to link to previous test forms.

Senior DRC content-area test development specialists reviewed all items in the operational pool to make an initial selection for common (core) and equating block positions according to test blueprint requirements and psychometric guidelines. Changes to items were not encouraged since alterations could affect how an item might perform on subsequent testing.

For the common items, this meant that the combination of SR and CR items would yield the appropriate range of points while tapping an appropriate variety of the Assessment Anchors and related Eligible Content within each Reporting Category. Items selected in the first round were examined with regard to how well they went together as a set. Of particular concern were the following:

- One item providing cues as to the correct answer to another item
- Context redundancy (e.g., mathematics items with a sports context)

- Presence of clang (distractors not unique from one another)
- Diversity of names and artwork for gender and ethnicity

The first round of items was then evaluated for statistical features such as an acceptable point-biserial correlation and whether correct answers were distributed equally—that is, whether approximately 25 percent of correct answers appeared in each of the four possible positions (A, B, C, or D). Selected items that were deemed psychometrically less advantageous in contrast to the overall psychometric characteristics of the core resulted in a search by the senior reviewer for suitable replacements. At this point, the second round of items was analyzed. If necessary, this iterative process between content-based selections and statistical properties continued in an effort to reach the best possible balance.

In the case of the core-to-core linking items, content considerations remained relevant, together with statistical features, such as an acceptable point-biserial correlation and whether the items, as a collection, had an average logit value and a test characteristic curve approximating that of the previous year.

The process for selecting equating block items was slightly different. The chief consideration was that items in equating block positions of the various forms mirrored the psychometric considerations of the core. In some cases, the selection of equating block items also required multiple rounds of selection and evaluation until the best possible balance of content and statistical properties was obtained. The content-area test development specialist's task was to distribute these items in equating block positions across the forms so that the MC items assigned to a particular form would go well with one another and reflect the same content and statistical considerations as previously outlined. Additionally, the forms needed to display similar difficulty levels.

Once the recommendations were finalized for the core items, core-to-core linking items, and equating block items, they were submitted to PDE for review. Department staff provided feedback, which could be in the form of approval or recommendations for replacing certain items. Any item replacement was accomplished by the collective effort of the test development specialists, psychometricians, and PDE staff until final PDE approval was given. Once final PDE approval of the forms was given, PDE also participated in the construction and review of scrambled forms.

SPECIAL FORMS USED IN THE 2022 PSSA

SPANISH TRANSLATION OF THE MATHEMATICS AND SCIENCE ASSESSMENTS

Starting with the 2005 assessment, school personnel had the option of allowing Spanish-speaking students who had been enrolled in schools in the United States for less than three years to respond to a Spanish version of the PSSA for mathematics. In 2009, a Spanish version was also added for the science component of the PSSA. The original translation of the items and the *Directions for Administration Manual* was completed by Second Language Testing, Incorporated (SLTI). SLTI used translators with varying cultural and regional backgrounds to create the Spanish versions of the mathematics and science assessments. The translations were then reviewed and verified by DRC's internal Spanish group. As part of the internal review, a Spanish style guide is maintained to document Spanish word choice from administration to administration and across grades within an administration. After discussions with PDE and SLTI, the mathematics assessment for Grades 4–8 and the science assessment for Grades 4 and 8 were designed with a side-by-side format, that is, the English text and Spanish-translated text were printed on facing pages. The Spanish-translated text was on the left-hand side of the page and the original English text on the right-hand (facing) side.

The mathematics answer booklets for Grades 4–8 and the science answer booklets for Grades 4 and 8 were also presented in Spanish and English. In the case of mathematics, each open-ended item covered a total of four pages in the answer booklet. In the case of science, each open-ended item covered either two or four pages in the answer booklet, depending on the length of the original English-language item. In the case of four-page open-ended items, the first set of facing pages of an item was presented in Spanish. The second set of facing pages of an item was presented in the original English. Those students using this accommodated version of the mathematics assessment could write their answers on either the English language pages or on the translated Spanish language pages. Their answers could be written in English, Spanish, or a combination of both Spanish and English as all pages were evaluated and scored, and the highest possible scores from those combinations recorded for the students.

The mathematics scannable booklets for Grade 3 were presented in Spanish and English using a modified over/under format, with the Spanish presented directly above or to the left of the English. To assist the presentation of the two languages on the same page, the English portion was presented in italics and in a smaller font. Those students using this accommodated version of the mathematics assessment could also write their answers in English, Spanish, or a combination of both Spanish and English, with the highest possible scores from those combinations recorded for the students.

For the current Spanish forms, DRC utilized an outside vendor (Victory Productions) for translations of PSSA mathematics and science items by using the style guide setup and continuously used since 2005. Once Victory Productions has completed the initial translation of the entire set of materials, all translated material and the original English version are then sent to Language Services Consultants (LSC) for a third-party verification of the translation. LSC's review helps to ensure the equivalence of the original and translated assessments. When completed, the verified materials, along with any recommendations or questions, are passed back to DRC for processing.

Once Language Services Consultants (LSC) has adjudicated the initial translation completed by Victory Productions, the translated text is returned to DRC for final processing and typesetting. DRC has a Spanish translation team comprised of native Spanish-speaking translators and native English-speakers with formal education in Spanish. DRC's Spanish Team is supported by all content areas and their respective content leads in order to maintain the integrity of each translated item or passage. DRC conducts a minimum of five separate reads during the final preparation of the translated material. These reads include editorial reviews of items and forms and are used to polish language and eliminate any typographical errors.

An initial reading of items and passages is conducted individually by each member of the team. The team then reads, discusses, and edits the items as a group before sending the material to be entered into the item bank that houses Pennsylvania's test items (IDEAS). As part of the discussion and editing process, DRC's Spanish Team may also conduct an informational investigation, validating concepts within the translation related to specialized topics. Once the data entry is completed, DRC's Spanish Team confirms that the correct edits have been made and the items are read once again. After all newly-translated items have been edited and approved in this round of review, a PDF of the entire test form is produced. The Spanish Team then conducts a group review of the complete test form, coinciding with an independent review outside the team, making any edits that are necessary. Within each review, checks are performed to ensure accuracy of semantics, lexicon, syntax, and grammar.

Internal reviewers are instructed to address a number of issues when reviewing a translation, including the following:

- Are the stimulus and the item translated correctly?
- Are there inappropriate omissions in the translation?
- Are there inappropriate additions in the translation?
- Is there any wording that may not be comprehensible to speakers of a particular dialect? If so, the reviewer will enter an alternate wording in parentheses.
- Are standard item writing guidelines followed in the translated version?
- Are any options less or more attractive than in the English version? If so, the reviewer will suggest an alternate wording.
- Is the content of any item culturally insensitive or offensive? Is a substitute item required? Why?
- Is the wording of any item culturally insensitive or offensive?
- Is the language of the translation at the same register as the original?
- Is the language of the translation at an appropriate register for the grade level of the examinee?

Instructions for the appropriate use of these special forms are detailed in accommodation manuals titled *2022 Accommodations Guidelines* and *Accommodations Guidelines for English Learners*.

AUDIO

For students requiring an auditory presentation accommodation, a text-to-speech synthesizer is available to students taking the online mode of test delivery. For each operational exam, one form was selected for the creation of the audio version. Special scripts are crafted, writing out each item, distractor, graphic, and directions to utilize the rich, synthesized voice features while accounting for specific nuances of the intended sounds. The resulting audio information is provided to students receiving the accommodation. Since additional software is required to generate the vocalization from the scripted text and since headphones are required to minimize disruptions within a computer lab setting, local school personnel generally must preplan to use the audio version in order to ensure that the student has a properly equipped computer and a proper setting.

BRILLE, LARGE PRINT, AND VIDEO SIGN LANGUAGE

Students were able to respond to test materials that were available in Braille, large print, or Video Sign Language. At each grade level assessed, one form was selected for the creation of these accommodations.

The large print edition is a replication of the standard print form; 8.5×11 standard form is enlarged to an 11×17 page format to achieve a font size of approximately 18-point. A side-by-side verification is completed between the standard print and large print forms to ensure that the integrity of all formatting and graphics is maintained on the large print forms.

For Braille production, the final selected form is delivered to American Printing House for the Blind (APH) via APH's secure website. APH ensures that all tests are translated correctly and accurately by using a translator and a validator. After all Braille booklets are printed, APH conducts a quality assurance step to ensure all items are bound in order and directions are included. All Braille booklets are shipped from APH to DRC via UPS.

DRC applies a security barcode to each large print and Braille booklet for purposes of shipping, distributing, and collecting the materials. This security barcode is used with DRC's Operations Materials Management System (Ops MMS).

School personnel were directed to transcribe all student answers (SR and CR) into scannable answer documents exactly as the student responded. No alterations or corrections of student work were permitted, and the transcribed answer document had to have the same form designation as the Braille and large print version.

DRC utilizes Victory Productions for the production of Sign Language Videos. The items are passed to Victory Productions via a secure ftp site. Two to three different interpreters are used to interpret and validate the translations during video recording. After the interpretations are recorded and returned to DRC via a secure ftp site, DRC loads these videos in the online test engine. When school personnel assign the specific sign language accommodation, the student will be able to play each video next to the item.

SUMMARY OF THE TRANSLATION VERIFICATION STUDY BY SLTI OF THE 2009 PSSA SCIENCE ASSESSMENTS

From November 2009 through January 2010 SLTI conducted a translation verification study of the 2009 PSSA Science Assessments titled "Translation Verification Study of the 2009 Pennsylvania System of School Assessment (PSSA) of Science for Grades 4, 8, and 11." In this study, the appropriateness of the transadaptation of the PSSA Science Assessments into Spanish was investigated. Three independent reviewers, specialists in bilingual science education and science translation, determined the appropriateness of each translated or adapted item. The purpose of the report was to conduct qualitative research on the comparability of the Spanish and English versions of the PSSA Science Assessments.

The report of this study by Second Language Testing, Incorporated described the assessments, the purpose of the translation verification study, the reviewers, the translation verification process, and the translation verification results. A total of 185 items covering tests at Grades 4 (63 items), 8 (63 items), and 11 (59 items) were reviewed. The study showed that none of the 185 reviewed items were judged by the reviewers to be inappropriately translated or adapted into Spanish. The study did provide suggestions for nine items that were judged appropriate but whose translation could still be improved in the event the items were used again.

Overall, the report concluded that the transadaptation of the 2009 PSSA Science Assessments was clearly appropriate. Since both the English and Spanish versions are comparable in the sense that both versions assess the same content, use the same format, have equal numbers of items, follow the same test administration and scoring procedures, and are used and interpreted in the same way, the study concluded that the English and Spanish versions of the science assessments measured the same content in two different languages. Thus, the study indicated that both language versions showed the same degree of alignment and the same depth-of-knowledge described in the Assessment Anchors alignment study. As a result, the report concluded that there was no need to conduct a separate alignment study of the Spanish version of the PSSA Science Assessments.

Beyond the findings presented in the study, the report recommended that appropriate quantitative analyses be carried out on construct equivalence. Unless such analyses clearly demonstrate a lack of equivalence, it is appropriate to assume that there is no need to conduct a separate linking study or a separate standard setting study for the Spanish versions of the tests. Both versions can be scored on the same scale, and scores on each version have the same meaning in terms of student mastery of the Science Assessment Anchors as defined by the Eligible Content.

The full report can be obtained by request from the Pennsylvania Department of Education.

SUMMARY OF COMPARABILITY REPORT FROM SIRECI PSYCHOMETRIC SERVICES

In addition to the study conducted by Second Language Testing, Incorporated, a second comparability study of the 2009 PSSA Spanish translations for science was completed in February 2010 by Sireci Psychometric Services. The report of the study is titled “Evaluating the Comparability of English and English-Spanish Science Tests from the Pennsylvania System of School Assessment.”

In this study, the data from the English language and English-Spanish dual-language Pennsylvania science tests for Grades 4, 8, and 11 were analyzed. These analyses were designed to evaluate the consistency of the structure of the data and the consistency of item functioning across the English and Spanish versions of these assessments using various psychometrics methods.

The full report can be obtained by request from the Pennsylvania Department of Education.

CHAPTER SEVEN: TEST ADMINISTRATION PROCEDURES

TEST SESSIONS, TEST SECTIONS, TEST TIMING, AND TEST LAYOUT

Some assessments utilized separate test booklets and answer booklets. An answer booklet was used to respond to the selected-response items (i.e., multiple-choice items and evidence-based selected-response items) and constructed-response items (i.e., open-ended items, short-answer items, and text-dependent analysis items,) and to collect demographic information. The selected-response items and all stimulus-text were placed within the test booklet. Other assessments used a single consumable booklet. When a single scannable answer booklet was utilized, the contents of the answer booklet and the test booklet were combined into one integrated booklet.

Table 7–1. Booklet Type by Administration

| Assessment | Grade | Booklet Type |
|-------------|-------|----------------------------------|
| Mathematics | 3 | Single Consumable Booklet |
| Mathematics | 4 | Test Booklet and Answer Document |
| Mathematics | 5 | Test Booklet and Answer Document |
| Mathematics | 6 | Test Booklet and Answer Document |
| Mathematics | 7 | Test Booklet and Answer Document |
| Mathematics | 8 | Test Booklet and Answer Document |
| ELA | 3 | Single Consumable Booklet |
| ELA | 4 | Test Booklet and Answer Document |
| ELA | 5 | Test Booklet and Answer Document |
| ELA | 6 | Test Booklet and Answer Document |
| ELA | 7 | Test Booklet and Answer Document |
| ELA | 8 | Test Booklet and Answer Document |
| Science | 4 | Test Booklet and Answer Document |
| Science | 8 | Test Booklet and Answer Document |

Generally, a separate test booklet and answer booklet were used to separate the selected-response items and constructed-response items. For the Grade 3 mathematics and ELA assessments, a single booklet was used for each assessment to accommodate the younger age of the students.

The number of sections for the 2022 operational assessment varied based on the content area of the assessment. The ELA assessments consisted of three sections. The mathematics and science assessments consisted of two sections. See also Appendix G.

Table 7–2. PSSA Test Section Information

| Content Area | No. of Sections per Form |
|--------------|--------------------------|
| Mathematics | 2 |
| ELA | 3 |
| Science | 2 |

Table 7–3. PSSA Testing Load and Duration by Subject by Grade

| Assessment | Grade | Total No. of SR Items per Form per Administration | Total No. of CR Items per Form per Administration | Total Estimated Administration Time per Form (in Minutes) |
|-------------|-------|---|---|---|
| Mathematics | 3 | 48 | 4 | 156 |
| Mathematics | 4 | 48 | 4 | 156 |
| Mathematics | 5 | 48 | 4 | 156 |
| Mathematics | 6 | 48 | 4 | 156 |
| Mathematics | 7 | 48 | 4 | 156 |
| Mathematics | 8 | 48 | 4 | 156 |
| ELA | 3 | 52 | 3 | 134 to 166 |
| ELA | 4 | 57 | 2 | 225 to 246 |
| ELA | 5 | 57 | 2 | 225 to 246 |
| ELA | 6 | 57 | 2 | 225 to 246 |
| ELA | 7 | 57 | 2 | 225 to 246 |
| ELA | 8 | 57 | 2 | 225 to 246 |
| Science | 4 | 46 | 6 | 76 |
| Science | 8 | 48 | 6 | 90 |

Table 7–4. PSSA Testing Load and Duration by Grade by Subject

| Grade | Content | Total No. of Items per Form per Administration | Total Estimated Administration Time per Form (in Minutes) | Total No. of Items per Student | Total Estimated Administration Time per Student (in Minutes) |
|-------|-------------|--|---|--------------------------------|--|
| 3 | Mathematics | 52 | 156 | 107 | 290 to 322 |
| 3 | ELA | 55 | 134 to 166 | 107 | 290 to 322 |
| 4 | Mathematics | 52 | 156 | 163 | 457 to 478 |
| 4 | ELA | 59 | 225 to 246 | 163 | 457 to 478 |
| 4 | Science | 52 | 76 | 163 | 457 to 478 |
| 5 | Mathematics | 52 | 156 | 111 | 381 to 402 |
| 5 | ELA | 59 | 225 to 246 | 111 | 381 to 402 |
| 6 | Mathematics | 52 | 156 | 111 | 381 to 402 |
| 6 | ELA | 59 | 225 to 246 | 111 | 381 to 402 |
| 7 | Mathematics | 52 | 156 | 111 | 381 to 402 |
| 7 | ELA | 59 | 225 to 246 | 111 | 381 to 402 |
| 8 | Mathematics | 52 | 156 | 165 | 471 to 492 |
| 8 | ELA | 59 | 225 to 246 | 165 | 471 to 492 |
| 8 | Science | 54 | 90 | 165 | 471 to 492 |

In general, the estimated testing times allowed 1–3 minutes per multiple-choice item, depending on the content area. The evidence-based selected-response items were estimated to take approximately 3–5 minutes per item, depending on the number of responses required by the item. The open-ended or short-answer items were estimated to take approximately 5–10 minutes per item, also depending on the content area. Text-dependent analysis questions were estimated to take approximately 55–65 minutes per item.

Test administrators were instructed that each section in a form should be scheduled as one assessment session. However, they were allowed to combine multiple sections into a single session, as long as the sections were administered in the sequence in which they are printed in the test booklets (or shown on the screen). In all cases, individual assessment sections had to be completed within one school day.

Since not all students finished the assessment sections at the same time, test administrators were advised to use the flexibility of the time limits to the students' advantage. For example, test administrators managed the testing time so that students did not feel rushed while they were taking any assessment section, and no student was penalized because he or she worked slowly. It was equally stressed to test administrators that a student should not be given an opportunity to waste time. Students were told to close their booklets when they had finished the section of the assessment in which they had been working. Students who finished early were allowed to sit quietly or read for pleasure until all students had finished. Students with special requirements and/or abilities (i.e., physical, visual, auditory, or learning disabilities as defined by their IEP or service contracts) and students who just worked slowly may have required extended time. Special assessment situations were arranged for these students. When all students in a testing session indicated that they had finished an assessment section, test administrators ended the section and began the next section or allowed the students to return to regular activities.

Scheduled extended time was provided by a test administrator, and students were allowed to request extended time if they indicated that they had not completed the task. Such requests were granted if the test administrator found the request to be educationally valid. Test administrators were advised that not permitting ample time for students to complete the assessment might impact the students' and school's performance.

As a general guideline, however, when all students indicated that they had finished a section, that section was closed. Students requiring time beyond the majority of the student population were allowed to continue immediately following the regularly scheduled session in another setting. When such accommodations were made, school personnel ensured that students were monitored at all times to prevent sharing of information. Students were not permitted to continue a section of the assessment after a significant lapse of time from the original session.

TESTING WINDOW

The testing window for the 2022 operational assessments were as follows:

- English Language Arts: April 25–29, 2022
- Mathematics, Science, and Make-ups: May 2–13, 2022

SHIPPING, PACKAGING, AND DELIVERY OF MATERIALS

Sites receive the *Handbook for Assessment Coordinators*, the *Directions for Administration Manuals*, the administrative materials (e.g., Return Shipping labels, District/School labels, Do Not Score labels, Student Precode labels) and secure materials (e.g., consumable test/answer books) for each grade tested at a school participating in the English Language Arts, Mathematics, and Science assessments. All materials arrive at least two weeks prior to the start of the testing window.

DRC ensured that all assessment materials were assembled correctly prior to shipping. DRC operations staff used the automated Operations Materials Management System (Ops MMS) to assign secure materials to a school at the time of ship out. This system used barcode technology to provide an automated quality check between items requested for a site and items shipped to a site. A shipment box manifest was produced for and placed in each box shipped. DRC operations staff double-checked all box contents with the box manifest prior to sealing the box for shipping to ensure accurate delivery of materials. DRC operations staff performed lot acceptance sampling on both shipments. Districts and schools were selected at random and examined for correct and complete packaging and labeling. This sampling represented a minimum of 10 percent of all shipping sites.

DRC's materials management system, along with the systems of shippers, allowed DRC to track materials from DRC's warehouse facility to receipt at the district, school, or testing site. All DRC shipping facilities, materials processing facilities, and storage facilities are secure. Access is restricted by security code. Non-DRC personnel are escorted by a DRC employee at all times. Only DRC inventory control personnel have access to stored secure materials. DRC employees are trained in and made aware of the high level of security that is required.

DRC used United Parcel Service (UPS) to deliver the secure materials to the testing sites.

ONLINE TESTING

Online administration is managed through the DRC INSIGHT Portal that provides tiered, secure access to all required administrative functions. Within the DRC INSIGHT Portal, users manage student information and create test sessions.

Student information from the Pennsylvania Information Management System (PIMS) is imported into the DRC INSIGHT Portal Test Setup application via file transfer. If a record was not transferred via the PIMS file, LEAs also have the opportunity to upload a student(s) directly into the DRC INSIGHT Portal so the student can be included in a test session.

Once the student data is loaded into Test Setup, users organize students into test sessions. Test sessions can be created by class, grade, or school. Through Test Setup, users can also update student accommodation information, print test tickets, and monitor student testing status.

The student login ticket contains unique login credentials used by the student to access the testing software. For a selected test session, users can download and print a PDF document containing instructions, a roster of student tickets being printed, and the actual test tickets. Student test tickets are considered secure materials and LEAs are required to keep printed tickets in a predetermined, locked, secure storage area.

The web-based test engine, DRC INSIGHT Online Learning System, is downloaded onto computers that students will access during the assessment. Test items and forms can only be accessed using a valid test ticket. During testing, responses are sent to a DRC server each time the student navigates away from an item or clicks the *Next* button to submit an answer. The system is configured to allow students to review answers before submitting their test.

TEST SECURITY MEASURES

Test security is essential to obtaining reliable and valid scores for accountability purposes. Test Security Certifications were required to be signed by each building Principal, School Assessment Coordinator, District Assessment Coordinator, Test Administrator, and Proctor after the assessment is administered. All signed Certifications were returned to the Chief School Administrator who must retain the Certifications for three years. The purpose of the Certifications was to serve as a tool to document that the individuals responsible for administering the assessments both understood and acknowledged the importance of test security and accountability. The Certifications attested that all security measures were followed concerning the handling of secure materials. Additional details can be found in the *Handbook for Assessment Coordinators*. A screen shot of the Test Administrator Certificate is provided in Figure 7–1.

Figure 7–1. Test Administrator and Proctor PSSA Test Security Certification

PSSA Test Security Certification

(Test Administrator and Proctor)

District: _____

School: _____

AUN: _____

Maintaining the security and integrity of all assessment materials, preventing any dishonest or fraudulent behavior in the administration and handling of the assessment, and promoting a fair and equitable testing environment are essential in order to obtain reliable and valid student scores. In that regard, I certify the following:

Prior to the administration of the assessment, I completed the Pennsylvania State Test Administration Training, and I understand that the assessment materials are secure, confidential, and proprietary documents owned by the Pennsylvania Department of Education.

I have not reviewed, discussed, disseminated, described, or otherwise revealed the contents of the assessment to anyone. I have not removed any assessment materials from the school building unless I was specifically authorized to administer the assessment to a student on homebound instruction. I have not kept, copied, reproduced, released, or used any assessment, assessment question, specific assessment content, or examinee response to any item or any section of the secure assessment in any manner that is inconsistent with the instructions provided by or through the Pennsylvania Department of Education. I have not provided any examinee with an answer to an assessment question or in any way influenced an examinee's response to any assessment question. I have not in any manner altered or caused the alteration of any examinee response, assessment booklet, or papers used by examinees.

I understand that any breach in assessment security could result in the invalidation of assessment results, professional discipline, and/or criminal prosecution.

I understand that false statements herein are made subject to the penalties of 18 Pa.C.S. § 4904.

Administrator/Proctor Name

Administrator/Proctor Signature

Date of Signature

SAMPLE MANUALS

Copies of the *Handbook for Assessment Coordinators* and the *Directions for Administration Manuals* can be found on the PDE website at www.education.pa.gov.

TESTING WINDOW ASSESSMENT ACCOMMODATIONS

PDE develops an *Accommodation Guidelines* handbook for use with the PSSA administration. This manual can be found on the PDE website at www.education.pa.gov. Additional information regarding assessment accommodations can be found in Chapter Four and Six of this report.

CHAPTER EIGHT: PROCESSING AND SCORING

RECEIPT OF MATERIALS

Receipt of PSSA test materials began on May 4, 2022, and concluded by June 6, 2022. DRC's Operations Materials Management System (Ops MMS) was utilized to receive assessment materials securely, accurately, and efficiently. This system features innovative automation and advanced barcode scanners. Captured data were organized into reports, which provided timely information with respect to suspected missing material.

The first step in the Ops MMS was the Box Receipt System. When a shipment arrived at DRC, the boxes were removed from the carrier's truck and passed under a barcode reader, which read the barcode printed on the return label and identified the district and school. The number of boxes was immediately compared to what was picked up at the district. The data collected in this process were stored in the Ops MMS database. After the barcode data were captured, the boxes were placed on a pallet and assigned a corresponding pallet number.

Once the box receipt process was completed, the materials separation phase began. Warehouse personnel opened the boxes and sorted materials by grade, subject, and status (used or unused booklets) into scanning boxes. Every booklets' security barcode and precode barcode were hand-scanned to link each document to the original box. As the booklets were sorted, the Ops MMS system guided the floor operator to which box to place the document. The Ops MMS system kept count and record of the materials placed in each box. This count remained correlated to the box as an essential quality-control step throughout the secure booklet processing and provided a target number for all steps of the check-in process. Once a box was closed, an MMS Processing Label was placed on that box.

Once labeled, the sorted and counted boxes proceeded to the Quality Assurance process, where a secure booklet check-in operator used a hand scanner to scan the MMS Processing Label. This procedure identified the material type and quantity parameters for what the Ops MMS should expect within a box. The box contents were then loaded into the streamfeeder.

The documents were fed past oscillating scanners that captured both the security code and precode from the booklets. A human operator monitored an Ops MMS screen that displayed scan errors, an ordered accounting of what was successfully scanned, and the document count for each box. The system ensured that each material within the box matched the information obtained from the original hand-scanning process.

When all materials were scanned and the correct document count was confirmed, the box was sealed and placed on a pallet. If the correct document count was not confirmed, or if the operator encountered difficulties with material scanning, the box and its contents were delivered to an exception handling station for resolution.

This check-in process occurred immediately upon receipt of materials; therefore, DRC provided feedback to districts and schools regarding any missing materials based on actual receipt versus expected receipt. Sites that had 100 percent of their materials missing after the date they were due to DRC were contacted, and any issues were resolved.

Throughout the process of secure booklet check-in, DRC project management ran a daily missing materials report. Every site that was missing any number of booklets was contacted by DRC. Results of these correspondences were recorded for inclusion in the final Missing Materials Report if the missing booklets were not returned by the testing site. DRC produced the Missing Materials Report for PDE upon completion of secure booklet check-in. The report listed all schools in each participating district along with security barcodes for any booklets not returned to DRC.

After scannable materials (used answer booklets) were processed through booklet check-in, the materials became available to the DRC Document Processing log-in staff for document log-in. The booklets were logged-in using the following process:

- A DRC scannable barcode batch header was scanned, and a batch number was assigned to each box of booklets.

- The DRC box label barcode was scanned into the system to link the box and booklets to the newly created batch and to create a Batch Control Sheet.
- The DRC box label barcode number, along with the number of booklets in the box, was printed on the Batch Control Sheet for document tracking purposes. All booklets that were linked to the box barcode were assigned to the batch number and tracked through all processing steps. As booklets were processed, DRC staff dated and initialed the Batch Control Sheet to indicate that proper processing and controls were observed.

Before the booklets were scanned, all batches went through a quality inspection to ensure batch integrity and correct document placement.

After a quality check-in at the DRC Document Processing log-in area, the spines were cut off the scannable documents, and the pages were sent to DRC's Imaging and Scoring System.

SCANNING OF MATERIALS

Customized scanning programs for all scannable documents were prepared to read the booklets and to format the scanned information electronically. Before materials arrived, all image scanning programs went through a quality review process that included scanning of mock data from production booklets to ensure proper data collection.

DRC's image scanners were calibrated using a standard deck of scannable pages with 16 known levels of gray. On a predefined page location, the average pixel darkness was compared to the standard calibration to determine the level of gray. Marks with an average darkness level of 4 or above on a scale of 16 (0 through F) were determined to be valid responses, per industry standards. If multiple marks were read for a single item and the difference of the grayscale reads was greater than four levels, the lighter mark was discarded. If the multiple marks had fewer than four levels of grayscale difference, the response was flagged systematically and forwarded to an editor for resolution.

DRC's image scanners read selected-response, demographic, and identification information. The image scanners also used barcode readers to read pre-printed barcodes from a label on the booklets.

The scannable documents were automatically fed into the image scanners where predefined processing criteria determined which fields were to be captured electronically. Open-ended response images were separated out for image-based scoring.

During scanning, a unique serial number was printed on each sheet of paper. This serial number was used for document integrity and to maintain sequencing within a batch of booklets.

A monitor randomly displayed images, and the human operator adjusted or cleaned the scanner when the scanned image did not meet DRC's strict quality standards for image clarity.

All images passed through a software clean-up program that despeckled, deskewed, and desmeared the images. A random sample of images was reviewed for image quality approval. If any document failed to meet image quality standards, the document was returned for rescanning.

Page-scan verification was performed to ensure that all predefined portions of the booklets were represented in their entirety in the image files. If a page was missing, the entire booklet was flagged for resolution.

After each batch was scanned, booklets were processed through a computer-based editing program to detect potential errors as a result of smudges, multiple marks, and omissions in predetermined fields. Marks that did not meet the predefined editing standards were routed to editors for resolution.

Experienced DRC Document Processing editing staff reviewed all potential errors detected during scanning and made necessary corrections to the data files. The imaging system displayed each suspected error. The editing staff then inspected the image and made any needed corrections using the unique serial number printed on the document during scanning.

Upon completion of editing, quality control reports were run to ensure that all detected potential errors were reviewed again and a final disposition was determined.

Before batches of booklets were extracted for scoring, a final edit was performed to ensure that all requirements for final processing were met. If a batch contained errors, it was flagged for further review before being extracted for scoring and reporting.

During this processing step, the actual number of documents scanned was compared to the number of booklets assigned to the box during book receipt. Count discrepancies between book receipt and booklets scanned were resolved at this time.

Once all requirements for final processing were met, the batch was released for scoring and student level processing.

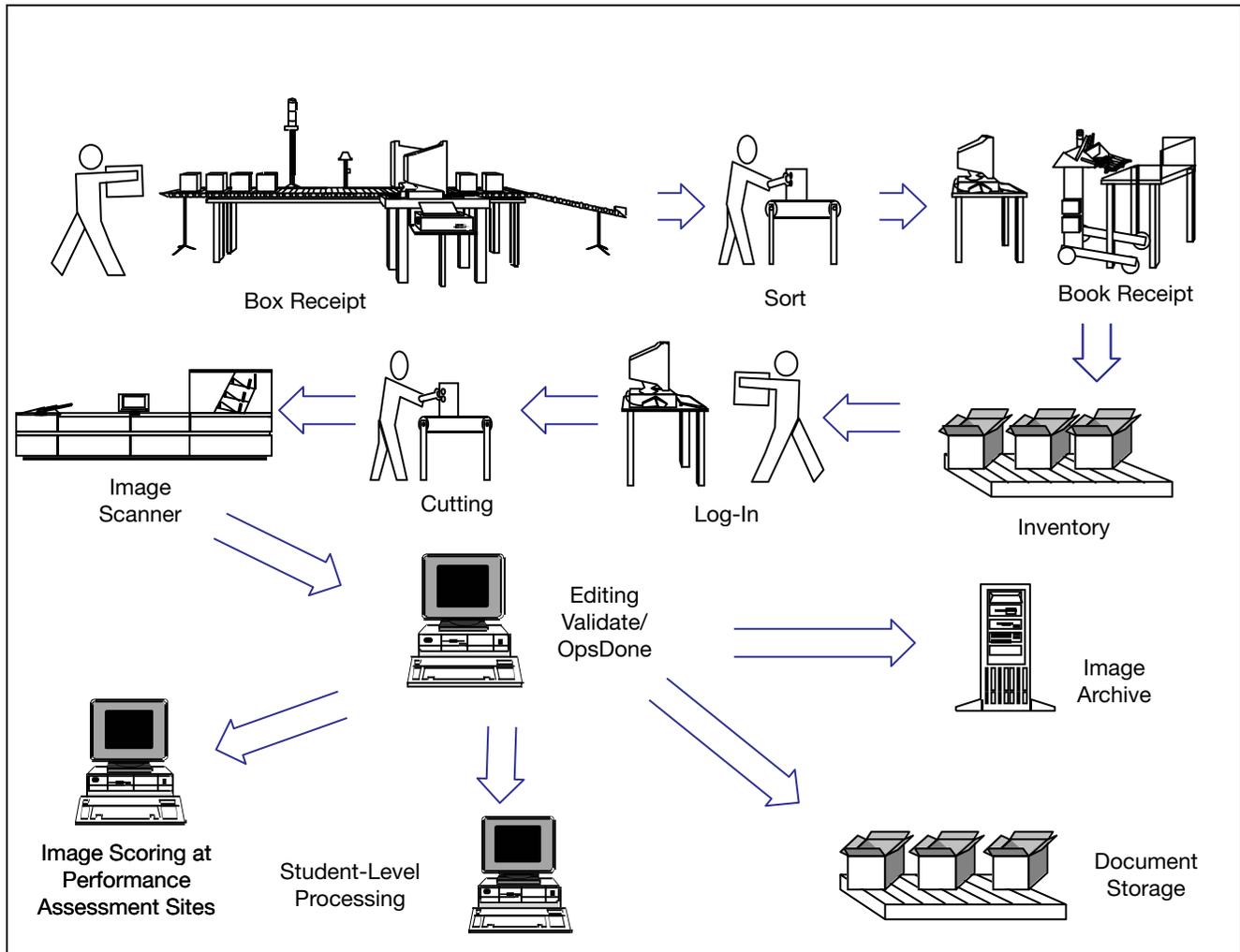
Table 8–1 shows the number of answer booklets received through booklet check-in, the number of booklets that contained student responses that were scanned and scored, the number of test booklets received, and the total number of booklets received for the English Language Arts assessment (ELA), the Mathematics assessment, and the Science assessment.

Table 8–1. Counts of 2022 PSSA Materials Received: Grades 3–8

| Grade/Subject | Answer Booklets Received | Used Answer Booklets Received | Test Booklets Received | Total Booklets Received | Total Booklets Shipped |
|----------------------|---------------------------------|--------------------------------------|-------------------------------|--------------------------------|-------------------------------|
| Grade 3 Math | 128,534 | 93,190 | NA | 126,731 | 128,542 |
| Grade 4 Math | 126,165 | 91,630 | 126,163 | 252,328 | 252,374 |
| Grade 5 Math | 124,107 | 90,059 | 124,104 | 248,211 | 248,222 |
| Grade 6 Math | 119,051 | 87,082 | 119,049 | 238,100 | 238,204 |
| Grade 7 Math | 120,851 | 88,272 | 120,849 | 241,700 | 241,820 |
| Grade 8 Math | 122,518 | 90,653 | 122,515 | 245,033 | 245,254 |
| Grade 3 ELA | 129,979 | 93,915 | NA | 129,979 | 130,067 |
| Grade 4 ELA | 126,731 | 92,442 | 126,732 | 253,463 | 253,528 |
| Grade 5 ELA | 124,458 | 90,788 | 124,456 | 248,914 | 248,938 |
| Grade 6 ELA | 119,111 | 87,505 | 119,110 | 238,221 | 238,318 |
| Grade 7 ELA | 119,850 | 88,157 | 119,850 | 239,700 | 239,794 |
| Grade 8 ELA | 122,061 | 90,434 | 122,058 | 244,119 | 244,238 |
| Grade 4 Science | 124,605 | 90,322 | 124,602 | 249,207 | 249,292 |
| Grade 8 Science | 121,448 | 88,753 | 121,447 | 242,895 | 243,084 |

Figure 8–1 illustrates the production workflow for DRC’s Ops MMS and Image Scanning and Scoring System from receipt of materials through all processing of materials and the presentation of scanned images for scoring.

Figure 8–1. Workflow System



MATERIALS STORAGE

Upon completion of processing, student response documents were boxed for security purposes and final storage:

- Project-specific box labels were created containing unique customer and project information, material type, batch number, pallet/box number, and the number of boxes for a given batch.
- Boxes were stacked on pallets that were labeled with the project information and a list of the pallet’s contents before delivery to the Materials Distribution Center for final secure storage.
- Materials will be destroyed one year after contract year ends, with PDE written approval.

ONLINE TESTING

The DRC INSIGHT test engine runs on a custom web browser that is designed to ensure a fully secure environment during testing. The secure browser “locks down” the student’s testing device, preventing the student from accessing the desktop, the Internet, and other external programs. For non-secure testing such as practice and training sessions, students can use the Online Tools Training (OTT) environment, which runs on a standard web browser.

The custom browser software is downloaded from the DRC INSIGHT Portal and installed onto student testing devices. The secure browser can be installed on computers individually, or it can be downloaded to a central location, copied, and distributed to multiple computers simultaneously using common network distribution tools. Everything needed for testing is found within the secure browser, eliminating the need for districts to coordinate updates to third-party software.

Prior to operational use, DRC’s quality assurance staff will perform full system-level tests in an independent test environment that simulates the production configuration. Tests are run on all supported computer platforms and browsers and include comprehensive review of system functionality, usability, reliability, security, and overall performance. Test content is also validated during this process.

Multiple methods are used to ensure secure data transfer, including encryption technologies and Secure Sockets Layer (SSL) protocol through Hypertext Transfer Protocol Secure (HTTPS). Test content is encrypted at the host server, and remains encrypted throughout all network transmissions; content is decrypted only once the student login is validated. Decrypted test content on the student workstation is stored only in memory during each test session. Once the session is ended (the test is completed or the student logs out), computer memory is purged to ensure security of test content is maintained.

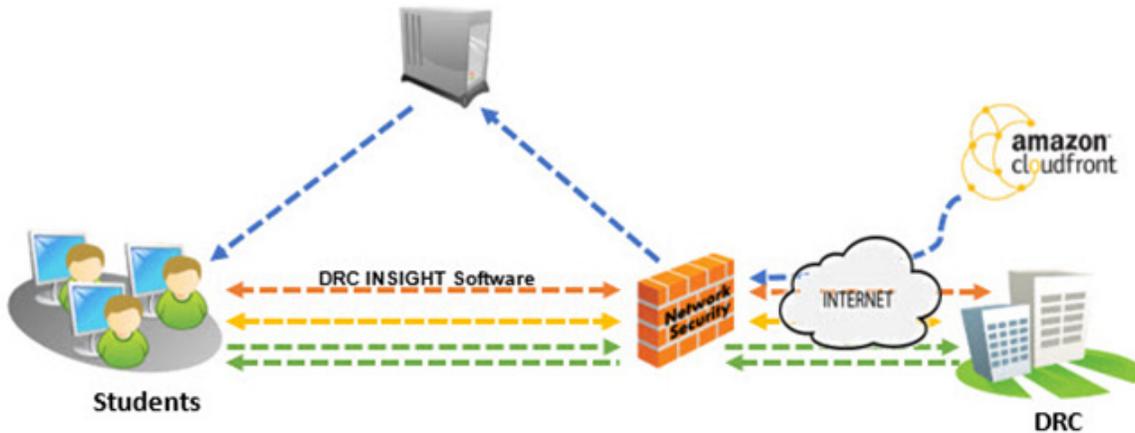
Responses are saved automatically every 45 seconds during testing, or when the student navigates away from an item or answers a selected-response item (whichever comes first). If a particular question takes the student longer than 45 seconds to answer, then the partial, incomplete responses are submitted at 45-second intervals until the student completes the item. This auto-save helps safeguard against students losing their work on longer items, such as constructed-response items. When the student returns to the test after a break or interruption, the student is returned to the point that they left off without having to navigate through all previously answered questions.

Table 8–2. Counts of 2022 PSSA Online Assessments: Grades 3–8

| Grade/Subject | Total Online Assessments Completed |
|----------------------|---|
| Grade 3 Math | 27,850 |
| Grade 4 Math | 29,887 |
| Grade 5 Math | 33,601 |
| Grade 6 Math | 36,937 |
| Grade 7 Math | 39,666 |
| Grade 8 Math | 40,538 |
| Grade 3 ELA | 27,670 |
| Grade 4 ELA | 29,630 |
| Grade 5 ELA | 33,437 |
| Grade 6 ELA | 37,315 |
| Grade 7 ELA | 40,531 |
| Grade 8 ELA | 41,550 |
| Grade 4 Science | 31,032 |
| Grade 8 Science | 42,141 |

Figure 8–2 illustrates the secure transfer of online test responses between the student and DRC.

Figure 8–2. Architecture of the Student Testing Experience



SCORING MULTIPLE-CHOICE ITEMS

The scoring process included the scoring of multiple-choice items against the answer key and the aggregation of raw scores from the open-ended responses. A student’s raw score is the actual number of points achieved by the student for tested elements of an assessment. From the raw scores, the scale scores were calculated.

The student file was scored against the final and approved multiple-choice answer key. Items were scored as right, wrong, omitted, or double-gridded (more than one answer was bubbled for an item). Sections of the test were evaluated as a whole and an attempt status was determined for each student for each subject. The score program defined all data elements at the student level for reporting.

RANGEFINDING

After student answer documents were received and processed, DRC’s Performance Assessment Services (PAS) staff assembled groups of responses that exemplified the different score points for each subject. The score point ranges were represented by the following scoring guidelines:

- 0–3 item-specific scoring guidelines for ELA: reading (short-answer)
- 1–4 holistic scoring guideline for ELA: text-dependent analysis
- 0–4 item-specific scoring guidelines for math
- 0–2 item-specific scoring guidelines for science

Note: For English language arts and mathematics at all grade levels (3–8), Pennsylvania Core Standards (PCS) items were range-found and field tested. ELA range-found/field tested 12 forms per subject, per grade. Mathematics range-found/field tested 9 forms per subject, per grade. Science range-found/field tested 12 forms per subject, per grade level tested (4 and 8). All items were embedded in the 2022 operational PSSA.

Responses were pulled from the embedded field test portion of the PSSA for each subject. Once examples covering the range of score points were selected for each item, sets were assembled for rangefinding, and copies were made for each rangefinding participant. Rangefinding committees consisted of Pennsylvania educators, PDE staff members, DRC Test Development staff, and DRC Performance Assessment Services staff. The rangefinding meetings were as follows:

- ELA: Text-Dependent Analysis (TDA) Field Test Rangefinding (grades 4–8), June 1–3 and June 6–10, Lancaster Marriott at Penn Square, Lancaster, PA
- Reading Field Test Rangefinding (grade 3), June 6–9, Lancaster Marriott at Penn Square, Lancaster, PA
- Math Field Test Rangefinding (grades 3–8), June 6–8, Lancaster Marriott at Penn Square, Lancaster, PA
- Science Field Test Rangefinding (grades 4 and 8), June 6–7, Lancaster Marriott at Penn Square, Lancaster, PA

Each rangefinding meeting began in a joint session with a review of the history of the assessment as well as a discussion of the purpose of the rangefinding meeting and the role rangefinding plays within the item development process. The session then broke into subject/grade-specific committees. Sets of student responses were presented to the committees, one item at a time. Each committee initially reviewed and scored student responses as a group to ensure consistency in the interpretation of the scoring guidelines. Committee members then went on to score responses independently. For each student response, committee members' scores were discussed until a consensus was reached. Only those responses for which there was strong agreement among committee members were chosen for inclusion in training materials for DRC raters.

Discussions of student responses included the mandatory use of scoring guideline language. This ensured that committee members remained focused on the specific requirements of each score level. DRC PAS staff took notes addressing how and why the committees arrived at score point decisions, and this information was used by the scoring directors in rater training.

DRC and PDE discussed scoring guideline edits suggested by the rangefinding committees. Changes approved by PDE were then incorporated into the scoring guidelines by DRC Test Development staff. The edited scoring guidelines were used in the preparation of materials and the training of raters.

RATER RECRUITMENT/QUALIFICATIONS

DRC retains a number of raters from year to year; the overall return rate in 2022 was 42%. This pool of experienced raters was drawn from to staff the scoring of the 2022 PSSA. To complete the rater staffing, recruiting events were held and applications for rater positions were screened by DRC's recruiting staff. Candidates were personally interviewed by DRC staff. In addition, each candidate was required to provide an on-demand writing sample, an on-demand math sample, references, and proof of a four-year college degree. In this screening process, preference was given to candidates with previous experience scoring large-scale assessments and degrees emphasizing expertise in mathematics, English language arts, or science. Staffing partners were used to augment hiring using the same practices as those employed by DRC. The rater pool consisted of educators and other professionals with content-specific backgrounds. These individuals were valued for their content-specific knowledge, but they were required to set aside their own biases about student performance and accept the scoring standards outlined in the PSSA.

LEADERSHIP RECRUITMENT/QUALIFICATIONS

Scoring directors and team leaders were selected from a pool of employees who displayed expertise as raters and leaders on previous DRC projects. These individuals had strong backgrounds in mathematics, English language arts, or science, and demonstrated organizational, leadership, communication, and management skills. All scoring directors had previous leadership experience working on large scale assessments. All scoring directors, team leaders, and raters were required to sign confidentiality agreements before handling secure materials.

Each group of raters was assigned a scoring director. All handscoring activities were led by a scoring director for the duration of the project. Scoring directors assisted in rangefinding, worked with supervisors to create training materials, conducted team leader training, and were responsible for training the raters. The scoring director made sure that reports were available and interpreted those reports for the raters. The scoring director also supervised the team leaders. Scoring directors were monitored by the project managers throughout the project.

Team leaders assisted the scoring director with rater training by answering individual questions that raters may not have felt comfortable asking in a large group. Once raters were qualified, team leaders were responsible for monitoring and maintaining the accuracy and workload of each team member. Ongoing monitoring identified those individuals having difficulty scoring accurately. These raters received one-on-one retraining from the team leader or scoring director. Any rater who could not be successfully retrained had his/her scores purged and was released from the project.

TRAINING

As part of preparation for the 2022 ELA, mathematics, and science PSSA assessments, DRC's PAS staff assembled the PDE-approved scoring guidelines and scored student responses approved by rangefinding committees into sets used for training raters. The item-specific scoring guidelines for mathematics, science and ELA: reading (short-answer), as well as the focused holistic scoring guidelines for TDAs served as the raters' constant reference. Responses that were relevant in terms of the scoring concepts they illustrated were annotated and included in an anchor set. The full range of each score point was clearly represented and annotated in the anchor set, which was used for reference by raters throughout the project.

Training sets and qualifying sets contained student responses consensus-scored by rangefinding committee members. Raters were instructed on how to apply the scoring guidelines and were required to demonstrate a clear comprehension of each anchor set by performing well on the associated training materials. Responses were selected for training to show raters the range of each score point (e.g., high, mid, and low 2s). Examples of 0s were also included for all mathematics, reading, and science items. This process helped raters recognize the various ways that a student could respond in order to earn each score point outlined and defined in the scoring guidelines.

The scoring director conducted a team leader training session before training the raters. This session followed the same procedures as rater training but was more rigorous and in-depth due to the extra responsibilities required of team leaders. During team leader training, all pertinent materials were reviewed and discussed. Team leaders were given access to fully annotated training materials with committee justifications from the rangefinding meetings. To facilitate scoring consistency, it was imperative that all team leaders imparted the same rationale for each response. Once the team leaders were qualified, leadership responsibilities were reviewed and team assignments were given. A ratio of one team leader per 7–10 raters ensured sufficient monitoring rates for team members.

Rater training began with the scoring director providing an intensive review of the scoring guidelines and anchor responses. Next, raters practiced by independently scoring the responses in the training sets. After each training set was taken, the scoring director led a thorough discussion of the responses.

Once the scoring guidelines, anchor sets, and training sets were thoroughly discussed, each rater was required to demonstrate understanding of the scoring criteria by qualifying (i.e., scoring with acceptable agreement to the true scores) on at least one of the qualifying sets. Raters who failed to achieve at least 70 percent exact agreement on the first qualifying set were given additional training, either individually or in a small group setting. Raters who did not perform at the required level of agreement by the end of the qualifying process were not allowed to score any student responses. These individuals were removed from the pool of potential raters in DRC's imaging system and released from the project.

DRC's remote scoring is designed to very closely emulate the work that is done in our physical scoring locations. The platform, content, and expectations for quality remain the same, and interactive technology and content training and discussions are conducted live (virtually). The differences come with the method through which training is delivered (online), and in the modes of communication that are used (web screen sharing, webcast, video chat, and chat). Our scoring leaders are equipped with a variety of tools to ensure every scorer is successful in understanding and applying scoring criteria to student responses.

The 2022 assessment included the opportunity for students to respond in Spanish to mathematics and science items. Rater training for the Spanish language response scoring was conducted by Tri-Lin Integrated Services in San Antonio, Texas, and was overseen by a DRC project manager, who is a Spanish language speaker with a strong handscoring background. All Spanish raters were bilingual and hired specifically to score the Spanish portion of the assessment and were required to meet the same standards set for raters of the English language version of the assessment.

Table 8–3. Qualification Rates for 2022 PSSA Open-Ended Response Items

| Subject | % Qualifying | % That Did Not Qualify |
|---------|--------------|------------------------|
| Math | 97 | 3 |
| ELA | 94 | 6 |
| Science | 99 | 1 |

HANDSCORING PROCESS

Student responses were scored independently. All responses were scored once, and ten percent of the responses were scored a second time. The data collected from the ten-percent double-read portion was used to calculate the exact and adjacent agreement rates in the Scoring Summary Reports. The responses that were used for the ten percent read behind were randomly chosen by the imaging system at the item level. Additional read behinds by the team leaders and scoring directors were done to further ensure reliability.

Raters scored the imaged student responses at the Cincinnati, OH location and remotely. Raters working remotely scored student responses on either laptop or desktop computers.

In all locations for on-site scoring, raters were seated at tables with individual imaging stations. In the case of remote scoring, raters worked in a secure location in their homes. Image distribution was controlled, ensuring that student images were sent only to designated groups of raters qualified to score those items. Imaged student responses were electronically separated for routing to individual raters by item. Raters were only provided with student responses for items that they were qualified to score. Scores were keyed into DRC’s imaging system.

To handle possible alerts (i.e., student responses indicating potential issues related to students’ safety and well-being that sometimes require attention at the state or local level), DRC’s imaging system allows raters to forward responses needing attention to the scoring director. These alerts are reviewed by project management, who then notifies the students’ schools and PDE of the occurrences. PDE does not receive any identifying information about the students. At no time in the alerts process do raters, or other DRC handscoring staff, acquire any knowledge concerning a student’s personal identity.

HANDSCORING VALIDITY PROCESS

One of the training tools PAS utilized to ensure rater accuracy was the validity process. The goal of the validity process is to ensure that scoring standards are maintained. Specifically, the objective is to make sure that raters score student responses in a manner consistent with statewide standards both within a single administration of the PSSA and across consecutive administrations. During the scoring of the 2022 PSSA, scoring consistency was maintained, in part, through the validity process.

The validity process began with the selection of scored responses. Forty validity responses were selected for each core open-ended (OE) item. These 40 responses were drawn from a pool of exemplars (responses that are representative of a particular score point and have been verified by the scoring director). The scores on validity responses are considered true scores.

The validity responses were then implemented to test rater accuracy. The responses were selected within the imaging system and dispersed intermittently to the raters. By the end of the project, raters had scored all 40 validity responses for any items they were qualified to score. Raters were unaware when they were being dealt pre-scored validity responses and assumed that they were scoring live student responses. This helped bolster the internal

validity of the process. All raters who received validity responses had already successfully completed the training/qualifying process.

The scores that the raters assigned to the validity responses were compared to the true scores in order to determine the validity of the raters' scores. For each item, the percentage of exact agreement as well as the percentage of high and low scores was computed. This data was accessed through the Validity Item Detail Report. The same sort of data was also computed for each specific rater. This data was accessed through the Validity Reader Detail Report. Both of these may be run as daily or cumulative reports.

The Validity Reader Detail Report was used to identify particular raters for retraining. If a rater on a certain day generated a lower rate of agreement on a group of validity responses, it was immediately apparent in the Validity Reader Detail Report. A lower rate of agreement was defined as anything below 70 percent exact agreement with the true scores. Any time a rater's validity agreement rate fell below 70 percent, the scoring director was cued to examine that rater's scoring. First, the scoring director attempted to ascertain what kind of validity responses the rater was scoring incorrectly. This was done to determine whether there was any sort of a trend (e.g., trending low on the 1–2 line). Once the source of the low agreement rate was determined, the rater was retrained. If it was determined that the rater had been scoring live responses inaccurately, then his/her scores were purged for that day, and the responses were re-circulated and scored by other raters.

The cumulative Validity Item Detail Report was utilized to identify potential group-wide trends in need of correction. For instance, if a particular validity response with a true score of 3 was given a score of 2 by a significant number of raters within the group, that trend would be revealed in the Validity Item Detail Report. To correct a trend of this sort, the scoring director would look for student responses similar to the validity paper being scored incorrectly. Once located, these responses would be used in group-wide re-training, usually in the form of an annotated handout or a short set of responses without printed scores given to raters as a recalibration test.

Validity was employed on all operational mathematics, ELA: reading, and science OE items, as well as on all operational TDAs. Each 40-response validity set was formulated to mirror the score point distribution that the item generated during its previous administration. Each validity set included at least five examples of each score point. Examples of different types of responses were included to ensure that raters were tested on the full spectrum of response types.

The exact rater agreement rate generated during the validity process is sometimes higher than the inter-rater agreement rate for the same item. The reason for this sort of difference often has to do with how validity sets are formulated. The 40 validity responses for each item are intended to cover the full breadth of each score point. For example, each validity set contains examples of high, mid, and low 2s. This sort of scope ensures that the validity process is truly valid in terms of addressing the complete spectrum of response types. However, certain types of responses are generally not included in validity sets. These include line responses (i.e., examples of score points that are so close to the adjacent score point that raters are instructed to consult with a supervisor before assigning a score) and responses that, because of poor word choice/writing, are difficult to understand. The reason for these exclusions is that confusing/line/illegible responses often do not impart a teachable lesson. Since these types of responses are generally unique, any potential lesson the response might teach would apply only to that particular response. Conversely, responses in validity sets are selected because they represent common response-types and teach lessons that can be applied to other similar responses. Due to this distinction, validity sets sometimes generate a slightly higher agreement rate than is generated during operational scoring. However, in some cases, validity responses can also generate *lower* rates of agreement than inter-rater agreement rate averages. The reason for this sort of difference is that validity is sometimes used to discern scoring trends for specific response types so that targeted retraining can occur. Within this year's TDA validity response selection there were examples of student responses that were close to scoring lines in several grade levels. These validity responses were selected to address scoring decisions for these item-specific response types and sometimes generated lower rates of agreement than the group-wide inter-rater agreement rate for the same item. For all the reasons cited above, this year's TDA items generated some validity agreement percentages that were slightly lower than group-wide inter-rater agreement rates and others that were at or above group averages. It should be pointed out that for all TDA items, cumulative inter-rater agreement and validity averages were above expected handscoring best practice rates.

QUALITY CONTROL

Rater accuracy was monitored throughout the scoring session by means of daily and on-demand reports. These reports ensured that an acceptable level of scoring accuracy was maintained throughout the project. Interrater reliability was tracked and monitored with multiple quality control reports that were reviewed by quality assurance analysts. These reports and other quality control documents were generated at the scoring centers, where they were reviewed by the scoring directors, team leaders, and project managers. The following reports and documents were used during the scoring of the open-ended items:

The Scoring Summary Report (includes two related reports)

1. The Reader Monitor Report monitored how often raters were in exact agreement with one another and ensured that an acceptable agreement rate was maintained. This report provided daily and cumulative exact and adjacent inter-rater agreement on the ten percent that was double read.
2. The Score Point Distribution Report monitored the percentage of responses given each of the score points. For example, the mathematics daily and cumulative reports showed what percentage of 0s, 1s, 2s, 3s, and 4s a rater – or group of raters - had given to all the responses scored at the time the report was produced. It also indicated the number of responses read by each rater so that production rates could be monitored.

The Item Status Report monitored the progress of handscoring. This report tracked each response and indicated the status (e.g., not read, complete, awaiting supervisor review, etc.). This report ensured that all responses were scored by the end of the project.

The Reader Score Report identified all responses scored by an individual rater. This report was useful if any responses needed rescoring due to possible rater drift.

The Validity Reports (addressed in detail on previous pages) tracked how raters performed by comparing pre-scored responses to raters' scores for the same responses. If a rater's scoring fell below the 70 percent determined agreement rate, remediation occurred. Raters who did not retrain to the required level of agreement were released from the project.

The Read-Behind Log was used by the team leader/scoring director to monitor individual rater reliability. Team leaders read randomly-selected, scored items from each team member on a daily basis. If the team leader disagreed with a rater's score, remediation occurred. This proved to be a very effective type of feedback because it was performed in real time with live student responses scored by each rater.

Recalibration Sets were used throughout the scoring sessions to ensure accuracy by comparing each rater's scores with the true scores on a pre-selected set of responses. Recalibration sets helped to refocus raters on Pennsylvania scoring standards. These checks made sure there was no change in the scoring pattern as the project progressed. Raters failing to achieve 70 percent agreement with the recalibration true scores were given additional training to achieve the highest degree of accuracy possible. Raters who were unable to recalibrate were released from the project. The process for creating and administering recalibration sets was similar to the one employed for creating and administering training sets.

Table 8–4. Inter-rater Agreement for 2022 PSSA Mathematics Grades 3–8 Open-Ended Response Items and Validity

| Mathematics | Common Item | % Exact Agreement | % Adjacent Agreement | % Exact + Adjacent Agreement | % Exact Validity Agreement |
|-------------|-------------|-------------------|----------------------|------------------------------|----------------------------|
| Grade 3 | 1 | 91 | 9 | 100 | 93 |
| Grade 3 | 2 | 92 | 8 | 100 | 93 |
| Grade 3 | 3 | 91 | 9 | 100 | 85 |
| Grade 4 | 1 | 84 | 15 | 99 | 83 |
| Grade 4 | 2 | 88 | 12 | 100 | 87 |
| Grade 4 | 3 | 89 | 11 | 100 | 89 |
| Grade 5 | 1 | 86 | 14 | 100 | 85 |
| Grade 5 | 2 | 84 | 16 | 100 | 82 |
| Grade 5 | 3 | 86 | 14 | 100 | 83 |
| Grade 6 | 1 | 89 | 11 | 100 | 84 |
| Grade 6 | 2 | 88 | 12 | 100 | 80 |
| Grade 6 | 3 | 87 | 12 | 99 | 81 |
| Grade 7 | 1 | 92 | 8 | 100 | 91 |
| Grade 7 | 2 | 80 | 20 | 100 | 75 |
| Grade 7 | 3 | 91 | 9 | 100 | 88 |
| Grade 8 | 1 | 90 | 10 | 100 | 94 |
| Grade 8 | 2 | 88 | 12 | 100 | 89 |
| Grade 8 | 3 | 90 | 10 | 100 | 89 |

Note. 0–4 possible score points

Table 8–5. Percentages Awarded for Each Possible Score Point 2022 PSSA Mathematics Grades 3–8

| Mathematics | Common Item | %0 | %1 | %2 | %3 | %4 | %B/NS* |
|-------------|-------------|----|----|----|----|----|--------|
| Grade 3 | 1 | 30 | 23 | 19 | 15 | 8 | 4 |
| Grade 3 | 2 | 11 | 31 | 39 | 11 | 4 | 4 |
| Grade 3 | 3 | 11 | 21 | 29 | 28 | 5 | 6 |
| Grade 4 | 1 | 31 | 39 | 11 | 8 | 6 | 4 |
| Grade 4 | 2 | 23 | 35 | 20 | 11 | 3 | 8 |
| Grade 4 | 3 | 10 | 53 | 21 | 10 | 2 | 5 |
| Grade 5 | 1 | 23 | 28 | 22 | 14 | 7 | 5 |
| Grade 5 | 2 | 19 | 19 | 19 | 21 | 15 | 8 |
| Grade 5 | 3 | 20 | 41 | 19 | 13 | 3 | 5 |
| Grade 6 | 1 | 16 | 57 | 16 | 4 | 1 | 6 |
| Grade 6 | 2 | 34 | 31 | 15 | 8 | 3 | 10 |
| Grade 6 | 3 | 19 | 20 | 44 | 8 | 4 | 6 |
| Grade 7 | 1 | 39 | 33 | 10 | 5 | 5 | 7 |
| Grade 7 | 2 | 28 | 26 | 22 | 8 | 3 | 12 |
| Grade 7 | 3 | 43 | 28 | 11 | 6 | 2 | 9 |
| Grade 8 | 1 | 33 | 21 | 15 | 15 | 8 | 8 |
| Grade 8 | 2 | 19 | 37 | 19 | 10 | 3 | 12 |
| Grade 8 | 3 | 35 | 24 | 14 | 11 | 4 | 12 |

Note. *B=blank and NS=non-scoreable

Table 8–6. Inter-rater Agreement for 2022 PSSA Reading Grade 3 Open-Ended Response Items and Validity

| Reading | Common Item | % Exact Agreement | % Adjacent Agreement | % Exact + Adjacent Agreement | % Exact Validity Agreement |
|---------|-------------|-------------------|----------------------|------------------------------|----------------------------|
| Grade 3 | 1 | 84 | 16 | 100 | 85 |
| Grade 3 | 2 | 88 | 12 | 100 | 93 |

Note. 0–3 possible score points

Table 8–7. Percentages Awarded for Each Possible Score Point 2022 PSSA Reading Grade 3

| Reading | Common Item | %0 | %1 | %2 | %3 | %B/NS* |
|---------|-------------|----|----|----|----|--------|
| Grade 3 | 1 | 22 | 31 | 26 | 6 | 9 |
| Grade 3 | 2 | 41 | 17 | 21 | 12 | 10 |

Note. *B=blank and NS=non-scoreable

Table 8–8. Inter-rater Agreement for 2022 PSSA ELA Grades 4–8 Text-Dependent Analysis Items and Validity

| TDA | Common Item | % Exact Agreement | % Adjacent Agreement | % Exact + Adjacent Agreement | % Exact Validity Agreement |
|---------|-------------|-------------------|----------------------|------------------------------|----------------------------|
| Grade 4 | 1 | 90 | 10 | 100 | 80 |
| Grade 5 | 1 | 83 | 17 | 100 | 83 |
| Grade 6 | 1 | 86 | 14 | 100 | 81 |
| Grade 7 | 1 | 87 | 13 | 100 | 82 |
| Grade 8 | 1 | 89 | 11 | 100 | 83 |

Note. 1–4 possible score points

Table 8–9. Percentages Awarded for Each Possible Score Point 2022 PSSA TDA items Grades 4–8

| TDA | Common Item | %1 | %2 | %3 | %4 | %B/NS* |
|---------|-------------|----|----|----|----|--------|
| Grade 4 | 1 | 27 | 33 | 11 | 2 | 27 |
| Grade 5 | 1 | 27 | 44 | 13 | 2 | 13 |
| Grade 6 | 1 | 21 | 47 | 17 | 1 | 12 |
| Grade 7 | 1 | 25 | 35 | 19 | 4 | 16 |
| Grade 8 | 1 | 21 | 39 | 17 | 4 | 19 |

Note. *B=blank and NS=non-scoreable

Table 8–10. Inter-rater Agreement for 2022 PSSA Science Grades 4 and 8 Open-Ended Response Items and Validity

| Science | Common Item | % Exact Agreement | % Adjacent Agreement | % Exact + Adjacent Agreement | % Exact Validity Agreement |
|---------|-------------|-------------------|----------------------|------------------------------|----------------------------|
| Grade 4 | 1 | 91 | 9 | 100 | 91 |
| Grade 4 | 2 | 95 | 5 | 100 | 95 |
| Grade 4 | 3 | 93 | 7 | 100 | 93 |
| Grade 4 | 4 | 99 | 1 | 100 | 99 |
| Grade 4 | 5 | 87 | 13 | 100 | 87 |
| Grade 8 | 1 | 97 | 3 | 100 | 98 |
| Grade 8 | 2 | 97 | 3 | 100 | 94 |
| Grade 8 | 3 | 95 | 5 | 100 | 94 |
| Grade 8 | 4 | 96 | 4 | 100 | 96 |
| Grade 8 | 5 | 89 | 11 | 100 | 88 |

Note. 0–2 possible score points

Table 8–11. Percentages Awarded for Each Possible Score Point 2022 PSSA Science Grades 4 and 8

| Science | Common Item | %0 | %1 | %2 | %B/NS* |
|----------------|--------------------|-----------|-----------|-----------|---------------|
| Grade 4 | 1 | 32 | 44 | 17 | 6 |
| Grade 4 | 2 | 17 | 55 | 20 | 7 |
| Grade 4 | 3 | 10 | 34 | 49 | 7 |
| Grade 4 | 4 | 12 | 53 | 28 | 7 |
| Grade 4 | 5 | 26 | 44 | 23 | 7 |
| Grade 8 | 1 | 48 | 33 | 10 | 9 |
| Grade 8 | 2 | 36 | 43 | 8 | 11 |
| Grade 8 | 3 | 41 | 26 | 17 | 15 |
| Grade 8 | 4 | 22 | 47 | 17 | 12 |
| Grade 8 | 5 | 17 | 32 | 39 | 12 |

Note. *B=blank and NS=non-scoreable

CHAPTER NINE: DESCRIPTION OF DATA SOURCES AND SAMPLING ADEQUACY

This chapter describes the data sources (e.g., *n*-counts, characteristics of students) used for the various analysis procedures discussed in the remaining chapters of this technical report. Psychometric analyses are conducted at several points for the PSSA: 1) early analyses for quality control purposes and key validation; 2) analyses associated with the pre-equating validation; 3) analyses used for item banking; and 4) analyses for the technical report. Detailed information regarding the attributes of students is provided in Chapter Ten.

PRIMARY STUDENT FILTERING CRITERIA

For many data files, the primary means of filtering students for inclusion/exclusion from any data analysis are based on the state reporting criteria which are outlined below. Within the state reporting rules are separate attempt criteria for individual subject areas. The attempt criteria are discussed more fully below.

STATE REPORTING CRITERIA

The state reporting criteria are as follows:

- The student must be enrolled for the full academic year.
- The student must be attributed to a public district/school (state).
- The student must receive a score (i.e., met the subject attempt logic—see additional information below).
- The student is not a homeschool student.
- The student is not a foreign exchange student.
- The student is not a first year EL student (mathematics/ELA only).

PSSA ATTEMPT CRITERIA

For all data sources, only students who meet the attempt criteria are included. For mathematics, ELA, and science, the attempt criteria required students to complete a minimum of five items (multiple-choice (MC) or open-ended (OE)) in each respective subject area section of the test booklets. All subject counts were based on operational and nonoperational items.

KEY VALIDATION DATA

These data are only mentioned for the sake of completeness, as no formal results from these data are provided in this technical document. An analysis on all operational MC items is conducted early in the scoring process to ensure that the items are performing as expected. This is an important quality check that is always done for the PSSA. This analysis is usually (but not always) done using all students from early-return schools. The sample does not need to be representative of the entire state for these quality checks. Available student data typically suffices if there is reasonable variability in total test scores.

Key validation data included all public-school students who had their MC items scanned and scored by early-July and met preliminary attempt criteria (i.e., attempt was determined based on MC items only). Note that the full state reporting criteria were not in effect for this file (only attribution to a public school based on tested site and preliminary attempt criteria were used to filter students).

PRE-EQUATING VALIDATION DATA

Data used for pre-equating validation included students who met the preliminary state reporting criteria (including attempt criteria) by May 26. The state reporting criteria were preliminary, meaning that attributions and final PIMS¹ information were not complete by this time. No sampling was undertaken in this data (i.e., it included all students who met the above criteria with operational test scores up to this point²). This data file was used to analyze differences in the pre-equated solutions and post-equated solutions to make the final decision to proceed with the pre-equated solution.

ITEM BANK DATA

The item bank data included students who met the state reporting criteria by July 25th. No sampling was undertaken in this data (i.e., it included all students who met the above criteria, were administered either paper-pencil or computer-based tests with scored field- test data up to this point). The data banked for field-test items as well as the updates for operational item parameters were based on this data file.

FINAL DATA

The final datafile included all students who met state reporting criteria by August 17th for all subject areas. The final data reflects update by schools for correction of certain fields (e.g., student ethnicity). All other files contained preliminary data. Most of the results included in this technical report were derived using the final data file.

FINAL N-COUNTS FOR ALL DATA SOURCES

The *n*-counts for all data sources are provided in Table 9–1. The pre-equating validation count includes students who met the preliminary state reporting criteria, while the final count includes students who met the final state reporting criteria. Computer-based test (CBT) forms were offered for all subjects. Final data shows the number of students in both modes. Students administered a mixed-mode test are counted as CBT administrations. Data from both paper-based tests and CBT were used for item banking.

Table 9–1. Data Source N-Counts

| Subject | Grade | Key Validation (Paper) | Key Validation (CBT) | Pre-equating Validation (Paper/CBT) | Item Bank (Paper/CBT) | Final (Paper/CBT) |
|-------------|-------|------------------------|----------------------|-------------------------------------|-----------------------|-------------------|
| Mathematics | 3 | 16397 | 26720 | 72716 | 116476 | 114714 |
| Mathematics | 4 | 15902 | 28534 | 55066 | 116556 | 114822 |
| Mathematics | 5 | 13667 | 32059 | 68401 | 118090 | 116489 |
| Mathematics | 6 | 11390 | 34809 | 63228 | 117451 | 115844 |
| Mathematics | 7 | 11181 | 36889 | 71875 | 119917 | 118357 |
| Mathematics | 8 | 11919 | 36954 | 71450 | 120576 | 119039 |
| ELA | 3 | 47962 | 26460 | 92671 | 115836 | 114398 |
| ELA | 4 | 48377 | 28216 | 94259 | 115996 | 114533 |
| ELA | 5 | 44197 | 31695 | 97224 | 117640 | 116274 |
| ELA | 6 | 39777 | 35054 | 94734 | 117144 | 115785 |
| ELA | 7 | 39954 | 37431 | 96768 | 119708 | 118352 |
| ELA | 8 | 38345 | 37688 | 97250 | 120659 | 119366 |
| Science | 4 | 14555 | 29768 | 52488 | 116233 | 114497 |
| Science | 8 | 8149 | 38545 | 53361 | 119937 | 118412 |

¹ Pennsylvania Information Management System

² Historically, PSSA has retained all students who met the stated criteria in the calibration data set, even those who had testing accommodations.

COMPUTER-BASED TEST (CBT)

Table 9–2 displays the count of students who took the 2022 PSSA broken out by subject, grade, and mode (e.g., paper, CBT) with the final data. Unlike previous administrations that had a low volume of CBT administrations, between 23% and 33% of administrations were online in 2022. CBT administrations for lower grade levels tended to be slightly lower than higher grade levels.

Table 9–2. Final N-Counts and Proportion by Mode

| Subject | Grade | N-Counts Paper | N-Counts CBT | Proportion (%) Paper | Proportion (%) CBT |
|-------------|-------|-------------------|-----------------|-------------------------|-----------------------|
| Mathematics | 3 | 88092 | 26622 | 76.79 | 23.21 |
| Mathematics | 4 | 86352 | 28470 | 75.21 | 24.79 |
| Mathematics | 5 | 84594 | 31895 | 72.62 | 27.38 |
| Mathematics | 6 | 80974 | 34870 | 69.90 | 30.10 |
| Mathematics | 7 | 81269 | 37088 | 68.66 | 31.34 |
| Mathematics | 8 | 81741 | 37298 | 68.67 | 31.33 |
| ELA | 3 | 87974 | 26424 | 76.90 | 23.10 |
| ELA | 4 | 86321 | 28212 | 75.37 | 24.63 |
| ELA | 5 | 84554 | 31720 | 72.72 | 27.28 |
| ELA | 6 | 80589 | 35196 | 69.60 | 30.40 |
| ELA | 7 | 80424 | 37928 | 67.95 | 32.05 |
| ELA | 8 | 81071 | 38295 | 67.92 | 32.08 |
| Science | 4 | 84943 | 29554 | 74.19 | 25.81 |
| Science | 8 | 79645 | 38767 | 67.26 | 32.74 |

SPIRALING OF FORMS

PSSA forms were spiraled during test administration for all grades and subjects. Appendix H provides summary statistics for scaled scores disaggregated by mode, test form, for each subject and grade. The mean scaled scores across forms are similar, indicating the student populations taking each form are of approximately equal ability and item scrambling are appropriate. This equivalence of ability distributions across forms is the desired outcome of spiraling and allows for optimum analysis of the embedded field-test items.

SCRAMBLING OF FORMS

PSSA forms were scrambled during form construction in response to test security issues raised in prior PSSA administrations. Eight scrambled patterns of operational forms were constructed for each mathematics, ELA, and science assessment. The core form was constructed following the prior test development and psychometric guidelines and will be referred to as the Master Core throughout the remainder of this document. Based on previous TAC recommendation, the Master Core is the pattern of the test that would have been administered to all students in the absence of scrambling.

Once the Master Core was constructed and approved, DRC and PDE content specialists built seven scrambled patterns of the Master Core for each grade and subject. OE items were not scrambled, meaning each operational OE item appeared in the same position on every form. Some MC items also appeared in the same position on multiple forms due to content constraints. In some subjects and grades the number of field-test forms was greater than the number of scrambled patterns. In these instances, the Master Core and scrambled patterns were repeated with no specific pattern appearing more than two times. Due to the historically low enrollment for the PSSA CBT, only three forms were offered for CBT. These forms included the accommodation form, a Master Core form, and one additional scrambled form (i.e., scrambled patterns A, B, and C, respectively); therefore, these forms have slightly higher participation than other forms when paper and CBT counts are combined.

The Master Core was used at least as often, or more often, than any scrambled version of the core form. Since form 1 was used for all accommodated forms (e.g., Braille, Large Print, Audio, and Spanish) it was never designated as a Master Core. The specific forms presenting the Master Core vary across grades within each content area. Given that all forms were spiraled at the student level, the distribution of forms is reasonably uniform. The exception is Form 1, which had higher participation since it is the only form used for accommodations.

Based on TAC recommendations to minimize possible item position effects, each section of the Master Core was divided into blocks of non-overlapping MC and EBSR items. Recall that other item types were not part of the scrambling. The blocks typically contained six to seven items (or one passage), but the block sizes varied depending on the content and section. Within each block, items were scrambled following general psychometric and content guidelines to create up to five versions of the block in addition to the Master Core sequencing. The blocks were assembled to create seven scrambled versions of the Master Core (named A, B, C, D, E, F, and G) in addition to the Master Core.

Prior to scrambling the Master Core, DRC and PDE content specialists developed the following general psychometric and content guidelines:

- Items cannot move between blocks.
- DRC and PDE content specialists will work to ensure that the scrambling does not result in making content more difficult than the Master Core item sequence. For example, items of similar cognitive complexity will be swapped rather than random scrambling.
- A block scramble pattern is only valid if it does not contain an invalid key distribution within the block. Additional checks for an invalid key distribution across blocks must be made when combining block scramble patterns to create forms. For example, scrambling must not create more than three (3) of the same key positions in a row.
- A block scramble pattern is only valid if it does not contain an invalid standard (AA/EC) distribution within a block. Additional checks for standard distribution across blocks must be made when combining block scramble patterns to create forms. An exception was made for one mathematics scramble for each grade which ordered items within block by eligible content per PDE request.
- Scrambling should not place a difficult item as the first item in a section or a passage set; however, the first item in a block that does NOT begin a section may be a difficult item since blocks are invisible to the student.
- For subjects with passage-based items, a block scramble pattern is only valid if it does not create dissonance between the items and passage(s).
- Within a set of items connected to a paired set of passages, an item associated with both passages can be swapped only with another item associated with both passages. (These items must remain at the end of the set of items associated with the passage set.)

Table 9–3 shows a summary of the scrambling strategy employed for the PSSA. Each grade and subject used a total of eight different patterns of the core including the Master Core.

Table 9–3. Form Scrambling

| Subject | Grade | Forms | Total Patterns | Master Cores |
|----------------|--------------|--------------|-----------------------|---------------------|
| Mathematics | 3 | 9 | 8 | 2 |
| Mathematics | 4 | 9 | 8 | 2 |
| Mathematics | 5 | 9 | 8 | 2 |
| Mathematics | 6 | 9 | 8 | 2 |
| Mathematics | 7 | 9 | 8 | 2 |
| Mathematics | 8 | 9 | 8 | 2 |
| ELA | 3 | 12 | 8 | 2 |
| ELA | 4 | 12 | 8 | 2 |
| ELA | 5 | 12 | 8 | 2 |
| ELA | 6 | 12 | 8 | 2 |
| ELA | 7 | 12 | 8 | 2 |
| ELA | 8 | 12 | 8 | 2 |
| Science | 4 | 12 | 8 | 2 |
| Science | 8 | 12 | 8 | 2 |

An important assumption for effectively collapsing forms into pattern groups is that the form spiraling yielded randomly equivalent groups. Table 9–4 provides the count of paper-pencil and online administrations, the mean raw score, the standard deviation by each scramble pattern, form, and mode. Please note that online Form 1 is used for all accommodated administrations and as such reflects different performance than performance on other forms.

Table 9–4M. Mathematics Mean Scores by Form

| Subject | Grade | Form | Count (Paper) | RS Mean (Paper) | RS SD (Paper) | Count (CBT) | RS Mean (CBT) | RS SD (CBT) |
|-------------|-------|------|---------------|-----------------|---------------|-------------|---------------|-------------|
| Mathematics | 3 | 01G | 10148 | 26.96 | 11.50 | 11803 | 24.93 | 11.08 |
| Mathematics | 3 | 02M | 9731 | 27.73 | 11.50 | 7406 | 28.67 | 10.71 |
| Mathematics | 3 | 03D | 9749 | 27.85 | 11.55 | 7413 | 28.84 | 10.79 |
| Mathematics | 3 | 04M | 9752 | 27.72 | 11.47 | | | |
| Mathematics | 3 | 05A | 9768 | 27.75 | 11.44 | | | |
| Mathematics | 3 | 06B | 9723 | 28.15 | 11.41 | | | |
| Mathematics | 3 | 07E | 9724 | 27.92 | 11.46 | | | |
| Mathematics | 3 | 08F | 9727 | 27.79 | 11.45 | | | |
| Mathematics | 3 | 09C | 9770 | 28.00 | 11.42 | | | |
| Mathematics | 4 | 01D | 10068 | 26.16 | 11.09 | 12565 | 24.17 | 10.65 |
| Mathematics | 4 | 02M | 9475 | 26.72 | 11.05 | 7960 | 27.89 | 10.19 |
| Mathematics | 4 | 03C | 9505 | 26.64 | 10.95 | 7945 | 28.13 | 10.17 |
| Mathematics | 4 | 04E | 9557 | 26.57 | 10.82 | | | |
| Mathematics | 4 | 05F | 9548 | 26.41 | 10.80 | | | |
| Mathematics | 4 | 06G | 9541 | 26.36 | 10.87 | | | |
| Mathematics | 4 | 07A | 9516 | 26.96 | 10.95 | | | |
| Mathematics | 4 | 08M | 9587 | 26.57 | 10.96 | | | |
| Mathematics | 4 | 09B | 9555 | 26.83 | 10.94 | | | |
| Mathematics | 5 | 01B | 9823 | 22.64 | 11.13 | 13846 | 20.52 | 10.58 |
| Mathematics | 5 | 02M | 9372 | 23.44 | 11.16 | 8992 | 23.96 | 10.72 |
| Mathematics | 5 | 03F | 9360 | 23.54 | 11.39 | 9057 | 24.07 | 10.71 |
| Mathematics | 5 | 04G | 9387 | 23.57 | 11.16 | | | |
| Mathematics | 5 | 05A | 9317 | 23.44 | 11.28 | | | |
| Mathematics | 5 | 06M | 9353 | 23.73 | 11.24 | | | |
| Mathematics | 5 | 07C | 9321 | 23.52 | 11.17 | | | |
| Mathematics | 5 | 08D | 9345 | 23.51 | 11.12 | | | |
| Mathematics | 5 | 09E | 9316 | 23.51 | 11.13 | | | |
| Mathematics | 6 | 01F | 9535 | 24.38 | 11.06 | 14762 | 22.60 | 11.10 |
| Mathematics | 6 | 02M | 8935 | 25.12 | 11.22 | 10038 | 25.70 | 11.13 |
| Mathematics | 6 | 03G | 8912 | 24.90 | 11.25 | 10070 | 25.83 | 11.28 |
| Mathematics | 6 | 04A | 8945 | 25.11 | 11.25 | | | |
| Mathematics | 6 | 05B | 8945 | 24.94 | 11.11 | | | |
| Mathematics | 6 | 06E | 8968 | 25.06 | 11.32 | | | |
| Mathematics | 6 | 07C | 8896 | 25.11 | 11.38 | | | |
| Mathematics | 6 | 08D | 8910 | 25.32 | 11.29 | | | |
| Mathematics | 6 | 09M | 8928 | 25.35 | 11.28 | | | |

Table 9–4M (continued). Mathematics Mean Scores by Form

| Subject | Grade | Form | Count (Paper) | RS Mean (Paper) | RS SD (Paper) | Count (CBT) | RS Mean (CBT) | RS SD (CBT) |
|----------------|--------------|-------------|--------------------------|----------------------------|--------------------------|------------------------|--------------------------|------------------------|
| Mathematics | 7 | 01B | 9635 | 21.82 | 11.05 | 15270 | 19.97 | 10.11 |
| Mathematics | 7 | 02M | 8921 | 22.86 | 11.13 | 10895 | 22.51 | 10.37 |
| Mathematics | 7 | 03D | 8951 | 22.74 | 11.03 | 10923 | 22.50 | 10.48 |
| Mathematics | 7 | 04A | 8945 | 22.63 | 11.00 | | | |
| Mathematics | 7 | 05M | 8991 | 22.78 | 11.11 | | | |
| Mathematics | 7 | 06C | 8951 | 22.63 | 11.13 | | | |
| Mathematics | 7 | 07E | 9008 | 22.50 | 11.15 | | | |
| Mathematics | 7 | 08F | 8951 | 22.56 | 11.21 | | | |
| Mathematics | 7 | 09G | 8916 | 22.43 | 11.08 | | | |
| Mathematics | 8 | 01D | 9649 | 22.78 | 11.53 | 15068 | 20.68 | 10.56 |
| Mathematics | 8 | 02M | 9036 | 23.55 | 11.59 | 11156 | 23.27 | 10.98 |
| Mathematics | 8 | 03C | 9027 | 23.20 | 11.47 | 11074 | 22.96 | 10.79 |
| Mathematics | 8 | 04A | 8979 | 23.32 | 11.40 | | | |
| Mathematics | 8 | 05B | 9030 | 23.66 | 11.46 | | | |
| Mathematics | 8 | 06E | 9041 | 23.34 | 11.39 | | | |
| Mathematics | 8 | 07M | 8969 | 23.43 | 11.50 | | | |
| Mathematics | 8 | 08F | 9023 | 23.17 | 11.30 | | | |
| Mathematics | 8 | 09G | 8987 | 23.39 | 11.56 | | | |

Table 9–4E. ELA Mean Scores by Form

| Subject | Grade | Form | Count (Paper) | Raw Score Mean (Paper) | Raw Score SD (Paper) | Count (CBT) | Raw Score Mean (CBT) | Raw Score SD (CBT) |
|---------|-------|------|------------------|------------------------------|----------------------------|----------------|----------------------------|--------------------------|
| ELA | 3 | 01A | 7350 | 23.63 | 9.43 | 10999 | 20.86 | 9.00 |
| ELA | 3 | 02M | 7317 | 23.55 | 9.42 | 7699 | 23.38 | 8.69 |
| ELA | 3 | 03B | 7344 | 23.72 | 9.42 | 7726 | 23.42 | 8.74 |
| ELA | 3 | 04M | 7315 | 23.74 | 9.38 | | | |
| ELA | 3 | 05C | 7298 | 23.72 | 9.39 | | | |
| ELA | 3 | 06D | 7315 | 23.69 | 9.33 | | | |
| ELA | 3 | 07E | 7347 | 23.73 | 9.40 | | | |
| ELA | 3 | 08F | 7364 | 23.93 | 9.49 | | | |
| ELA | 3 | 09G | 7360 | 23.58 | 9.39 | | | |
| ELA | 3 | 10D | 7379 | 23.92 | 9.39 | | | |
| ELA | 3 | 11E | 7325 | 23.79 | 9.44 | | | |
| ELA | 3 | 12F | 7260 | 23.93 | 9.41 | | | |
| ELA | 4 | 01A | 7220 | 34.28 | 12.86 | 11770 | 30.72 | 12.81 |
| ELA | 4 | 02M | 7182 | 34.05 | 12.83 | 8222 | 34.64 | 11.92 |
| ELA | 4 | 03B | 7218 | 34.43 | 12.82 | 8220 | 34.81 | 11.90 |
| ELA | 4 | 04C | 7176 | 34.27 | 12.55 | | | |
| ELA | 4 | 05D | 7144 | 34.06 | 12.70 | | | |
| ELA | 4 | 06M | 7169 | 34.41 | 12.79 | | | |
| ELA | 4 | 07E | 7183 | 34.58 | 12.81 | | | |
| ELA | 4 | 08F | 7182 | 34.76 | 12.69 | | | |
| ELA | 4 | 09G | 7195 | 34.66 | 12.66 | | | |
| ELA | 4 | 10D | 7213 | 34.40 | 12.59 | | | |
| ELA | 4 | 11E | 7200 | 34.51 | 12.76 | | | |
| ELA | 4 | 12F | 7239 | 34.50 | 12.73 | | | |
| ELA | 5 | 01A | 7080 | 33.70 | 12.21 | 13125 | 30.15 | 12.61 |
| ELA | 5 | 02M | 7036 | 33.80 | 12.17 | 9307 | 34.39 | 11.44 |
| ELA | 5 | 03B | 7042 | 34.16 | 12.10 | 9288 | 34.58 | 11.54 |
| ELA | 5 | 04C | 7045 | 33.92 | 12.06 | | | |
| ELA | 5 | 05D | 6998 | 34.01 | 11.91 | | | |
| ELA | 5 | 06E | 7044 | 34.40 | 12.12 | | | |
| ELA | 5 | 07M | 7064 | 34.06 | 11.94 | | | |
| ELA | 5 | 08F | 7087 | 34.30 | 11.84 | | | |
| ELA | 5 | 09G | 7087 | 34.18 | 11.97 | | | |
| ELA | 5 | 10D | 7037 | 34.01 | 11.83 | | | |
| ELA | 5 | 11E | 7005 | 34.31 | 11.88 | | | |
| ELA | 5 | 12F | 7029 | 34.27 | 11.96 | | | |

Table 9–4E (continued). ELA Mean Scores by Form

| Subject | Grade | Form | Count (Paper) | Raw Score Mean (Paper) | Raw Score SD (Paper) | Count (CBT) | Raw Score Mean (CBT) | Raw Score SD (CBT) |
|---------|-------|------|------------------|------------------------------|----------------------------|----------------|----------------------------|--------------------------|
| ELA | 6 | 01A | 6760 | 35.28 | 11.45 | 14377 | 31.47 | 11.69 |
| ELA | 6 | 02M | 6727 | 34.93 | 11.51 | 10407 | 34.58 | 11.04 |
| ELA | 6 | 03B | 6731 | 35.32 | 11.44 | 10412 | 34.84 | 11.11 |
| ELA | 6 | 04C | 6710 | 35.39 | 11.35 | | | |
| ELA | 6 | 05M | 6689 | 35.43 | 11.21 | | | |
| ELA | 6 | 06D | 6701 | 35.39 | 11.23 | | | |
| ELA | 6 | 07E | 6698 | 35.49 | 11.05 | | | |
| ELA | 6 | 08F | 6684 | 35.37 | 11.37 | | | |
| ELA | 6 | 09G | 6727 | 35.40 | 11.30 | | | |
| ELA | 6 | 10D | 6731 | 35.19 | 11.16 | | | |
| ELA | 6 | 11E | 6744 | 35.17 | 11.34 | | | |
| ELA | 6 | 12F | 6687 | 34.96 | 11.37 | | | |
| ELA | 7 | 01A | 6809 | 35.81 | 12.04 | 14996 | 31.83 | 12.58 |
| ELA | 7 | 02M | 6679 | 36.17 | 12.06 | 11426 | 34.52 | 12.02 |
| ELA | 7 | 03B | 6705 | 35.75 | 12.36 | 11506 | 34.33 | 12.07 |
| ELA | 7 | 04C | 6666 | 36.09 | 12.09 | | | |
| ELA | 7 | 05D | 6673 | 36.20 | 12.15 | | | |
| ELA | 7 | 06E | 6663 | 36.22 | 11.96 | | | |
| ELA | 7 | 07F | 6717 | 36.10 | 12.08 | | | |
| ELA | 7 | 08G | 6693 | 35.91 | 12.06 | | | |
| ELA | 7 | 09M | 6737 | 36.04 | 12.10 | | | |
| ELA | 7 | 10D | 6695 | 36.22 | 12.10 | | | |
| ELA | 7 | 11E | 6680 | 35.93 | 12.21 | | | |
| ELA | 7 | 12F | 6707 | 36.33 | 12.05 | | | |
| ELA | 8 | 01A | 6849 | 36.17 | 12.62 | 15001 | 31.68 | 13.01 |
| ELA | 8 | 02M | 6782 | 36.18 | 12.46 | 11686 | 34.87 | 12.49 |
| ELA | 8 | 03B | 6729 | 36.19 | 12.38 | 11608 | 34.96 | 12.37 |
| ELA | 8 | 04C | 6736 | 36.05 | 12.44 | | | |
| ELA | 8 | 05D | 6697 | 36.01 | 12.39 | | | |
| ELA | 8 | 06E | 6733 | 35.85 | 12.38 | | | |
| ELA | 8 | 07F | 6776 | 35.81 | 12.64 | | | |
| ELA | 8 | 08M | 6739 | 36.10 | 12.58 | | | |
| ELA | 8 | 09G | 6805 | 35.80 | 12.51 | | | |
| ELA | 8 | 10D | 6777 | 36.03 | 12.49 | | | |
| ELA | 8 | 11E | 6743 | 36.15 | 12.32 | | | |
| ELA | 8 | 12F | 6705 | 36.03 | 12.42 | | | |

Table 9–4S. Science Mean Scores by Form

| Subject | Grade | Form | Count (Paper) | RS Mean (Paper) | RS SD (Paper) | Count (CBT) | RS Mean (CBT) | RS SD (CBT) |
|----------------|--------------|-------------|--------------------------|----------------------------|--------------------------|------------------------|--------------------------|------------------------|
| Science | 4 | 01A | 7546 | 25.05 | 9.93 | 12926 | 24.28 | 9.93 |
| Science | 4 | 02M | 7000 | 25.82 | 9.80 | 8307 | 28.08 | 9.31 |
| Science | 4 | 03B | 7026 | 25.94 | 9.96 | 8321 | 27.75 | 9.48 |
| Science | 4 | 04C | 7094 | 26.11 | 9.70 | | | |
| Science | 4 | 05D | 7094 | 26.08 | 9.83 | | | |
| Science | 4 | 06E | 7025 | 26.05 | 9.79 | | | |
| Science | 4 | 07F | 7065 | 26.18 | 9.70 | | | |
| Science | 4 | 08G | 7063 | 26.06 | 9.82 | | | |
| Science | 4 | 09B | 7039 | 26.00 | 9.87 | | | |
| Science | 4 | 10M | 6975 | 25.90 | 9.80 | | | |
| Science | 4 | 11C | 7015 | 26.09 | 9.68 | | | |
| Science | 4 | 12E | 7001 | 26.21 | 9.72 | | | |
| Science | 8 | 01A | 7231 | 24.48 | 10.02 | 15623 | 23.01 | 10.02 |
| Science | 8 | 02M | 6596 | 25.06 | 9.92 | 11521 | 25.21 | 9.83 |
| Science | 8 | 03B | 6531 | 25.05 | 9.89 | 11623 | 24.95 | 9.89 |
| Science | 8 | 04C | 6565 | 25.28 | 9.77 | | | |
| Science | 8 | 05D | 6581 | 25.20 | 9.86 | | | |
| Science | 8 | 06E | 6573 | 25.24 | 9.89 | | | |
| Science | 8 | 07F | 6619 | 25.18 | 10.00 | | | |
| Science | 8 | 08G | 6619 | 25.10 | 9.88 | | | |
| Science | 8 | 09M | 6615 | 25.16 | 10.00 | | | |
| Science | 8 | 10B | 6586 | 25.15 | 9.87 | | | |
| Science | 8 | 11C | 6598 | 25.14 | 9.98 | | | |
| Science | 8 | 12D | 6531 | 25.17 | 9.93 | | | |

Table 9–5 shows the number of students who took each form pattern (recall that pattern M is the Master Core version), and Table 9–6 shows the form to scramble pattern conversion.

Table 9–5. Form Pattern Administration Counts

| Subject | Grade | A | B | C | D | E | F | G | M |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Mathematics | 3 | 9768 | 9723 | 9770 | 17162 | 9724 | 9727 | 21951 | 26889 |
| Mathematics | 4 | 9516 | 9555 | 17450 | 22633 | 9557 | 9548 | 9541 | 27022 |
| Mathematics | 5 | 9317 | 23669 | 9321 | 9345 | 9316 | 18417 | 9387 | 27717 |
| Mathematics | 6 | 8945 | 8945 | 8896 | 8910 | 8968 | 24297 | 18982 | 27901 |
| Mathematics | 7 | 8945 | 24905 | 8951 | 19874 | 9008 | 8951 | 8916 | 28807 |
| Mathematics | 8 | 8979 | 9030 | 20101 | 24717 | 9041 | 9023 | 8987 | 29161 |
| ELA | 3 | 18349 | 15070 | 7298 | 14694 | 14672 | 14624 | 7360 | 22331 |
| ELA | 4 | 18990 | 15438 | 7176 | 14357 | 14383 | 14421 | 7195 | 22573 |
| ELA | 5 | 20205 | 16330 | 7045 | 14035 | 14049 | 14116 | 7087 | 23407 |
| ELA | 6 | 21137 | 17143 | 6710 | 13432 | 13442 | 13371 | 6727 | 23823 |
| ELA | 7 | 21805 | 18211 | 6666 | 13368 | 13343 | 13424 | 6693 | 24842 |
| ELA | 8 | 21850 | 18337 | 6736 | 13474 | 13476 | 13481 | 6805 | 25207 |
| Science | 4 | 20472 | 22386 | 14109 | 7094 | 14026 | 7065 | 7063 | 22282 |
| Science | 8 | 22854 | 24740 | 13163 | 13112 | 6573 | 6619 | 6619 | 24732 |

Note. Final data was used

Table 9–6. Form to Pattern Conversion Table

| Subject | Grade | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------------|-------|----|----|----|---|---|---|---|---|---|----|----|----|
| Mathematics | 3 | G* | M* | D* | M | A | B | E | F | C | | | |
| Mathematics | 4 | D* | M* | C* | E | F | G | A | M | B | | | |
| Mathematics | 5 | B* | M* | F* | G | A | M | C | D | E | | | |
| Mathematics | 6 | F* | M* | G* | A | B | E | C | D | M | | | |
| Mathematics | 7 | B* | M* | D* | A | M | C | E | F | G | | | |
| Mathematics | 8 | D* | M* | C* | A | B | E | M | F | G | | | |
| ELA | 3 | A* | M* | B* | M | C | D | E | F | G | D | E | F |
| ELA | 4 | A* | M* | B* | C | D | M | E | F | G | D | E | F |
| ELA | 5 | A* | M* | B* | C | D | E | M | F | G | D | E | F |
| ELA | 6 | A* | M* | B* | C | M | D | E | F | G | D | E | F |
| ELA | 7 | A* | M* | B* | C | D | E | F | G | M | D | E | F |
| ELA | 8 | A* | M* | B* | C | D | E | F | M | G | D | E | F |
| Science | 4 | A* | M* | B* | C | D | E | F | G | B | M | C | E |
| Science | 8 | A* | M* | B* | C | D | E | F | G | M | B | C | D |

Note. * Indicates the form was offered as CBT

SCRAMBLING ANALYSIS

FORM LEVEL

The test-level and item-level effects of scrambling are presented in the following section. Table 9–7 shows the mean raw score difference from the Master Core for each scramble pattern (scramble pattern mean minus Master Core mean). The highlighted mean differences are statistically significant at family-wise Type I error rate (alpha) 0.01 with two-sample t-test. For example, with grade 3 math, seven two sample t-tests are conducted (Master Core vs. A, B, C, D, E, F, and G) and each test had Type I error rate (alpha) of 0.001428571 to keep the family-wise Type I error rate 0.01. Form 1, the form designated for use with accommodations was included in these analyses and as expected, a statistically significant difference was found wherever a pattern corresponds to Form 1. This difference, however, is likely attributable to the general pattern of lower item and test level scores for examinees using accommodations, and not to scrambling effects. Form 1 for all ELA, and science grades followed pattern A, whereas math forms differed by grade level.

Table 9–7 shows that, aside from results that are likely influenced by examinees receiving accommodations, 5 of 36, 9 of 36, and 5 of 12 scramble pattern raw score means showed a statistically significant difference from the Master Core in mathematics, ELA, and science, respectively.

Table 9–7. Mean Raw Score Differences from the Master Core

| Subject | Grade | A | B | C | D | E | F | G |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Mathematics | 3 | -0.23 | 0.17 | 0.02 | 0.29 | -0.06 | -0.19 | -2.11 |
| Mathematics | 4 | -0.05 | -0.19 | 0.31 | -1.96 | -0.45 | -0.60 | -0.65 |
| Mathematics | 5 | -0.26 | -2.31 | -0.19 | -0.19 | -0.20 | 0.10 | -0.13 |
| Mathematics | 6 | -0.29 | -0.46 | -0.30 | -0.09 | -0.34 | -2.10 | -0.01 |
| Mathematics | 7 | -0.07 | -2.02 | -0.07 | -0.09 | -0.20 | -0.14 | -0.27 |
| Mathematics | 8 | -0.09 | 0.25 | -0.34 | -1.91 | -0.07 | -0.24 | -0.02 |
| ELA | 3 | -1.59 | 0.01 | 0.16 | 0.25 | 0.20 | 0.38 | 0.03 |
| ELA | 4 | -2.31 | 0.25 | -0.11 | -0.15 | 0.16 | 0.25 | 0.28 |
| ELA | 5 | -2.72 | 0.28 | -0.20 | -0.10 | 0.24 | 0.17 | 0.07 |
| ELA | 6 | -2.23 | 0.11 | 0.48 | 0.37 | 0.41 | 0.25 | 0.48 |
| ELA | 7 | -2.30 | -0.53 | 0.72 | 0.83 | 0.70 | 0.84 | 0.54 |
| ELA | 8 | -2.46 | -0.14 | 0.50 | 0.47 | 0.45 | 0.37 | 0.25 |
| Science | 4 | -2.12 | -0.06 | -0.59 | -0.61 | -0.55 | -0.50 | -0.63 |
| Science | 8 | -1.69 | -0.13 | 0.05 | 0.03 | 0.09 | 0.03 | -0.06 |

Note. Highlighted cells indicate the scramble pattern is statistically significantly different from the Master Core form at family-wise $\alpha = 0.01$ (corrected for 7 pairwise comparisons) for each subject and grade.

ITEM LEVEL

The item level scrambling was examined using differential item functioning (DIF) described in Chapter Five. The *Mantel-Haenszel* procedure (Mantel & Haenszel, 1959) for detecting differential item functioning is a commonly used technique for MC items in educational testing and contrasts a focal group with a reference group.

In this section, master core form is reference group and non-master core forms were the focal groups. The items are assigned a severity code based on the magnitude of the effect sizes. Items classified as A+ or A- have little or no statistical indication of DIF. Items classified as B+ or B- have some indication of DIF but may be judged to be acceptable for future use. Items classified as C+ or C- have strong evidence of DIF and should be reviewed. Table 9–8 shows the number of items with C DIF items. There was 1 item in n ELA grade 5 that exhibited C-level DIF on two forms (A and F).

Table 9–8. The Number of Items with C DIF for Scrambling Effect

| Subject | Item Type | Grade | A | B | C | D | E | F | G |
|-------------|-----------|-------|---|---|---|---|---|---|---|
| Mathematics | MC | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mathematics | MC | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mathematics | MC | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mathematics | MC | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mathematics | MC | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mathematics | MC | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ELA | MC | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ELA | MC | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ELA | MC | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| ELA | MC | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ELA | MC | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ELA | MC | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Science | MC | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Science | MC | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

CHAPTER TEN: SUMMARY DEMOGRAPHIC, PROGRAM, AND ACCOMMODATION DATA FOR THE 2022 PSSA

ASSESSED STUDENTS

The PSSA assessed students include those from public schools who are required to participate as well as those from a small number of non-public schools (fewer than 500 students per grade level) that elected to participate. Also included were home-schooled students (fewer than 100 students per grade) and a small number of foreign exchange students (generally fewer than 30 students per grade through Grade 8). An exception was granted for those IEP students with quite significant cognitive impairments who met each of the following criteria, making them eligible to participate in the Pennsylvania Alternate System of Assessment (PASA) for mathematics, reading, and science: 1) was enrolled in the assessed grade level for the subject area, 2) had a very severe cognitive disability, 3) required very intensive instruction, 4) required very extensive adaptation and support to perform or participate meaningfully, 5) required very substantial modification of the general education curriculum, and 6) participated in the general education curriculum that differed markedly in form and substance from that of other students. (See the *2022 Pennsylvania System of School Assessment: Handbook for Assessment Coordinators*.)

Results for this chapter are presented in tables for the three PSSA subject areas (mathematics, ELA, and science). Accompanying each numbered table is a letter (M, E, or S) to designate the subject area. Mathematics results are indicated by “M,” ELA results are indicated by “E,” and science results are indicated by “S.” Tables 10–1E through 10–1S provide a summary of the assessed students for each subject. The last line combines the number of paper and online tests that are processed. This number is typically less than the “Used Answer Booklets Received” column shown in Table 8–1. The reason for the difference is that completely blank answer booklets (no student name and no items responded to) are removed from the initial batch of materials scanned. See Chapter Eight for more details on processing. Some processed booklets have student identifying information but will not receive a score. These results are presented within the 10–1 tables. Explanations for non-assessed students are provided later in this chapter.

Table 10–1M. Students Assessed on the 2022 PSSA: Mathematics

| Description | Gr. 3 | Gr. 4 | Gr. 5 | Gr. 6 | Gr. 7 | Gr. 8 |
|--|---------|---------|---------|---------|---------|---------|
| Total number of PPT processed (Number) | 93,123 | 91,650 | 90,037 | 87,195 | 88,377 | 90,680 |
| Total number of CBT processed (Number) | 27,850 | 29,887 | 33,601 | 36,937 | 39,666 | 40,538 |
| Total number of tests processed (Number) | 120,973 | 121,537 | 123,638 | 124,132 | 128,043 | 131,218 |
| Total number of tests processed with a score (Number) | 117,307 | 117,345 | 118,845 | 118,139 | 120,710 | 121,203 |
| Total number of tests processed with a score (Percent) | 97 | 96.6 | 96.1 | 95.2 | 94.3 | 92.4 |
| Total number of tests processed without a score (Number) | 3,666 | 4,192 | 4,793 | 5,993 | 7,333 | 10,015 |
| Total number of tests processed without a score (Percent) | 3 | 3.4 | 3.9 | 4.8 | 5.7 | 7.6 |
| Students with a Mathematics score used in state summaries (Number) | 114,714 | 114,822 | 116,489 | 115,844 | 118,357 | 119,039 |

Notes. PPT = Paper/Pencil Test
 CBT = Computer-Based Test

Table 10–1E. Students Assessed on the 2022 PSSA: ELA

| Description | Gr. 3 | Gr. 4 | Gr. 5 | Gr. 6 | Gr. 7 | Gr. 8 |
|---|---------|---------|---------|---------|---------|---------|
| Total number of PPT processed (Number) | 93,202 | 91,793 | 90,108 | 86,802 | 87,412 | 89,621 |
| Total number of CBT processed (Number) | 27,670 | 29,630 | 33,437 | 37,315 | 40,531 | 41,550 |
| Total number of tests processed (Number) | 120,872 | 121,423 | 123,545 | 124,117 | 127,943 | 131,171 |
| Total number of tests processed with a score (Number) | 116,534 | 116,642 | 118,259 | 117,720 | 120,383 | 121,194 |
| Total number of tests processed with a score (Percent) | 96.4 | 96.1 | 95.7 | 94.8 | 94.1 | 92.4 |
| Total number of tests processed without a score (Number) | 4,338 | 4,781 | 5,286 | 6,397 | 7,560 | 9,977 |
| Total number of tests processed without a score (Percent) | 3.6 | 3.9 | 4.3 | 5.2 | 5.9 | 7.6 |
| Students with an English Language Arts score used in state summaries (Number) | 114,398 | 114,533 | 116,274 | 115,785 | 118,352 | 119,366 |

Notes. PPT = Paper/Pencil Test
 CBT = Computer-Based Test

Table 10–1S. Students Assessed on the 2022 PSSA: Science

| Description | Gr. 4 | Gr. 8 |
|--|---------|---------|
| Total number of PPT processed (Number) | 90,349 | 88,794 |
| Total number of CBT processed (Number) | 31,032 | 42,141 |
| Total number of tests processed (Number) | 121,381 | 130,935 |
| Total number of tests processed with a score (Number) | 117,007 | 120,542 |
| Total number of tests processed with a score (Percent) | 96.4 | 92.1 |
| Total number of tests processed without a score (Number) | 4,374 | 10,393 |
| Total number of tests processed without a score (Percent) | 3.6 | 7.9 |
| Students with a Science score used in state summaries (Number) | 114,497 | 118,412 |

Notes. PPT = Paper/Pencil Test
 CBT = Computer-Based Test

NON-ASSESSED STUDENTS

As may be observed from Tables 10–1E through 10–1S, not all students were assessed. Although there are a variety of reasons for this, the major ones pertain to the following:

- Extended absence from school that continued beyond the assessment window.
- Failure to meet the attempt criteria on one or more subject-area test sections and no exclusion code was marked by school personnel. For mathematics, ELA, and science, the attempt criteria required a minimum of five items to be completed in each subject area section.
- EL students in their first year in U.S. schools (ELA only).
- Medical emergency.
- Parental request in which the student’s parent/guardian reviewed the assessment, found it to be in conflict with his/her religious belief, and requested in writing that the student be excluded from participation.
- Parental request in which the student’s parent/guardian chose to have his/her child excluded from participation based on reasons other than conflict with religious belief, even though there is no provision for this exclusion in Pennsylvania regulation.
- Other reasons.

The numbers of students without test scores for these reasons are presented in Tables 10–2E through 10–2S.

Table 10–2M. Counts of Students without Scores on the 2022 PSSA: Mathematics

| Reason for Non-Assessment | Gr. 3 | Gr. 4 | Gr. 5 | Gr. 6 | Gr. 7 | Gr. 8 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| Extended absence from school (Number) | 469 | 480 | 590 | 810 | 1,132 | 1,392 |
| Extended absence from school (Percent) | 12.8 | 11.5 | 12.3 | 13.5 | 15.4 | 13.9 |
| Non-attempt (Number) | 569 | 606 | 647 | 1,039 | 1,197 | 1,350 |
| Non-attempt (Percent) | 15.5 | 14.5 | 13.5 | 17.3 | 16.3 | 13.5 |
| EL in first year in U.S. schools (Number) | 115 | 112 | 115 | 87 | 77 | 83 |
| Medical emergency (Number) | 86 | 129 | 150 | 193 | 285 | 410 |
| Medical emergency (Percent) | 2.3 | 3.1 | 3.1 | 3.2 | 3.9 | 4.1 |
| Parental request - Chapter 4 (Number) | 1,031 | 1,175 | 1,368 | 1,555 | 1,904 | 2,713 |
| Parental request - Chapter 4 (Percent) | 28.1 | 28 | 28.5 | 25.9 | 26 | 27.1 |
| Parental request - Other reasons (Number) | 1,138 | 1,380 | 1,576 | 1,795 | 2,133 | 3,228 |
| Parental request - Other reasons (Percent) | 31 | 32.9 | 32.9 | 30 | 29.1 | 32.2 |
| Other reasons (Number) | 373 | 422 | 462 | 601 | 682 | 922 |
| Other reasons (Percent) | 10.2 | 10.1 | 9.6 | 10 | 9.3 | 9.2 |
| Total not assessed (Number) | 3,666 | 4,192 | 4,793 | 5,993 | 7,333 | 10,015 |

Table 10–2E. Counts of Students without Scores on the 2022 PSSA: ELA

| Reason for Non-Assessment | Gr. 3 | Gr. 4 | Gr. 5 | Gr. 6 | Gr. 7 | Gr. 8 |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| Extended absence from school (Number) | 406 | 415 | 490 | 688 | 973 | 1,213 |
| Extended absence from school (Percent) | 9.4 | 8.7 | 9.3 | 10.8 | 12.9 | 12.2 |
| Non-attempt (Number) | 1,088 | 1,132 | 1,095 | 1,552 | 1,684 | 1,785 |
| Non-attempt (Percent) | 25.1 | 23.7 | 20.7 | 24.3 | 22.3 | 17.9 |
| EL in first year in U.S. schools (Number) | 115 | 112 | 115 | 87 | 77 | 83 |
| EL in first year in U.S. schools (Percent) | 2.7 | 2.3 | 2.2 | 1.4 | 1 | 0.8 |
| Medical emergency (Number) | 69 | 115 | 134 | 170 | 262 | 348 |
| Medical emergency (Percent) | 1.6 | 2.4 | 2.5 | 2.7 | 3.5 | 3.5 |
| Parental request - Chapter 4 (Number) | 1,052 | 1,192 | 1,359 | 1,557 | 1,889 | 2,646 |
| Parental request - Chapter 4 (Percent) | 24.3 | 24.9 | 25.7 | 24.3 | 25 | 26.5 |
| Parental request - Other reasons (Number) | 1,167 | 1,359 | 1,589 | 1,726 | 2,005 | 3,032 |
| Parental request - Other reasons (Percent) | 26.9 | 28.4 | 30.1 | 27 | 26.5 | 30.4 |
| Other reasons (Number) | 441 | 456 | 504 | 617 | 670 | 870 |
| Other reasons (Percent) | 10.2 | 9.5 | 9.5 | 9.6 | 8.9 | 8.7 |
| Total not assessed (Number) | 4,338 | 4,781 | 5,286 | 6,397 | 7,560 | 9,977 |

Table 10–2S. Counts of Students without Scores on the 2022 PSSA: Science

| Reason for Non-Assessment | Gr. 4 | Gr. 8 |
|--|--------------|--------------|
| Extended absence from school (Number) | 592 | 1,575 |
| Extended absence from school (Percent) | 13.5 | 15.2 |
| Non-attempt (Number) | 636 | 1,462 |
| Non-attempt (Percent) | 14.5 | 14.1 |
| Medical emergency (Number) | 164 | 469 |
| Medical emergency (Percent) | 3.7 | 4.5 |
| Parental request - Chapter 4 (Number) | 1,170 | 2,665 |
| Parental request - Chapter 4 (Percent) | 26.7 | 25.6 |
| Parental request - Other reasons (Number) | 1,369 | 3,245 |
| Parental request - Other reasons (Percent) | 31.3 | 31.2 |
| Other reasons (Number) | 443 | 977 |
| Other reasons (Percent) | 10.1 | 9.4 |
| Total not assessed (Number) | 4,374 | 10,393 |

COMPOSITION OF SAMPLE USED IN SUBSEQUENT TABLES

Students included in the following demographic analyses were those who contributed to state summary statistics, using the final individual student data file provided to the Pennsylvania Department of Education in August 2022. Students not included in the state summary data were those who were 1) enrolled in a Pennsylvania school after October 1, 2021, 2) coded as EL and enrolled in a US school fewer than 12 cumulative months, 3) foreign exchange students, 4) home schooled, 5) enrolled in a non-public school, or 6) without a subject-area test score.

Demographic data for students taking the PSSA is presented separately for each subject area in Appendix I. Results for accommodations received were collected separately by subject area and are presented in separate tables as well.

COLLECTION OF STUDENT DEMOGRAPHIC INFORMATION

Data for analyses involving demographic characteristics were obtained primarily from information supplied by school district personnel through the Pennsylvania Information Management System (PIMS) and subsequently transmitted to DRC. Updates of attribution data were carried out through the DRC Attribution System. Some data such as accommodation information is marked directly on the student answer document at the time the PSSA is administered.

PARTICIPATION BY ADMINISTRATION MODE

Online (CBT) testing was available for the PSSA. As anticipated the majority of students were assessed utilizing paper/pencil tests (PPT). The bottom row of the tables presented in Appendix I present the number of students involved in the PPT and CBT administrations as well as Table 9–2 in Chapter Nine. Overall, the percent of students responding by CBT was approximately 23.10 to 32.74 percent for mathematics and ELA, and science. There was a substantial increase across each subject and grade level between 2019 and 2021, which continued in 2022 as well. In general for ELA and math, higher grade levels tend to administer more computer-based tests.

DEMOGRAPHIC CHARACTERISTICS

Frequency data for each demographic category is presented in Appendix I. Percentages are based on students with scores in a subject area, which are shown at the bottom of the appropriate table. Included are students receiving education in a non-traditional setting, such as a court-agency placement.

TEST ACCOMMODATIONS PROVIDED

School personnel supplied information regarding accommodations that a student may have received while taking the PSSA. Accommodations are classified in terms of presentation, response, setting, and timing to enable students to better manage disabilities that hinder their ability to learn and respond to assessments. An accommodations manual entitled, *2022 Accommodations Guidelines: Keystone Exams and PSSA* guides the development and analysis of the PSSA. This manual may be found on the PDE website at www.education.pa.gov. A glossary of accommodation terms as applied to the PSSA is provided in Table 10–3 at the end of this chapter.

The frequency with which accommodations were utilized for PPT and CBT formats is summarized separately for each subject area in Appendix J. Tabled values are based on all students whose score contributed to state summary statistics in a given subject area. In the tables an NA denotes those instances in which a particular accommodation does not apply to one of the testing modes.

PRESENTATION ACCOMMODATIONS RECEIVED

Presentation Accommodations are those that provide alternate ways for students to access and process printed instructional material and assessments. These include auditory, tactile, visual, and combined auditory/visual modes of presentation. The number of presentation accommodations provided in the 2022 PSSA varied by subject and testing mode and are presented in Appendix J.

As depicted in Appendix J, the actual frequencies were low, with all but the read-aloud, audio, and other accommodation being used by less than one percent of assessed students statewide. Among accommodations specific to CBT the use of audio was the most frequent. For CBT administration, there were unique accommodations, audio, color chooser, contrasting text chooser, and refreshable Braille, available for mathematics, ELA, and science. Video sign language was also available for mathematics and science.

RESPONSE ACCOMMODATIONS RECEIVED

Response Accommodations permit students to complete assignments, tests, and activities in different ways to solve or organize problems using some type of assistive device or organizer. The number of response accommodations provided on the 2022 PSSA varied by subject and testing mode and are presented in Appendix J.

SETTING ACCOMMODATIONS RECEIVED

Setting Accommodations permit a change in location in which a student receives instruction or participates in an assessment. There were four categories of setting accommodations for mathematics, ELA, and science on the 2022 PSSA. As depicted in Appendix J, the most common accommodation across subject areas was small group setting. This was true for both PPT and CBT modes of administration.

TIMING ACCOMMODATIONS RECEIVED

Timing Accommodations involve a change in the allowable length of time to complete assignments or assessments, including the way in which time is organized. There were four categories of timing accommodations for mathematics, ELA, and science on the 2022 PSSA. As depicted in Appendix J, the most commonly used accommodation was extended time, followed by frequent breaks. One consistent finding was that students responding by CBT had a higher usage of frequent breaks than observed for students taking a PPT.

ACCOMMODATION RATE FOR NON-IEP AND IEP STUDENTS

A comparison between students without an IEP (non-IEP students) and those with an IEP (IEP students) with regard to having received an accommodation is provided in Appendix K. In this data, accommodated means that a student received one or more of the total number of accommodations available for a given subject area; however, this also varies with administration mode. The total number of available accommodations for students taking a PPT was as follows: mathematics and science, 31; and ELA, 28. The number of available accommodations for students taking a CBT was as follows: mathematics and science, 29; and ELA, 25. The category of non-accommodated indicates that a student did not receive any accommodation during testing.

The general pattern of findings reveals a consistent and substantially higher percentage of IEP students receiving an accommodation in contrast to non-IEP students. This same pattern holds true regardless of test administration mode and PSSA test.

THE INCIDENCE OF ACCOMMODATIONS AND IEP AND EL STATUS

As noted in Appendix L, students with an IEP received an accommodation of some type far more often than non-IEP students, with the exception of the extended time accommodation. As the PSSA is designed as having no time limit, any student may opt for extended time. Certain accommodations with very low frequencies are specific to particular disabilities while others, such as extended time are far more common and may also apply to any student. Accommodations having the largest frequencies can potentially supply the most stable data when separated out for subgroup analysis. Listed below are the most commonly used accommodations, which were chosen for display.

- Some test items/questions read aloud (mathematics, science)
- All test items/questions read aloud (mathematics, science)
- Small group setting (mathematics, ELA, science)
- Extended time (mathematics, ELA, science)
- Frequent breaks (mathematics, ELA, science)
- Some language questions/text-dependent analysis questions read aloud (ELA)
- All language questions/text-dependent analysis questions read aloud (ELA)

Coding for IEP is dichotomous, as students are classified IEP and non-IEP. For purposes of this analysis, an English Learner (EL) is a student classified EL and enrolled in a U.S. school fewer than 12 cumulative months. All other assessed students, including those who have exited an ESL/bilingual program and are in the first or second year of monitoring, are regarded as non-EL. Students coded as EL and enrolled in a U.S. school fewer than 12 cumulative months, are excluded from state summary statistics as stated earlier in this chapter.

Customarily, a considerably larger percentage of IEP students receive a given accommodation than non-IEP students. Although less frequent, certain accommodations also have a high frequency rate for EL students. To separate out the effect of being classified IEP or EL, four possible combinations are presented in the Appendix L. These include general education students who are neither IEP nor EL, students who are IEP but non-EL, students who are EL but non-IEP, and students who are both IEP and EL. The bottom row for each grade provides the total number of assessed students in each of the four classifications.

GLOSSARY OF ACCOMMODATION TERMS

Table 10–3 provides a brief description of accommodation terms as used in the PSSA. Accommodation data was supplied by school personnel as noted in the left column of the table. The right column contains an explanation derived from the PDE publication, *2022 Accommodations Guidelines: Keystone Exams and PSSA*. This manual may be found on the PDE website at www.education.pa.gov.

Table 10–3. Glossary of Accommodation Terms as Applied in the 2022 PSSA

| Type of Testing Accommodation | Explanation |
|--|---|
| Student used the following Presentation Accommodations | |
| Braille format | Students may use a Braille format of the test. Answers must then be transcribed into the answer booklet without alteration. |
| Large print format | Students with visual impairments may use a large print format. Answers must then be transcribed into the answer booklet without alteration. |
| Magnification device | Devices to magnify print may be used for students with visual impairments and/or print disabilities. |
| Color overlay | Students with visual impairments may place a color overlay on a printed page of the test document to make text more readable. |
| Computer assistive technology (e.g., electronic screen reader) (PDE approval required) | Students with severe visual disabilities that prevent them from accessing instructional material or performing the skill may use computer assistive technology; however, PDE must approve the program and functions prior to the test window. |
| Test items/questions/text-dependent analysis signed | Deaf/hearing impaired students may receive test directions from a qualified interpreter. Signing is also permitted for PSSA ELA writing section multiple-choice items, and text-dependent analysis questions and all items in PSSA mathematics and science and for Keystone Algebra and Biology. |
| Test items/questions/text-dependent analysis interpreted for EL | A qualified interpreter may translate directions or clarify instructions for the assessments. The interpreter may translate but not define specific words or test questions on the PSSA mathematics, science, ELA writing section multiple-choice items, and text-dependent analysis questions and Keystone Algebra and Biology exams. |
| Some or all test items/questions/text-dependent analysis read aloud | Students unable to decode text visually may have items/questions read aloud for PSSA ELA writing section multiple-choice items, and text-dependent analysis questions and all items in PSSA mathematics and science and for Keystone Algebra and Biology; however, words may not be defined. |
| Amplification device | In addition to using hearing aids, an amplification device to enhance clarity may be required. |
| Other (PDE approval required) | Other presentation accommodations indicated in the <i>Accommodation Guidelines</i> may be provided; however, PDE approval is required prior to the test window. |
| Spanish version for PSSA (Math and Science) and Keystone (Algebra and Biology) | Students whose first language is Spanish and who have been enrolled in U.S. schools for fewer than three years may take this version. |
| Student used the following Online Presentation Accommodations | |
| Audio | The online test form reads permissible test directions and items for a student unable to decode text. The accommodation must be marked within the test engine system. The accommodation is available on PSSA mathematics, science, ELA writing section multiple-choice items, and text-dependent analysis questions and Keystone Algebra and Biology exams. |
| Video sign language (per accommodations guidelines) | Eligible students who use a sign language accommodation during instructional periods may use VSL on the PSSA mathematics and science and Keystone Algebra and Biology assessments. |
| Color chooser or contrasting text chooser | The use of this accommodation enables a visually impaired student to change the background color or text color to make text more readable. |
| Refreshable Braille | This accommodation allows students to use a screen reader to produce a Braille translation output. |

Table 10–3 (continued). Glossary of Accommodation Terms as Applied in the 2022 PSSA

| Type of Testing Accommodation | Explanation |
|---|--|
| Student used the following Response Accommodations | |
| Braille/Note taker (per <i>Accommodations Guidelines</i>) | Students using this device as part of their regular instructional program may use it on the assessments; however, without thesaurus, spelling, or grammar checker. |
| Test administrator scribed open-ended responses at student’s direction | A test administrator may record word-for-word exactly what a student dictated directly into the test booklet. This includes MC and OE responses Keystone Algebra, Biology, and Literature tests and PSSA mathematics, ELA, and science. |
| Test administrator marked multiple-choice responses at student’s direction | A test administrator may mark an answer booklet at the direction of a student (e.g., a student may point to an MC answer with the test administrator marking the response in the answer booklet). |
| Test administrator transcribed student responses (per Accommodations Guidelines) | A test administrator may transcribe (copy) a student’s written, typed, or keyed response into a standard answer booklet. |
| Qualified Interpreter translated, transcribed, and/or scribed student’s signed responses | A qualified interpreter may interpret a student’s signed responses into written English for Keystone Algebra and Biology exams, and PSSA mathematics and science assessments. Interpreters are not permitted to make corrections or change the meaning of the response. |
| Qualified Interpreter translated, transcribed, and/or scribed EL student responses | A qualified interpreter may interpret a student’s non-English oral responses into written English for Keystone Algebra and Biology exams, and PSSA mathematics and science assessments. Interpreters are not permitted to make corrections or change the meaning of the response. |
| Mixed-mode test administration | Examinee taking the PSSA in computer-based mode provides handwritten responses to constructed-response items in paper answer booklet. |
| Augmentative communication device | Students with severe communication difficulties may use a special device to convey responses, which must be transcribed into the answer booklet by the test administrator. |
| Keyboard, word processor, or computer (per <i>Accommodations Guidelines</i>) | This is an allowable accommodation as a typing function only for students with the identified need. Supports such as dictionaries, thesauri, spell checkers, and grammar checkers must be turned off. Answers must then be transcribed into the answer booklet without alteration. |
| Translation dictionary for EL student | A word-to-word dictionary that translates native language to English (or vice versa) without word definitions or pictures is allowed on any portion of the Keystone Algebra and Biology exams, and PSSA mathematics and science tests. |
| Computer assistive technology (e.g., electronic screen reader) (PDE approval required) | Students with blindness or extremely low vision may use dictate text into a computer. Responses must be transcribed verbatim into student’s regular answer booklet. |
| Other (per <i>Accommodations Guidelines</i> or PDE approval) | Other accommodations may be appropriate and available if they do not compromise the integrity of the assessment. Documentation must be provided to PDE. |
| Student used the following Setting Accommodations | |
| Hospital/home testing | A student who is confined to a hospital or to home during the testing window may be tested in that environment. |
| One-on-one setting | One-on-one settings are necessitated in certain instances, such as to reduce distraction or in the use of certain devices. A separate room may be used to reduce distraction. |
| Small group setting | Some students may require a test setting with fewer students or a setting apart from all other students to minimize distraction. |

Table 10–3 (continued). Glossary of Accommodation Terms as Applied in the 2022 PSSA

| Type of Testing Accommodation | Explanation |
|--|---|
| Other (per <i>Accommodations Guidelines</i> or PDE approval) | Other accommodations may be appropriate and available if they do not compromise the integrity of the assessment. Documentation must be provided to PDE. |
| Student used the following Timing Accommodations | |
| Extended time | Extended time may be allotted for each section of the test as a planned accommodation to enable students to finish. |
| Frequent breaks | Frequent breaks (breaks within a test section) may be scheduled for the completion of each test section; however, a test section must be completed within one school day. |
| Changed test schedule | Students whose disabilities prevent them from following a regular, planned test schedule may follow an individual schedule that enables test completion. |
| Other (per <i>Accommodations Guidelines</i> or PDE approval) | Other accommodations may be appropriate and available if they do not compromise the integrity of the assessment. Documentation must be provided to PDE. |

CHAPTER ELEVEN: CLASSICAL ITEM STATISTICS

This chapter provides an overview of the two most familiar item-level statistics obtained from any classical (traditional) item analysis: item difficulty and item discrimination. The following results were estimated using final data and pertain only to operational PSSA items (i.e., those items that contributed to a student’s total test score). Rasch item statistics are discussed in Chapter Twelve and test-level statistics are found in Chapter Seventeen.

ITEM-LEVEL STATISTICS

Appendix F provides classical item statistics and Rasch parameters for all PSSA items. Results are organized by subject and grade. These statistics represent the item characteristics most often used to determine whether an item functioned properly and/or how a group of students performed on a particular item. The item statistics in the appendices include p -values for multiple-choice (MC) items and item means for open-ended (OE)¹ items (indicators of item difficulty); point-biserial correlations for MC items and item-test correlations for OE items (indicators of item discrimination); and the proportion of students selecting each MC item option or earning each OE item score point.

ITEM DIFFICULTY

At the most general level, an item’s difficulty is indicated by its mean score in some specified group (e.g., grade level).

$$\bar{x} = \frac{1}{n} \cdot \sum_{i=1}^n x_i$$

In the mean score formula above, the individual item scores (x_i) are summed and then divided by the total number of students (n). For multiple-choice items, student scores are represented by 0s and 1s (0 = wrong, 1 = right). With 0–1 scoring, the equation above also represents the number of students correctly answering the item divided by the total number of students. Therefore, this is also the proportion correct for the item, or the p -value. In theory, p -values can range from 0.00² to 1.00 on the proportion-correct scale. For example, if an item has a p -value of 0.89, it means 89 percent of the students answered the item correctly. Additionally, this value might also suggest that the item was relatively easy and/or the students who attempted the item were relatively high achievers. In other words, item difficulty and student ability are somewhat confounded.

For OE items, mean scores can range from the minimum possible score (usually zero) to the maximum possible score (e.g., four points in the case of some mathematics, ELA, and science items). Sometimes a pseudo p -value is provided for an OE item. This is done by dividing the mean item score by the maximum possible item score.

The minimum and maximum extremes of the difficulty scale are typically not seen in applied practice. However, understanding the extremes helps illustrate that relatively lower values correspond to more difficult items, and that relatively higher values correspond to easier items. (As a result, some assert that this index would be more accurately referred to as the item’s easiness.)

Item difficulty is an important consideration for the PSSA tests because of the ranging achievement levels of students in Pennsylvania (Below Basic, Basic, Proficient, and Advanced). Items that are either very hard or very easy provide little information about student differences in achievement. However, an item answered correctly by a high percentage of students would suggest that the knowledge or skill the item measures has been mastered by most students. Conversely, an item answered incorrectly by a low percentage of students would suggest few students have mastered the knowledge or skill the item taps. On a standards-referenced test like the PSSA, a test development goal is to include a wide range of item difficulties.

¹ OE items for ELA include Short-Answer (SA), Evidence-Based Selected-Response (EBSR), Text-Dependent Analysis (TDA).

² For MC items with four response options, pure random guessing would lead to an expected p -value of 0.25.

ITEM DISCRIMINATION

At the most general level, item discrimination³ indicates an item's ability to differentiate between high and low achievers. It is expected that students with high ability (i.e., those who perform well on the PSSA overall) would be more likely to answer any given PSSA item correctly, while students with low ability (i.e., those who perform poorly on the PSSA overall) would be less likely to answer the same item correctly. For the PSSA tests, Pearson's product-moment correlation coefficient between item scores and test scores is used to indicate discrimination. (As commonly practiced, DRC removes the item score from the total score such that the resulting correlations will not be spuriously high.) The correlation coefficient can range from -1.0 to +1.0. If this expectation is met (high-scoring students tend to answer the item correctly while low-scoring students answer the item incorrectly), the correlation between the item score and the total test score will be both positive and noticeably large in its magnitude (i.e., well above zero), meaning the item is a good discriminator between high and low ability students. This should be the case for all PSSA operational test items.

In summary, the correlation will be positive in value when the mean test score of the students answering the item correctly is higher than the mean test score of the students answering the item incorrectly.⁴ In other words, this indicates that students who did well on the total test tended to do well on the item as well. However, an interaction can exist between item discrimination and item difficulty. Items answered correctly (or incorrectly) by a large proportion of examinees (i.e., the items have extreme *p*-values) can have reduced power to discriminate, and thus, can have lower correlations.

Discrimination is an important consideration for the PSSA because the use of more discriminating items on a test is associated with more reliable test scores. This in turn means that score estimates will be more precise (i.e., there will be smaller confidence intervals around the scores) and, perhaps more importantly, that more accurate performance level placements will be made. The issues of reliability, confidence intervals, and performance level classifications are further discussed in Chapter Eighteen.

³ As noted earlier, the discrimination index for PSSA dichotomously-scored MC items is typically referred to as the point-biserial correlation coefficient. For OE items, the term item-test correlation is sometimes used.

⁴ It is legitimate to view the point-biserial correlation as a standardized mean difference. A positive value indicates students who chose that response had a higher mean score than the average student; a negative value indicates students who chose that response had a lower than average mean score.

CLASSICAL ITEM ANALYSIS RESULTS

Table 11–1 provides the summary statistics for the difficulty and discrimination with respect to each subject and grade. The spread of item difficulties and discriminations can be seen in both Table 11–1 and Figure 11–1. There is a wide range of difficulties across all subjects, where p -values typically range from approximately 0.30 to approximately 0.85. Average p -values are consistent with test specifications. The item-total correlations typically range from about 0.20 to 0.70, where higher item-total correlations are often observed for OE items (see Table 11–2).

Table 11–1. Summary Statistics of Difficulty and Discrimination by Subject and Grade

| Subject | Grade | Mean <i>P</i> -val. | Min <i>P</i> -val. | Q1 <i>P</i> -val. | Median <i>P</i> -val. | Q3 <i>P</i> -val. | Max <i>P</i> -val. | Mean I-T Corr. | Min I-T Corr. | Q1 I-T Corr. | Median I-T Corr. | Q3 I-T Corr. | Max I-T Corr. |
|-------------|-------|------------------------|-----------------------|----------------------|--------------------------|----------------------|-----------------------|----------------------|---------------------|--------------------|------------------------|--------------------|---------------------|
| Mathematics | 3 | 0.55 | 0.33 | 0.47 | 0.53 | 0.66 | 0.84 | 0.45 | 0.24 | 0.38 | 0.43 | 0.52 | 0.74 |
| Mathematics | 4 | 0.55 | 0.28 | 0.43 | 0.55 | 0.66 | 0.82 | 0.44 | 0.21 | 0.38 | 0.44 | 0.48 | 0.69 |
| Mathematics | 5 | 0.46 | 0.29 | 0.37 | 0.46 | 0.50 | 0.68 | 0.41 | 0.19 | 0.34 | 0.39 | 0.47 | 0.71 |
| Mathematics | 6 | 0.51 | 0.25 | 0.45 | 0.50 | 0.59 | 0.80 | 0.45 | 0.32 | 0.40 | 0.44 | 0.50 | 0.68 |
| Mathematics | 7 | 0.47 | 0.18 | 0.38 | 0.47 | 0.54 | 0.76 | 0.42 | 0.27 | 0.35 | 0.39 | 0.46 | 0.75 |
| Mathematics | 8 | 0.47 | 0.28 | 0.37 | 0.47 | 0.55 | 0.71 | 0.42 | 0.21 | 0.34 | 0.42 | 0.47 | 0.77 |
| ELA | 3 | 0.53 | 0.28 | 0.43 | 0.51 | 0.64 | 0.77 | 0.42 | 0.21 | 0.34 | 0.40 | 0.50 | 0.60 |
| ELA | 4 | 0.60 | 0.34 | 0.53 | 0.60 | 0.67 | 0.85 | 0.44 | 0.18 | 0.39 | 0.47 | 0.51 | 0.61 |
| ELA | 5 | 0.56 | 0.26 | 0.48 | 0.54 | 0.68 | 0.80 | 0.42 | 0.21 | 0.33 | 0.42 | 0.50 | 0.63 |
| ELA | 6 | 0.58 | 0.35 | 0.47 | 0.59 | 0.66 | 0.80 | 0.40 | 0.22 | 0.33 | 0.39 | 0.46 | 0.61 |
| ELA | 7 | 0.59 | 0.33 | 0.47 | 0.58 | 0.67 | 0.85 | 0.41 | 0.14 | 0.34 | 0.41 | 0.46 | 0.65 |
| ELA | 8 | 0.58 | 0.34 | 0.45 | 0.56 | 0.70 | 0.81 | 0.42 | 0.23 | 0.32 | 0.43 | 0.51 | 0.66 |
| Science | 4 | 0.54 | 0.34 | 0.46 | 0.56 | 0.62 | 0.84 | 0.40 | 0.19 | 0.35 | 0.41 | 0.48 | 0.58 |
| Science | 8 | 0.53 | 0.28 | 0.40 | 0.53 | 0.64 | 0.90 | 0.41 | 0.23 | 0.33 | 0.41 | 0.49 | 0.60 |

Note. I-T Corr. is the item-test score correlation.

Table 11–2 disaggregates results for the MC and OE items. The mean p -values for MC items ranged from about 0.46 to 0.57 for Mathematics and from 0.54 to 0.61 for ELA. The mean p -values for MC items for both Science grades 4 and 8 was 0.55. On average, OE items were slightly more difficult for mathematics and science, where p -values ranged from 0.24 to 0.42 and 0.40 to 0.53, respectively. P -values for ELA OE items were similar to that of MC items (0.50 to 0.60).

The mean item-test correlations ranged from roughly 0.37 to 0.44 and 0.48 to 0.73 for the MC and OE items, respectively. These are similar to historic trends. The OE correlations tended to be higher than the MC correlations, which is not surprising because the OE items include more score points. Based on the distribution of the discrimination (correlation) statistics, the overall item quality appears quite good. However, it is difficult to make global conclusions about overall test quality from these item statistics alone. With that caveat in mind, the results presented in this chapter indicate that the PSSA item difficulty and discrimination were in expected and acceptable ranges, and further evidence of the quality of the internal test structure is provided in the chapters that follow.

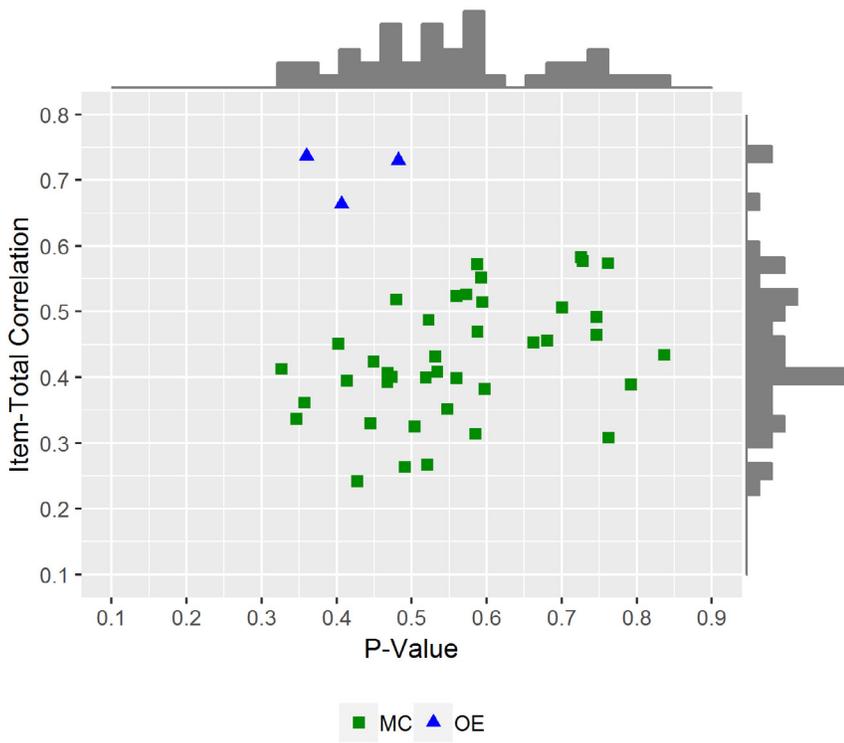
Table 11–2. Sum and Mean Statistics for MC and OE Items

| Subject | Grade | MC Points | MC Sum | MC Mean <i>P</i> -val. | MC Mean I-T Corr. | OE Points | OE Sum | OE Mean <i>P</i> -val. | OE Mean I-T Corr. |
|-------------|-------|-----------|--------|------------------------|-------------------|-----------|--------|------------------------|-------------------|
| Mathematics | 3 | 40 | 22.61 | 0.57 | 0.43 | 12 | 4.99 | 0.42 | 0.71 |
| Mathematics | 4 | 40 | 22.78 | 0.57 | 0.42 | 12 | 3.73 | 0.31 | 0.66 |
| Mathematics | 5 | 40 | 18.50 | 0.46 | 0.39 | 12 | 4.67 | 0.39 | 0.67 |
| Mathematics | 6 | 40 | 21.19 | 0.53 | 0.44 | 12 | 3.66 | 0.30 | 0.66 |
| Mathematics | 7 | 40 | 19.28 | 0.48 | 0.39 | 12 | 2.92 | 0.24 | 0.72 |
| Mathematics | 8 | 40 | 19.22 | 0.48 | 0.40 | 12 | 3.72 | 0.31 | 0.73 |
| ELA | 3 | 29 | 15.74 | 0.54 | 0.39 | 16 | 7.92 | 0.50 | 0.53 |
| ELA | 4 | 32 | 19.66 | 0.61 | 0.43 | 19 | 9.78 | 0.51 | 0.51 |
| ELA | 5 | 32 | 17.90 | 0.56 | 0.39 | 19 | 10.66 | 0.56 | 0.56 |
| ELA | 6 | 32 | 18.71 | 0.58 | 0.37 | 19 | 10.64 | 0.56 | 0.51 |
| ELA | 7 | 32 | 18.84 | 0.59 | 0.38 | 19 | 10.78 | 0.57 | 0.53 |
| ELA | 8 | 32 | 18.34 | 0.57 | 0.39 | 19 | 11.43 | 0.60 | 0.55 |
| Science | 4 | 38 | 20.78 | 0.55 | 0.39 | 10 | 5.27 | 0.53 | 0.48 |
| Science | 8 | 38 | 20.85 | 0.55 | 0.39 | 10 | 3.96 | 0.40 | 0.53 |

Note. I-T Corr. is the item-test score correlation. OE items for ELA include SA, EBSR, and TDA.

Figure 11–1 presents scatterplots for each subject and grade and displaying each item plotted by its *p*-value on the *x*-axis and its item-total correlation on the *y*-axis. Note that pseudo *p*-values (described above) are used for OE items in these plots. These plots provide information about the distribution of item discrimination and item difficulty in a histogram along the *y*-axis and *x*-axis, respectively. Green squares indicate MC items and blue triangles indicate OE items. For ELA, OE items include SA, EBSR, and TDA item types. From the difficulty distributions illustrated in Figure 11–1, a wide range of item difficulties appeared on each exam, which was one test development goal. The bivariate relationship between item discrimination (item-test *correlations*) and difficulty (item *mean scores*) shows a common trend that items with extreme difficulties can have lower discrimination values.

Figure 11–1. Discrimination and Difficulty Scatterplot
Item-Total Correlation vs. P-Value
 Mathematics 3



Item-Total Correlation vs. P-Value
 Mathematics 4

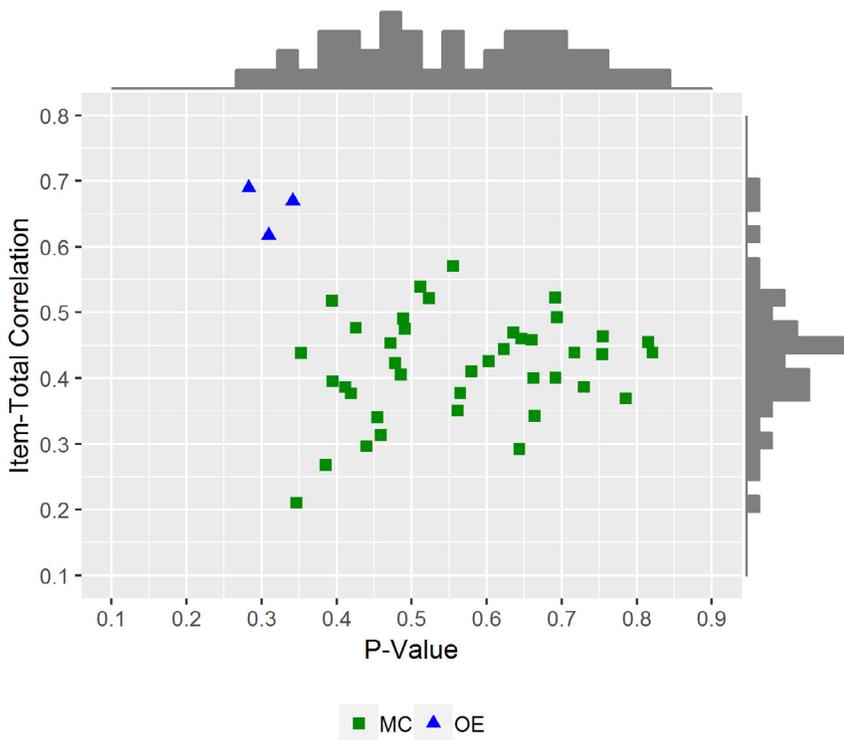
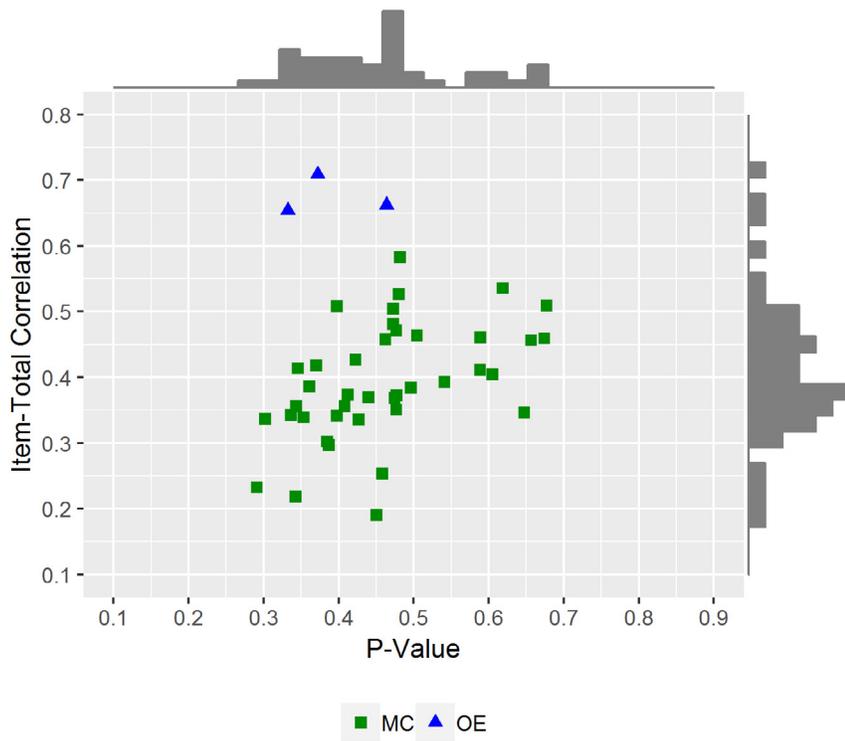


Figure 11–1 (continued). Discrimination and Difficulty Scatterplot

Item-Total Correlation vs. P-Value

Mathematics 5



Item-Total Correlation vs. P-Value

Mathematics 6

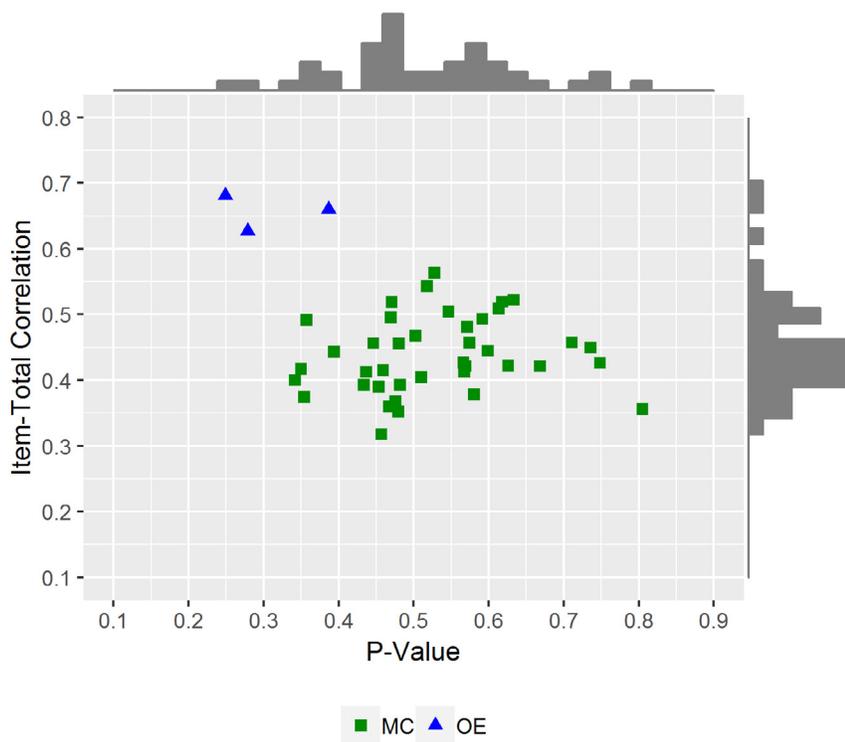
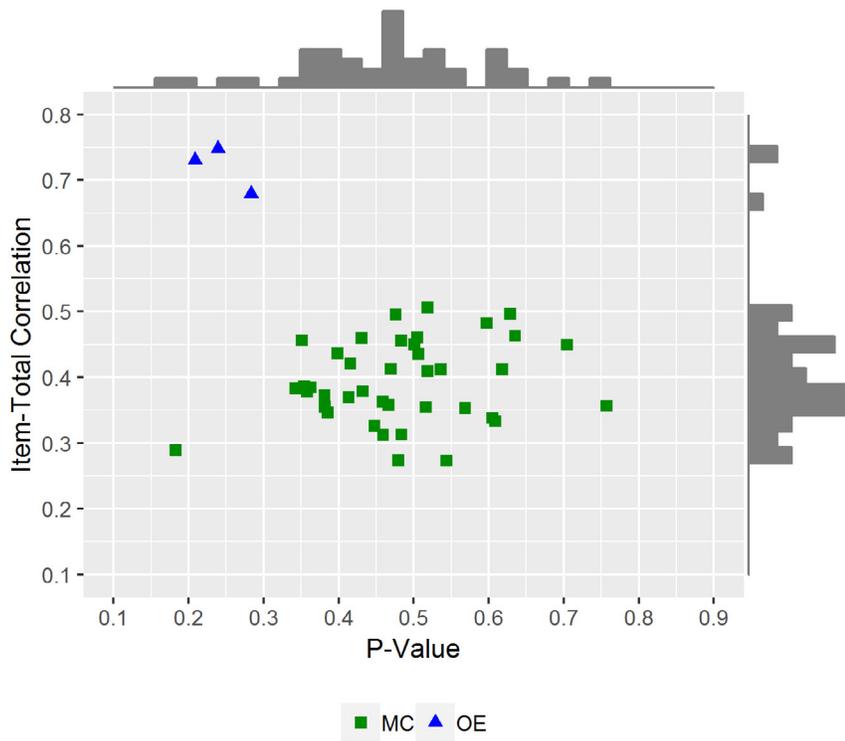


Figure 11–1 (continued). Discrimination and Difficulty Scatterplot

Item-Total Correlation vs. P-Value

Mathematics 7



Item-Total Correlation vs. P-Value

Mathematics 8

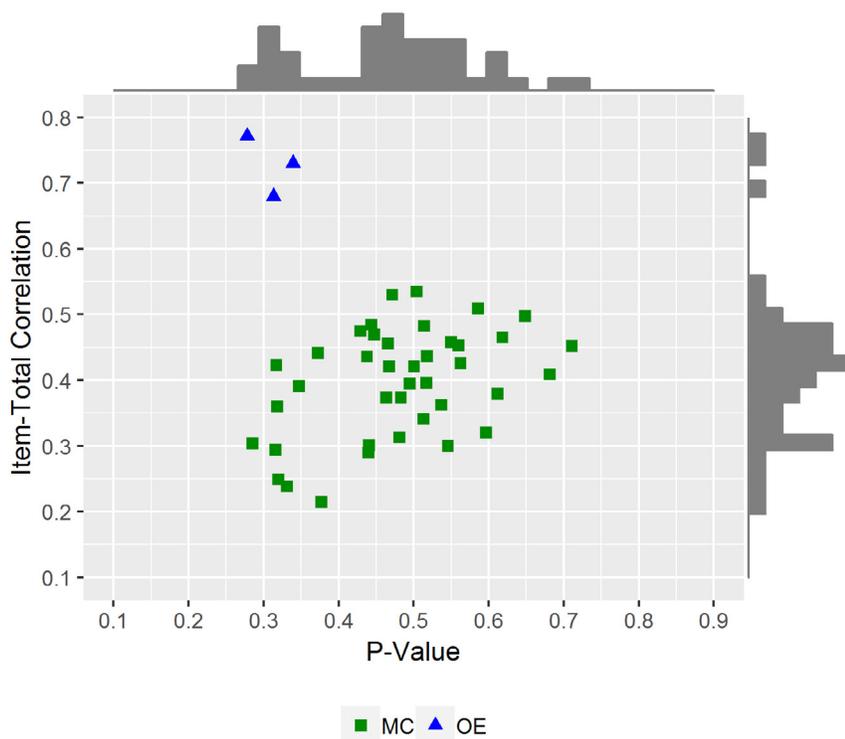
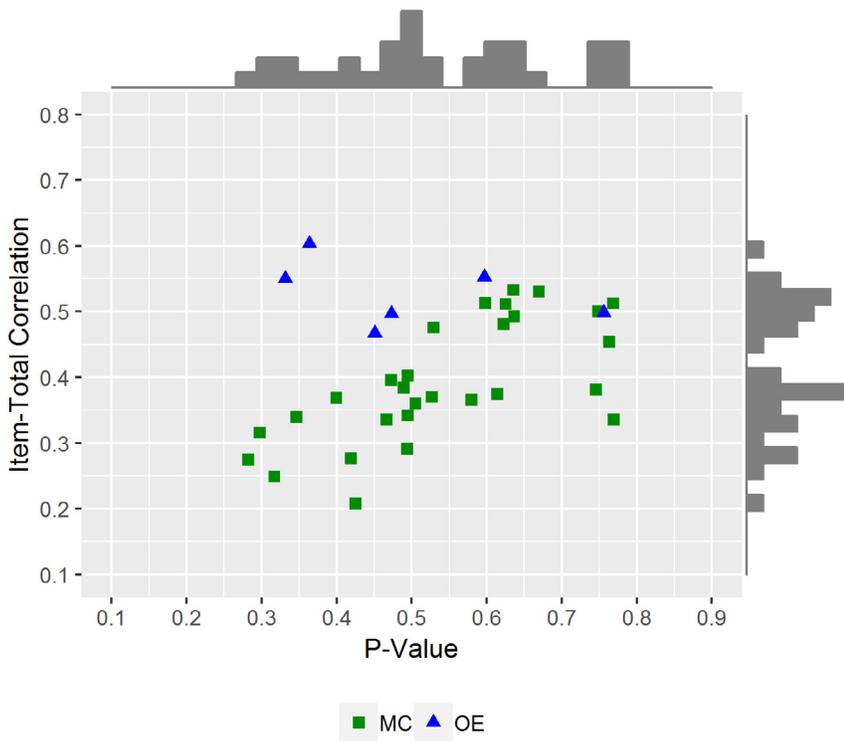


Figure 11–1 (continued). Discrimination and Difficulty Scatterplot

Item-Total Correlation vs. P-Value

ELA 3



Item-Total Correlation vs. P-Value

ELA 4

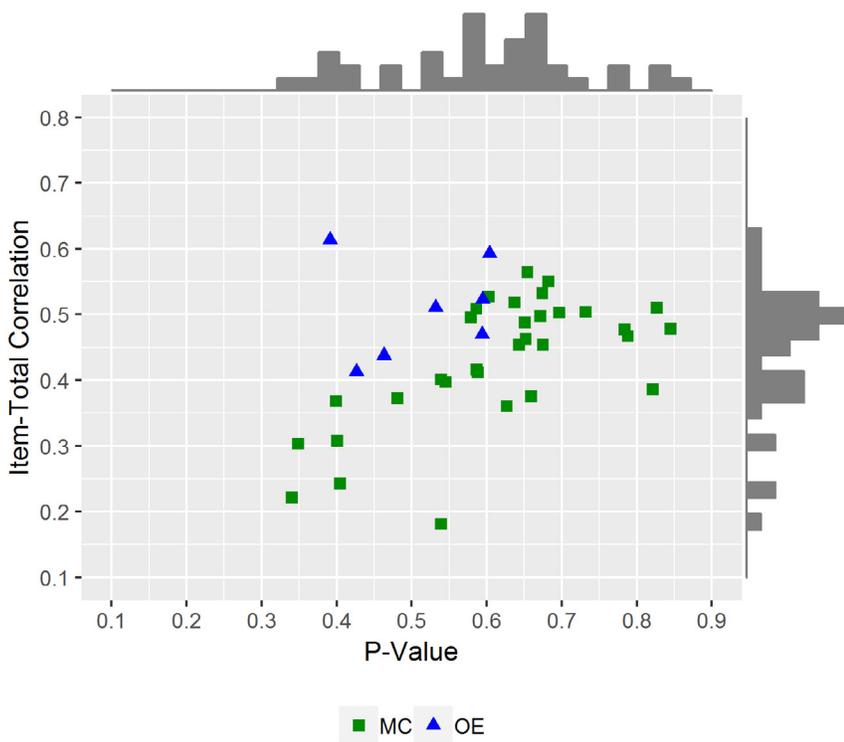
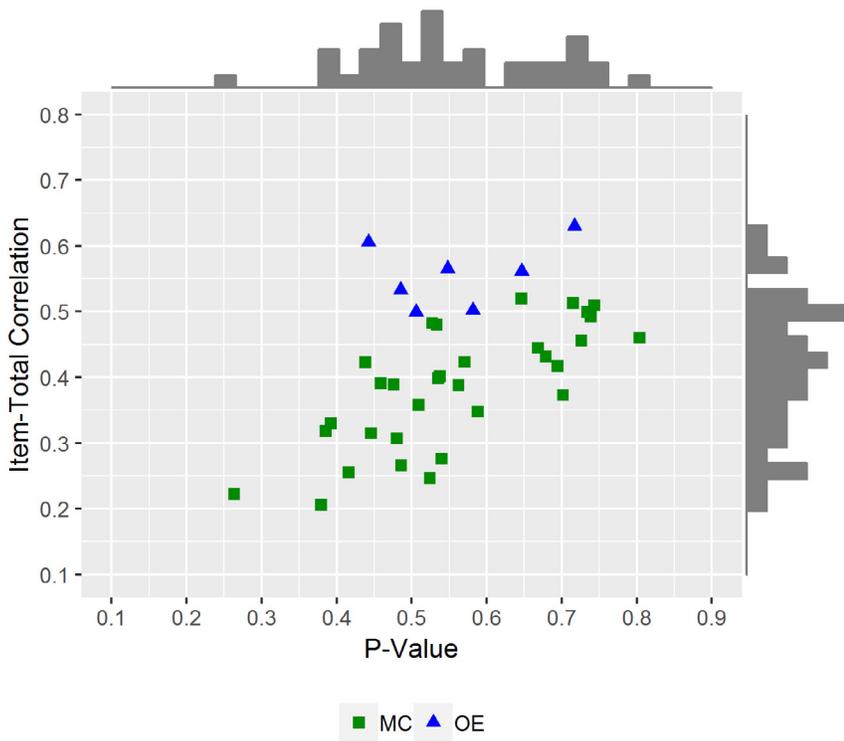


Figure 11–1 (continued). Discrimination and Difficulty Scatterplot

Item-Total Correlation vs. P-Value

ELA 5



Item-Total Correlation vs. P-Value

ELA 6

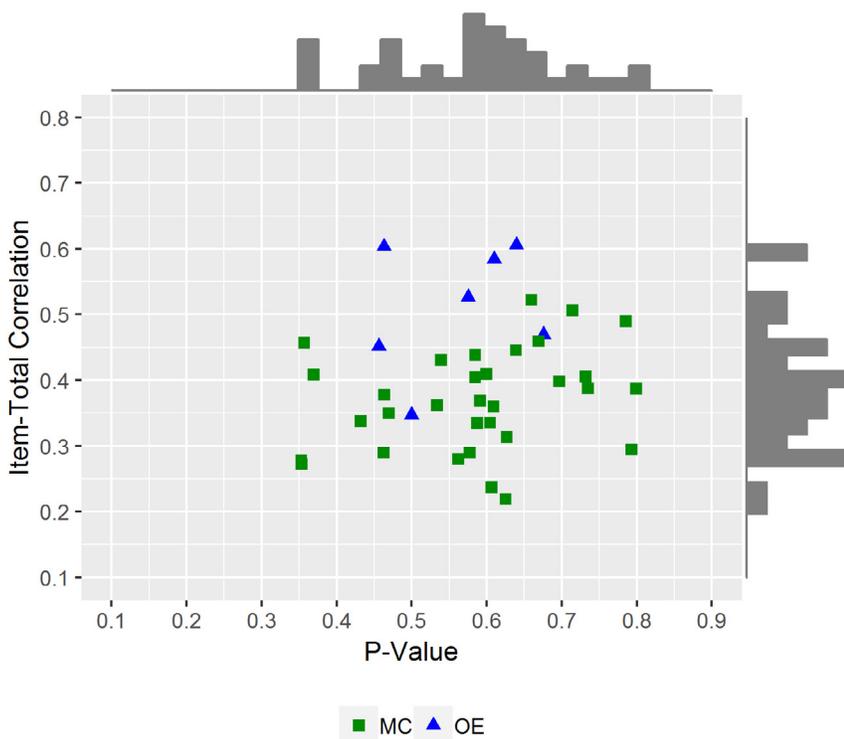
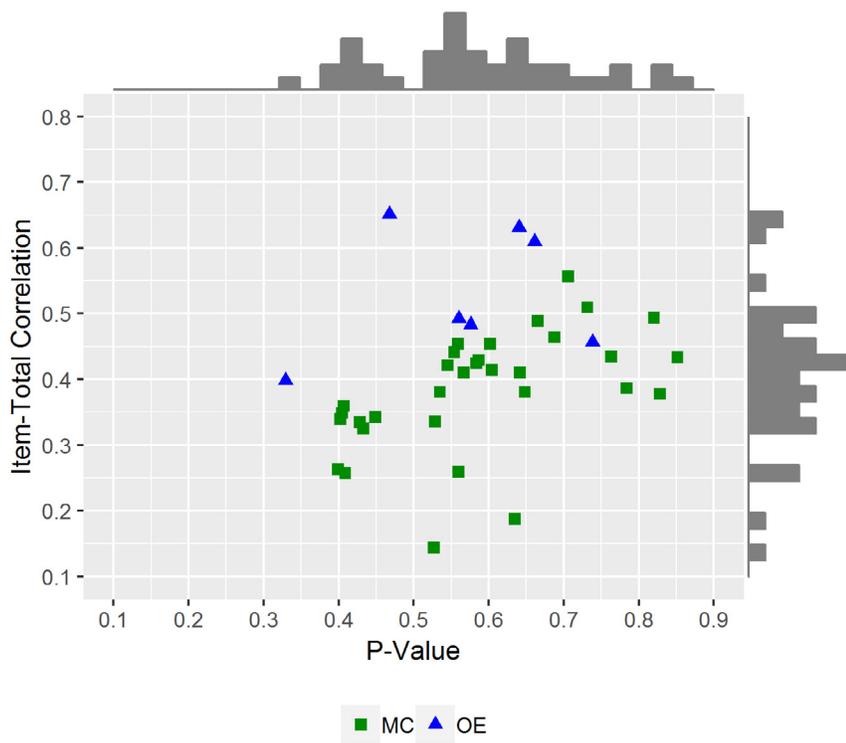


Figure 11–1 (continued). Discrimination and Difficulty Scatterplot

Item-Total Correlation vs. P-Value

ELA 7



Item-Total Correlation vs. P-Value

ELA 8

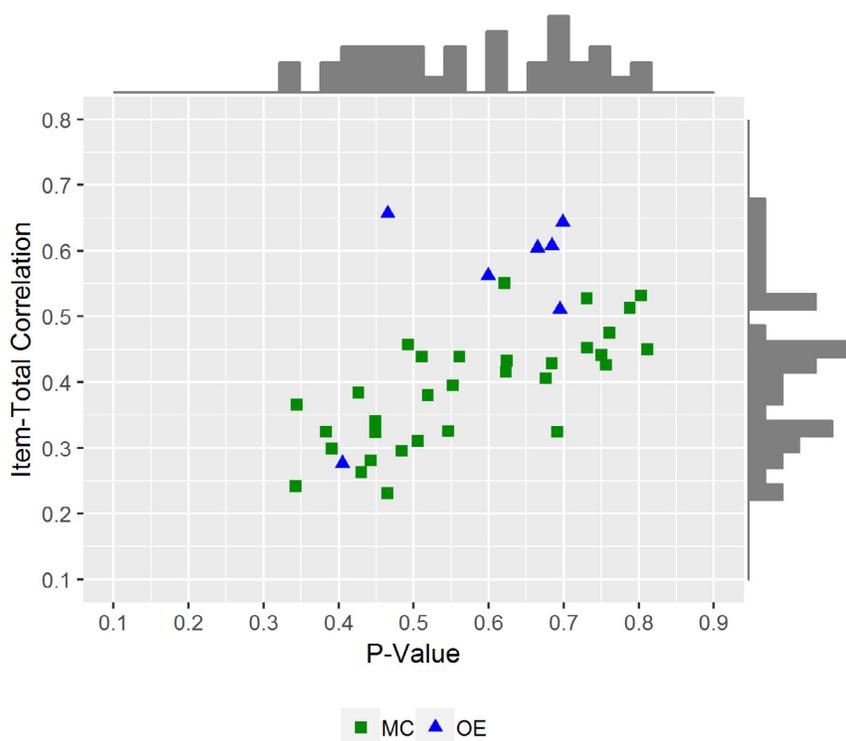
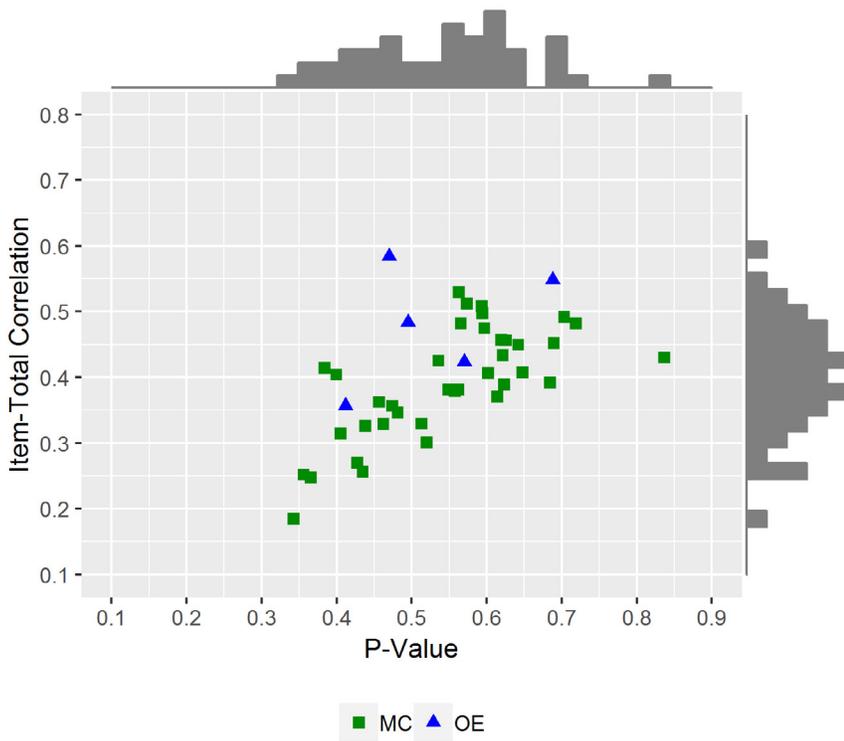


Figure 11–1 (continued). Discrimination and Difficulty Scatterplot

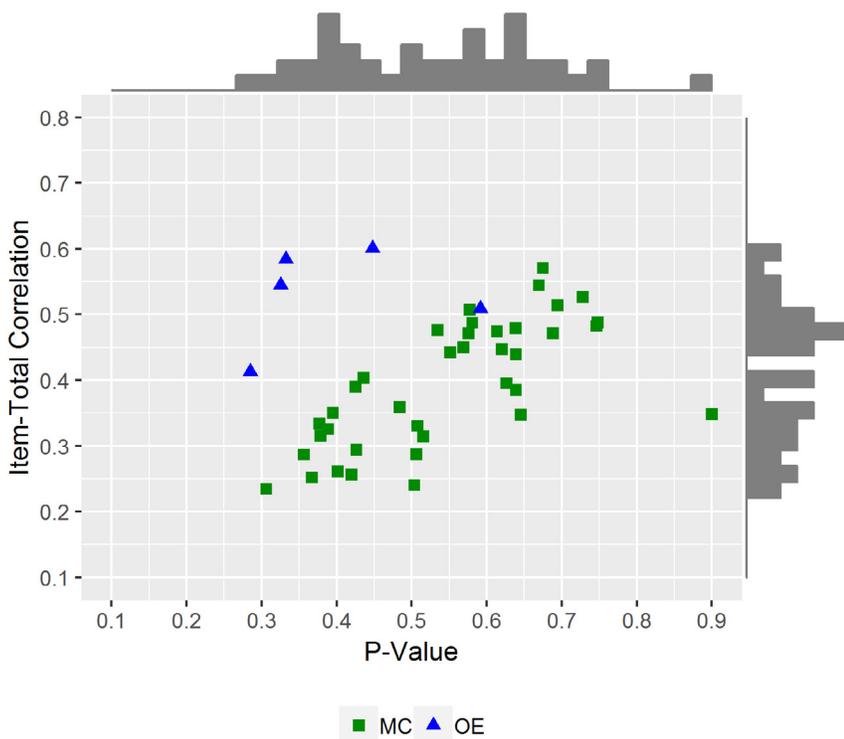
Item-Total Correlation vs. P-Value

Science 4



Item-Total Correlation vs. P-Value

Science 8



CHAPTER TWELVE: RASCH ITEM CALIBRATION

The item response theory (IRT) model used for the PSSA is based on the work of Georg Rasch. Rasch models have had a long-standing presence in applied testing programs and it has been the methodology continually used to calibrate PSSA items in recent history. IRT has several advantages over classical test theory, so it has become the standard procedure for analyzing item response data in large-scale assessments. However, IRT models make several strong assumptions related to dimensionality, local independence, model-data fit, and item parameter invariance. Resulting inferences derived from any application of IRT rests strongly on the degree to which the underlying assumptions are met.

This chapter outlines the procedures used for calibrating the operational PSSA items. Generally, item calibration is the process of assigning a difficulty-parameter estimate to each item on an assessment so that all items are placed onto a common scale. This chapter briefly introduces the Rasch model, reports the results from evaluations of the adequacy of the Rasch assumptions, and summarizes the Rasch item statistics for the PSSA mathematics, ELA, and science tests. Additional Rasch procedures are discussed with respect to equating in Chapter Fifteen.

DESCRIPTION OF THE RASCH MODEL

The Rasch partial credit model (RPCM; Wright & Masters, 1982) was used to calibrate PSSA items because both multiple-choice (MC) and open-ended (OE) items were part of the assessment. The RPCM extends the Rasch model (Rasch, 1960) for dichotomous (0, 1) items so that it accommodates the polytomous OE item data. Under the RPCM, for a given item i with m_i score categories, the probability of person n scoring x ($x = 0, 1, 2, \dots, m_i$) is given by:

$$P_{ni}(X = x) = \frac{\exp \sum_{j=0}^x (\theta_n - D_{ij})}{\sum_{k=0}^{m_i} \exp \sum_{j=0}^k (\theta_n - D_{ij})},$$

where θ_n represents a student's proficiency (ability) level, and D_{ij} is the step difficulty of the j^{th} step on item i . For dichotomous MC items, the RPCM reduces to the standard Rasch model and the single step difficulty is referred to as the item's difficulty. The Rasch model predicts the probability of person n getting item i correct as follows:

$$P_{ni}(X = 1) = \frac{\exp(\theta_n - D_{ij})}{1 + \exp(\theta_n - D_{ij})}.$$

The Rasch model places both student ability and item difficulty (estimated in terms of log-odds or logits) on the same continuum. When the model assumptions are met, the Rasch model provides estimates of a person's ability which are independent of the items employed in the assessment, and conversely, estimates item difficulty independently of the sample of examinees. (As noted in Chapter Eleven, interpretation of item p -values confounds item difficulty and student ability.)

SOFTWARE AND ESTIMATION ALGORITHM

Item calibration was implemented via WINSTEPS 4.2 computer program (Linacre, 2019), which employs unconditional (UCON), joint-maximum-likelihood estimation (JMLE).

SAMPLE CHARACTERISTICS

The characteristics of calibration samples are reported in Chapter Nine. These samples only include the students who attempted the tests. All omits (no response) and multiple responses (more than one response selected) were scored as incorrect answers (coded as 0s) for calibration.

CHECKING RASCH ASSUMPTIONS

Since the Rasch model was the basis of all calibration, scoring, and scaling analyses associated with the PSSA, the validity of the inferences from these results depends on the degree to which the assumptions of the model were met and how well the model fits the test data. Therefore, it is important to check these assumptions. This section evaluates the dimensionality of the data, local item independence, and item fit. It should be noted that only operational items were analyzed since they are the basis of student scores.

UNIDIMENSIONALITY

Rasch models assume that one dominant dimension determines the difference among students' performances. Principal Components Analysis (PCA) can be used to assess the unidimensionality assumption. The purpose of the analysis is to verify whether any other dominant component(s) exist among the items. If any other dimensions are found, the unidimensionality assumption would be violated.

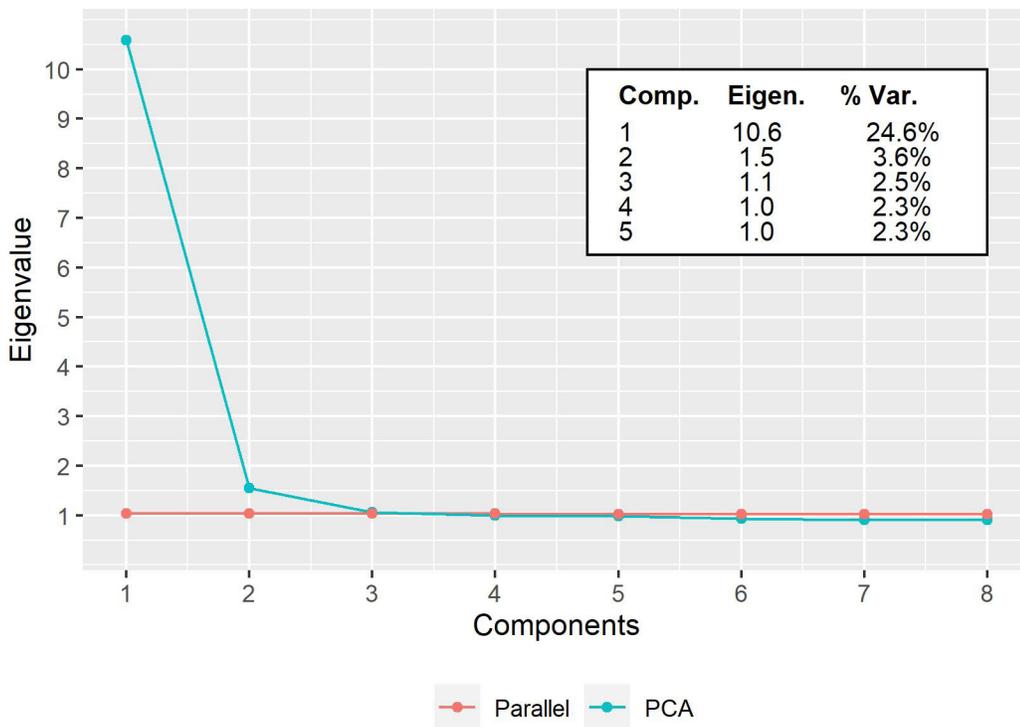
Figure 12–1 shows the PCA results for the mathematics, ELA, and science tests. The results include the eigenvalues and the percentage of variance explained for the first five components as well as the scree plots. The scree plots show the eigenvalues plotted by component number and the results from a parallel analysis. The total number of components in PCA is same as the total number of items in a test; however, Figure 12–1 shows only the first 8 components given that beyond 8th component the additional information would be negligible.

Parallel analysis is a technique to decide how many factors exist in principal components (Horn, 1965). Parallel analysis was also conducted to help distinguish components that are real from components that are random. For the parallel analysis, 100 random data sets were created of size equal to the original data. For each random data set, a PCA was performed and the resulting eigenvalues stored. Then for each component, the upper 95th percentile value of the distribution of the 100 eigenvalues from the random data sets was plotted. Given the size of the data generated for the parallel analysis, the reference line is essentially equivalent to plotting a reference line for an eigenvalue of 1.

As can be seen in Figure 12–1, for PSSA mathematics forms the primary dimension explained between 21.7 to 24.6 percent of the total variance. The second component accounted for approximately 2.9 to 3.6 percent of the variance, with eigenvalues ranging from 1.3 to 1.5. For ELA, the primary dimension explained 20.5 to 24.6 percent and the second dimension explained 2.9 to 3.6 percent of the variance. For science, the primary dimension explained 20.6 to 21.5 percent and the second dimension explained 2.9 to 3.2 percent of the variance. Although the eigenvalues for the second or third component may be greater than 1, the percent of variance explained does not support that any of the examinations measure a second or third dominant dimension. Meaning the results from the PCA suggest that there is one clear dominant dimension for all mathematics, ELA, and science tests.

Figure 12–1. Scree Plots

Math Grade 3



Math Grade 4

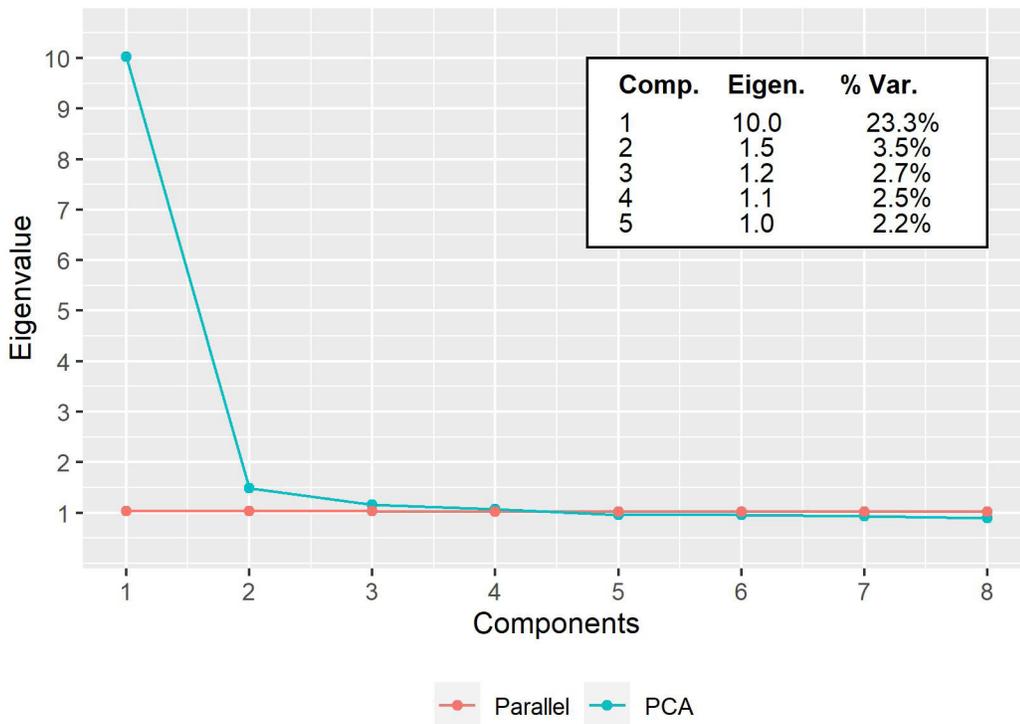
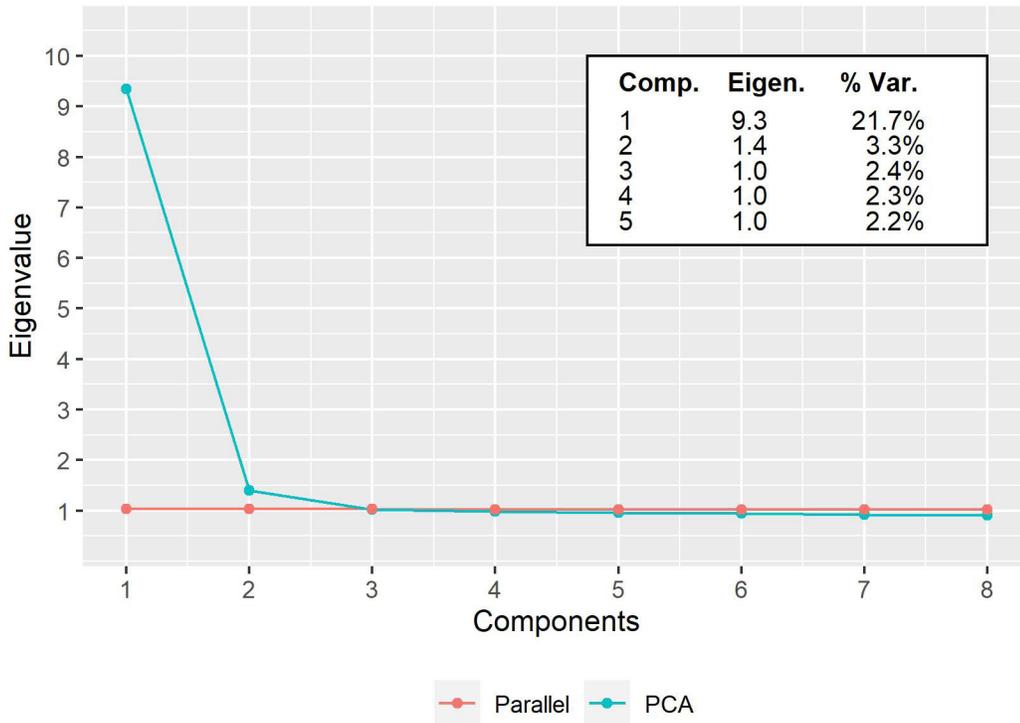


Figure 12–1 (continued). Scree Plots

Math Grade 5



Math Grade 6

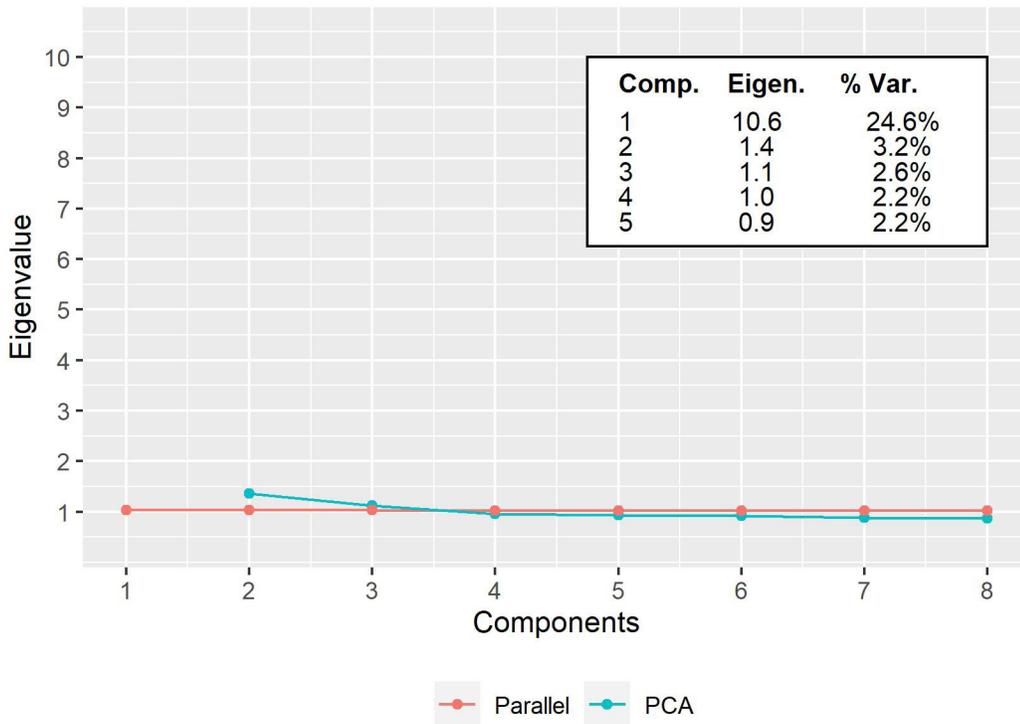
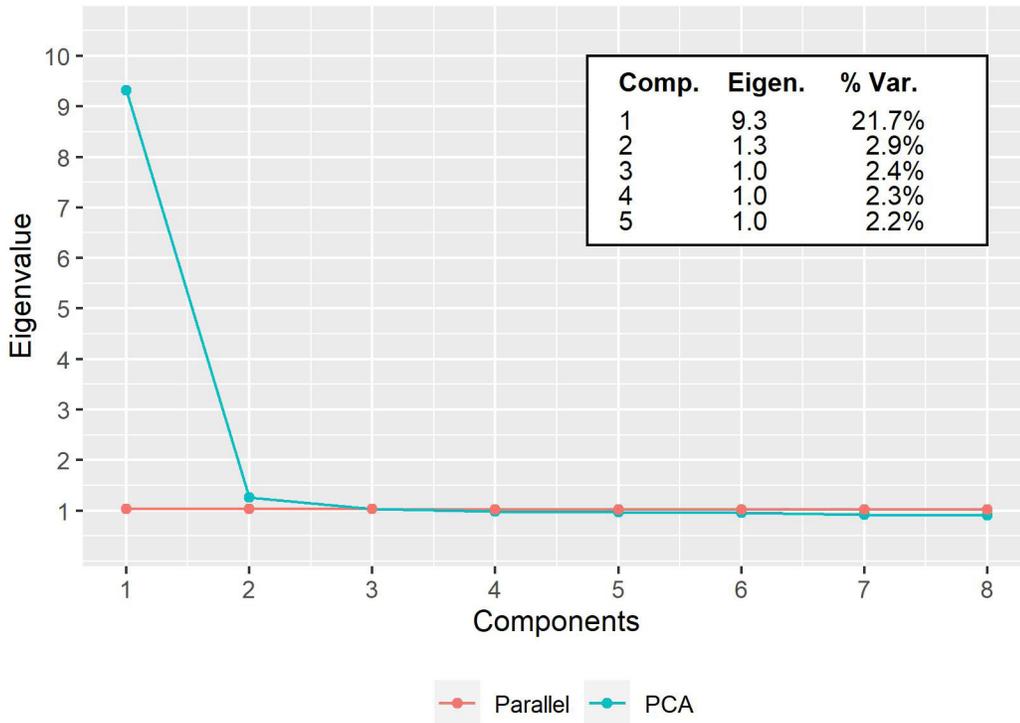


Figure 12–1 (continued). Scree Plots

Math Grade 7



Math Grade 8

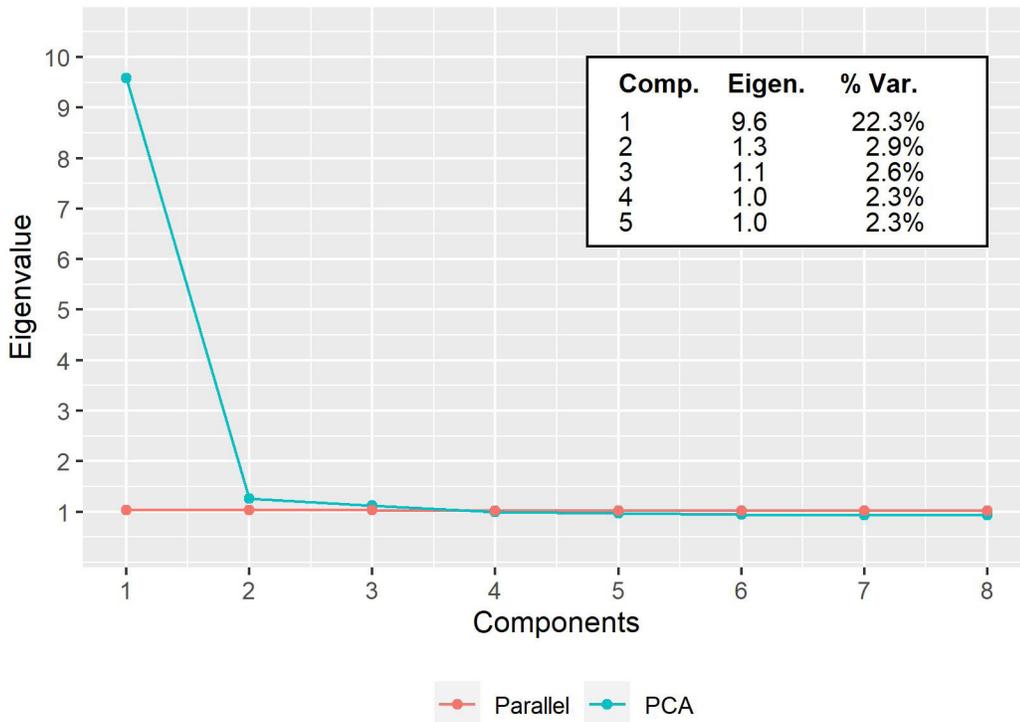
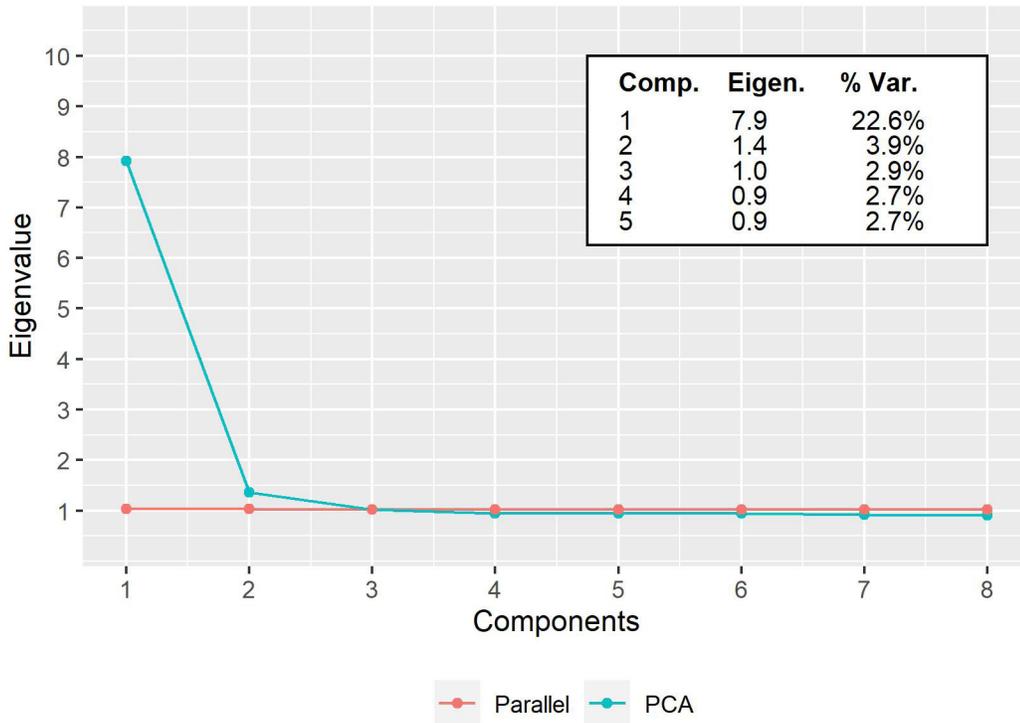


Figure 12–1 (continued). Scree Plots

ELA Grade 3



ELA Grade 4

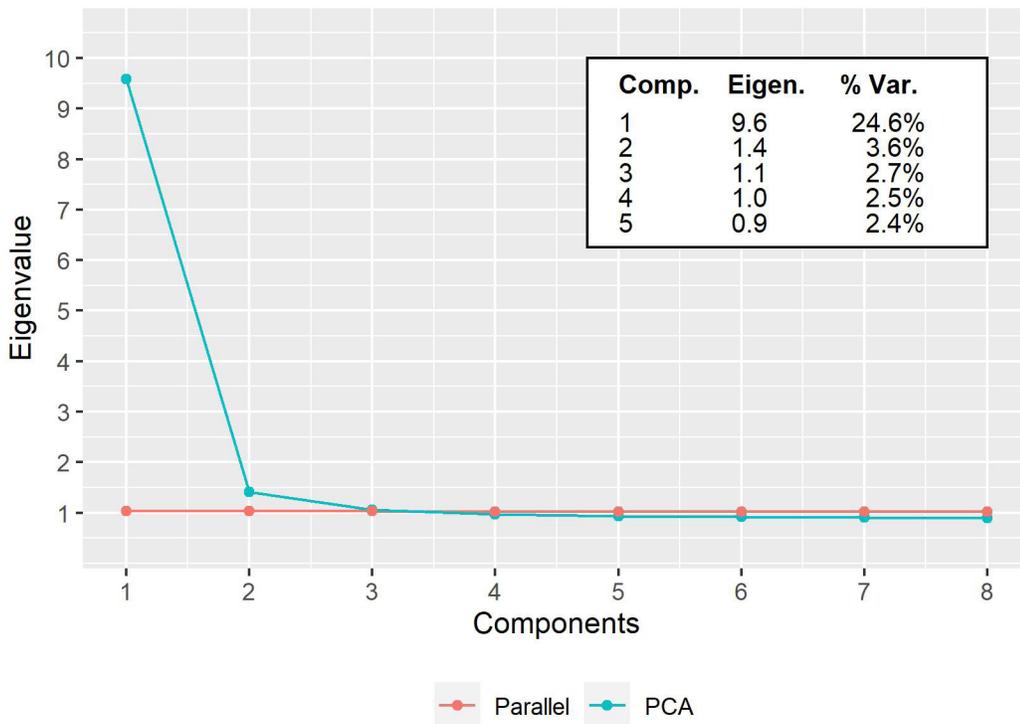
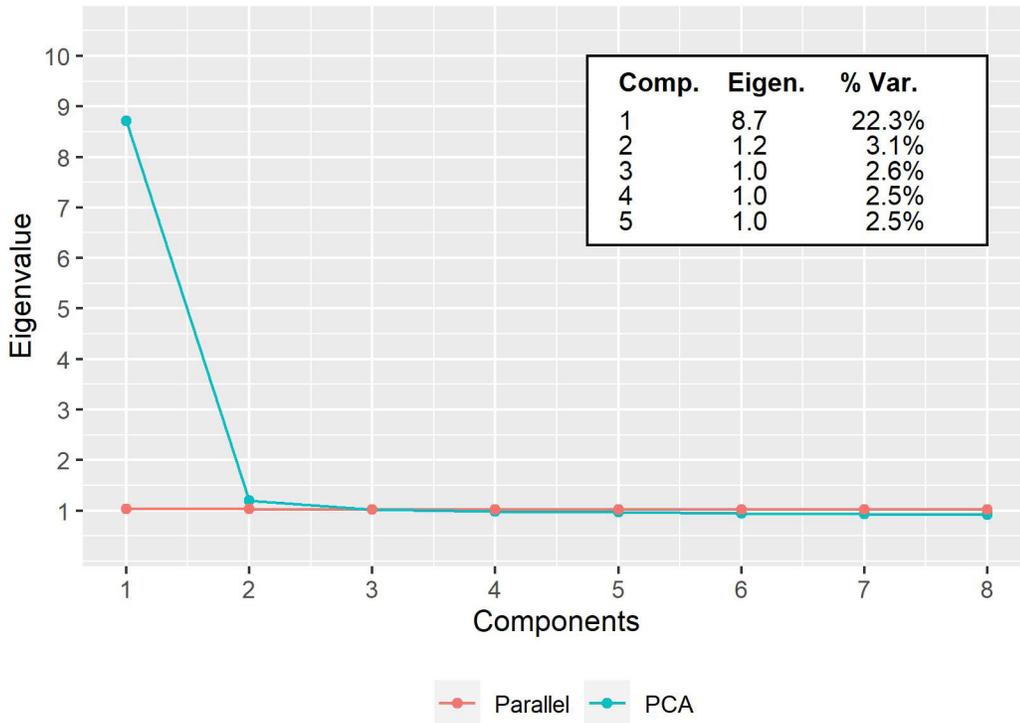


Figure 12–1 (continued). Scree Plots

ELA Grade 5



ELA Grade 6

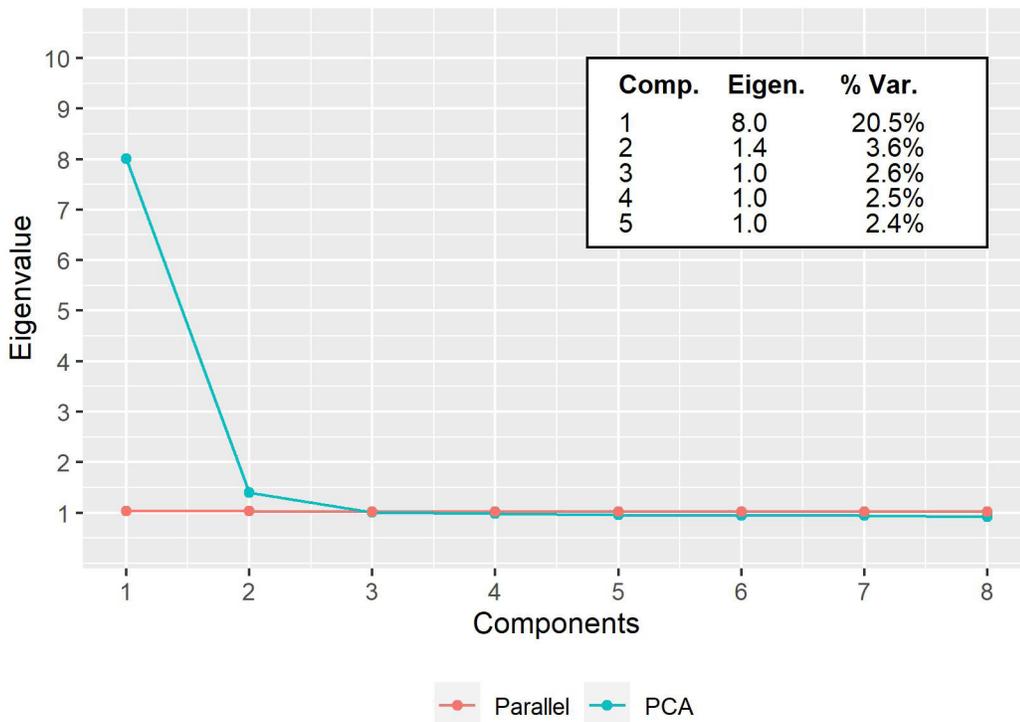
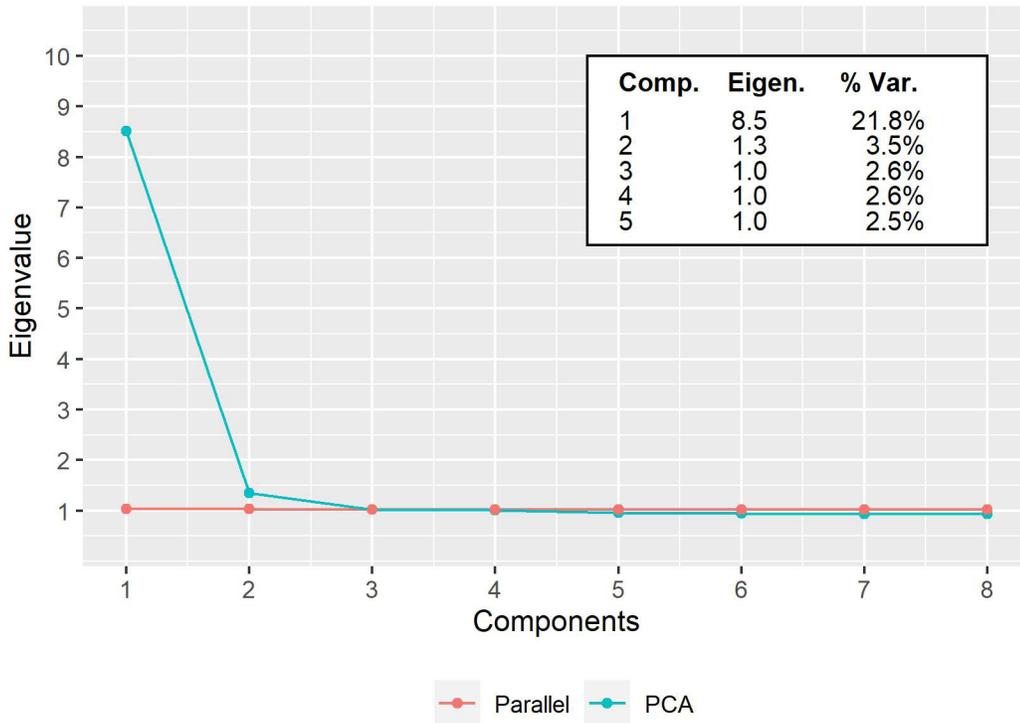


Figure 12–1 (continued). Scree Plots

ELA Grade 7



ELA Grade 8

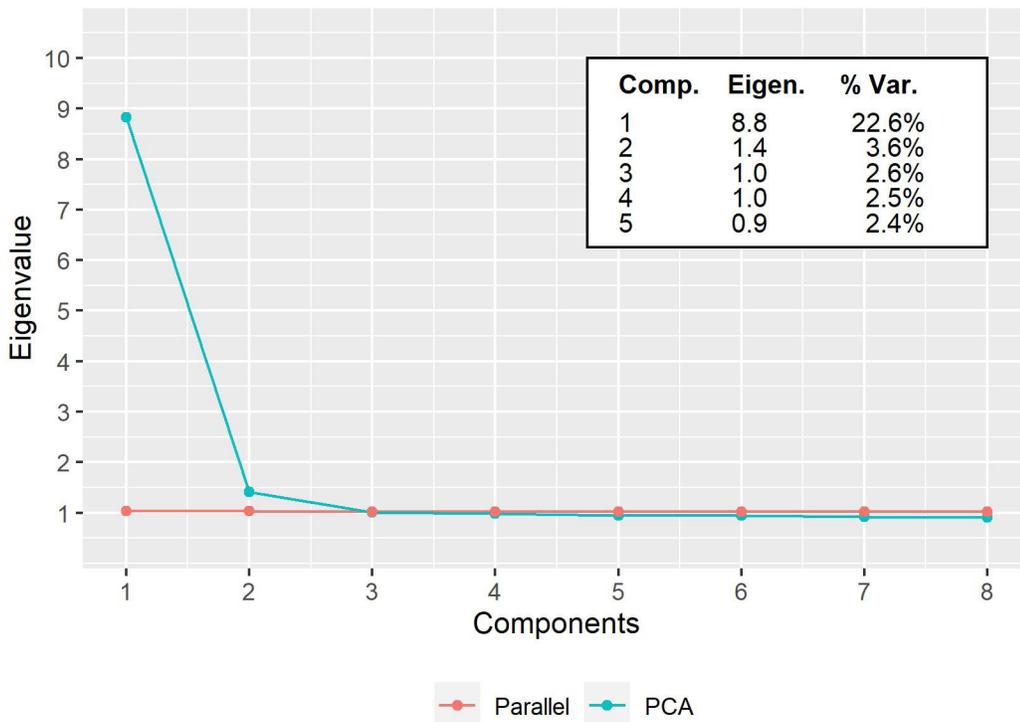
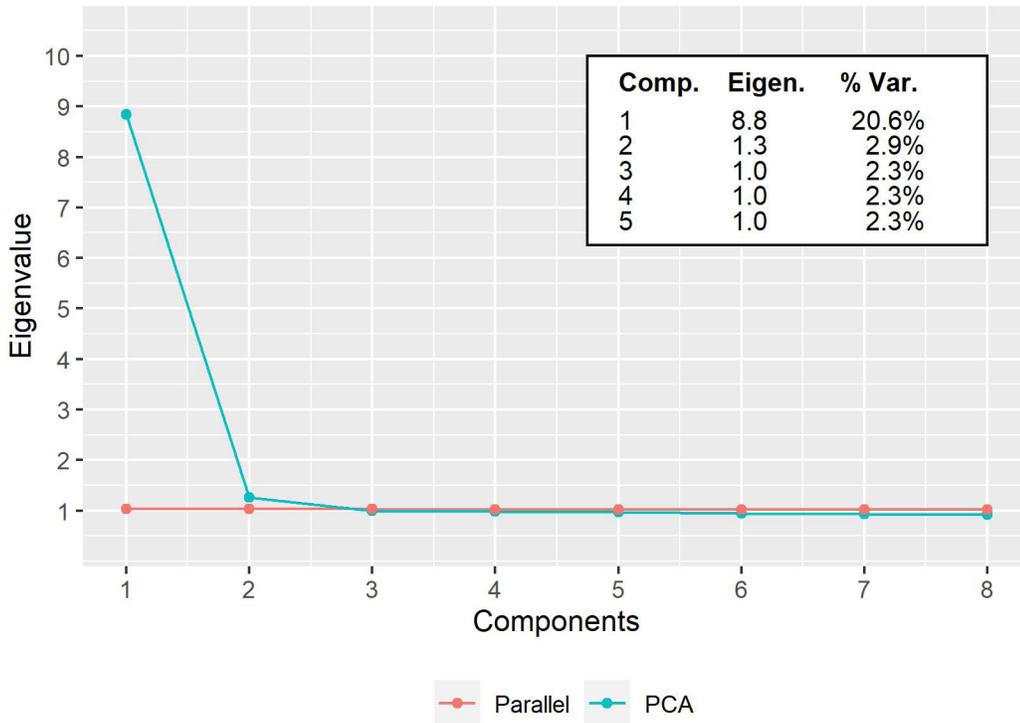
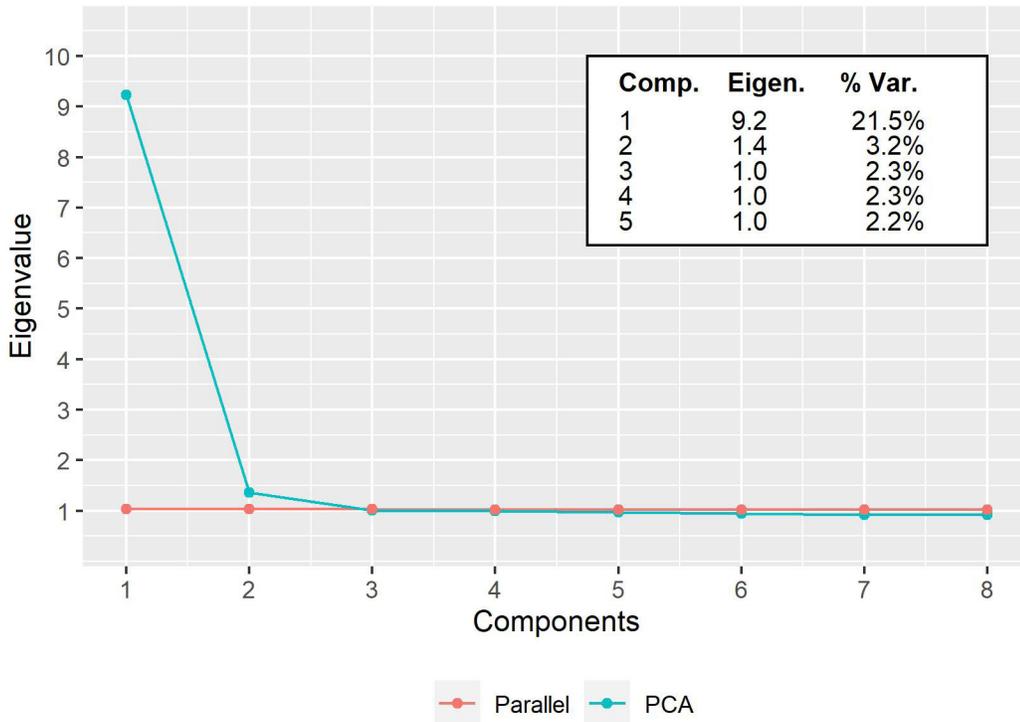


Figure 12-1 (continued). Scree Plots

Science Grade 4



Science Grade 8



ITEM INDEPENDENCE

Local independence (LI) is a fundamental assumption of IRT. No relationship should exist between examinees' responses to different items after accounting for the abilities measured by a test. In formal statistical terms, a test X that is comprised of items X_1, X_2, \dots, X_n is locally independent with respect to the latent variable θ if, for all $x = (x_1, x_2, \dots, x_n)$ and θ ,

$$P(\mathbf{X} = \mathbf{x} | \theta) = \prod_{i=1}^I P(X_i = x_i | \theta).$$

This formula essentially states that the probability of any pattern of responses across all items (\mathbf{x}), after conditioning on the abilities (θ) measured by the test, should be equal to the product of the conditional probabilities across each item (cf. the multiplication rule for independent events where the joint probabilities are equal to the product of the associated marginal probabilities).

The equation above shows the condition after satisfying the strong form of local independence. A weak form of local independence (LI) was proposed by McDonald (1979). The distinction is important as many indicators of local dependency are framed by LI. The requirement would be for the conditional covariances of all pairs of item responses, conditioned on the abilities, to be equal to zero. When this assumption is met, the joint probability of responses to an item pair, conditioned on abilities, is the product of the probabilities of responses to these two items, as shown below. (This is a weaker form because higher-order dependencies among items are allowed.) Based on the LI, the following expression can be derived:

$$P(X_i = x_i, X_j = x_j | \theta) = P(X_i = x_i | \theta)P(X_j = x_j | \theta).$$

Marais and Andrich (2008) pointed out that local item dependence in the Rasch model can occur in two ways that some may not distinguish. The first way occurs when the assumption of unidimensionality is violated. Here, other nuisance dimensions besides a dominant dimension determine student performance (this can be called "trait dependence"). The second violation occurs when responses to an item depend on responses to another. This is a violation of statistical independence and can be called response dependence. Many people treat the assumptions of unidimensionality and local independence as one phenomenon and believe that once unidimensionality holds, that local independence also holds. By distinguishing the two sources of local dependence, one can see that while local independence can be related to unidimensionality, the two are different assumptions and therefore, require different tests.

Residual item correlations provided in WINSTEPS for each item pair were used to assess the local dependence among the PSSA items. In general, these residuals are computed as follows. First, expected item performance based on the Rasch model is determined using ability and item parameter estimates. Next, deviations (residuals) between the examinees' expected and observed performance is determined for each item. Finally, for each item pair, a correlation between the respective deviations is computed.

Three types of residual correlations are available in WINSTEPS: raw, standardized, and logit. It should be noted that the raw score residual correlation essentially corresponds to Yen's Q_3 index, a popular LI statistic. The expected value for the Q_3 statistic is approximately $-1/(k-1)$ when no local dependence exists, where k is test length (Yen, 1993). Thus, the expected Q_3 values should be approximately -0.02 for the PSSA tests (since most of the PSSA tests had close to 40 core items). Index values that are greater than 0.20 indicate a degree of local dependence that probably should be examined by test developers (Chen & Thissen, 1997).

Since the three residual correlations are very similar, the default "standardized residual correlation" in WINSTEPS was used for these analyses. Table 12–1 shows the summary statistics—mean, SD, minimum, maximum, and several percentiles (P_{10} , P_{25} , P_{50} , P_{75} , P_{90})—for all the residual correlations for each test. The total number of item pairs (N) and the number of pairs with the residual correlations greater than 0.20 are also reported in this table. The mean residual correlations were close to Q_3 index. One item pair in mathematics and ten item pairs in ELA showed residual correlations greater than 0.2, and all were less than 0.3, suggesting local item independence holds reasonably well for the 2022 PSSA ELA, mathematics, and science tests. Refer to Table 12–1 and 12–2 for details.

Table 12–1M. Summary of Item Residual Correlations for PSSA Mathematics

| Statistic | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 |
|------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| N | 903 | 903 | 903 | 903 | 903 | 903 |
| Mean | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 |
| SD | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| Minimum | -0.11 | -0.09 | -0.11 | -0.10 | -0.10 | -0.10 |
| P10 | -0.06 | -0.05 | -0.06 | -0.05 | -0.05 | -0.05 |
| P25 | -0.04 | -0.04 | -0.04 | -0.04 | -0.04 | -0.04 |
| P50 | -0.02 | -0.03 | -0.02 | -0.02 | -0.02 | -0.02 |
| P75 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 |
| P90 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 |
| Maximum | 0.19 | 0.29 | 0.13 | 0.09 | 0.08 | 0.09 |
| > 0.20 | 0 | 1 | 0 | 0 | 0 | 0 |

Table 12–1E. Summary of Item Residual Correlations for PSSA ELA

| Statistic | Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 |
|------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| N | 595 | 741 | 741 | 741 | 741 | 741 |
| Mean | -0.03 | -0.01 | -0.02 | -0.02 | -0.01 | -0.02 |
| SD | 0.03 | 0.04 | 0.03 | 0.03 | 0.04 | 0.04 |
| Minimum | -0.11 | -0.24 | -0.22 | -0.18 | -0.24 | -0.22 |
| P10 | -0.06 | -0.05 | -0.04 | -0.04 | -0.04 | -0.05 |
| P25 | -0.04 | -0.03 | -0.02 | -0.03 | -0.02 | -0.03 |
| P50 | -0.03 | -0.01 | -0.01 | -0.02 | -0.01 | -0.01 |
| P75 | -0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| P90 | 0.01 | 0.03 | 0.01 | 0.01 | 0.02 | 0.02 |
| Maximum | 0.10 | 0.09 | 0.12 | 0.25 | 0.09 | 0.17 |
| > 0.20 | 0 | 4 | 2 | 1 | 2 | 1 |

Table 12–1S. Summary of Item Residual Correlations for PSSA Science

| Statistic | Grade 4 | Grade 8 |
|------------------|----------------|----------------|
| N | 903 | 903 |
| Mean | -0.02 | -0.02 |
| SD | 0.02 | 0.02 |
| Minimum | -0.10 | -0.09 |
| P10 | -0.05 | -0.05 |
| P25 | -0.04 | -0.04 |
| P50 | -0.02 | -0.03 |
| P75 | -0.01 | -0.01 |
| P90 | 0.00 | 0.01 |
| Maximum | 0.07 | 0.08 |
| > 0.20 | 0 | 0 |

Table 12–2 lists all item pairs with absolute residual correlations greater than or equal to 0.20. In addition, the item sequence, type, and Eligible Content is also displayed. Item sequence in the table represents the master form’s item sequence, but the MC items are scrambled across forms.

There were 11 item pairs in total, one in mathematics, and 10 in ELA that had absolute residual correlations greater than 0.2. There were two item pairs (one in mathematics and one in ELA) in which the correlated item pairs tested similar Eligible Content. The remaining nine item pairs in ELA had negative residual correlations ranging from -0.24 to -0.20. These correlations were observed between Evidence-Based Selected-Response (EBSR) items and Text-Dependent Analysis (TDA) items showing that, after the relationship between the items and the ELA construct is accounted for, there may be small, but different factors that are contributing to examinee performance on the item pairs. This is a consistent finding with prior administrations. Test blueprints determine what Assessment Anchors, as defined by the Eligible Content, will be assessed. PDE and DRC make every effort to avoid one item cueing another through careful item selection and sequencing, so this is an unlikely source of local item dependence for PSSA.

Table 12–2. Item Pairs with Large Residual Correlations

| Subject | Grade | Item 1 Seq. | Item 1 Type | Item 1 Eligible Content | Item 2 Seq. | Item 2 Type | Item 2 Eligible Content | Resid. Corr. |
|-------------|-------|-------------|-------------|-------------------------|-------------|-------------|-------------------------|--------------|
| Mathematics | 4 | 1 | MC | A-F.2.1.6 | 14 | MC | A-F.2.1 | 0.29 |
| ELA | 4 | 19 | ESR | B-C.3.1.1 | 59 | TDA | E.1.1 | -0.23 |
| ELA | 4 | 23 | ESR | B-K.1.1.2 | 59 | TDA | E.1.1 | -0.20 |
| ELA | 4 | 25 | ESR | A-K.1.1.1 | 59 | TDA | E.1.1 | -0.23 |
| ELA | 4 | 26 | ESR | A-K.1.1.3 | 59 | TDA | E.1.1 | -0.24 |
| ELA | 5 | 11 | ESR | B-K.1.1.1 | 59 | TDA | E.1.1 | -0.22 |
| ELA | 5 | 17 | ESR | A-C.2.1.1 | 59 | TDA | E.1.1 | -0.22 |
| ELA | 6 | 26 | MC | A-K.1.1.3 | 27 | MC | A-K.1.1.2 | 0.25 |
| ELA | 7 | 18 | MC | A-V.4.1.2 | 59 | TDA | E.1.1 | -0.20 |
| ELA | 7 | 20 | ESR | A-K.1.1.3 | 59 | TDA | E.1.1 | -0.24 |
| ELA | 8 | 16 | ESR | A-V.4.1.1 | 59 | TDA | E.1.1 | -0.22 |

ITEM FIT

Additional evidence of validity related to the internal test structure is obtained through an ongoing evaluation of item fit, person fit, and test summary statistics. The item fit of the Rasch Model is routinely evaluated within field testing as well as within each operational administration. Person fit of the Rasch model is routinely evaluated and the data are expected to fit well regardless of gender, ethnicity, or level of performance (see Chapter Fifteen and Appendix T). Comparability of each test form is evaluated in terms of the test characteristics curves, test information function, and CSEM (see Chapter Eighteen). Regular maintenance of item fit, person fit, and test summary statistics within a test and across test forms provides validity evidence that supports the PSSA.

WINSTEPS provides two item fit statistics (infit and outfit) for evaluating the degree to which the Rasch model predicts the observed item responses. Each fit statistic can be expressed as a mean square (MnSq) statistic or on a standardized metric (Zstd with mean = 0 and variance = 1). MnSq values are more oriented toward practical significance, while Zstd values are more oriented toward statistical significance. Though both are informative, the Zstd values are very likely too sensitive to the large sample sizes observed on the PSSA. In this situation it is recommended that the Zstd values be ignored if the MnSq values are acceptable (Linacre, 2014).

Both infit and outfit MnSq are the average of standardized residual variance (the difference between the observed score and the Rasch estimated score divided by the square root of the Rasch model variance). The difference is that the outfit statistic gives all examinees equal weight in computing the fit and tends to be affected more by unexpected responses far from the person, item, or rating scale category measure (i.e., it is more sensitive to outlying, off-target, low-information responses). The infit statistic is weighted by the examinee locations relative to

item difficulty and tends to be affected more by unexpected responses close to the person, item, or rating scale category measure (i.e., informative, on-target responses). Some feel that extreme infit values are a greater threat to the measurement process than extreme outfit since most tests intend to measure the on-target population rather than extreme outliers.

The expected MnSq value is 1.0 and can range from 0 to infinity. Deviation in excess of the expected value can be interpreted as noise or lack of fit between the items and the model. Values lower than the expected value can be interpreted as item redundancy or overfitting items (too predictable, too much redundancy), and values greater than the expected value indicate underfitting items (too unpredictable, too much noise). Rules of thumb regarding “practically significant” MnSq values vary. More conservative users might prefer items with MnSq values that range from 0.8 to 1.2. Others believe reasonable test results can be achieved with values from 0.5 to 1.5. The results shown in this section highlight values outside of a range of 0.7 to 1.3 given their practical importance.

Table 12–3 presents the summary statistics of infit and outfit mean square statistics for the PSSA mathematics, ELA, and science tests, including the mean, SD, and minimum and maximum values. The number of items within the range of [0.7, 1.3] is also reported. The mean values for both infit and outfit statistics were very close to 1.00 across all subjects and grade levels. Almost all the items had infit values falling in the range of [0.7, 1.3], suggesting reasonable model infit. Slightly more outfit values fell either below 0.7 or above the 1.3 threshold. Values above 1.3 can sometimes suggest higher than normal guessing or careless mistake patterns on items, and values below 0.7 can suggest an item is over fit. The maximum outfit values noted are close to the 1.3 threshold, and the minimum values noted are very close to 0.7, which could also suggest well discriminating items. There is slightly more variability in infit and outfit for ELA tests than mathematics, indicated by the mean and distribution of infit and outfit statistics. For example, 74% of the ELA grade 4 items (M = 1.06, SD = 0.25) fit in terms of outfit, whereas 91% of the Math grade 4 items (M=1.01, SD = 0.19) fit the model.

Table 12–3. Summary of Item Infit and Outfit Mean Square Statistics by Subject and Grade

| Subject | Grade | Mean* | SD* | Min* | Max* | [0.7,1.3]* | Mean† | SD† | Min† | Max† | [0.7,1.3] † |
|-------------|-------|-------|------|------|------|------------|-------|------|------|------|-------------|
| Mathematics | 3 | 1.00 | 0.13 | 0.69 | 1.25 | 42/43 | 1.02 | 0.20 | 0.59 | 1.53 | 37/43 |
| Mathematics | 4 | 1.01 | 0.13 | 0.78 | 1.40 | 42/43 | 1.01 | 0.19 | 0.68 | 1.48 | 39/43 |
| Mathematics | 5 | 1.04 | 0.12 | 0.82 | 1.29 | 43/43 | 1.07 | 0.18 | 0.70 | 1.46 | 37/43 |
| Mathematics | 6 | 0.99 | 0.10 | 0.83 | 1.20 | 43/43 | 0.99 | 0.14 | 0.77 | 1.30 | 42/43 |
| Mathematics | 7 | 1.00 | 0.11 | 0.71 | 1.21 | 43/43 | 1.00 | 0.14 | 0.65 | 1.31 | 41/43 |
| Mathematics | 8 | 1.01 | 0.11 | 0.74 | 1.25 | 43/43 | 1.01 | 0.15 | 0.70 | 1.35 | 41/43 |
| ELA | 3 | 1.03 | 0.15 | 0.75 | 1.52 | 33/35 | 1.05 | 0.25 | 0.63 | 2.10 | 31/35 |
| ELA | 4 | 1.02 | 0.15 | 0.75 | 1.34 | 38/39 | 1.06 | 0.25 | 0.58 | 1.60 | 29/39 |
| ELA | 5 | 1.04 | 0.11 | 0.79 | 1.24 | 39/39 | 1.08 | 0.19 | 0.76 | 1.49 | 33/39 |
| ELA | 6 | 1.01 | 0.13 | 0.61 | 1.28 | 38/39 | 1.04 | 0.17 | 0.61 | 1.35 | 36/39 |
| ELA | 7 | 1.03 | 0.13 | 0.76 | 1.35 | 38/39 | 1.09 | 0.24 | 0.61 | 1.70 | 30/39 |
| ELA | 8 | 1.03 | 0.15 | 0.61 | 1.49 | 36/39 | 1.09 | 0.25 | 0.62 | 1.92 | 31/39 |
| Science | 4 | 1.00 | 0.10 | 0.72 | 1.28 | 43/43 | 1.00 | 0.14 | 0.59 | 1.33 | 41/43 |
| Science | 8 | 0.99 | 0.13 | 0.63 | 1.25 | 42/43 | 0.98 | 0.19 | 0.49 | 1.39 | 39/43 |

Notes. *Infit Mean Square
 †Outfit Mean Square

RASCH ITEM STATISTICS

As noted earlier, the Rasch model expresses item difficulty (and student ability) in units referred to as logits, rather than on the percent-correct metric. The logit metric has several mathematical advantages. Logits have an interval scale, meaning that two items with logits of 0.0 and +1.0 (respectively) are the same distance apart as two items with logits of +3.0 and +4.0. Logits are not dependent on the ability level of the students. For example, a test form can have a mean logit of zero regardless of how the student sample performed on the item.

The standard Rasch calibration procedure arbitrarily sets the mean difficulty of the items on any form at zero. Under normal circumstances where all students are administered the same set of items, any item with a p -value lower than the average item on the form receives a positive logit difficulty and any item with a p -value higher than the average receives a negative logit. Consequently, the logits for any calibration, whether it is the grade 3 ELA test or the grade 8 science test, relate to an arbitrary origin defined by the center of items on that form. The average third-grade ELA item will have a logit of zero; the average grade 8 science item will have a logit of zero. Logits for both item difficulties and student abilities are placed on the same scale and relate to the same mean item difficulty.

There are a number of other arbitrary choices that could be made for centering the item difficulties. Rather than using all the items, the origin could be defined by a subset. For the PSSA, all test forms within each subject and grade level share the same operational item set. All items on each form can then be easily adjusted to a single (but still arbitrary) origin by defining the origin as the mean of the operational items. With this done, the origins for all the forms will be statistically equal. For example, items on any two forms that are equally difficult will now have statistically equal logit difficulties. This is partly how PSSA items can be placed on the same logit difficulty scale across years. Chapter Fifteen has more detailed information about the PSSA equating procedure.

Appendix F reports the item statistics including classical and Rasch logit difficulties for all operational items that were used for pre-equating (see Chapter Fifteen). Table 12–4 summarizes the Rasch logit difficulties of the operational items on each test that are on the base scale, which were set in 2015 for math and ELA, and 2008 for science. The minimum and maximum values and standard deviations suggest that the PSSA items covered a relatively wide range of difficulties. It is important to note that the logit difficulty values presented have not been linked to a common scale of measurement across grades and subjects. Therefore, the relative magnitude of the statistics across content areas and grades cannot be compared.

Table 12–4. Summary of Rasch Item Difficulties by Subject and Grade

| Subject | Grade | N | Mean | SD | Min | Max |
|-------------|-------|----|-------|------|-------|------|
| Mathematics | 3 | 43 | 0.14 | 0.78 | -1.44 | 1.58 |
| Mathematics | 4 | 43 | -0.31 | 0.81 | -2.29 | 1.04 |
| Mathematics | 5 | 43 | 0.29 | 0.60 | -1.20 | 1.29 |
| Mathematics | 6 | 43 | 0.14 | 0.63 | -1.67 | 1.64 |
| Mathematics | 7 | 43 | 0.05 | 0.59 | -1.30 | 1.22 |
| Mathematics | 8 | 43 | -0.18 | 0.57 | -1.37 | 0.83 |
| ELA | 3 | 35 | 0.35 | 0.80 | -1.25 | 2.34 |
| ELA | 4 | 39 | 0.00 | 0.70 | -1.43 | 1.36 |
| ELA | 5 | 39 | 0.20 | 0.68 | -1.38 | 1.82 |
| ELA | 6 | 39 | 0.36 | 0.57 | -0.82 | 1.56 |
| ELA | 7 | 39 | 0.22 | 0.67 | -1.30 | 1.52 |
| ELA | 8 | 39 | 0.08 | 0.77 | -1.49 | 1.65 |
| Science | 4 | 43 | 0.81 | 0.55 | -0.54 | 1.84 |
| Science | 8 | 43 | 0.32 | 0.69 | -1.48 | 1.40 |

Note. The base scales were set in 2008 for science and 2015 for mathematics and ELA so the means are not expected to be zero.

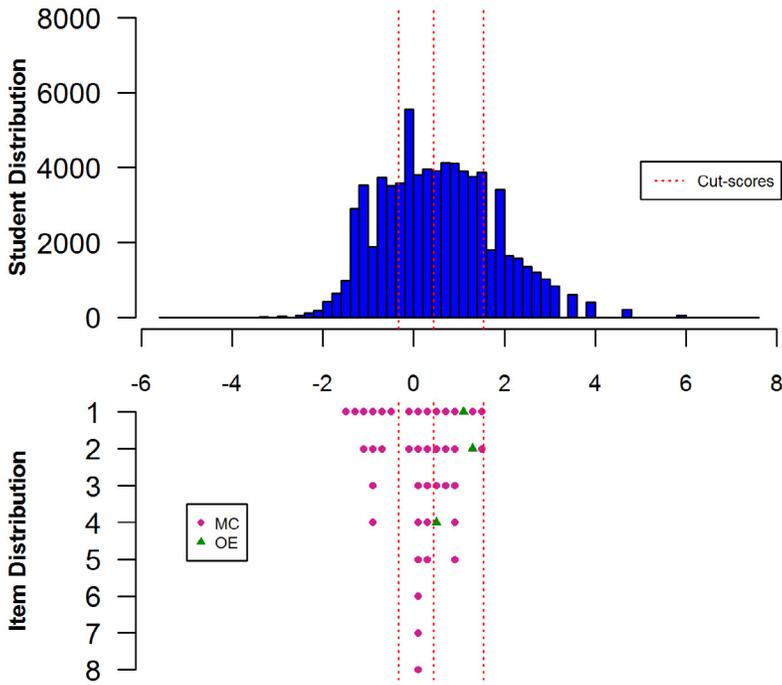
ITEM DIFFICULTY-STUDENT ABILITY WRIGHT MAPS

The distributions of the Rasch item logits (item difficulty estimates) are shown on the item difficulty-student ability maps presented in Figure 12–2. In each item-student map, the top bar graph displays the student distribution on the logit scale, and the bottom displays markers of item difficulty parameter estimates. MC items are represented by a circle (all subjects), OE and TDA items are represented by a triangle (all subjects), and ESR items are represented by a square (ELA only). OE, TDA and ESR items are worth multiple points. As noted earlier, the Rasch model enables placement of both items and students on the same scale. Consequently, one can easily visualize information regarding the relationship between the distributions of item difficulty and student ability. The vertical red lines show the cut-points for each performance level. On the top plot, the logit represents lower abilities (negative values) to higher abilities (positive values), whereas on the bottom plot the logit represents easier items (negative values) to harder items (positive values). To achieve precise measures of student ability, the student distribution should mirror the item distribution.

In 2016, a pattern noted across the maps for many grades and content areas was for students to have relatively higher ability and for items to be relatively easier. Accordingly, test development for the 2017 PSSAs focused on centering the predicted test difficulties on the center of the 2016 examinee ability distribution to more closely align item difficulty with examinee performance. The same targets used to construct the 2017 PSSAs were used for future form construction. The Wright maps are presented in Figure 12–2.

Figure 12–2. Wright Maps

Mathematics Grade 3



Mathematics Grade 4

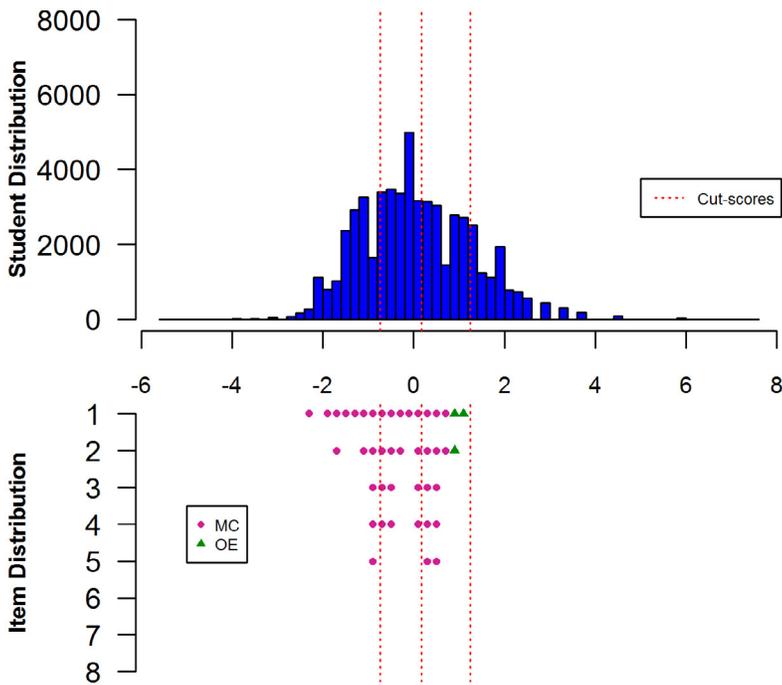
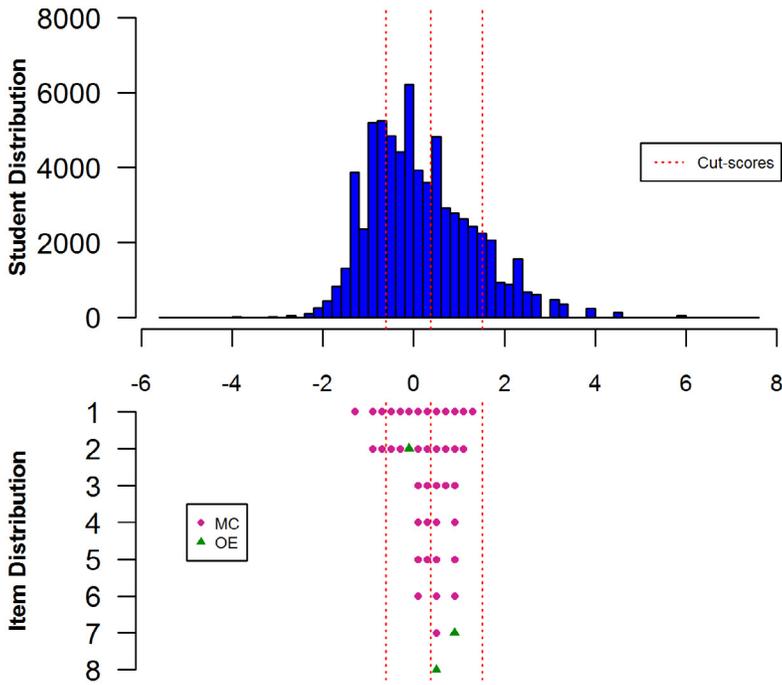


Figure 12–2 (continued). Wright Maps

Mathematics Grade 5



Mathematics Grade 6

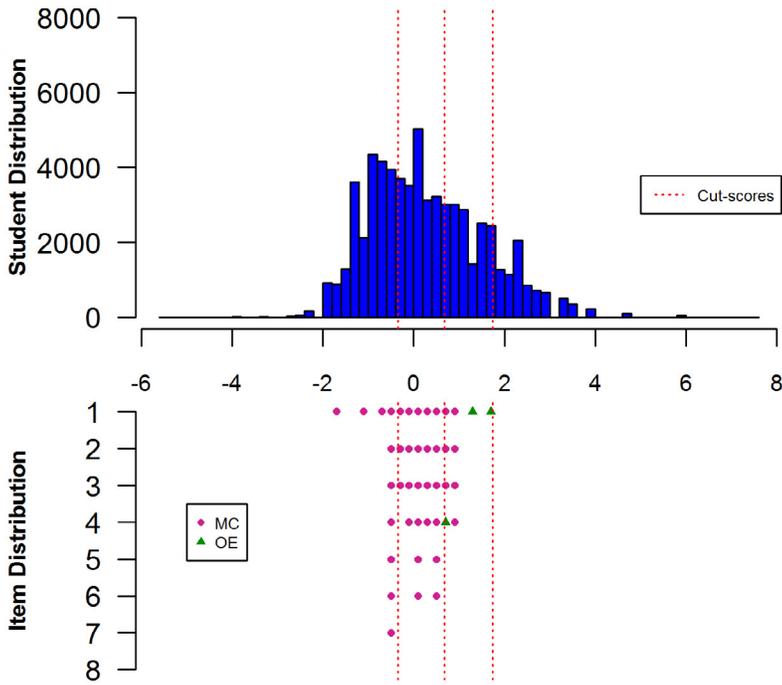
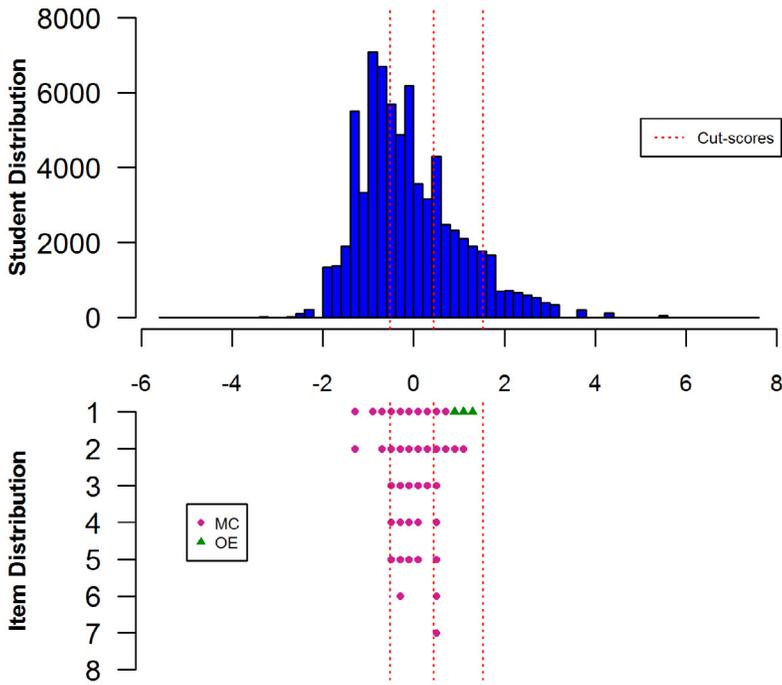


Figure 12–2 (continued). Wright Maps

Mathematics Grade 7



Mathematics Grade 8

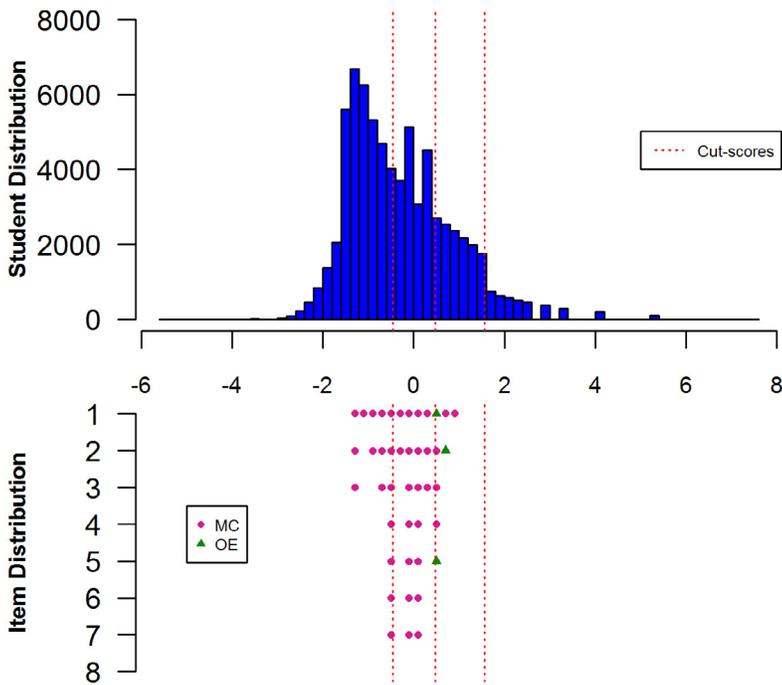
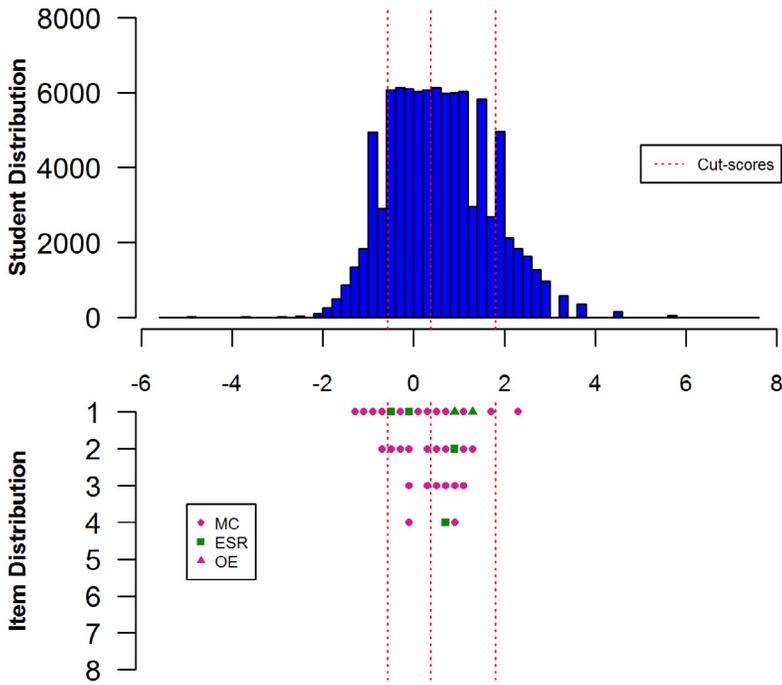


Figure 12–2 (continued). Wright Maps

ELA Grade 3



ELA Grade 4

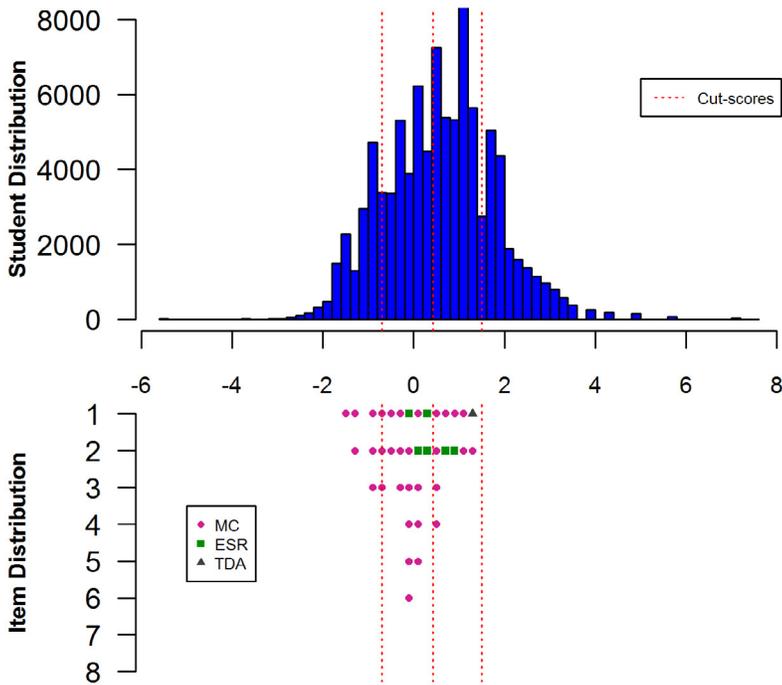
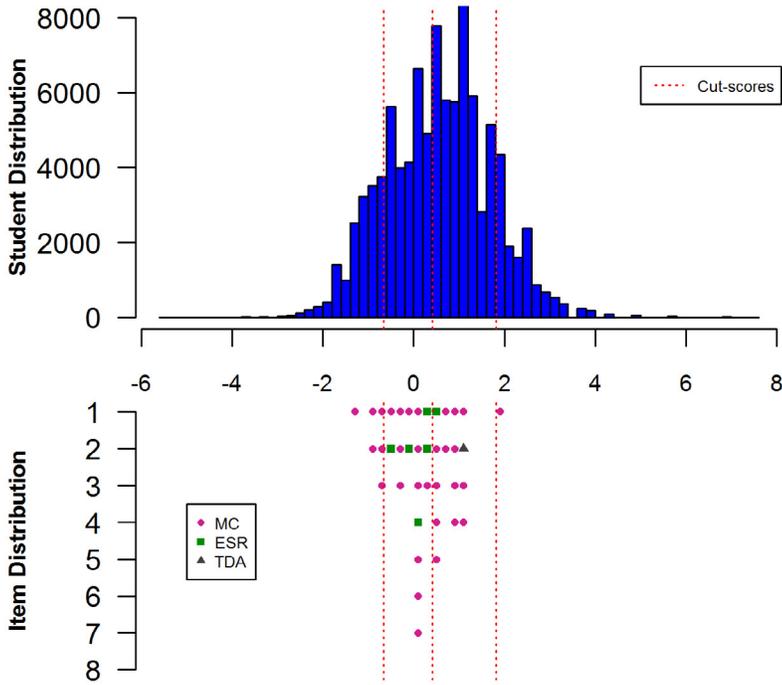


Figure 12–2 (continued). Wright Maps

ELA Grade 5



ELA Grade 6

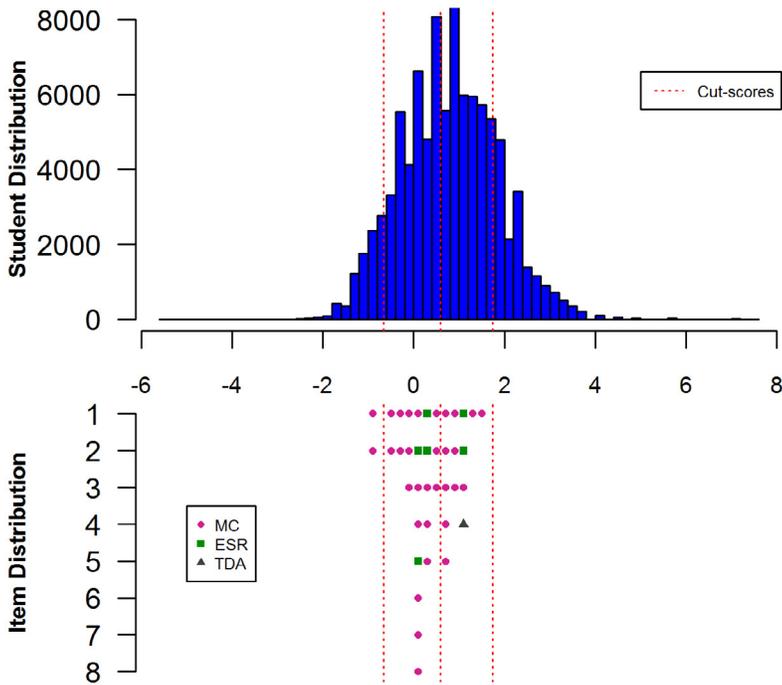
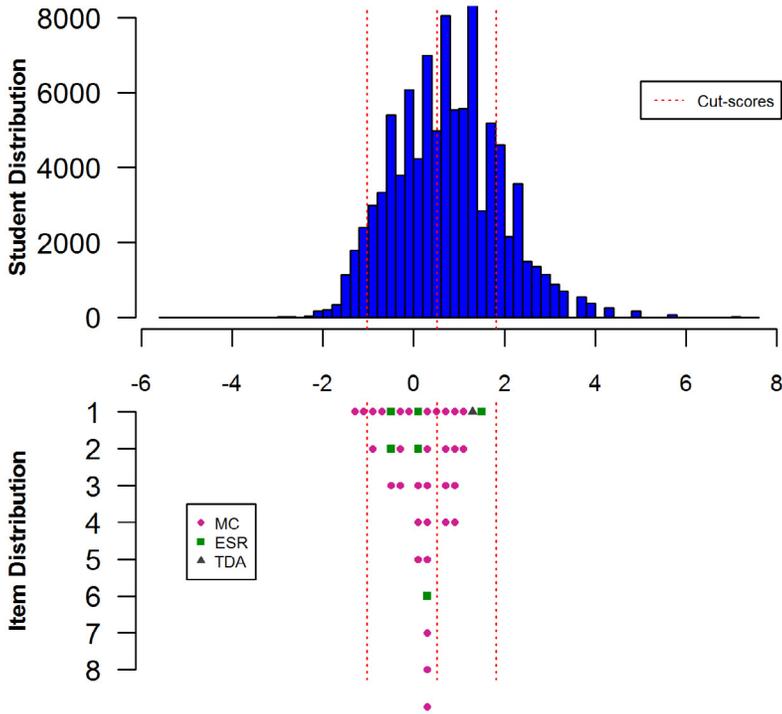


Figure 12–2 (continued). Wright Maps

ELA Grade 7



ELA Grade 8

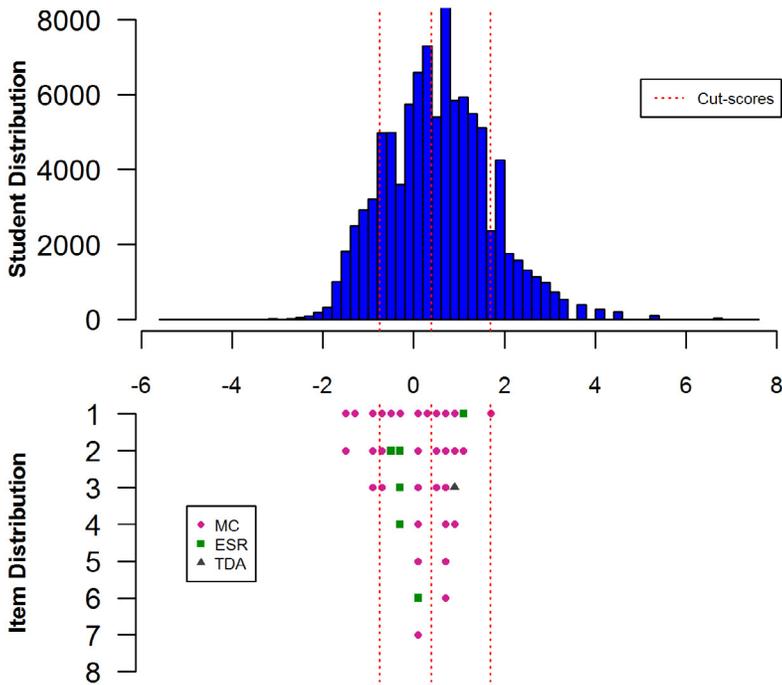
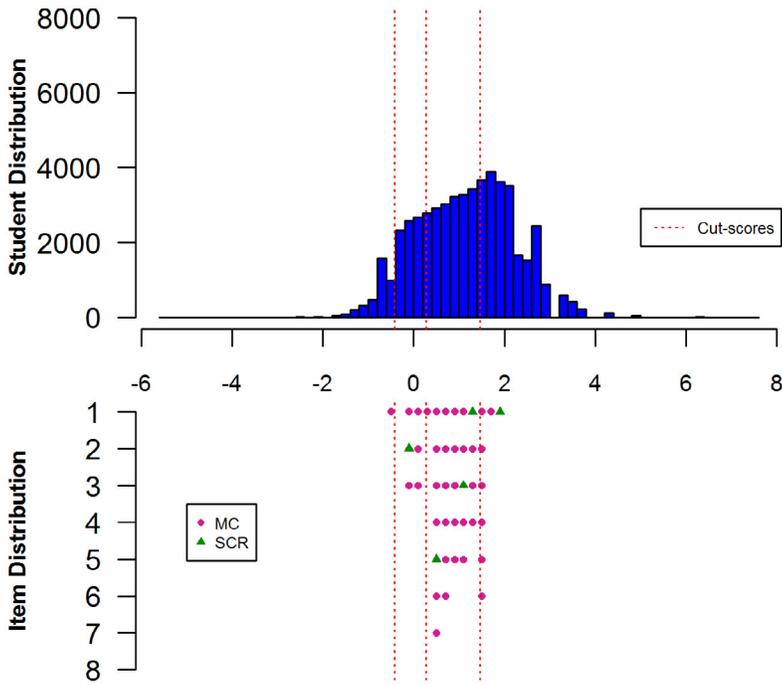
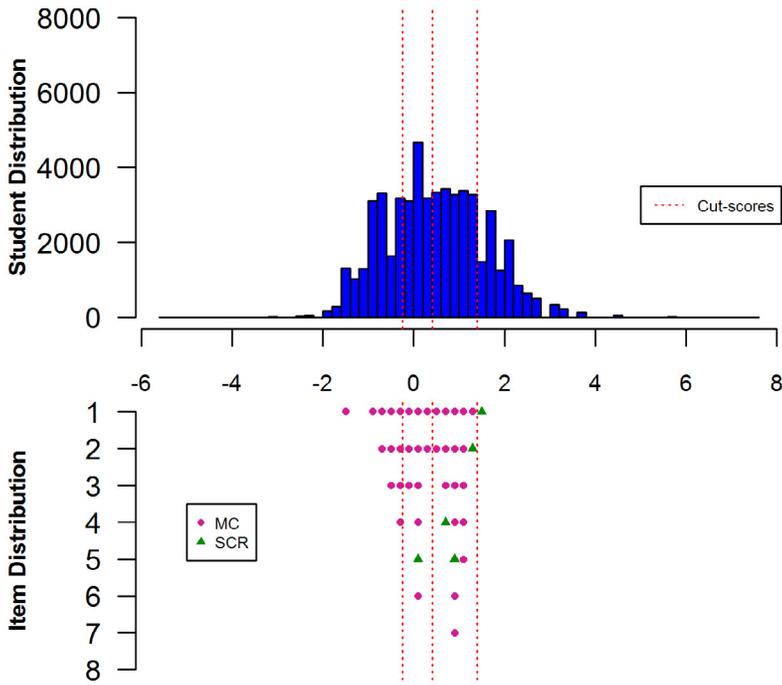


Figure 12–2 (continued). Wright Maps

Science Grade 4



Science Grade 8



CHAPTER THIRTEEN: PERFORMANCE LEVEL SETTING

Performance level setting events for grades 3 through 8 in mathematics and ELA took place June 9–12, 2015. However, no performance level setting occurred for science in 2015. A history (dates and methodology) of performance level setting events are provided in Table 13–1. The resulting cut scores from those events are provided in Table 13–2. For additional details about science standard setting event, refer to the PSSA science performance level setting technical report in 2008. For mathematics and ELA, please refer to the performance level setting report in 2015 for full details on the procedures used and the standard setting results.

Subsequent to the first administration of the reduced length tests described in detail in the Preface and Chapter Seven, the ELA cut scores reported below in Table 13–2 were validated by Pennsylvania educators during a modified Bookmark standards validation procedure in the Summer of 2018. Please refer to the standards validation report in 2018 for full details.

Table 13–1. Performance Level Setting/Validation Event Dates and Methodology

| Subject | Grade | Methodology | Validation? | Event Date |
|-------------|-------------|-------------|-------------|-------------|
| Mathematics | 3,4,5,6,7,8 | Bookmark | No | Summer 2015 |
| ELA | 3,4,5,6,7,8 | Bookmark | No | Summer 2015 |
| Science | 4, 8, 11 | Bookmark | No | Summer 2008 |

PSSA CUT SCORES

Appendix M provides the scaled score cuts for each PSSA test. For reader convenience, these are documented next in a different format. Table 13–2 documents the cut scores on the scaled-score metric. PSSA scaling procedures are discussed further in Chapter Fourteen.

Table 13–2. PSSA Scaled-Score Metric Cut Scores by Subject and Grade

| Subject | Grade | BB/B | B/P | P/A |
|-------------|-------|------|------|------|
| Mathematics | 3 | 923 | 1000 | 1110 |
| Mathematics | 4 | 908 | 1000 | 1107 |
| Mathematics | 5 | 901 | 1000 | 1113 |
| Mathematics | 6 | 897 | 1000 | 1105 |
| Mathematics | 7 | 904 | 1000 | 1109 |
| Mathematics | 8 | 906 | 1000 | 1108 |
| ELA | 3 | 905 | 1000 | 1143 |
| ELA | 4 | 887 | 1000 | 1107 |
| ELA | 5 | 893 | 1000 | 1139 |
| ELA | 6 | 875 | 1000 | 1115 |
| ELA | 7 | 845 | 1000 | 1130 |
| ELA | 8 | 886 | 1000 | 1130 |
| Science | 4 | 1150 | 1275 | 1483 |
| Science | 8 | 1150 | 1275 | 1464 |

Note. BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.

CHAPTER FOURTEEN: SCALING

The purpose of a scaling analysis is to create a score scale. Scaling is used to transform test score values onto a scale more easily interpreted by users. For the PSSA, the resulting scaled scores will be used for score reporting and performance level classification. The PSSA classifies students into four achievement levels: Below Basic, Basic, Proficient, and Advanced.

The adoption of the Pennsylvania Core Standards in 2013 brought several changes to the PSSA in mathematics and ELA. In mathematics, content changed for grade levels, items involved more problem solving for deeper understanding, rulers were provided in grade 3 only, protractors were provided in grade 4, and formula sheets were provided in grades 4 through 8. In ELA, the new PSSA replaced PSSA Reading and PSSA Writing. Additional changes in ELA included reading passages that reflect the increased expectations of text complexity and new item types to reflect the emphasis on text-based answers and evidence to support claims. PSSA science continues to be aligned to the Pennsylvania Academic Standards for Science, Technology, Environment and Ecology.

The changes to mathematics and ELA necessitated performance level setting and the establishment of new score scales in 2015. Therefore, mathematics and ELA scaled scores for 2018 are not comparable to years prior to 2015. Science score scales were established in 2008 and no changes were made to science cut scores or score scales since that time. Therefore, science scaled scores are comparable to previous years back to the 2008 scores. Table 14–1 shows the scaled-score cuts for each subject and grade level.

SCALED SCORES

Individual student scores are reported as scaled scores. However, they are initially estimated as Rasch abilities (more information on the Rasch model is given in Chapter Twelve). Generally, scaled scores are preferred over Rasch ability values for reporting purposes. One issue is that Rasch ability values are on a scale that includes negative and decimal values. By transforming the Rasch ability values to scaled scores, all reported values can become positive integers. Scaled scores are usually obtained through some linear transformation of the Rasch ability values. The linear transformations used for the PSSA produce numeric values with three or four digits that are unit interval scaled scores. Each grade and subject has its own unique PSSA scaled score. Positive scores with no decimals make more sense to parents and students. Since Rasch ability values are comparative after linking to the base year, the transformed scaled scores have a common scale across years, even though the corresponding raw scores may differ. (Equating is discussed further in Chapter Fifteen.)

Essentially, PSSA scaled scores are derived through a two-step process. First, there is a nonlinear transformation that converts number correct scores to Rasch ability logits. Second, a linear transformation is used to convert logits to scaled scores. These and some additional considerations (e.g., rounding rules), are discussed further below.

DEFINITION OF SCOREABILITY

Answer documents are considered scoreable if they meet the attempt logic criterion for inclusion in the data files (see Chapter Nine).

At the item level, responses that were considered non-attempted or non-scoreable were assigned a score of zero. Details by item type are provided below.

- Multiple-choice (MC) items: All omit (no response) and multiple marks (more than one response selected without machine-discernible erasures) were scored as zeros.
- Open-ended (OE) items: All blank, copied, non-scoreable, foreign language, off-task, refusal, or unreadable responses were scored as zeros.
- Evidence-based selected-response (EBSR) items: Blank response for both parts OR part one marked with multiple marks and part two marked for all responses were scored as zeros.

WINSTEPS SCALING

Parameter estimates are derived using the WINSTEPS computer program (Linacre, 2019), which employs unconditional (UCON), joint-maximum-likelihood estimation (JMLE). WINSTEPS provides a conversion table that maps raw scores to logits (Rasch ability estimates). The logits are transformed to scaled scores as discussed below. Every year each test is scaled separately and then linked (see Chapter Fifteen).

ZERO AND PERFECT SCORES

WINSTEPS does not provide a direct ability estimate for zero (no points earned) or perfect (all points earned) raw scores. However, WINSTEPS has a default procedure for estimating such extreme scores, and this was used for the PSSA. Essentially, a fractional raw score (a value less than one) is added to zero scores and subtracted from perfect scores to determine the corresponding logit values for these extreme scores.

LINEAR TRANSFORMATION FORMULAS

PSSA scaled scores are obtained through a linear transformation of the Rasch ability estimates ($\hat{\theta}$). Specifically,

$$SS = m\hat{\theta} + b,$$

where m is the slope and b is the intercept.

For mathematics and ELA, the slope and intercept for each grade were derived by anchoring the Proficient cut score to a scaled score of 1000 and fixing the slope at 100. For science, the slope and intercept for each grade were derived by anchoring the Basic cut score at 1150 and the Proficient cut score at 1275.¹

The slopes and intercepts for deriving PSSA scaled scores are provided in Table 14–2.

ROUNDING

The linearly transformed scaled scores are generally rounded to the nearest integer value for reporting purposes. Values greater than or equal to 0.50 are rounded up. Values less than 0.50 are rounded down.²

LOWEST OBTAINABLE SCALED SCORES

PSSA mathematics and ELA tests have a lowest obtainable scaled score (LOSS) of 600. For PSSA science, the LOSS values have been set to 1050 for Grade 4 and 925 for Grade 8. The selection of a LOSS is mainly based on two considerations: 1) extreme low scaled scores may have an impact on the average of the scaled scores at school/district level and 2) score truncation makes sense from a score precision perspective given measurement errors at the extremes are large. The LOSS values are documented in Table 14–1. See tables in Appendix N for LOSS n -counts.

HIGHEST OBTAINABLE SCALED SCORES

A highest obtainable scaled score (HOSS) is not set for the PSSA. Thus, the maximum possible scaled score value can float for each subject and grade. The upper bound varies from year to year, depending on the difficulty of the test form. Table 14–1 shows the maximum possible observed score for the current year's test. (Note: It may be that no student earned the maximum possible.) See tables in Appendix N for HOSS n -counts.

¹ Anchoring two cut scores for mathematics and ELA was considered. However, this led to large variability in scaled scores across grades. Therefore, it was determined that one cut score would be anchored and the slope set at 100 for all grades.

² One exception to this rounding is in science where scores are rounded up (even if less than 0.50) if this action would put the rounded score into a higher performance level. This rounding rule has been in place for science since the establishment of the score scale and cut scores in 2008.

RAW-SCORE-TO-SCALED-SCORE TABLES

Full raw-to-scaled score tables can be found in Appendix N.

Table 14–1. PSSA Scaled Score Cuts for Each Performance Level by Subject and Grade

| Subject | Grade | Min | BB/B ¹ | B/P ¹ | P/A ¹ | Max ² |
|-------------|-------|------|-------------------|------------------|------------------|------------------|
| Mathematics | 3 | 600 | 923 | 1000 | 1110 | 1553 |
| Mathematics | 4 | 600 | 908 | 1000 | 1107 | 1561 |
| Mathematics | 5 | 600 | 901 | 1000 | 1113 | 1541 |
| Mathematics | 6 | 600 | 897 | 1000 | 1105 | 1521 |
| Mathematics | 7 | 600 | 904 | 1000 | 1109 | 1513 |
| Mathematics | 8 | 600 | 906 | 1000 | 1108 | 1479 |
| ELA | 3 | 600 | 905 | 1000 | 1143 | 1537 |
| ELA | 4 | 600 | 887 | 1000 | 1107 | 1657 |
| ELA | 5 | 600 | 893 | 1000 | 1139 | 1649 |
| ELA | 6 | 600 | 875 | 1000 | 1115 | 1643 |
| ELA | 7 | 600 | 845 | 1000 | 1130 | 1648 |
| ELA | 8 | 600 | 886 | 1000 | 1130 | 1621 |
| Science | 4 | 1050 | 1150 | 1275 | 1483 | 2318 |
| Science | 8 | 925 | 1150 | 1275 | 1464 | 2294 |

Notes. 1. BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.
2. Scaled Score Maximum Values are unique for each year's test.

Table 14–2. PSSA Intercept and Slope by Subject and Grade

| Subject | Grade | Intercept | Slope |
|-------------|-------|-----------|--------|
| Mathematics | 3 | 956.31 | 100.00 |
| Mathematics | 4 | 981.92 | 100.00 |
| Mathematics | 5 | 961.69 | 100.00 |
| Mathematics | 6 | 931.41 | 100.00 |
| Mathematics | 7 | 956.16 | 100.00 |
| Mathematics | 8 | 951.76 | 100.00 |
| ELA | 3 | 962.47 | 100.00 |
| ELA | 4 | 957.49 | 100.00 |
| ELA | 5 | 958.32 | 100.00 |
| ELA | 6 | 940.78 | 100.00 |
| ELA | 7 | 947.65 | 100.00 |
| ELA | 8 | 961.11 | 100.00 |
| Science | 4 | 1225.65 | 176.75 |
| Science | 8 | 1196.64 | 191.54 |

Notes. Linear Transformation Intercepts and Slopes are used to derive the Scaled Scores.

STRAND (REPORTING CATEGORY) SCORE STRENGTH PROFILE

Strength profiles for strand (reporting category) scores have been provided since 2009. The following process was followed to derive the profile:

- The items for each strand were identified.
- WINSTEPS runs were undertaken that anchored the logit values for each strand's items to get the raw-to-logit score table for each strand. This is sometimes referred to as fixed item parameter scaling.
- The appropriate linear transformations (based on content and grade from Table 14–2) were applied to the logit values to derive strand scaled scores.

The strand scaled scores were categorized as follows: L=Low; M=Medium; H=High. The maximum possible strand scaled score was converted to H in cases where no strand scaled score equaled or exceeded the Advanced scaled score cut. Note that these designations are provided as an indication of performance levels within a strand, but as standards have not been set that describe strand performance as has been done at the overall test level, performance level descriptions for the overall test should not be used to describe strand performance. See Chapter Sixteen for information regarding strength profiles used in score reports.

CHAPTER FIFTEEN: EQUATING

Equating is a statistical process that is used to adjust scores on test forms so that scores on all forms on the test scale can be used interchangeably (Kolen & Brennan, 2004) even though the test forms consist of different items. In large-scale testing programs, it is a common practice to have different item sets appear in different test forms across administrations. Students' raw scores (or number-correct scores) cannot be directly compared between forms or administrations because they depend on the difficulty of the items on a form. The same student can score higher on an easy test than on a difficult test. Although there are various equating methods available for different psychometric paradigms (IRT and CTT), the PSSA utilizes an IRT approach aligned with the assumptions of the Rasch model, the IRT pre-equating method. The first step in any IRT equating method is to conduct scale linking, in which item difficulties from independent calibrations are transformed so that they can be placed on the same scale (Kolen & Brennan, 2014). Once scale linking is conducted, we can proceed with any IRT-based equating methods.

Prior to 2019, the PSSA employed a post-equating design with a chain-linking approach for scale linking. For the first time in 2019, a pre-equating design was implemented for PSSA due to the many advantages it offers. Specifically, employing a pre-equating method allowed for a shortened turn-around for score reporting due to the use of previously linked item parameters for test construction and development of raw-to-scaled-score tables. In this chapter, we provide a brief comparison of pre- and post-equating, the procedure implemented for the 2022 PSSA, and the evaluation of pre-equated and post-equated solutions. Summary results are also presented.

PRE- VS. POST-EQUATING

As with other Pennsylvania assessment programs, the Rasch model is used to guide the test design, form construction, calibration, scaling, and equating of the PSSA. The first step in equating test forms using the Rasch model is to place the item parameters from different administrations on the same scale, also referred to as scale linking. Once the item parameters are on the same scale, the Newton Raphson procedure can be used to convert number-correct scores to Rasch ability levels, which in turn are transformed to scaled scores, ultimately allowing for score comparability within and across administrations.

As is the case with many K–12 large-scale assessment programs, all scored items are field tested prior to operational use. In theory, once the field-test items' difficulties are placed on the base scale one should not expect their Rasch item difficulties to change, except within a reasonable range of measurement error, after they are administered in an operational test provided the Rasch model fits the data. The subsequent use of these item parameters for test scoring is referred to as pre-equating.

In contrast, post-equating requires data from the current administration to be calibrated. Then, newly estimated item parameters are linked and placed on the same scale as banked item parameters, and scores are equated. With this in mind, pre-equating is advantageous because much of the work is completed before test administration, allowing more time for quality control; whereas post-equating relies on the same given timeframe for calibration, scale linking, equating scores, and implementing quality control procedures.

As the calibration of item parameters using IRT methods assumes equivalent samples of students from the same population, the two equating approaches should, in theory, yield the same results. However, this is unlikely to be true in practice, so there are practical advantages and disadvantages of each approach. The use of pre-equating can facilitate the operational process in terms of rapid score reporting, more time for quality control, and more flexibility in the assessment. One successful application of pre-equating is for computer-adaptive tests (CAT), such as the Pennsylvania Classroom Diagnostic tools (CDT), where test questions are tailored to a student's achievement as the test progresses. The CDT is designed to provide diagnostic information about student performance and is available throughout the school year at no cost. CATs require automated scoring for all item types (including constructed-response) and allow for immediate score reporting upon completion of the test. However, a variety of issues need to be considered when using pre-equating in practice. For example, students may not be motivated to take the field tests, especially standalone field tests, which may make the items appear harder in the field test than in the operational test (Eignor, 1985; Eignor & Stocking, 1986; Stocking & Eignor, 1986; Kolen & Harris, 1990). Other concerns for the field-test items include item context, item position, and sample size. In contrast, post-equating, when applicable, does not have the same motivational concerns as pre-equating. Also, post-equating uses post-administration data and is sometimes considered to yield more accurate analysis results, given that the number of students who take the operational tests is usually large. On the other hand, when the reporting window is extremely

tight, post-equating must occur within a very short time and therefore allows less time for the equating analyses and quality control.

CONSIDERATIONS FOR IMPLEMENTING PRE-EQUATING IN PSSA

To implement the pre-equating model in PSSA, additional efforts have been made to enhance the accuracy of pre-equating results based on findings from literature. For example, to address the concerns regarding students' motivation to take field tests, stand-alone field tests were not used; field-test items were embedded throughout the test so that students would perceive no differences between field-test items and operational items. This approach allows Rasch item difficulty estimates to be used for future pre-equating purposes and is based on the assumption that students should be equally motivated to take the operational and embedded field-test items, especially when they are not aware of which items are field-test items. To minimize item context and item position effects (i.e., lack of motivation and fatigue), field-test items were interspersed within the operational sections. With this design, students have a smaller chance of knowing the field-test item positions. Fatigue effects due to field-test items being placed in the last section of the operational test can be mitigated in this design as well. To improve the accuracy of the Rasch item difficulties estimated from the field-test data, DRC scored all MC items and a large sample of CR items, given that larger sample sizes can increase the estimation accuracy. The test designs for the operational PSSA mathematics, ELA, and science assessments used multiple test forms that shared several common elements. The operational items were the same on all forms and for all students. Student total raw scores and scaled scores, as well as accountability reporting, were based exclusively on the operational items.

The primary purpose of implementing pre-equating methodologies in PSSA was to shorten the score reporting window. Although PSSA forms have always been built using previously administered FT items with estimated Rasch difficulties, item selection for assessment programs that utilize pre-equating relies heavily on data-model fit, and in turn, the form construction process relies on items' statistical properties. Once items were selected for forms, approved by DRC staff and PDE, raw-to-scaled score tables were built using the same statistical properties.

SCALE LINKING

PSSA utilizes a chained scale linking design to conduct pre-equating verification, to obtain item parameters for field-tested items, and to update item parameters for operational items. Results from scale linking are item parameters (Rasch difficulties and thresholds) for field-tested (FT) items that are on the base scale. The chain originates from a scale of measurement defined for each test's base form, which is used as the reference for calibrating all items in the item pool. The base form is usually the form upon which the cut scores were established (see Chapter Thirteen). In the case of the PSSA, scales and cut scores were established for Science in 2008 and for ELA and mathematics in 2015. Therefore, the 2022 mathematics and ELA tests are chain linked to the scales set in 2015 and the science tests are chain linked to the scales set in 2008.

The Rasch Partial Credit Model (RPCM) is used for the calibrating data for the PSSA, given its flexibility for dichotomously scored (i.e., MC) and polytomously scored (i.e., CR, EBSR) item types (Masters, 1982). The RPCM is discussed in detail in Chapter Twelve. Without employing scale linking, Rasch difficulties for the field-tested items would not be directly comparable to other items on the base scale. A partially anchored calibration was employed to estimate all 2022 item parameters for each test on its respective base scale. First, all OP item parameters were evaluated for model fit to ensure that previously estimated (banked) item parameters were still reasonable and appropriate. If misfitting items were identified, their parameters were re-estimated (see Appendix O for OP item difficulties). Then OP item parameters were anchored and FT item parameters were freely estimated for each subject and grade level. This allowed for the estimation of FT item parameters on the baseline scale (see Appendix F for all item statistics).

For the pre-equating verification, we evaluated the differences between the fully anchored pre-equated solution and the partially anchored pre-equated solution (if misfitting items were identified). Both sets of item parameters were then used to estimate student abilities, which were then transformed to scaled scores. (Transformation formulas are provided in Chapter Fourteen.) The following steps outline the scale linking procedure used for PSSA. All calibration was conducted using WINSTEPS (Linacre, 2019).

1. Calibrate operational (OP) items in a fully anchored design.
 - a. Exclude FT items.
 - b. Identify include only students that have completed the test.
2. Identify misfitting items from Step 1 using the following criteria.
 - a. Identify items with infit mean-square values greater than 1.3 or items with absolute displacement greater than 0.5 logits¹.
3. For any item identified in Step 2 due to infit issues, allow OP item parameters to be freely calibrated in a partially-anchored design. This allows for item parameters to be updated for misfitting items.²
 - a. Exclude FT items.
 - b. Include only students that have completed the test.
4. Calibrate OP and auto-scored FT items in a partially-anchored concurrent design.
 - a. Anchor OP item parameters to the banked values (used in Step 1) or the updated values (estimated in Step 3).
 - b. Include all operational (OP) and auto-scored (MC or EBSR) FT items.
 - c. Include only students that have completed the test.

¹ Only infit was used as flagging criteria during pre-equating verification.

² Step 3 is part of the scale maintenance plan discussed later in this chapter.

5. Calibrate OP and FT items in a partially-anchored concurrent design.
 - a. Anchor OP item parameters to the banked values (used in Step 1) or the updated values (estimated in Step 3).
 - b. Anchor FT autoscored item parameters to those estimated in Step 4.
 - c. Include all operational (OP) and field-test (FT) items.
 - d. Include only students with scores for FT CR items.
 - e. The resulting item parameters are banked for future use.

PRE-EQUATING VERIFICATION

Although extra care has been taken to guarantee the success of pre-equating during the test design, form construction, and calibration of embedded field-test items, DRC ensured that the pre-equated results had reasonable data-model fit during the pre-equating verification process. Once sufficient data was available, pre-equating verification was conducted to assess data-model fit and allow the parameters of any misfitting items to be freely calibrated. Any misfitting item was identified, and parameters were freely estimated in a subsequent calibration (using a partially anchored design) to improve data-model fit. The data and results presented in this section refer to misfitting items as those in which infit mean-square values exceeded a criterion of 1.3. The number of items identified during pre-equating verification for each subject and grade level is shown in Table 15–1. No items were identified as misfitting for mathematics grades 3, 5 through 8, ELA grades 5 or 6, or science grades 4 or 8. Differences were analyzed between fully anchored pre-equated results (hereinafter “pre-equated”) and partially anchored pre-equated results (hereinafter “post-equated”). Pre-equating verification analyses were conducted at the item level, person level, and form level. Complete detailed results from the pre-equating verification analyses can be found in Appendix T.

Table 15–1. Number of Misfitting Items Identified during Pre-Equating Verification

| Grade | Mathematics | ELA | Science |
|---------|-------------|-----|---------|
| Grade 3 | 0 | 2 | - |
| Grade 4 | 1 | 1 | 0 |
| Grade 5 | 0 | 0 | - |
| Grade 6 | 0 | 0 | - |
| Grade 7 | 0 | 1 | - |
| Grade 8 | 0 | 2 | 0 |

At the same time, DRC test development specialists reviewed all misfitting items (i.e., items with infit mean-square values greater than 1.3) and items with large displacement values (i.e., an absolute value greater than 0.5) to ensure that items were presented in the same manner as they were in prior administrations.

ITEM-LEVEL ANALYSES

Item-level analyses indicate whether the data fit the Rasch model with respect to item-fit statistics. This analysis included the number of items that had reasonable fit statistics (i.e., greater than 0.7 and less than 1.3) supported by prior literature (Wright & Linacre, 1994). Tables 15–2M, 15–2E, and 15–2S show the item fit statistics comparisons for mathematics, ELA, and science, respectively. For ELA grades 3 and 8, both pre-equated and post-equated solutions showed similar fit to the model in terms of infit and outfit statistics, where the post-equated solution showed slightly better fit in terms of the number of items within the desired range. For the other subjects and grade levels, items fit the pre-equated and post-equated solutions similarly. The results show that the data fit the pre-equated solution well.

Table 15–2M. Mathematics Item Infit and Outfit Mean-Square Statistics by Grade

| Grade | Method | N | Mean* | SD* | Min* | Max* | [0.7,1.3]* | Mean+ | SD+ | Min+ | Max+ | [0.7,1.3]+ |
|-------|--------|-------|-------|------|------|------|------------|-------|------|------|------|------------|
| 3 | Pre | 72716 | 1.00 | 0.13 | 0.69 | 1.25 | 42/43 | 1.02 | 0.20 | 0.59 | 1.53 | 37/43 |
| 3 | Post | 72716 | 1.00 | 0.13 | 0.69 | 1.25 | 42/43 | 1.02 | 0.20 | 0.59 | 1.53 | 37/43 |
| 4 | Pre | 55066 | 1.01 | 0.13 | 0.78 | 1.40 | 42/43 | 1.01 | 0.19 | 0.68 | 1.48 | 39/43 |
| 4 | Post | 55066 | 1.00 | 0.11 | 0.78 | 1.25 | 43/43 | 0.99 | 0.17 | 0.68 | 1.40 | 41/43 |
| 5 | Pre | 68401 | 1.04 | 0.12 | 0.82 | 1.29 | 43/43 | 1.07 | 0.18 | 0.70 | 1.46 | 37/43 |
| 5 | Post | 68401 | 1.04 | 0.12 | 0.82 | 1.29 | 43/43 | 1.07 | 0.18 | 0.70 | 1.46 | 37/43 |
| 6 | Pre | 63228 | 0.99 | 0.10 | 0.83 | 1.20 | 43/43 | 0.99 | 0.14 | 0.77 | 1.30 | 42/43 |
| 6 | Post | 63228 | 0.99 | 0.10 | 0.83 | 1.20 | 43/43 | 0.99 | 0.14 | 0.77 | 1.30 | 42/43 |
| 7 | Pre | 71875 | 1.00 | 0.11 | 0.71 | 1.21 | 43/43 | 1.00 | 0.14 | 0.65 | 1.31 | 41/43 |
| 7 | Post | 71875 | 1.00 | 0.11 | 0.71 | 1.21 | 43/43 | 1.00 | 0.14 | 0.65 | 1.31 | 41/43 |
| 8 | Pre | 71450 | 1.01 | 0.11 | 0.74 | 1.25 | 43/43 | 1.01 | 0.15 | 0.70 | 1.35 | 41/43 |
| 8 | Post | 71450 | 1.01 | 0.11 | 0.74 | 1.25 | 43/43 | 1.01 | 0.15 | 0.70 | 1.35 | 41/43 |

Notes. *Denotes Infit

+Denotes Outfit

Table 15–2E. ELA Item Infit and Outfit Mean-Square Statistics by Grade

| Grade | Method | N | Mean* | SD* | Min* | Max* | [0.7,1.3]* | Mean+ | SD+ | Min+ | Max+ | [0.7,1.3]+ |
|-------|--------|-------|-------|------|------|------|------------|-------|------|------|------|------------|
| 3 | Pre | 92671 | 1.03 | 0.15 | 0.75 | 1.52 | 33/35 | 1.05 | 0.25 | 0.63 | 2.10 | 31/35 |
| 3 | Post | 92671 | 1.01 | 0.11 | 0.76 | 1.26 | 35/35 | 1.02 | 0.17 | 0.63 | 1.32 | 32/35 |
| 4 | Pre | 94259 | 1.02 | 0.15 | 0.75 | 1.34 | 38/39 | 1.06 | 0.25 | 0.58 | 1.60 | 29/39 |
| 4 | Post | 94259 | 1.02 | 0.15 | 0.75 | 1.33 | 38/39 | 1.06 | 0.25 | 0.58 | 1.60 | 29/39 |
| 5 | Pre | 97224 | 1.04 | 0.11 | 0.79 | 1.24 | 39/39 | 1.08 | 0.19 | 0.76 | 1.49 | 33/39 |
| 5 | Post | 97224 | 1.04 | 0.11 | 0.79 | 1.24 | 39/39 | 1.08 | 0.19 | 0.76 | 1.49 | 33/39 |
| 6 | Pre | 94734 | 1.01 | 0.13 | 0.61 | 1.28 | 38/39 | 1.04 | 0.17 | 0.61 | 1.35 | 36/39 |
| 6 | Post | 94734 | 1.01 | 0.13 | 0.61 | 1.28 | 38/39 | 1.04 | 0.17 | 0.61 | 1.35 | 36/39 |
| 7 | Pre | 96768 | 1.03 | 0.13 | 0.76 | 1.35 | 38/39 | 1.09 | 0.24 | 0.61 | 1.70 | 30/39 |
| 7 | Post | 96768 | 1.03 | 0.13 | 0.75 | 1.34 | 38/39 | 1.09 | 0.24 | 0.61 | 1.69 | 30/39 |
| 8 | Pre | 97250 | 1.03 | 0.15 | 0.61 | 1.49 | 36/39 | 1.09 | 0.25 | 0.62 | 1.92 | 31/39 |
| 8 | Post | 97250 | 1.02 | 0.14 | 0.61 | 1.49 | 37/39 | 1.07 | 0.22 | 0.62 | 1.78 | 33/39 |

Notes. *Denotes Infit

+Denotes Outfit

Table 15–2S. Science Item Infit and Outfit Mean-Square Statistics by Grade

| Grade | Method | N | Mean* | SD* | Min* | Max* | [0.7,1.3]* | Mean+ | SD+ | Min+ | Max+ | [0.7,1.3]+ |
|-------|--------|-------|-------|------|------|------|------------|-------|------|------|------|------------|
| 4 | Pre | 52488 | 1.00 | 0.10 | 0.72 | 1.28 | 43/43 | 1.00 | 0.14 | 0.59 | 1.33 | 41/43 |
| 4 | Post | 52488 | 1.00 | 0.10 | 0.72 | 1.28 | 43/43 | 1.00 | 0.14 | 0.59 | 1.33 | 41/43 |
| 8 | Pre | 53361 | 0.99 | 0.13 | 0.63 | 1.25 | 42/43 | 0.98 | 0.19 | 0.49 | 1.39 | 39/43 |
| 8 | Post | 53361 | 0.99 | 0.13 | 0.63 | 1.25 | 42/43 | 0.98 | 0.19 | 0.49 | 1.39 | 39/43 |

Notes. *Denotes Infit
+Denotes Outfit

PERSON-LEVEL ANALYSES

The second set of analyses conducted consisted of analyzing person-level fit statistics, which can be another indicator of whether the data fit the model. Tables 15–3M, 15–3E, and 15–3S summarize the overall person infit and outfit statistics by grade level for both the pre-equated and post-equated solutions for mathematics, ELA, and science, respectively. The table specifies the mean, standard deviation (SD), minimum (Min), maximum (Max), and proportion of persons that had reasonable fit statistics (i.e., greater than 0.5 and less than 1.5)³ for both infit and outfit statistics. The results in the tables indicate that person-level fit does not vary by equating method.

Furthermore, Appendix T includes the results for the pre-equating verification, including the person infit boxplots for all subjects and grade levels for both pre-equated and post-equated solutions. Appendix T also provides boxplots disaggregated by gender, ethnicity, English Learners (ELs), and students with individualized educational programs (IEPs). The person infit plots indicate that the data fits the pre- and post-equated solutions similarly.

Table 15–3M. Mathematics Person Infit and Outfit Mean-Square Statistics by Grade

| Grade | Method | N | Mean* | SD* | Min* | Max* | [0.5,1.5]* | Mean+ | SD+ | Min+ | Max+ | [0.5,1.5]+ |
|-------|--------|-------|-------|------|------|------|------------|-------|------|------|------|------------|
| 3 | Pre | 72716 | 0.99 | 0.21 | 0.40 | 2.83 | 98.1% | 1.02 | 0.3 | 0.08 | 9.90 | 92.3% |
| 3 | Post | 72716 | 0.99 | 0.21 | 0.40 | 2.83 | 98.1% | 1.02 | 0.3 | 0.08 | 9.90 | 92.3% |
| 4 | Pre | 55066 | 1.01 | 0.22 | 0.32 | 3.44 | 96.9% | 1.01 | 0.3 | 0.04 | 8.17 | 92.3% |
| 4 | Post | 55066 | 1.00 | 0.22 | 0.32 | 3.44 | 97.0% | 0.99 | 0.29 | 0.04 | 8.20 | 93.1% |
| 5 | Pre | 68401 | 1.04 | 0.21 | 0.58 | 4.49 | 97.8% | 1.07 | 0.24 | 0.10 | 4.52 | 93.9% |
| 5 | Post | 68401 | 1.04 | 0.21 | 0.58 | 4.49 | 97.8% | 1.07 | 0.24 | 0.10 | 4.52 | 93.9% |
| 6 | Pre | 63228 | 0.99 | 0.19 | 0.27 | 3.68 | 98.2% | 0.99 | 0.23 | 0.07 | 4.69 | 95.8% |
| 6 | Post | 63228 | 0.99 | 0.19 | 0.27 | 3.68 | 98.2% | 0.99 | 0.23 | 0.07 | 4.69 | 95.8% |
| 7 | Pre | 71875 | 0.98 | 0.16 | 0.42 | 2.92 | 98.9% | 1.00 | 0.18 | 0.09 | 6.83 | 98.3% |
| 7 | Post | 71875 | 0.98 | 0.16 | 0.42 | 2.92 | 98.9% | 1.00 | 0.18 | 0.09 | 6.83 | 98.3% |
| 8 | Pre | 71450 | 0.98 | 0.17 | 0.50 | 3.06 | 98.9% | 1.01 | 0.18 | 0.13 | 5.14 | 98.3% |
| 8 | Post | 71450 | 0.98 | 0.17 | 0.50 | 3.06 | 98.9% | 1.01 | 0.18 | 0.13 | 5.14 | 98.3% |

Notes. *Denotes Infit
+Denotes Outfit

³ While items and persons are on the same scale, items tend to be more stable. As such, stricter rules are applied to item-fit statistics than person-fit statistics in determining reasonable fit.

Table 15–3E. ELA Person Infit and Outfit Mean-Square Statistics by Grade

| Grade | Method | N | Mean* | SD* | Min* | Max* | [0.5,1.5]* | Mean+ | SD+ | Min+ | Max+ | [0.5,1.5]+ |
|-------|--------|-------|-------|------|------|------|------------|-------|------|------|------|------------|
| 3 | Pre | 92671 | 1.05 | 0.23 | 0.45 | 2.73 | 96.1% | 1.05 | 0.31 | 0.13 | 9.66 | 92.3% |
| 3 | Post | 92671 | 1.02 | 0.23 | 0.46 | 2.67 | 96.3% | 1.02 | 0.27 | 0.12 | 9.24 | 94.2% |
| 4 | Pre | 94259 | 1.05 | 0.42 | 0.13 | 4.68 | 90.0% | 1.05 | 0.43 | 0.04 | 9.90 | 88.3% |
| 4 | Post | 94259 | 1.05 | 0.42 | 0.13 | 4.68 | 90.0% | 1.05 | 0.43 | 0.04 | 9.90 | 88.4% |
| 5 | Pre | 97224 | 1.02 | 0.37 | 0.14 | 3.89 | 91.9% | 1.06 | 0.39 | 0.05 | 9.90 | 90.2% |
| 5 | Post | 97224 | 1.02 | 0.37 | 0.14 | 3.89 | 91.9% | 1.06 | 0.39 | 0.05 | 9.90 | 90.2% |
| 6 | Pre | 94734 | 0.96 | 0.27 | 0.21 | 3.26 | 95.9% | 1.01 | 0.30 | 0.07 | 9.90 | 94.7% |
| 6 | Post | 94734 | 0.96 | 0.27 | 0.21 | 3.26 | 95.9% | 1.01 | 0.30 | 0.07 | 9.90 | 94.7% |
| 7 | Pre | 96768 | 1.03 | 0.42 | 0.15 | 3.73 | 92.0% | 1.07 | 0.45 | 0.05 | 9.90 | 89.9% |
| 7 | Post | 96768 | 1.03 | 0.42 | 0.15 | 3.73 | 92.0% | 1.07 | 0.45 | 0.05 | 9.90 | 90.0% |
| 8 | Pre | 97250 | 0.98 | 0.36 | 0.20 | 4.00 | 92.2% | 1.06 | 0.41 | 0.07 | 9.90 | 89.8% |
| 8 | Post | 97250 | 0.98 | 0.36 | 0.19 | 4.02 | 92.4% | 1.04 | 0.39 | 0.06 | 9.90 | 90.9% |

Notes. *Denotes Infit

+Denotes Outfit

Table 15–3S. Science Person Infit and Outfit Mean-Square Statistics by Grade

| Grade | Method | N | Mean* | SD* | Min* | Max* | [0.5,1.5]* | Mean+ | SD+ | Min+ | Max+ | [0.5,1.5]+ |
|-------|--------|-------|-------|------|------|------|------------|-------|------|------|------|------------|
| 4 | Pre | 52488 | 1.01 | 0.14 | 0.63 | 1.80 | 99.9% | 1.00 | 0.18 | 0.21 | 2.43 | 98.5% |
| 4 | Post | 52488 | 1.01 | 0.14 | 0.63 | 1.80 | 99.9% | 1.00 | 0.18 | 0.21 | 2.43 | 98.5% |
| 8 | Pre | 53361 | 0.99 | 0.14 | 0.57 | 1.91 | 99.8% | 0.98 | 0.21 | 0.16 | 3.72 | 97.6% |
| 8 | Post | 53361 | 0.99 | 0.14 | 0.57 | 1.91 | 99.8% | 0.98 | 0.21 | 0.16 | 3.72 | 97.6% |

Notes. *Denotes Infit

+Denotes Outfit

NORMALIZED SCALED SCORE DIFFERENCES

On the form-level, we evaluated differences between pre-equated and post-equated results. Normalized differences were calculated as the difference between the scaled score divided by the average CSEM of pre- and post-equated results at each raw score point (see Equation below). Normalized differences were all within reasonable expectations (min = -0.13, max = 0.08), where the largest differences were observed for ELA grade 3 (min = -0.13, max = 0.07). The plots for normalized scaled score differences are included in Appendix T.

$$\text{Normalized Scaled Score Difference} = \frac{SS_{Pre} - SS_{Post}}{(CSEM_{Pre} + CSEM_{Post})/2}$$

PERFORMANCE LEVEL CLASSIFICATION

Pre-equated solutions were considered reasonable if classification consistency did not change more than 5%. Table 15–4 shows the consistency of classifications with respect to performance levels. The three numeric values within each cell refer to the proportion of performance classifications that do not agree at each of the three cuts (Basic, Proficient, and Advanced, respectively). If a numeric entry is followed by a negative sign, then pre-equating resulted in a lower percentage of students in the adjacent performance level when compared to post-equating. On the other hand, if the numeric entry is followed by a positive sign, then pre-equating resulted in a higher percentage of students in the adjacent performance level when compared to post-equating.

Performance level classification was identical between the pre- and post-equated solutions for all subjects and grade levels except ELA grades 3, 7 and 8. As the table shows, ELA grade 7 showed movement at the Proficient and Advanced performance levels. Specifically, 3% of students were classified as Proficient when pre-equating was used and Basic when post-equating was used, and 3% of students were classified as Advanced when pre-equating was used and Proficient when post-equating was used. However, these results indicate that no more than 5% of performance level classifications changed between the pre- and post-equated solutions. There were no differences observed in performance level classification for mathematics or science.

After comparing and evaluating the results, the percentage of students classified differently was less than 5% within each classification, subject, and grade level. The TAC agreed that if classification consistency was less than 5%, then pre-equated solutions should be accepted. The comparison of raw-to-scale score conversion tables for pre-equated and post-equated solutions are shown in Appendix T, Table T–1.

Table 15–4. Performance Level Impact Summary Between Pre- and Post-equated Solutions by Subject and Grade

| Grade | Mathematics | ELA | Science |
|---------|-------------|-----------|---------|
| Grade 3 | Exact | (3-,3-,0) | - |
| Grade 4 | Exact | Exact | Exact |
| Grade 5 | Exact | Exact | - |
| Grade 6 | Exact | Exact | - |
| Grade 7 | Exact | (0,3+,3+) | - |
| Grade 8 | Exact | (0,3+,2+) | Exact |

SCALE STABILITY AND MAINTENANCE

Scale stability is a critical component of any testing program. The 2014 Standards of Educational and Psychological Testing state that “Testing programs that attempt to maintain a common scale over time should conduct periodic checks of the stability of the scale on which the scores are reported” (p.103). Conducting item parameter checks, ensuring that item parameters do not drift over time, and potentially updating operational item parameters are a few ways in which testing programs can maintain scale stability. Although many of these aspects are checked during the pre-equating verification process, it is also important to analyze student performance and scale stability following each administration. Prior to 2021, operational item parameters were updated following each administration by calculating a mean shift constant based on a specified anchor set and transforming all operational item parameters back onto the base scale. In 2021, operational item parameters were not updated due to the expected impact from the Covid-19 pandemic, including but not limited to the disruption to teaching and learning, the lower participation in state-wide summative assessments, and the elongated testing windows.

Starting in 2022, operational item parameters were re-estimated and updated only if items showed misfit (mean-square infit values greater than 1.3), or items showed displacement (absolute displacement greater than 0.5). As previously discussed, item parameters were re-estimated during a partially-anchored concurrent calibration, where all other operational items were fixed to their previously banked values.

TEST CHARACTERISTIC CURVES AND LOGIT PLOTS

Figure 15–1 helps visualize the across-year differences in the difficulties of operational items. For each subject and grade level, two plots are presented: the test characteristic curves (TCCs) and the relationship between pre-equated and post-equated item difficulties. The plot on the left shows the prior and current TCCs and indicates alignment between the prior and current forms in terms of difficulty in the logit metric. TCCs that are closely aligned translate into similar raw-score cut points and similar test difficulty across years. The three dotted vertical lines represent the Basic, Proficient, and Advanced cut-scores on the logit (θ) scale. All subjects and grades showed very small year-to-year differences in TCCs from 2021 to 2022. The standard error of measurement (SEM) overlays the TCCs to show that the minimum SEM typically occurs close to the Proficient cut-score, which indicates that the Proficient cut-scores tend to be the most precise, as desired.

The right plot in Figure 15–1 displays the relationship between the pre-equated item difficulties (x-axis) and the post-equated item difficulties (y-axis) on the logit (θ) scale. The black line represents the identity line; if points fall on the identity line it indicates that there is no difference between the pre-equated and post-equated item difficulty. Points that do not fall on the identity line indicate items that were identified as misfitting during the pre-equating verification process and were freely estimated in a subsequent calibration. In most cases, the item difficulties that were freely estimated under the post-equated model were close to the identity line. The plots provide evidence of reasonable across-year stability of item difficulty, meaning the pre-equated item difficulties were similar to the post-equated item difficulties.

Figure 15–1. Test Characteristic Curves and Logit Plot

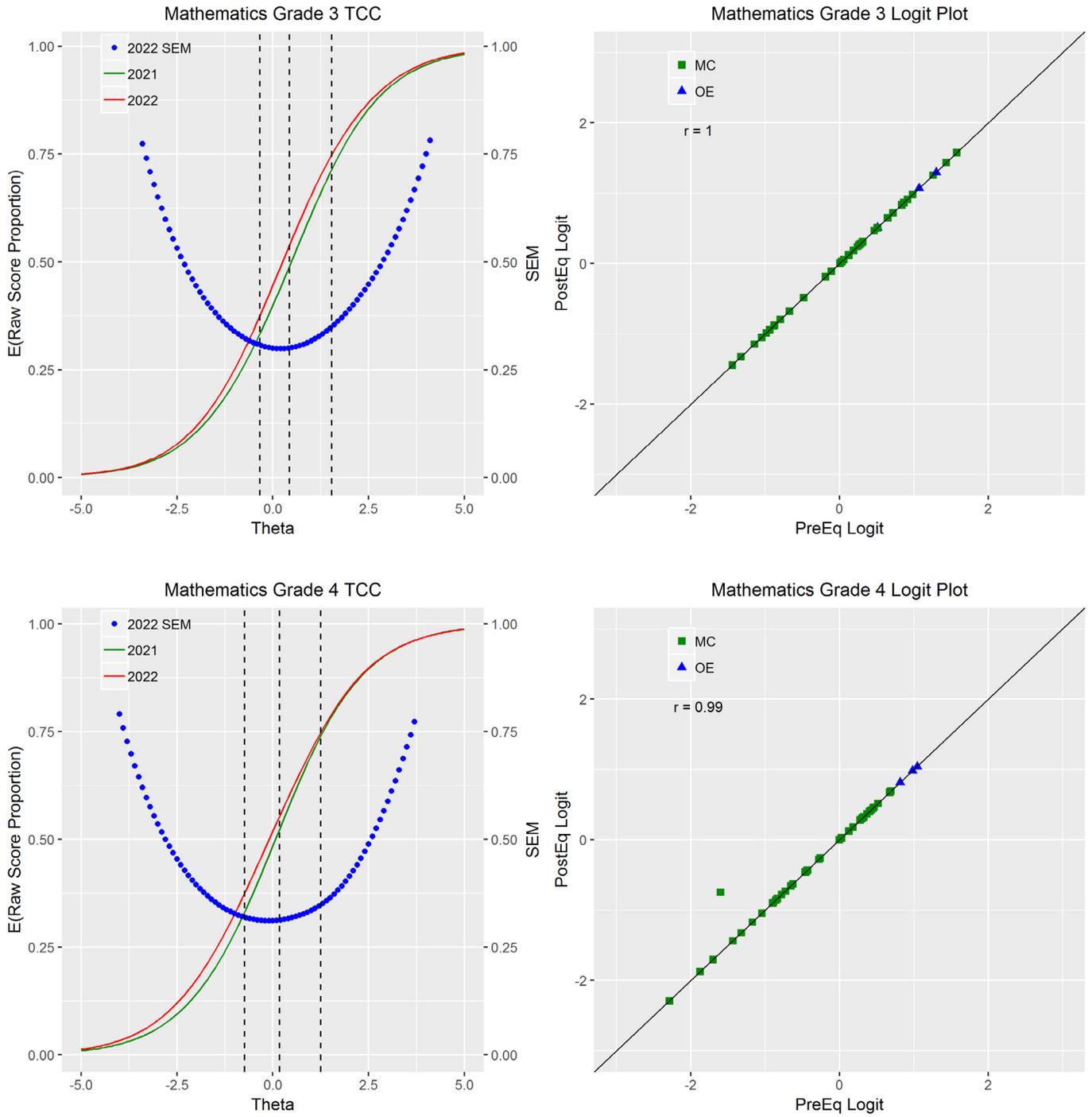


Figure 15–1 (continued). Test Characteristic Curves and Logit Plot

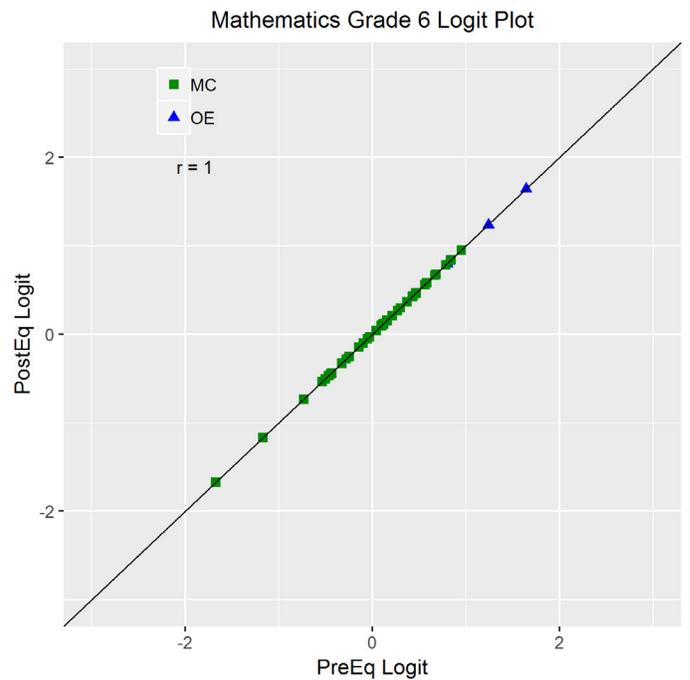
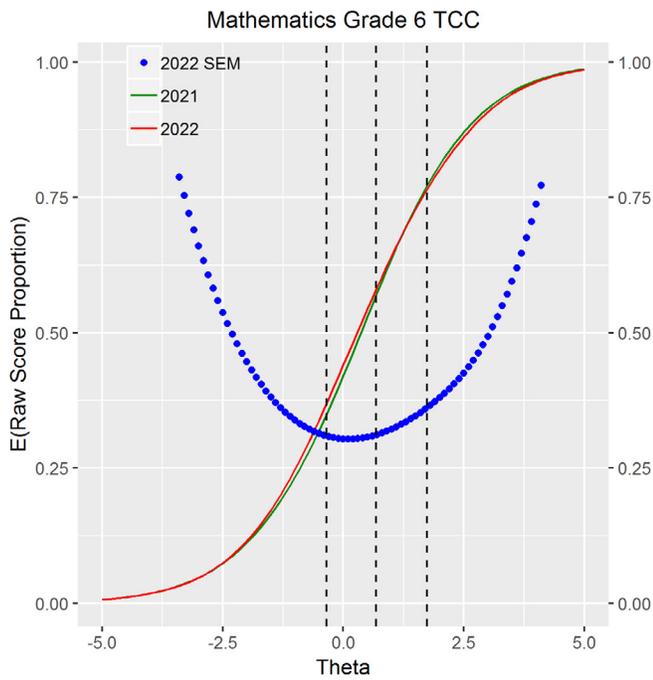
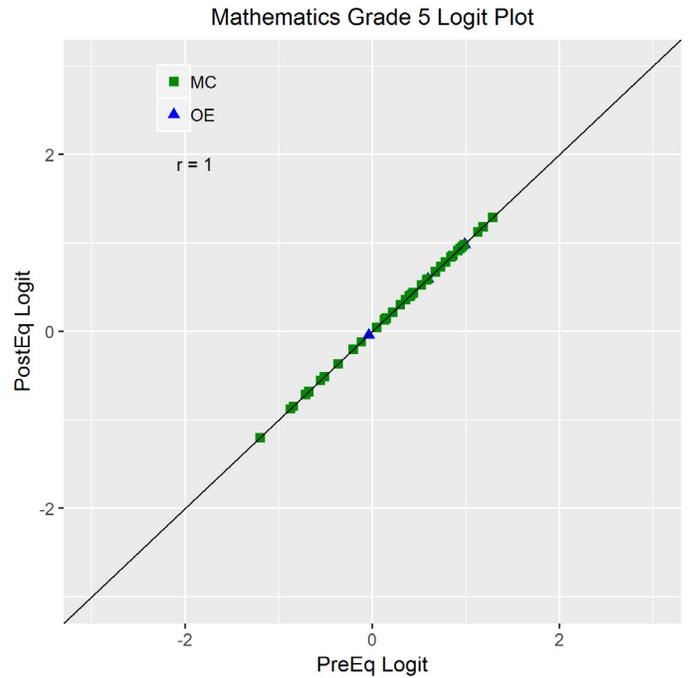
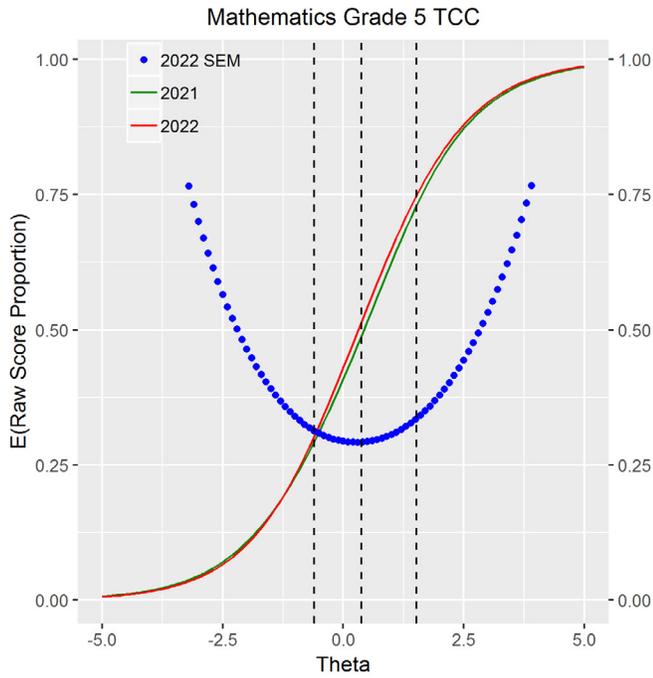


Figure 15–1 (continued). Test Characteristic Curves and Logit Plot

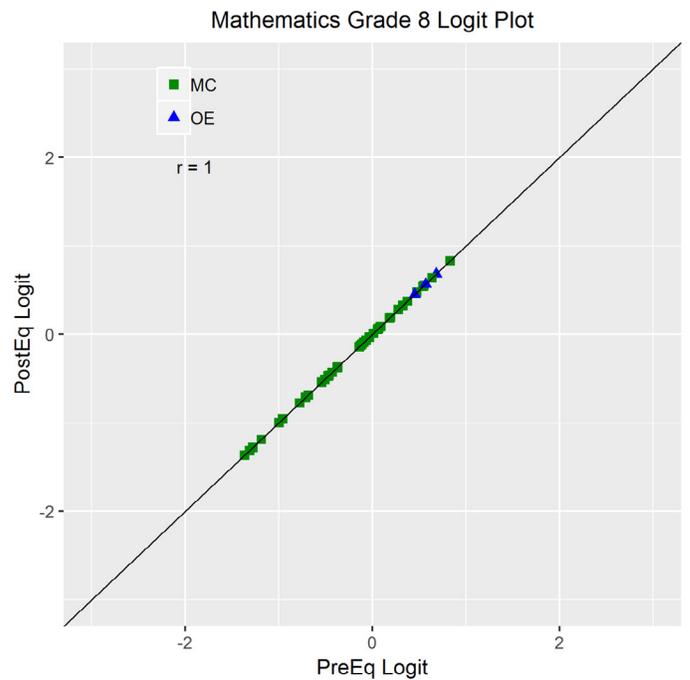
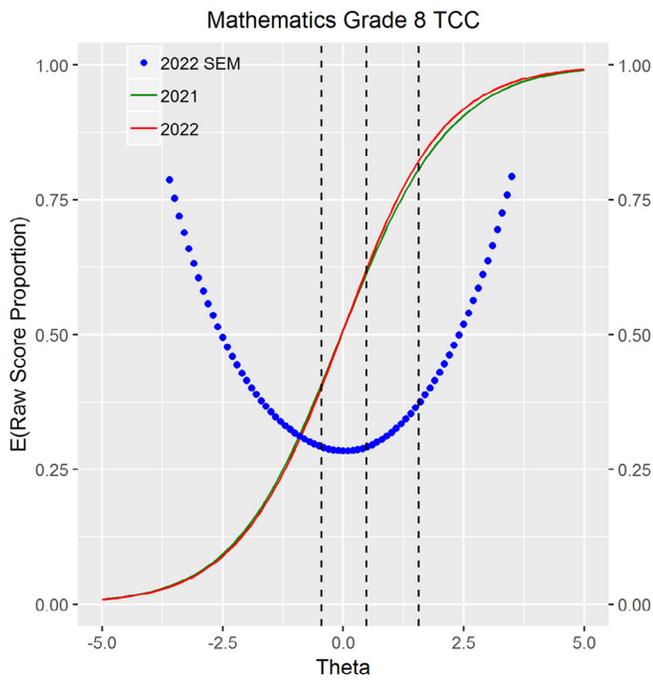
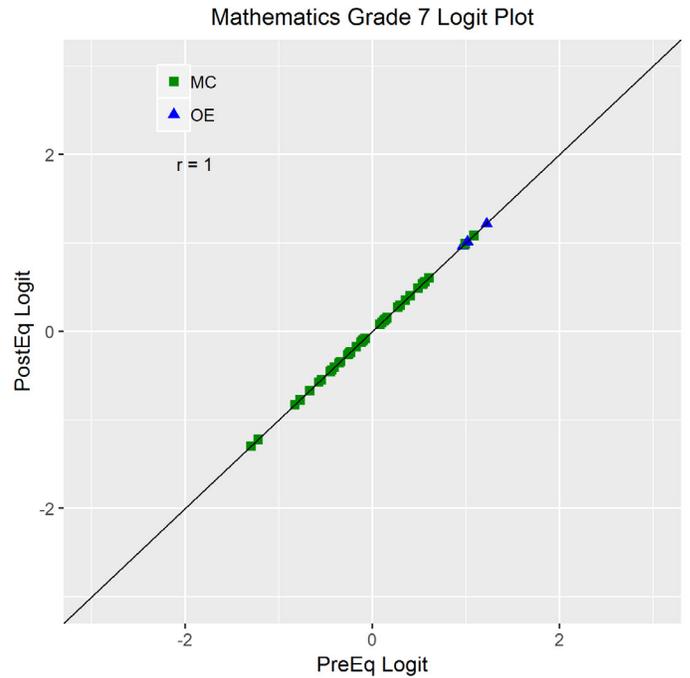
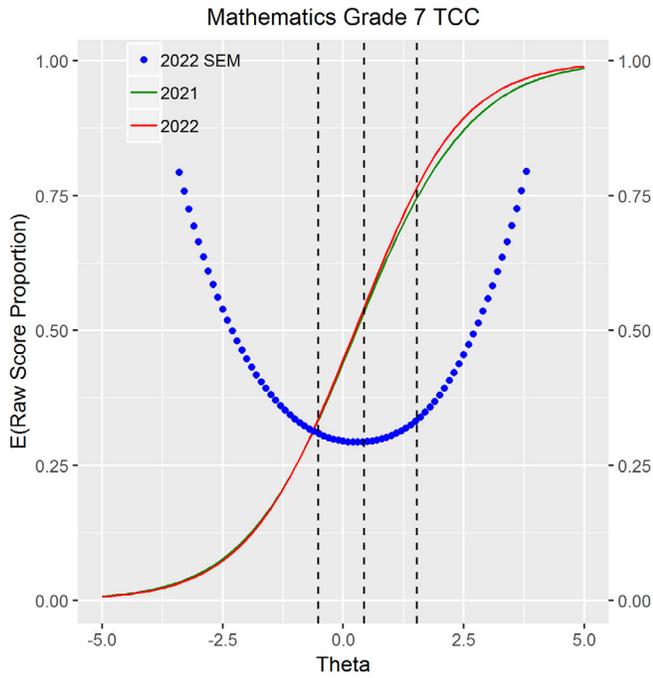


Figure 15–1 (continued). Test Characteristic Curves and Logit Plot

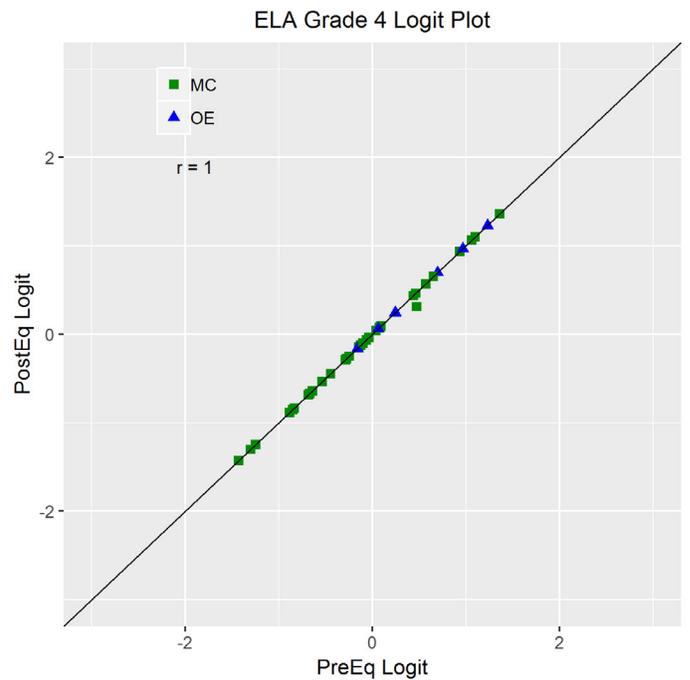
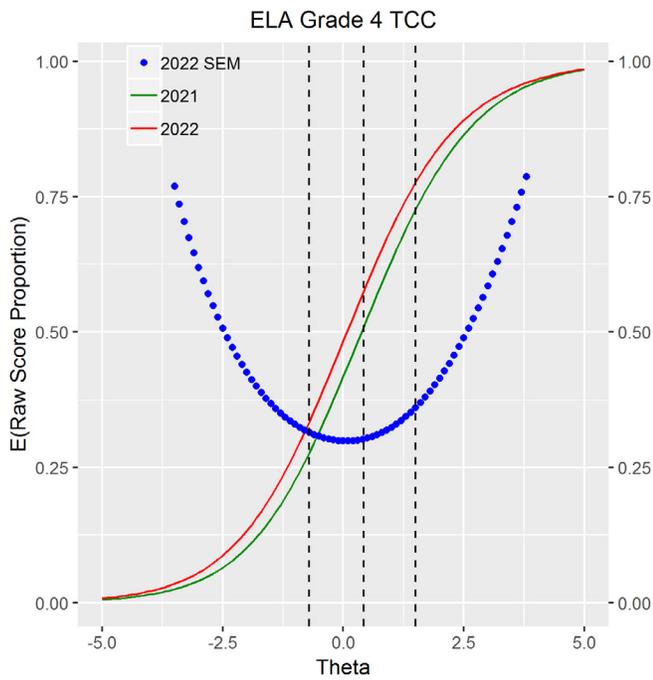
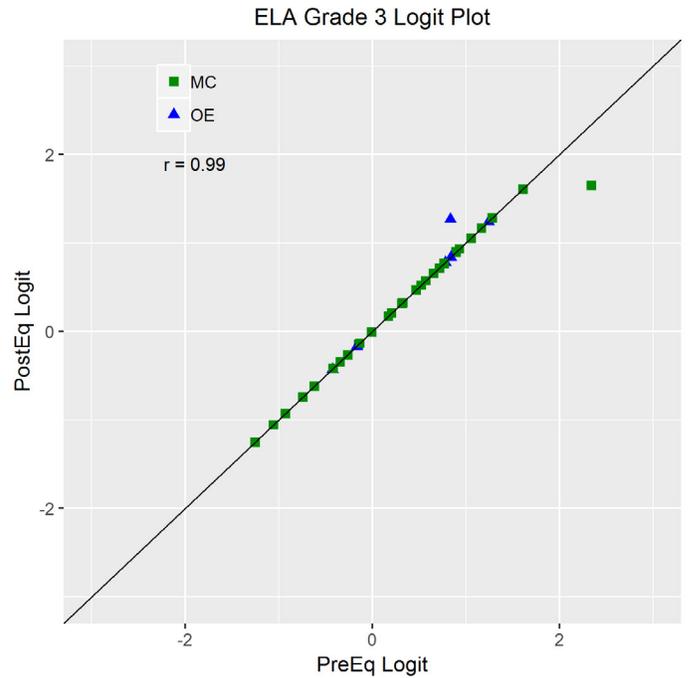
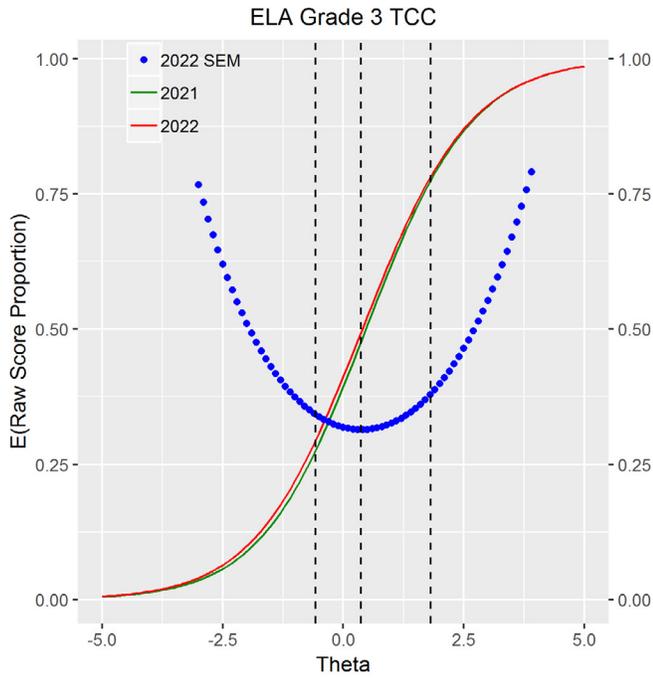


Figure 15–1 (continued). Test Characteristic Curves and Logit Plot

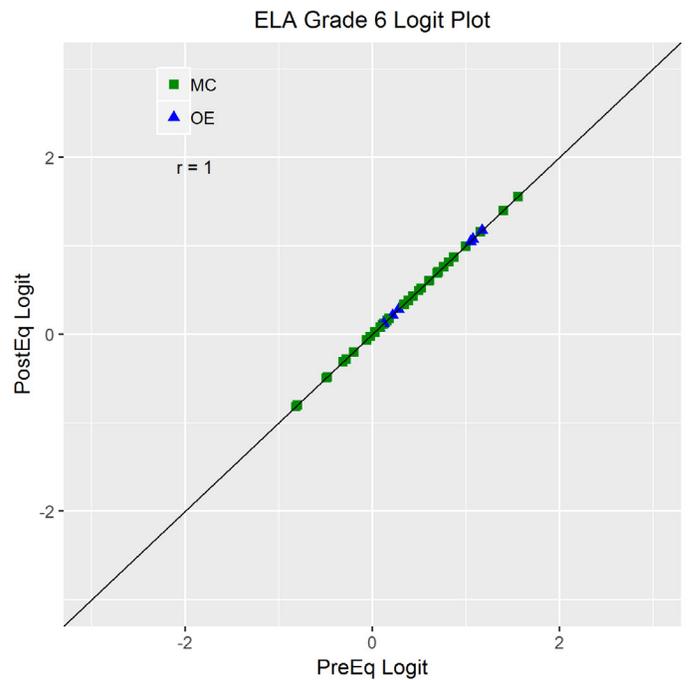
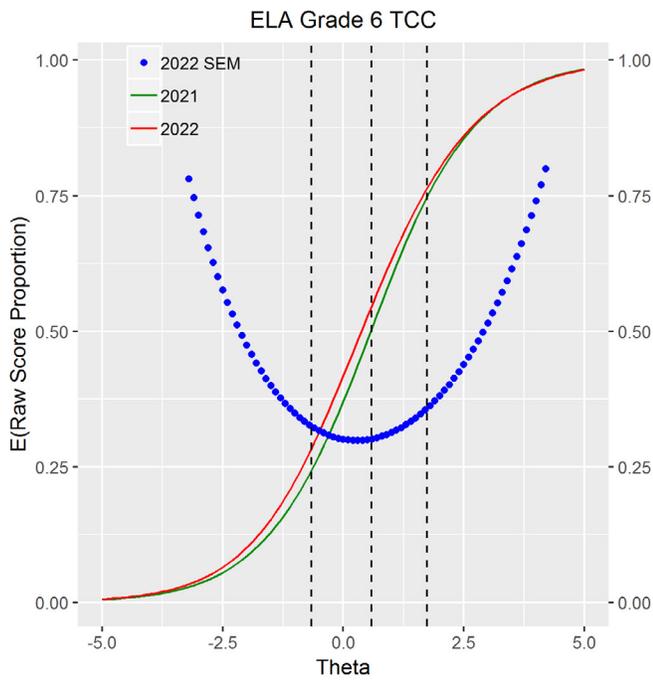
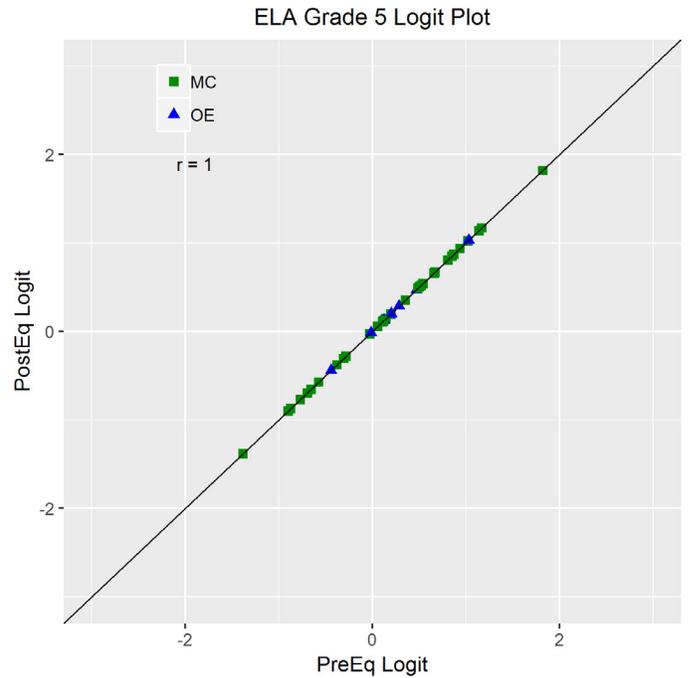
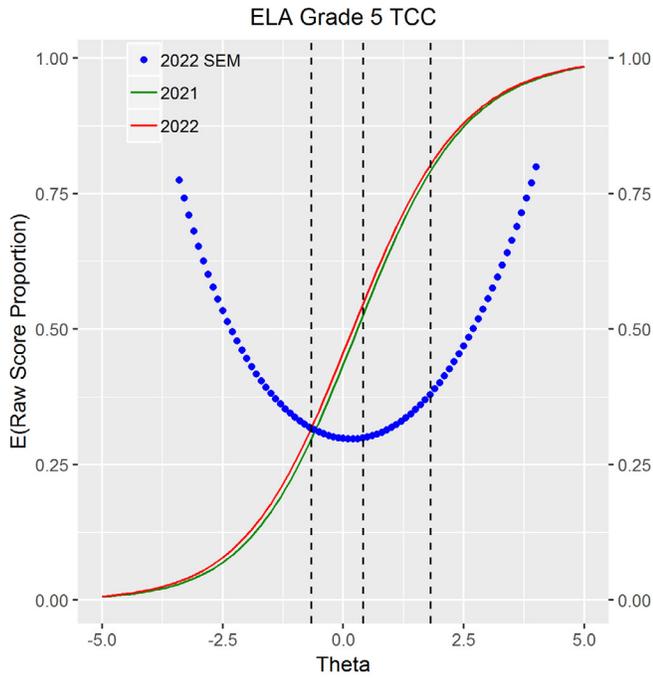


Figure 15–1 (continued). Test Characteristic Curves and Logit Plot

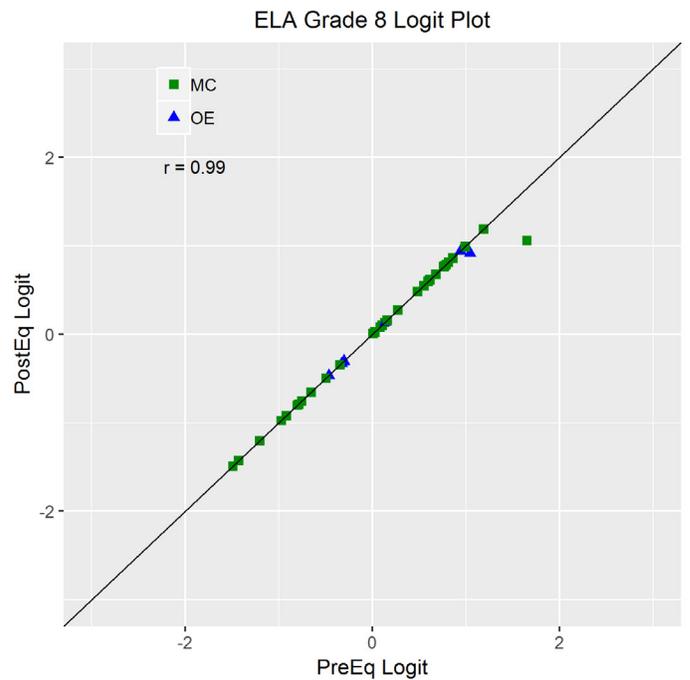
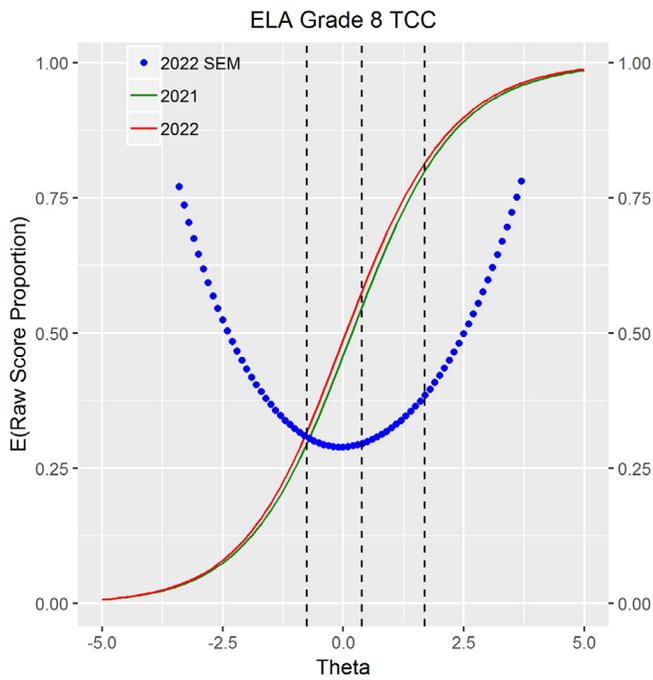
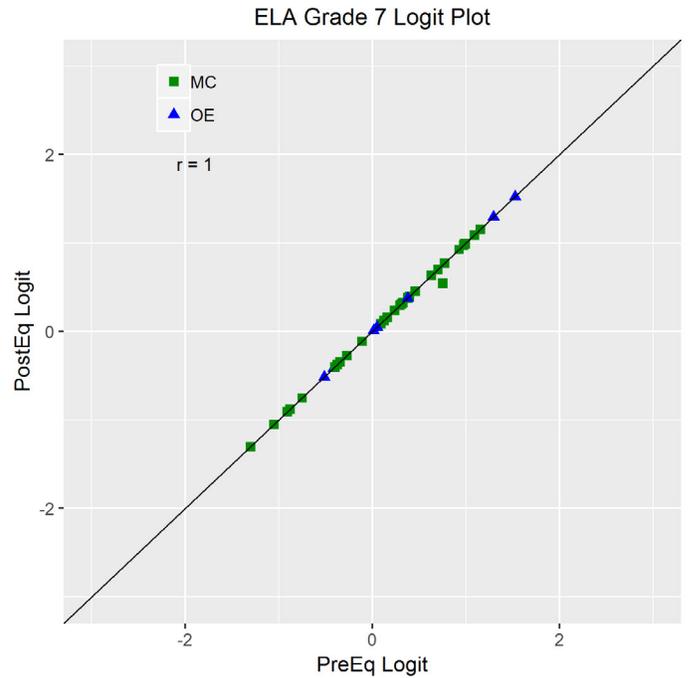
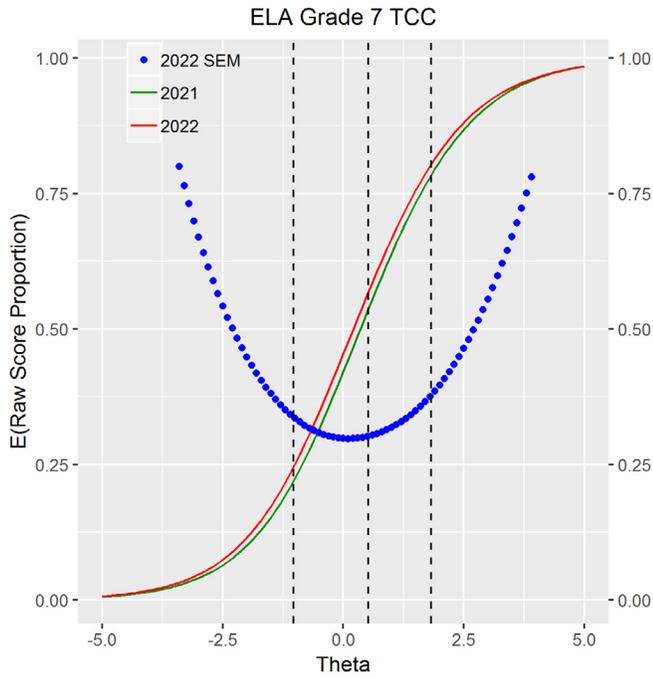
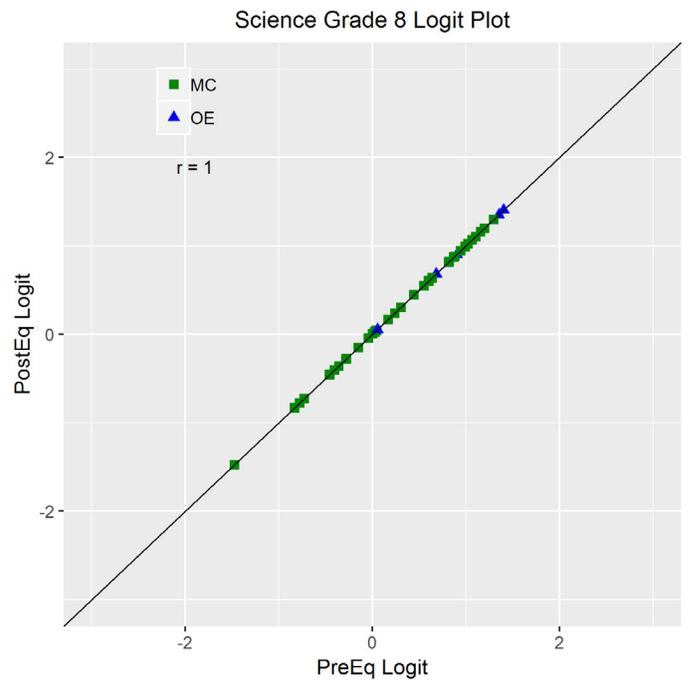
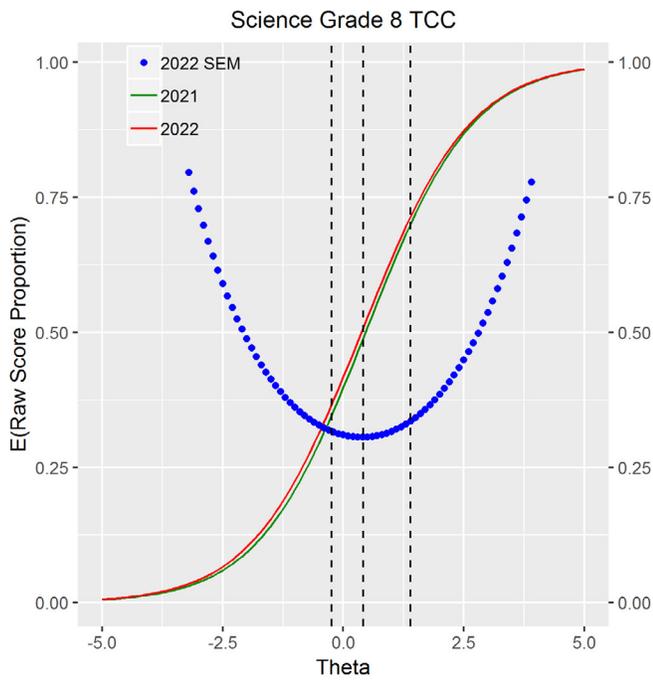
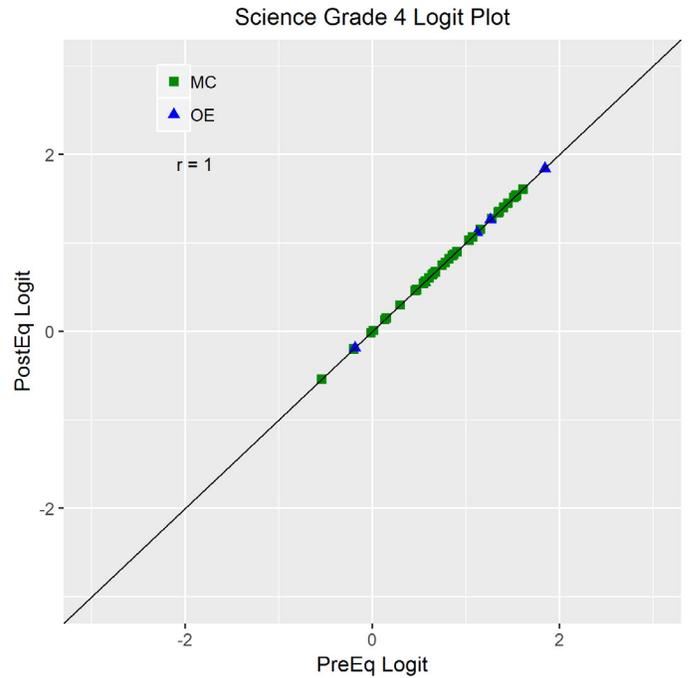
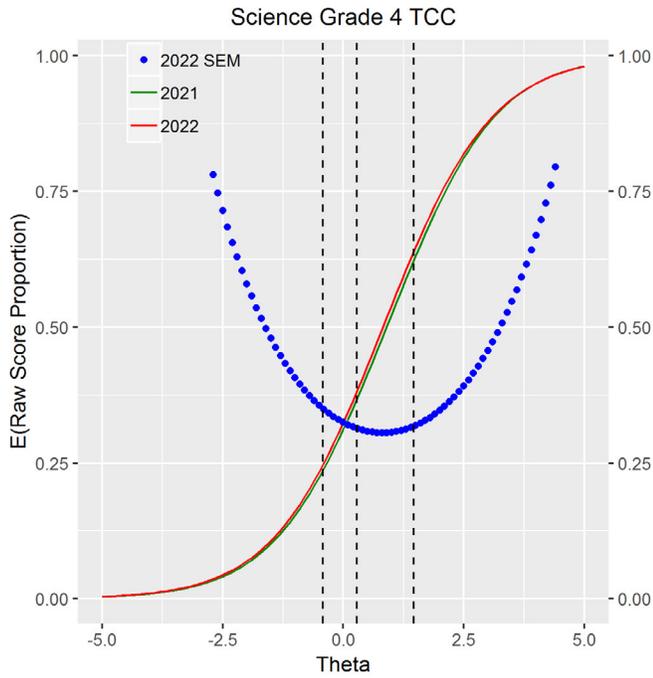


Figure 15–1 (continued). Test Characteristic Curves and Logit Plot



CHAPTER SIXTEEN: SCORES AND SCORE REPORTS

This chapter provides information about the scores provided for the PSSA (e.g., scaled scores, performance levels, and strand scores), how they are presented on score reports, and appropriate and inappropriate uses of the scores.

SCORING THE PSSA

The PSSA is composed of multiple-choice (MC) and open-ended (OE) items. Each correct response to a MC item receives a score of 1. Incorrect responses receive a score of 0. Scores on OE items range from zero to four, depending on the subject and grade. Table 16–1 summarizes the types of items used on each subject-area test. More detailed information about the various item types is provided in Chapter Two.

Table 16–1. Item Types Used by Subject Area

| Item Type | Mathematics | ELA | Science |
|----------------------------------|-------------|---------------|----------|
| Multiple-Choice | 1 point | 1 point | 1 point |
| Open-Ended | 4 points | N/A | 2 points |
| Short-Answer | N/A | 3 points | N/A |
| Evidence-Based Selected-Response | N/A | 2 or 3 points | N/A |
| Text-Dependent Analysis | N/A | 4 points | N/A |

Note. Text-dependent analysis items are weighted.

DESCRIPTION OF TOTAL TEST SCORES

Different types of scores have been developed for PSSA reporting. Since the underlying properties of these scores are not necessarily the same, the resulting scores depend on the purposes of the test. The following types of scores are included on score reports for each PSSA subject-area test:

- Raw scores
- Scaled scores
- Performance levels

RAW SCORES

A raw score is the number of points a student earned over the operational MC and OE items. By itself, the raw score has limited utility. One limitation is that it can only be interpreted with reference to the total number of items on a subject-area test (e.g., a raw score of 15 on a 20-item test is different than a raw score of 15 on a 30-item test). In addition, raw scores depend on the difficulty of test items across test forms (e.g., a raw score of 15 on a test with 20 easy items is different than a raw score of 15 on a test with 20 difficult items). Because the difficulty of the items on a test can change from year to year, raw scores should not be compared across tests or administrations.

SCALED SCORES

Scaled scores are introduced in Chapter Fourteen. In the simplest sense, a scaled score is a transformed number-correct score. The specifics of the transformation processes for the PSSA are also discussed in Chapter Fourteen. When all students take the same items, as with the operational items on the PSSA, the more points the student earns, the higher the associated scaled score will be. The value of using the methods described in Chapters Fourteen and Sixteen to produce a scaled score metric is that it produces more general, interpretable, and equitable results that can be compared across years. As noted above, a raw score of 30 is meaningless unless the maximum raw score is known. The difficulty of the test items was also mentioned as an additional challenge with interpreting raw scores. Number-correct scores are transformed to scaled scores to remove the effects of test length and item difficulty. Strictly speaking, transformation of number-correct scores to percent-correct scores would also remove the effect of test length, but it would do nothing to adjust for the difficulty of the items to support year-to-year equivalence of scores.

Another advantage of scaled scores is that they lend themselves to interpretations of what is referred to as an interval level, whereas raw scores do not. Interval-level scales allow an interpretation of a scaled score difference of 5 points to be the same whether the scores are 1095 vs. 1100 or 1245 vs. 1250. Raw score differences, in this context, cannot be interpreted in this manner and are thus neither generalizable nor equitable.

When test scores are properly equated across years, a scaled score of 1300—or any other value for a subject and grade, should have the same absolute meaning in the current year as it had in previous years. Meaning, if a student's scaled score on a specific subject and grade level increased across two years, then that student's performance improved;¹ it does not say anything about whether this year's test is easier or harder than last year's test. These interpretations require no information about the length or the difficulty of the test in either year, although these variables are essential for the process of deriving the scaled scores.

There is considerable auxiliary information presented in this report that might aid the reader in further contextualizing PSSA scaled scores. The reader is specifically referred to the following information:

- Chapter Fourteen provides information on the development of the PSSA scaled score system, including transformation formulas, rounding rules, and general scale characteristics (e.g., minimum values).
- Chapter Seventeen provides total test score statistics. In particular, Table 17–2 lists the scaled score means and standard deviations for this year's test results.

PERFORMANCE LEVELS

PSSA results are also reported using four Performance Levels: Below Basic, Basic, Proficient, and Advanced. The cut scores on the scaled score metric (i.e., the lowest possible scaled score to enter the Basic, Proficient, and Advanced levels) were presented earlier in this report. However, the information is repeated below (Table 16–2) for convenience.

¹ This example is not an endorsement of conducting a trend analysis with only two years of results. Further, small differences may not be statistically or practically significant.

Table 16–2. PSSA Scaled Score Cuts for Each Performance Level by Subject and Grade

| Subject | Grade | Min | BB/B ¹ | B/P ¹ | P/A ¹ | Max ² |
|-------------|-------|------|-------------------|------------------|------------------|------------------|
| Mathematics | 3 | 600 | 923 | 1000 | 1110 | 1553 |
| Mathematics | 4 | 600 | 908 | 1000 | 1107 | 1561 |
| Mathematics | 5 | 600 | 901 | 1000 | 1113 | 1541 |
| Mathematics | 6 | 600 | 897 | 1000 | 1105 | 1521 |
| Mathematics | 7 | 600 | 904 | 1000 | 1109 | 1513 |
| Mathematics | 8 | 600 | 906 | 1000 | 1108 | 1479 |
| ELA | 3 | 600 | 905 | 1000 | 1143 | 1537 |
| ELA | 4 | 600 | 887 | 1000 | 1107 | 1657 |
| ELA | 5 | 600 | 893 | 1000 | 1139 | 1649 |
| ELA | 6 | 600 | 875 | 1000 | 1115 | 1643 |
| ELA | 7 | 600 | 845 | 1000 | 1130 | 1648 |
| ELA | 8 | 600 | 886 | 1000 | 1130 | 1621 |
| Science | 4 | 1050 | 1150 | 1275 | 1483 | 2318 |
| Science | 8 | 925 | 1150 | 1275 | 1464 | 2294 |

Notes. 1. BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.
 2. Scaled Score Maximum Values are unique for each year’s test.

Performance levels descriptors (PLDs) are another way to attach meaning to the scaled score metric. PLDs associate precise quantitative ranges of scaled scores with verbal, qualitative descriptions of student performance. While much less precise, the qualitative description of the levels is one way for parents and teachers to interpret the student scores. They are also useful in assessing the status of the school. The Pennsylvania General Performance Level Descriptors, as developed by PDE and teacher panels, are given below. These are also included on student score reports.

- **Advanced:** The Advanced Level reflects superior academic performance, and work at this level demonstrates a thorough command of, and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates advanced academic preparation for engaging successfully in further studies in this content area.
- **Proficient:** The Proficient Level reflects satisfactory academic performance, and work at this level demonstrates an adequate command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates academic preparation for engaging successfully in further studies in this content area.
- **Basic:** The Basic Level reflects marginal academic performance, and work at this level demonstrates a partial command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates additional academic support may be needed for engaging successfully in further studies in this content area.
- **Below Basic:** The Below Basic Level reflects inadequate academic performance, and work at this level demonstrates a minimal command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates extensive additional academic support may be needed for engaging successfully in further studies in this content area.

DESCRIPTION OF STRAND (REPORTING CATEGORY) SCORES

The following types of scores are provided for PSSA:

- Strand (Reporting Category) Scores
- Strength Profile

STRAND (REPORTING CATEGORY) SCORES

A strand (reporting category) score describes performance of a student, school, or district on a particular strand (content standard defined in the test). For the PSSA, strand scores are raw scores, indicating the points a student or a school/district earned for that strand. Attributes of raw scores are described earlier in this chapter and should be interpreted with caution. This is particularly true with respect to year-to-year comparisons where item difficulties may vary. Strand scores cannot be compared across years because they are not statistically linked nor are they interval scores. Also, it is not advisable to compare strand raw scores even within the same form because some strands may contain items that are easier or more difficult than other strands (the strength profile, discussed below, mitigates this problem to some degree). Another concern is the low reliability of many of these scores, especially for strand scores based on a small number of possible points. Chapter Eighteen provides more information about strand-score reliability.

When compared to other results from the same year, strand scores can be somewhat helpful in identifying a group's strengths and weaknesses as measured by the test. For example, it can be informative to compare average strand scores of a school against the scores of another reference group (e.g., the state average). Hence, strand scores can suggest group strengths and weaknesses relative to another reference group. (Challenges pertaining to interpreting results for individual students are discussed below.)

STRENGTH PROFILE

The strength profile provides another indication of a student's performance within each of the strands. This profile can be used to identify areas in which a student needs to improve and areas in which a student has performed more successfully. Unlike strand scores that are reported as raw scores, strength profile scores categorize students into one of three levels: Low, Medium, and High. These categories take into account the difficulty of the items and are based on the same scaling techniques used to derive the PSSA scaled scores (See Chapter Fourteen for a description of how strength profiles are produced). Scaled scores for reporting categories, however, are not included on score reports. High, medium, and low designations are provided as an indication of performance within a strand, but as standards have been set at the test level only, performance level descriptions for the overall test should not be used as validated descriptions of strand performance.

APPROPRIATE SCORE USES

INDIVIDUAL STUDENTS

Scaled scores on the PSSA indicate a student's achievement of the PSSA Assessment Anchors and Eligible Content. Scaled scores are primarily used to determine student performance level classifications (i.e., a criterion-referenced inference). Scaled scores that are based on Item Response Theory (IRT) models are typically assumed to be of the interval type; so, comparisons may be made on differences in scaled scores. If this assumption holds, then it would be safe to infer for Grade 4 ELA that the ability difference between 1110 and 1120 represents the same ability difference that separates 1250 and 1260. Scaled scores can also be used to compare the performance of an individual student to the performance of a similar demographic or subgroup at a school or district. However, when comparing performance of an individual student, test score standard errors (discussed in Chapter Eighteen) should be considered because scaled scores are estimate of students' achievement which comes with estimation error.

GROUPS OF STUDENTS

Test results can be used to evaluate performance over time. Mean scaled scores can be compared across administrations within the same subject and grade to indicate whether student performance is improving across years. Generally, such trend analyses benefit from using mean results from as many test administration years as possible. Different cohorts of students are used (i.e., the same student or students are not tracked across grade levels). All scores can be analyzed within the same subject and grade for any single administration to determine which demographic or program group had, for example, the highest average performance or the highest percentage of students at or above the Proficient standard.

Strand scores can help evaluate academic areas for relative strengths or weaknesses. These category scores provide information to identify areas where further diagnosis is warranted. Generalizations from test results may be made to the specific content domain represented by the academic standards measured in the PSSA. However, all instruction and program evaluations should include as much information from other sources as possible to provide a more complete picture of student performance.

CAUTIONS FOR SCORE USES

EXTREME ERROR FOR EXTREME SCORES

Student scores toward the minimum or maximum ends of the score range have very large standard errors of measurement and, therefore, such scores should be viewed very cautiously. The maximum scaled score only provides a very rough estimate of a student's ability. For instance, if a student achieved the maximum score for ELA grade 6, it could not be determined whether the student could have achieved an even higher scaled score. If the test were 10 items longer, a different estimate might have been obtained. Similarly, if the items in a new test were more difficult than the items on a previous administration, the maximum scaled score would likely be higher on the new test because it would take a greater level of achievement to answer the items correctly. In this manner, extreme scaled scores may vary from one administration to the next even if the number of test items does not change. The fluctuation of extreme scaled scores complicates the comparisons of students with scaled scores at the extreme ends of the score distribution. To minimize confusion and potential misinterpretation, the minimum scaled scores possible on the PSSA tests have been fixed (see Table 16–2) so they do not change between administrations. However, the maximum scaled score values have not been fixed. Therefore, caution must be taken when comparing scores at the maximum end of the scale.

EACH TEST HAS A UNIQUE SCALE

Scaling was conducted for each subject and grade level separately. Therefore, PSSA scaled scores should be interpreted only within each respective subject and grade. PSSA scaled scores are not status indicators in the same sense as percentile ranks (or scales that are essentially transformations of percentile ranks) and, therefore, cannot be used to profile relative strengths and weaknesses across subject areas. As an example, scaled scores of 1250 in Grade 4 ELA and 1200 in Grade 4 mathematics do not necessarily imply that the student performed better in ELA than in mathematics. Neither do the PSSA scaled scores represent a developmental or vertical scale. This means that, although the content is aligned across grades to reflect the grade-to-grade articulations in the Pennsylvania Standards, across-grade statistical comparisons or growth statements for a student are not appropriate. For example, a 1200 in Grade 4 ELA and a 1200 in Grade 5 ELA does not mean a student had no achievement growth in ELA from Grade 4 to Grade 5.

STRENGTH PROFILE CAVEATS

The category labels of Low, Medium, and High are deliberately used instead of the PSSA performance level names—Below Basic, Basic, Proficient, and Advanced—to acknowledge that the PSSA cut scores were established based on the total test score and standards were set on this total test score. Therefore, the categories should not be interpreted in the same way as PSSA performance levels because they likely do not carry the same meaning.

While the strength profile might facilitate comparisons of a student's strengths and weaknesses across strands in some cases, several factors merit caution. As noted earlier, strand scores are often not as reliable as scores on the full-length test. The scaling underlying the strength profile does not mitigate this problem.

Additionally, the categories reflect more absolute comparisons. Relative comparisons are more difficult to make. As an example, if one scored High in both strand A and B, we know the student did very well in both strands compared to overall performance in the state (i.e., absolute status). However, we do not know whether the student's performance in strand A was better or worse relative to the performance in strand B (relative status).

Finally, some seemingly unusual results might occur that may be difficult for users to understand. As one example, it may be possible for a student to earn Medium in all strands but have an Advanced performance level. This can happen because the strand scores are correlated, meaning the distributional properties of the total score depends not only on the variances of the strand scores, but also on the covariances among the strand scores. (An analogy would be when a school track team places first overall in a competition although they did not win a single event.)

USING PSSA RESULTS FOR OTHER PURPOSES

Scaled scores and performance level classifications are used primarily to measure how well students acquire the knowledge and skills described in the *Pennsylvania Assessment Anchor Content Standards* (Assessment Anchors) as defined by the Eligible Content for mathematics, ELA, and Science. They are also used to provide information on school and district accountability. These same results, plus strand scores and strength profiles are also appropriate for use in improving curricular and instructional practices. Evidence supporting the validity of such interpretations is framed in Chapter Nineteen and provided throughout this technical report.

Other uses or inferences based on PSSA results may or may not be valid as the validity evidence and arguments provided in Chapter Nineteen may not necessarily support other score uses and interpretations. According to the *AERA/APA/NCME Standards* (2014) (i.e., Standard 1.4), if a test is used in a way that has not been validated, it is incumbent on the user to justify the new use, collecting new evidence if necessary. Finally, a universal caveat for any test's result is that it not be used for placement and educational planning alone. Instead, other information about the student (e.g., other test performance data) should be considered.

REPORTS

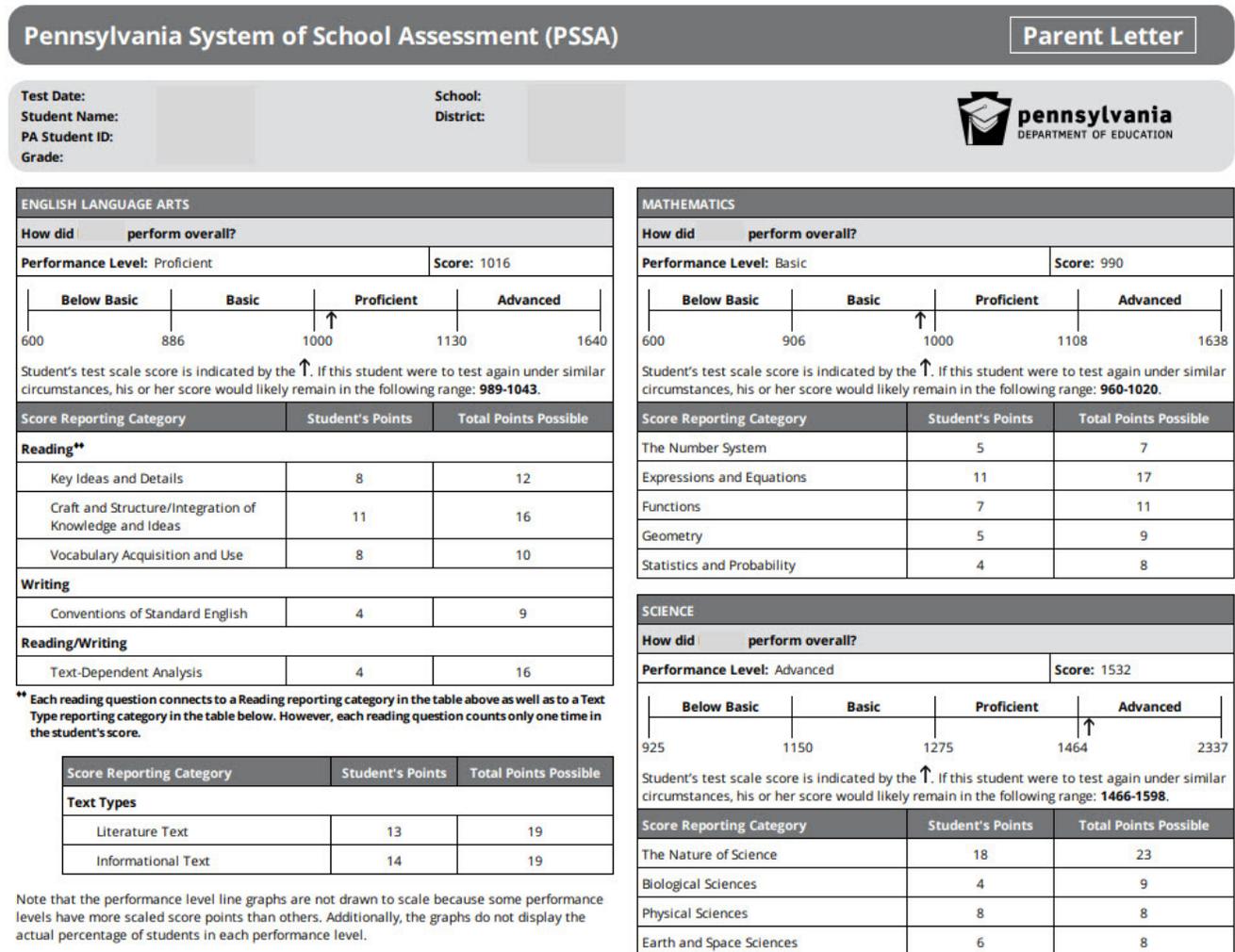
The following score reports are provided to students, parents, schools, and districts for the PSSA tests in mathematics, ELA, and science:

- Individual Student Report
- School Summary Report
- District Summary Report
- Interpretive Guide

PARENT LETTER

Parent letters were delivered to Pennsylvania districts when student performance files were posted for all test-takers. This score report provided parents and students with their first glimpse of performance on the PSSA tests. This report provides results at the student level. A sample of the report is provided in Figure 16–1.

Figure 16–1. Parent Letter



INDIVIDUAL STUDENT REPORT

An individual student report is provided for all students who took the PSSA. Two copies of the individual student report were sent to each school district and charter school for distribution to parents, teachers, guidance counselors, and/or principals. This report is a four-page color document that provides the types of scores explained earlier in this chapter. Appendix R contains detailed information about the development of the Individual Student Reports. Screen shots of the four pages from a sample individual student report are provided in Figures 16–2A to 16–2D.

PENNSYLVANIA

System of School Assessment (PSSA)

Student Report

Student Name: _____

PA Student ID: _____

School: _____

District: _____

Test Date: _____

Grade: _____

| Student's Results | | | | |
|-----------------------|-------------|-------|------------|----------|
| Performance Level | | | | |
| | Goal Range* | | | |
| | Below Basic | Basic | Proficient | Advanced |
| English Language Arts | | | ✓ | |
| Mathematics | ✓ | | | |
| Science | | | | ✓ |

*Goal Range: The goal is for all students in the Commonwealth of Pennsylvania to score proficient or above.

What Is the Pennsylvania System of School Assessment (PSSA)?

- The PSSA is an assessment system used to measure a student's progression toward mastery of the
 - Pennsylvania Core Standards in English Language Arts and Mathematics
 - Pennsylvania Academic Content Standards in Science

- For additional information, visit the Pennsylvania Department of Education's website at www.education.pa.gov

What Is Included in This report?

- This report provides information about the student's recent performances on the
 - English Language Arts, Mathematics, and Science PSSA assessments
- It is not intended to summarize all aspects of student learning.

For Additional Information

- For more information about a student's performance, consult the school or the classroom teacher.
- A Report Interpretation Guide is available at www.education.pa.gov. Type "student report guide" in the search field or consult the local school district or school.

Performance Levels

The Below Basic Level reflects inadequate academic performance, and work at this level demonstrates a minimal command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates extensive additional academic support may be needed for engaging successfully in further studies in this content area.

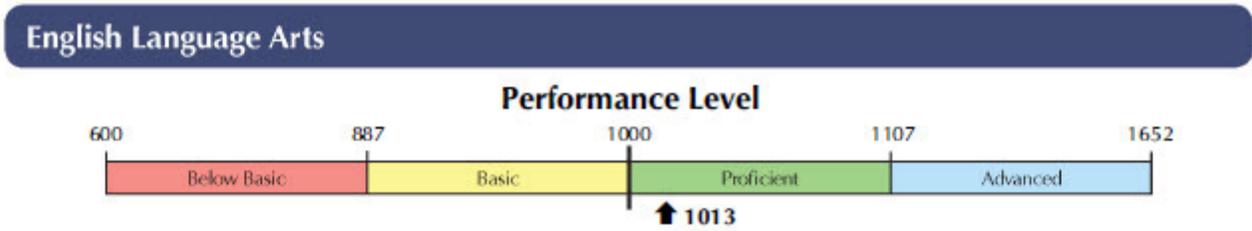
The Basic Level reflects marginal academic performance, and work at this level demonstrates a partial command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates additional academic support may be needed for engaging successfully in further studies in this content area.

The Proficient Level reflects satisfactory academic performance, and work at this level demonstrates an adequate command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates academic preparation for engaging successfully in further studies in this content area.

The Advanced Level reflects superior academic performance, and work at this level demonstrates a thorough command of and ability to apply the knowledge, skills, and practices represented in the Pennsylvania standards. Consistent performance at this level indicates advanced academic preparation for engaging successfully in further studies in this content area.



Figure 16–2B. Page 2 of the Individual Student Report



Student’s test scale score is indicated by the (↑). If this student were to test again under similar circumstances, his or her score would likely remain in the following range: **985-1041**

| Score Reporting Category | Student's Points | Total Points Possible | Strength Profile* |
|--|------------------|-----------------------|-------------------|
| Reading** | | | |
| Key Ideas and Details | 11 | 16 | Medium |
| Craft and Structure/Integration of Knowledge and Ideas | 7 | 13 | Low |
| Vocabulary Acquisition and Use | 7 | 9 | Medium |
| Writing | | | |
| Conventions of Standard English (Writing) | 4 | 9 | Low |
| Text-Dependent Analysis | | | |
| Text-Dependent Analysis (Reading/Writing) | 4 | 16 | Low |

**Each reading question connects to a Reading reporting category in the table above as well as to a Text Type reporting category in the table below. However, each reading question counts only one time in the student’s score.

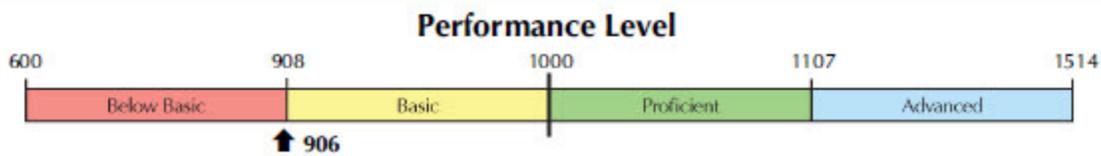
| Score Reporting Category | Student's Points | Total Points Possible | Strength Profile* |
|--------------------------|------------------|-----------------------|-------------------|
| Text Types | | | |
| Literature Text | 12 | 17 | Medium |
| Informational Text | 13 | 21 | Medium |

To learn more about the Score Reporting Categories, see page 4.

*The Strength Profile (Low, Medium, High): The strength profile provides an indication of this student’s performance within each of the reporting categories. The Strength Profile takes into account the difficulty of the assessment questions and can be used to help identify the student’s strengths and/or areas of need.

Figure 16–2C. Page 3 of the Individual Student Report

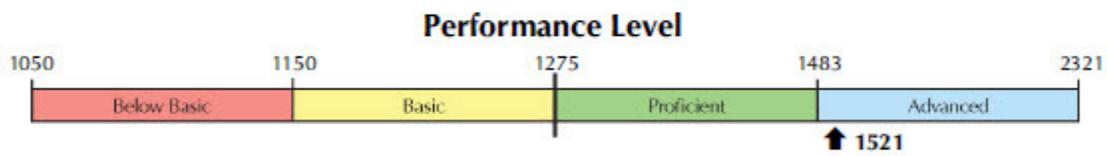
Mathematics



Student's test scale score is indicated by the (↑). If this student were to test again under similar circumstances, his or her score would likely remain in the following range: **876-936**

| Score Reporting Category | Student's Points | Total Points Possible | Strength Profile* |
|------------------------------------|------------------|-----------------------|-------------------|
| Numbers and Operations in Base Ten | 1 | 10 | Low |
| Numbers and Operations—Fractions | 4 | 11 | Low |
| Operations and Algebraic Thinking | 6 | 13 | Low |
| Geometry | 3 | 8 | Low |
| Measurement and Data | 3 | 10 | Low |

Science



Student's test scale score is indicated by the (↑). If this student were to test again under similar circumstances, his or her score would likely remain in the following range: **1465-1577**

| Score Reporting Category | Student's Points | Total Points Possible | Strength Profile* |
|--------------------------|------------------|-----------------------|-------------------|
| The Nature of Science | 14 | 24 | Medium |
| Biological Sciences | 6 | 8 | High |
| Physical Sciences | 8 | 8 | High |
| Earth and Space Sciences | 4 | 8 | High |

Figure 16–2D. Page 4 of the Individual Student Report

Score Reporting Category Descriptions

English Language Arts

- **Key Ideas and Details**
Students refer to key ideas and details from a text or texts to summarize important ideas and events, determine a theme or main idea, and draw on evidence from text(s) to support inferences and overall understanding.
- **Craft and Structure/Integration of Knowledge and Ideas**
Students demonstrate understanding of a text or texts by comparing and contrasting points of view and firsthand/secondhand accounts of similar events; by making connections within, between, and/or among texts; by referring to text features to support information; and by analyzing use of evidence to support overall integration of ideas and key aspects of text(s).
- **Vocabulary Acquisition and Use**
Students demonstrate understanding of vocabulary and figurative language in literature and informational texts.

- **Conventions of Standard English (Writing)**
Students demonstrate command of the conventions of standard English grammar and usage, capitalization, punctuation, and spelling, as well as use knowledge of language and its conventions for effect.

- **Text-Dependent Analysis (Reading/Writing)**
Students write a response to literature or informational text or texts, drawing on the evidence presented in the text(s) to support analysis, reflection, and/or research.

- **Literature Text**
Students read and respond to literature texts, focusing on narrative, poetic, and/or dramatic techniques and drawing on evidence in the texts to support comprehension and understanding.
- **Informational Text**
Students also read and respond to informational texts, focusing on the information and evidence presented on topics, ideas, or procedures and drawing on evidence in the texts to support comprehension and interpretation.

Mathematics

- **Numbers and Operations in Base Ten**
Students read, write, round, and compare multi-digit numbers. They demonstrate understanding of place value and relative sizes of numbers and recognize properties of operations. Students use this understanding as well as estimation and mental calculations to perform the four operations on whole numbers.
- **Numbers and Operations—Fractions**
Students determine fraction equivalence and convert between fractions and decimals. They compare sizes of fractions and decimals using symbols. Students add and subtract fractions with common denominators and multiply a whole number by a fraction.
- **Operations and Algebraic Thinking**
Students solve problems using all four operations with whole numbers. They use drawings, equations, and symbols to represent quantities and analyze patterns. They also identify factor pairs and multiples of whole numbers 1 through 100.
- **Geometry**
Students draw, compare, and classify two-dimensional shapes based on their attributes. They identify and draw lines of symmetry.
- **Measurement and Data**
Students use the four operations and relative sizes of units to solve problems involving measurements, conversions, and time. They represent and interpret data using line plots and other data displays to solve problems. Students use a protractor to draw and measure angles.

Science

- **The Nature of Science**
Students use reasoning and analysis skills to develop possible solutions for environmental or technological problems. They evaluate tools, processes, and procedures to conduct fair and valid scientific investigations and use models and recognition of patterns to help explain natural and human-made systems.
- **Biological Sciences**
Students evaluate structures and functions of organisms, describe ecological interactions within living systems, and recognize relationships between humans and the natural world.
- **Physical Sciences**
Students demonstrate understanding of physical properties of matter. They describe basic energy types and their sources as well as how energy can change form. They also apply the scientific principles of force and motion and compare interactions between matter and energy.
- **Earth and Space Sciences**
Students identify and describe Earth features and processes that change the environment. They recognize processes associated with weather, climate, and the atmosphere. They also recognize changes caused by the Sun-Earth-Moon system.

SCHOOL AND DISTRICT SUMMARY REPORTS

Summary reports are provided at the school and district level. These reports contain summary information about the percentage of students in each of the four performance levels. Raw scores are also provided by assessment anchor to allow schools or districts to identify strengths or weaknesses at the content strand level. Districts are able to access this summary data within the *Data Interaction*[™] tool.

INTERPRETATIVE GUIDE

An interpretative guide is provided to help parents and other PSSA stakeholders better understand test result information presented in the individual student report. The interpretative guide can be found on the PDE website.

CHAPTER SEVENTEEN: OPERATIONAL TEST STATISTICS

This chapter presents various summary statistics for the PSSA total test scores based on the final data file described in Chapter Nine. Related information covered elsewhere in this report includes the item-level statistics presented in Chapter Eleven (classical item statistics) and Chapter Twelve (Rasch item statistics). These chapters provide additional consideration as item difficulty distributions can affect total score distributions.

PERFORMANCE LEVEL STATISTICS

Table 17–1 presents performance level percentages by grade and content. Appendix Q provides historical statistics including performance level percentages for prior years.

Table 17–1. Performance Level Percentages for 2022 PSSA

| Subject | Grade | Below Basic (%) | Basic (%) | Proficient (%) | Advanced (%) |
|-------------|-------|-----------------|-----------|----------------|--------------|
| Mathematics | 3 | 28.91 | 23.35 | 26.88 | 20.85 |
| Mathematics | 4 | 30.90 | 26.82 | 25.26 | 17.02 |
| Mathematics | 5 | 31.08 | 33.51 | 23.26 | 12.15 |
| Mathematics | 6 | 38.87 | 28.83 | 18.95 | 13.35 |
| Mathematics | 7 | 43.00 | 29.99 | 17.35 | 9.65 |
| Mathematics | 8 | 50.28 | 27.15 | 15.74 | 6.83 |
| ELA | 3 | 17.92 | 29.74 | 40.55 | 11.79 |
| ELA | 4 | 18.60 | 29.16 | 30.91 | 21.34 |
| ELA | 5 | 17.66 | 28.72 | 40.28 | 13.34 |
| ELA | 6 | 8.31 | 35.59 | 36.70 | 19.40 |
| ELA | 7 | 5.07 | 37.69 | 39.46 | 17.77 |
| ELA | 8 | 14.44 | 29.92 | 39.68 | 15.96 |
| Science | 4 | 8.00 | 18.33 | 36.49 | 37.18 |
| Science | 8 | 28.32 | 20.57 | 31.04 | 20.07 |

SCALED SCORES

SUMMARY STATISTICS

Table 17–2 provides the scaled score means and standard deviations. See the section Every Test has a Unique Scale in Chapter Sixteen for caveats regarding interpretation of scale scores.

Table 17–2. Means and Standard Deviations for the 2022 PSSA Scaled Scores

| Subject | Grade | Mean Scaled Score | SD Scaled Score |
|----------------|--------------|--------------------------|------------------------|
| Mathematics | 3 | 1003.14 | 124.78 |
| Mathematics | 4 | 980.37 | 122.74 |
| Mathematics | 5 | 968.80 | 113.29 |
| Mathematics | 6 | 953.33 | 122.93 |
| Mathematics | 7 | 945.50 | 110.97 |
| Mathematics | 8 | 922.00 | 112.90 |
| ELA | 3 | 1014.86 | 108.85 |
| ELA | 4 | 1006.91 | 121.08 |
| ELA | 5 | 1010.74 | 114.41 |
| ELA | 6 | 1018.97 | 105.42 |
| ELA | 7 | 1019.77 | 115.83 |
| ELA | 8 | 1013.50 | 115.01 |
| Science | 4 | 1412.60 | 186.87 |
| Science | 8 | 1289.05 | 205.85 |

SCALED-SCORE DISTRIBUTIONS

Scaled scores are based on a linear transformation of the Rasch ability estimates. Distributions of the Rasch abilities are provided at the end of Chapter Twelve.

RAW SCORES**SUMMARY STATISTICS**

Appendix P provides reliabilities and summary statistics for the operational raw scores. The statistics reported include the number of points possible (Total Points), number of items (N Items), number of students tested (N), mean number of score points received (Mean), standard deviation of test scores (SD), reliability (r), traditional standard error of measurement (SEM), and item types (Item Type(s)) used to determine each score. These statistics are based on the total test using both MC and OE items for the operational sections of each form. For each subject and grade level, tables present reliabilities disaggregated by gender, Ethnicity, whether students had an individualized educational plan (IEP), whether students were considered an English Learner (EL), and whether students had a low-income background (Low Income). For information disaggregated by item type, Chapter Eleven provides breakout statistics for MC and OE items.

SCORE DISTRIBUTIONS

Figure 17–1 displays the raw score relative-frequency distributions as the proportion of students earning each raw score point.

Figure 17–1. 2022 PSSA Raw Score Distributions

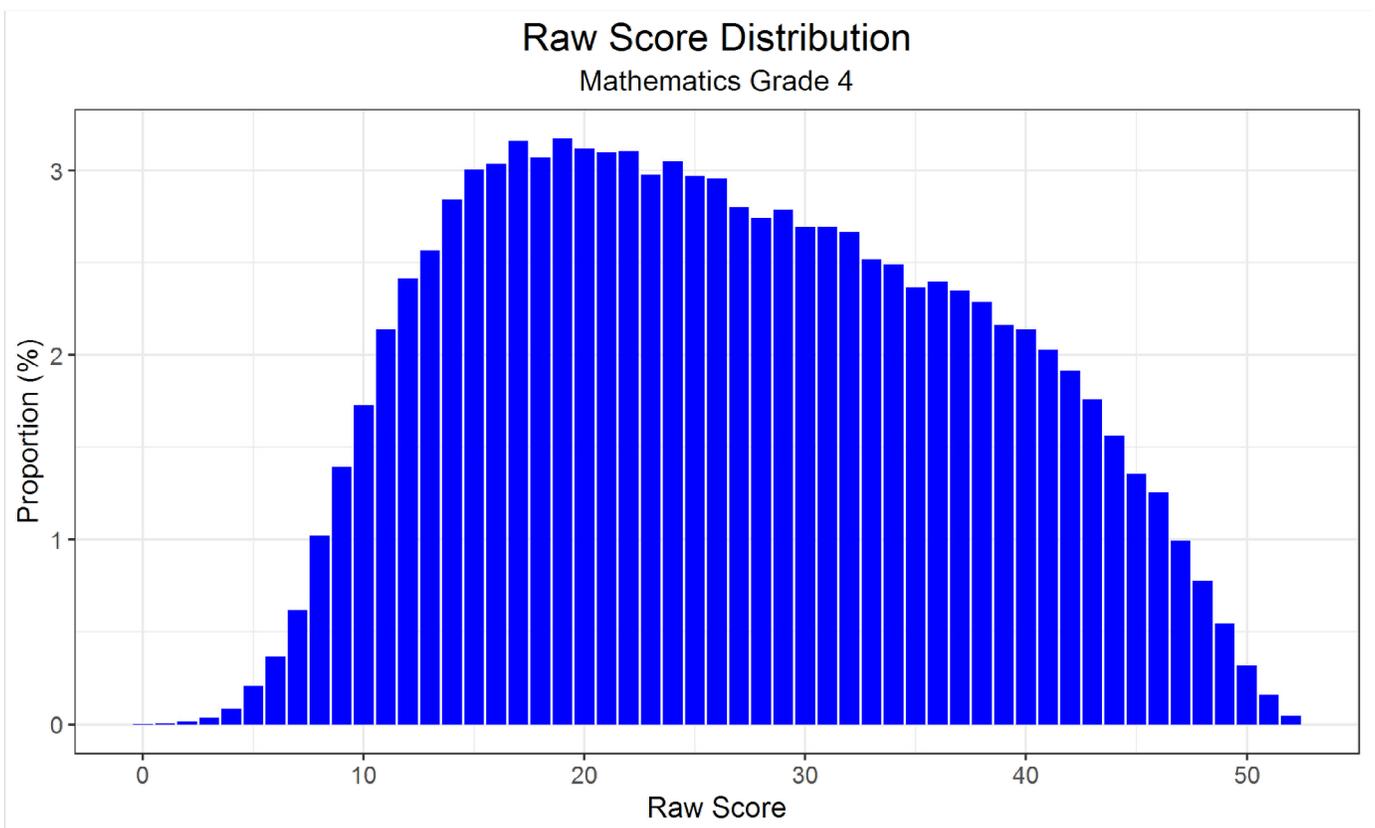
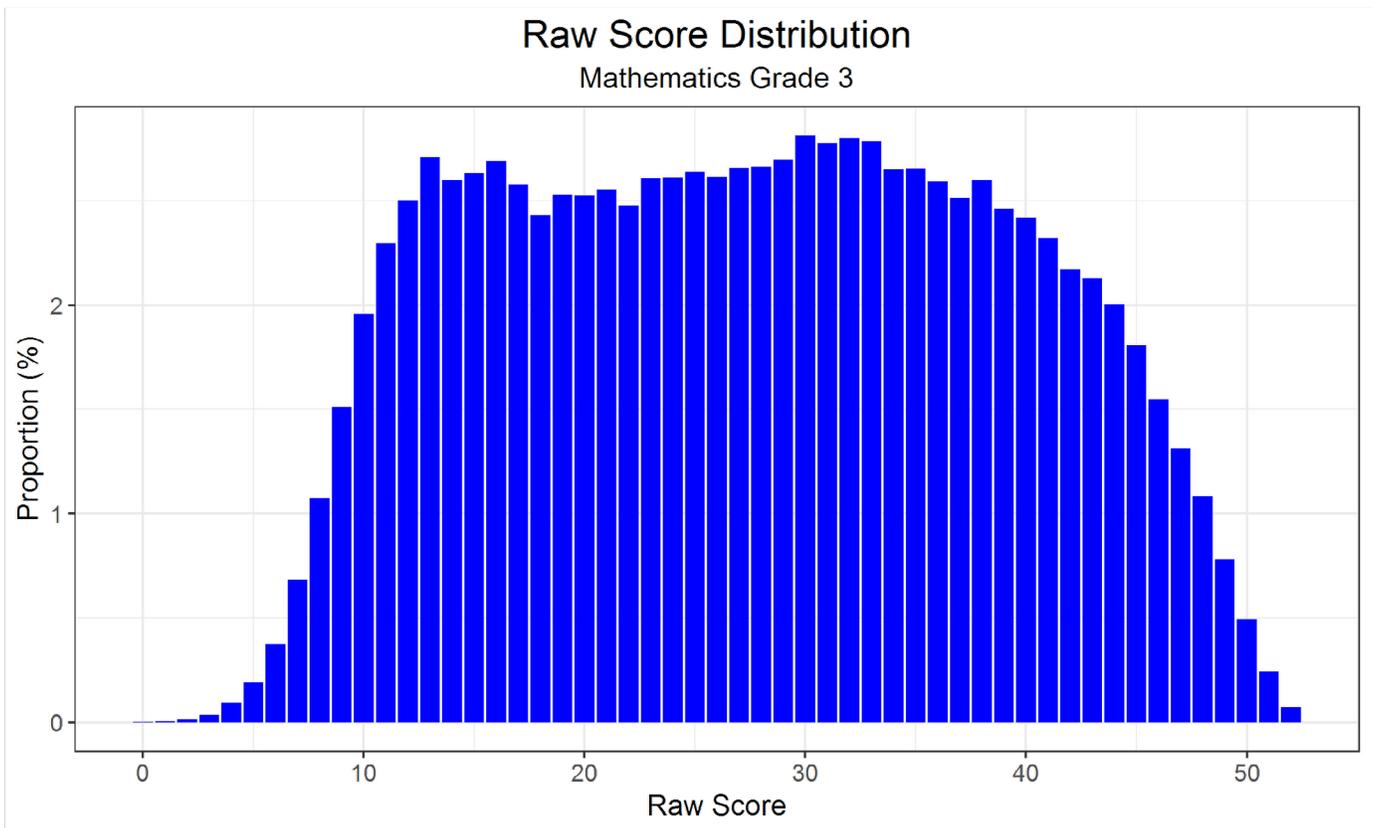


Figure 17–1 (continued). 2022 PSSA Raw Score Distributions

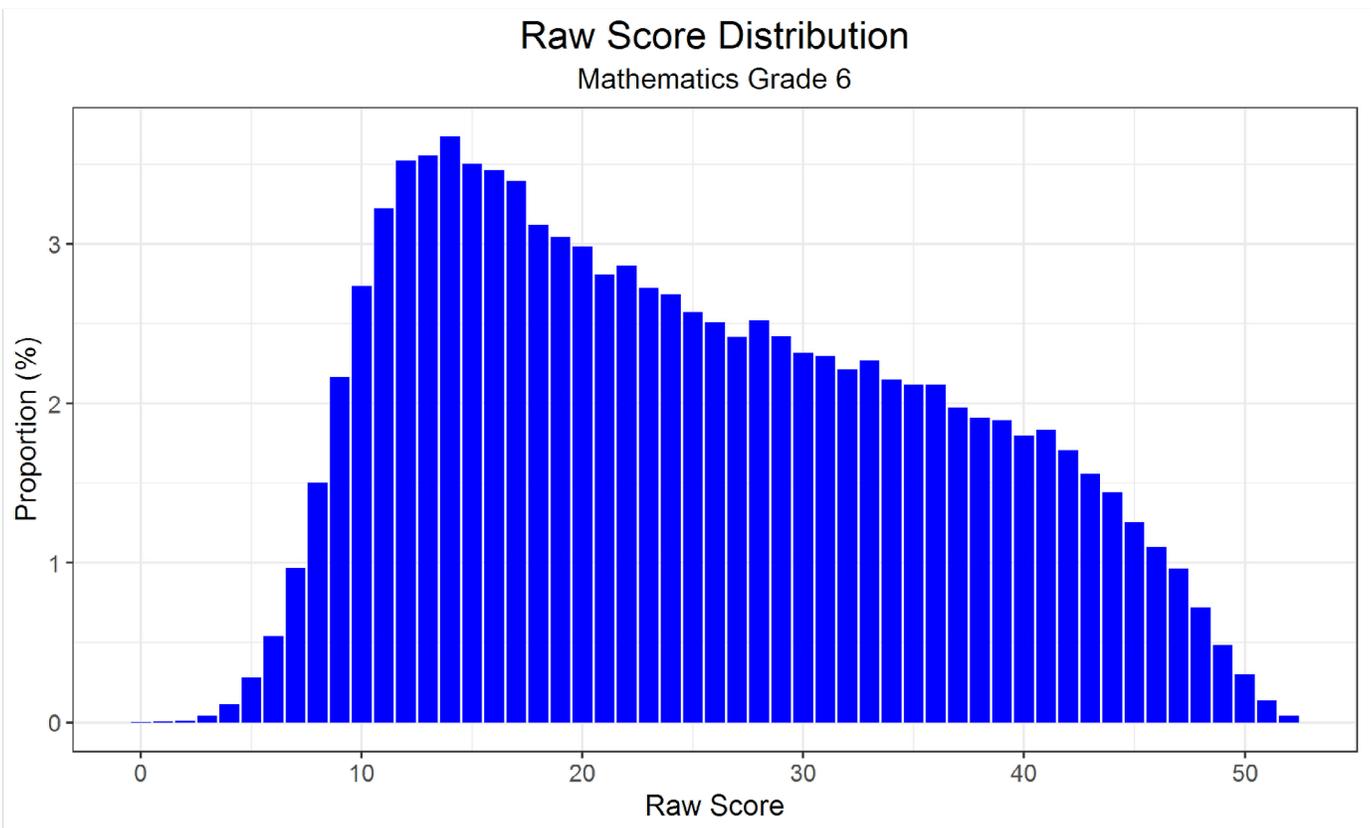
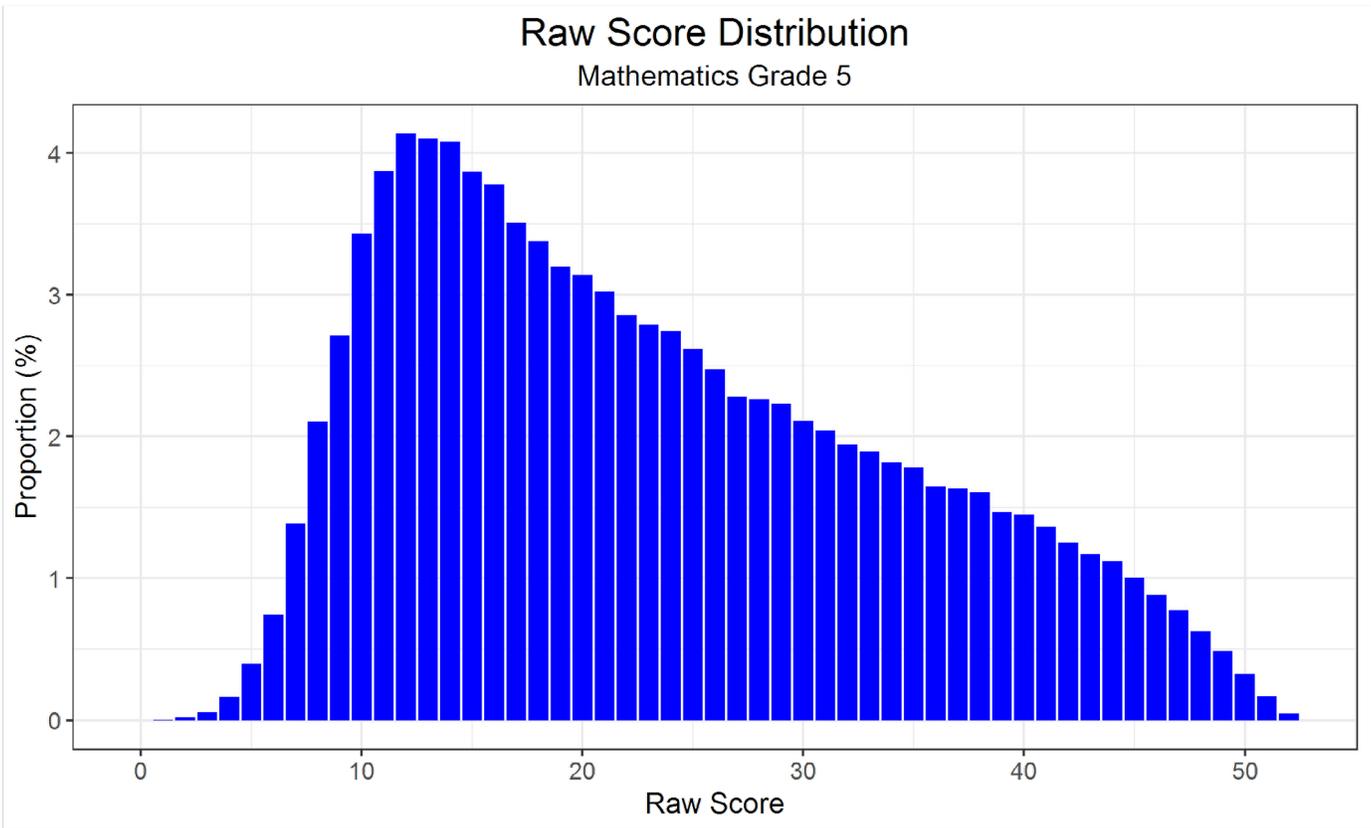


Figure 17–1 (continued). 2022 PSSA Raw Score Distributions

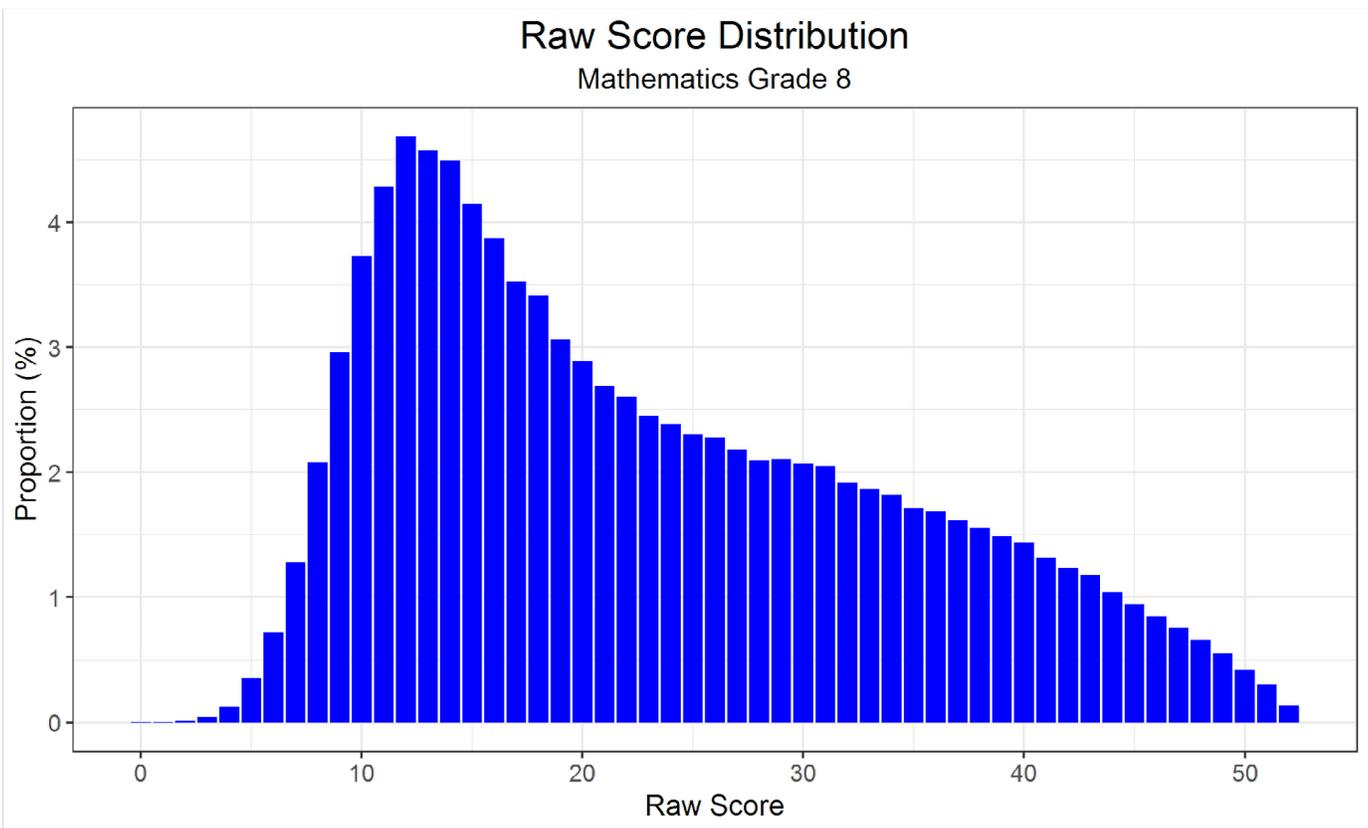
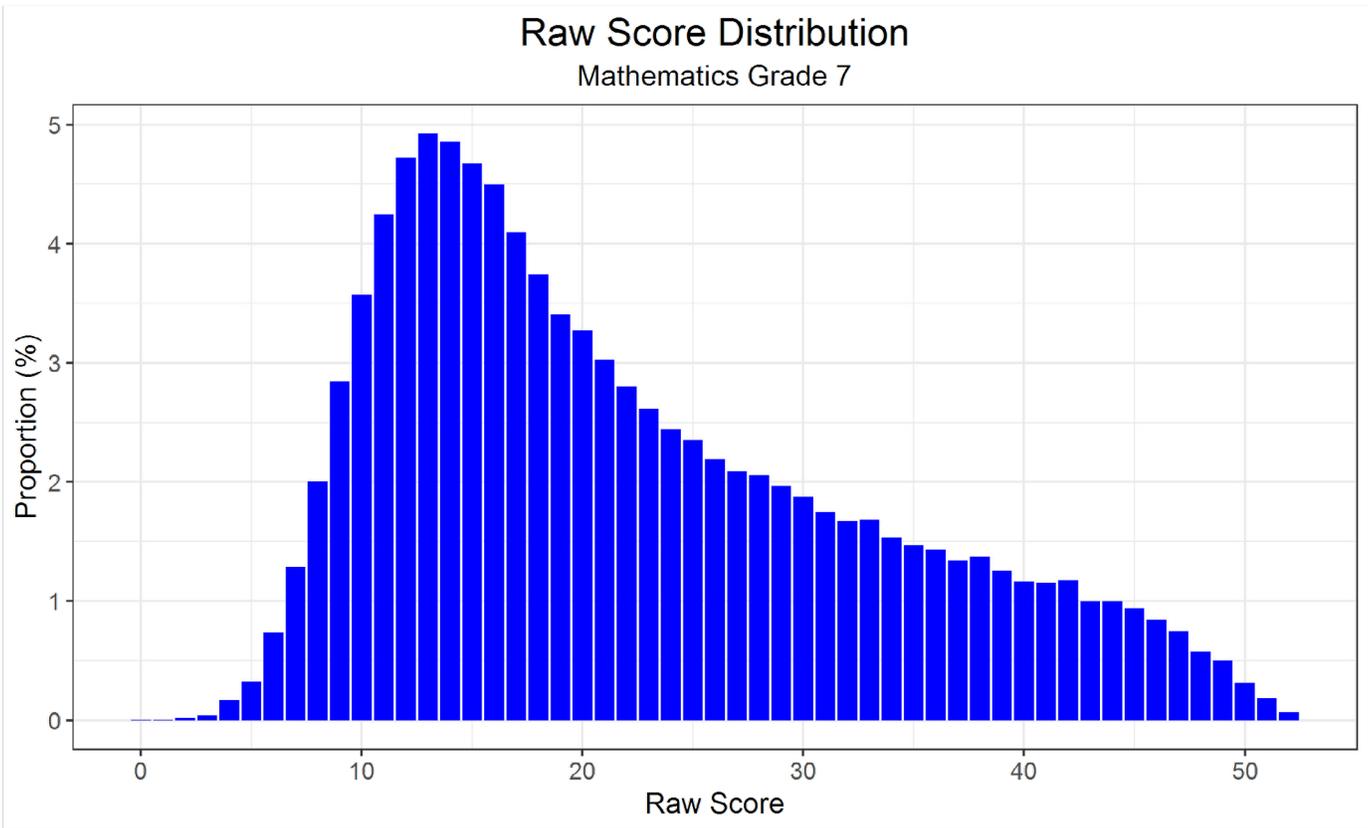


Figure 17–1 (continued). 2022 PSSA Raw Score Distributions

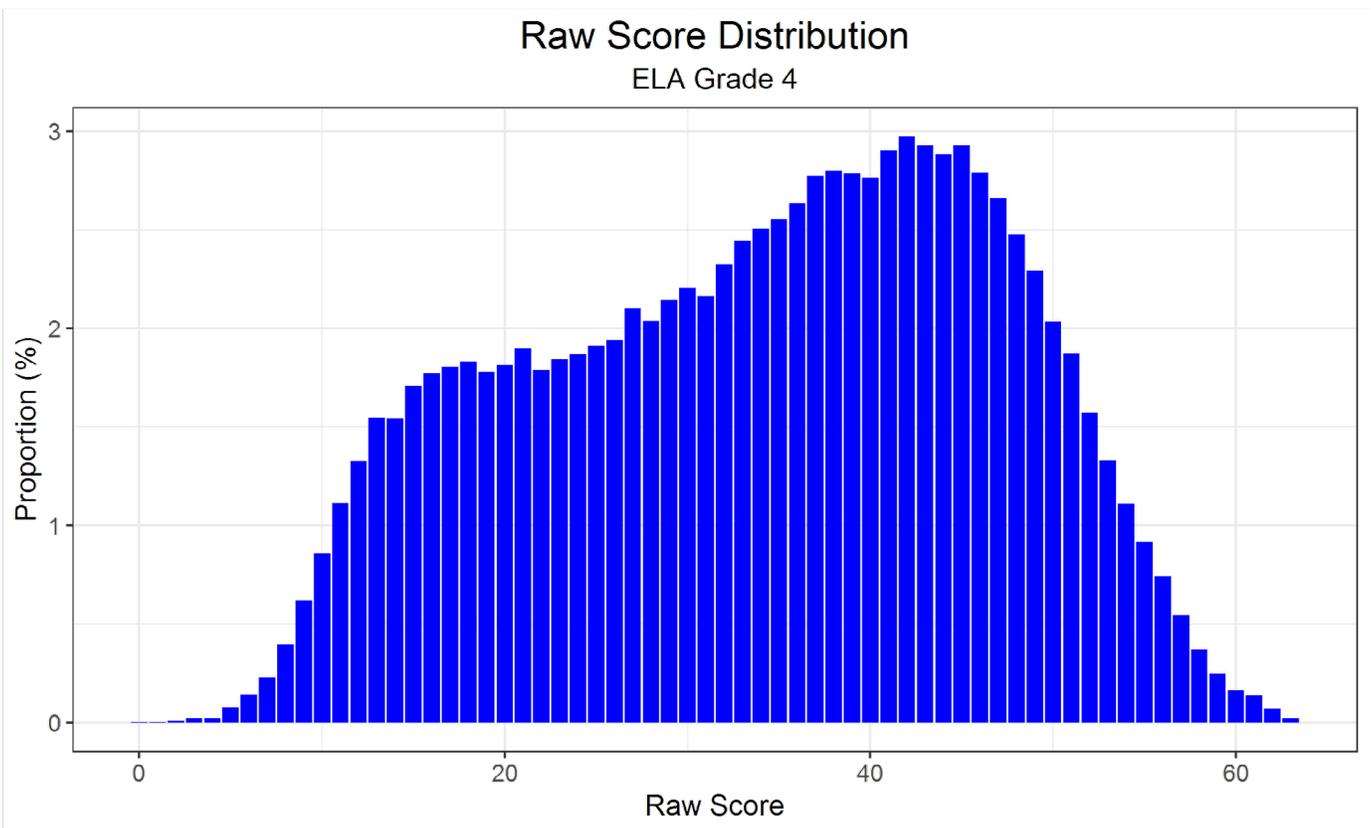
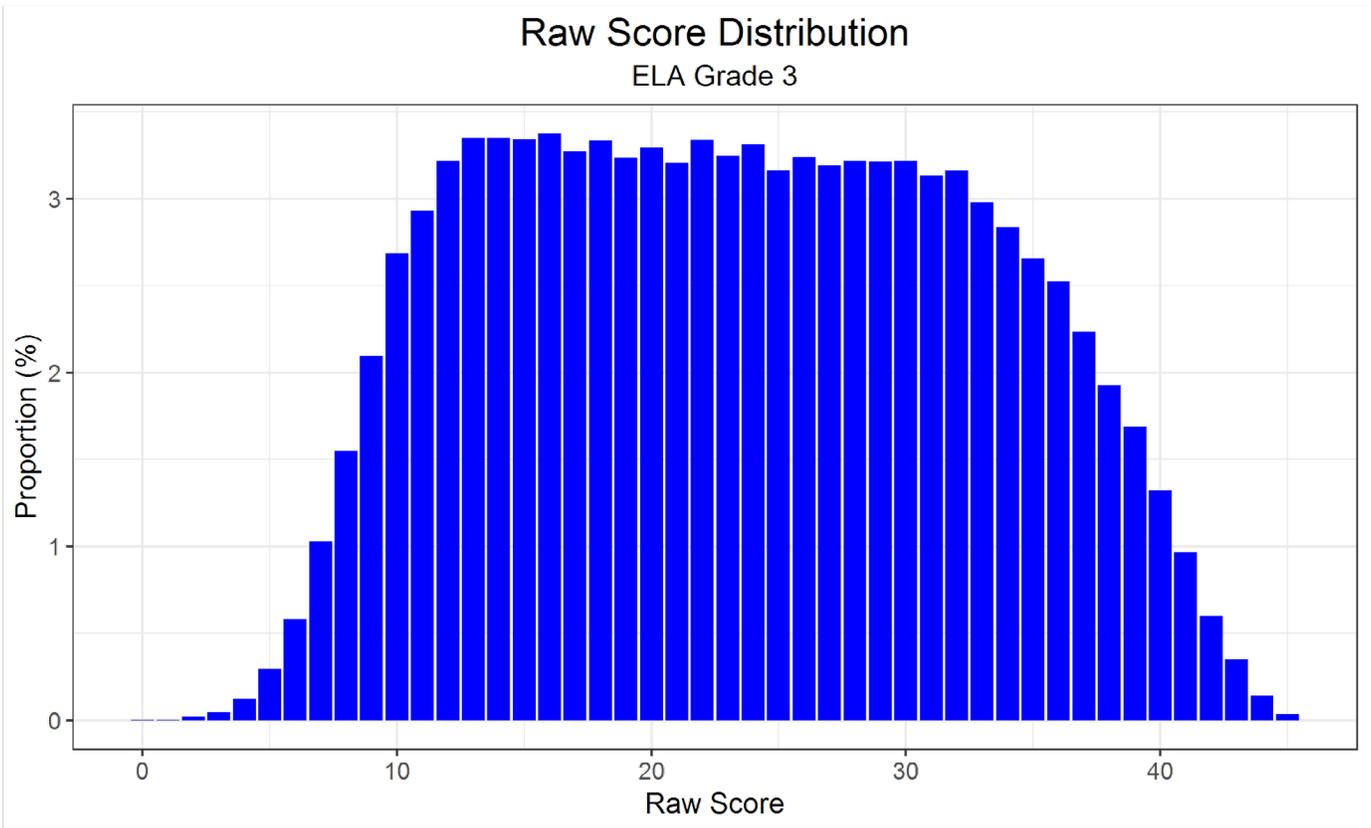


Figure 17–1 (continued). 2022 PSSA Raw Score Distributions

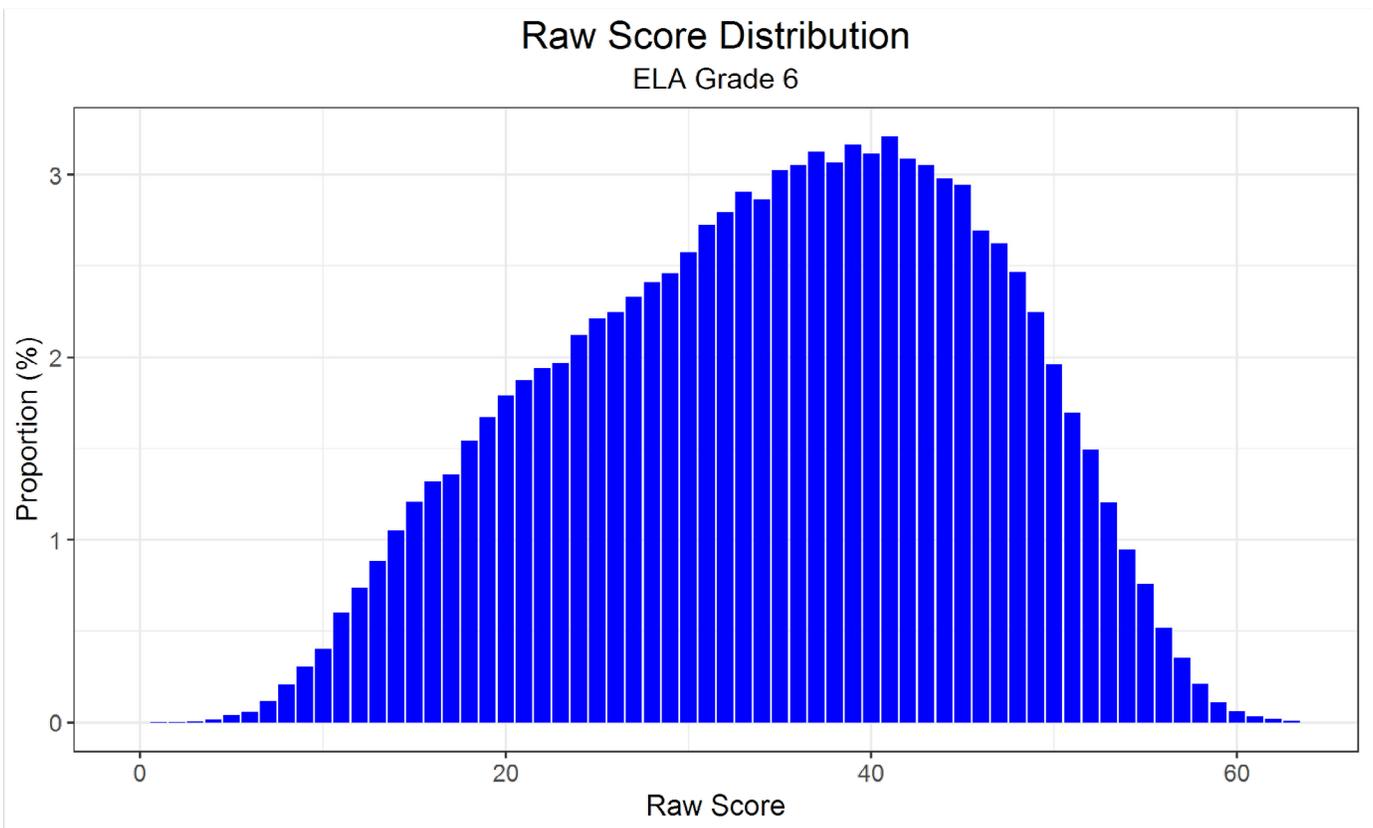
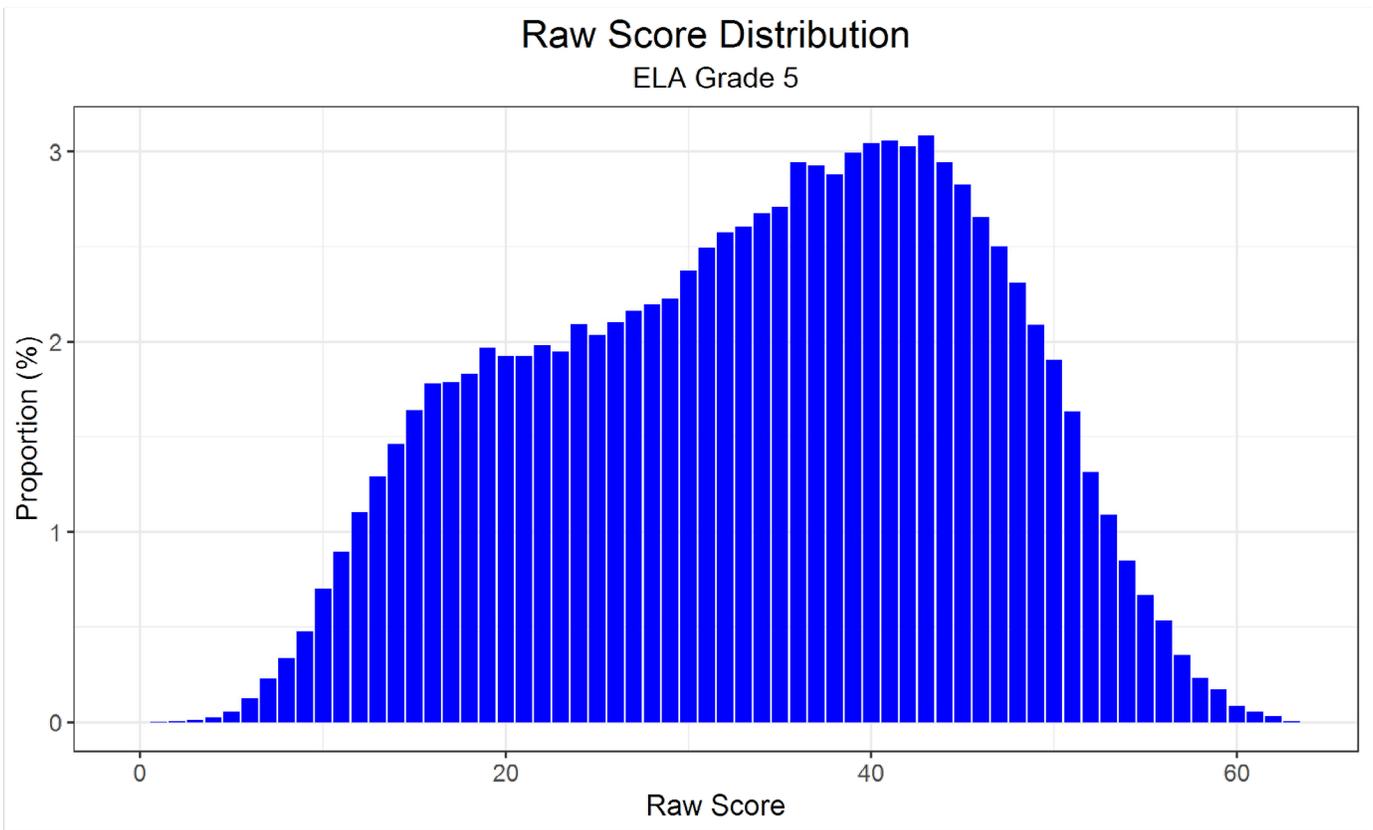


Figure 17–1 (continued). 2022 PSSA Raw Score Distributions

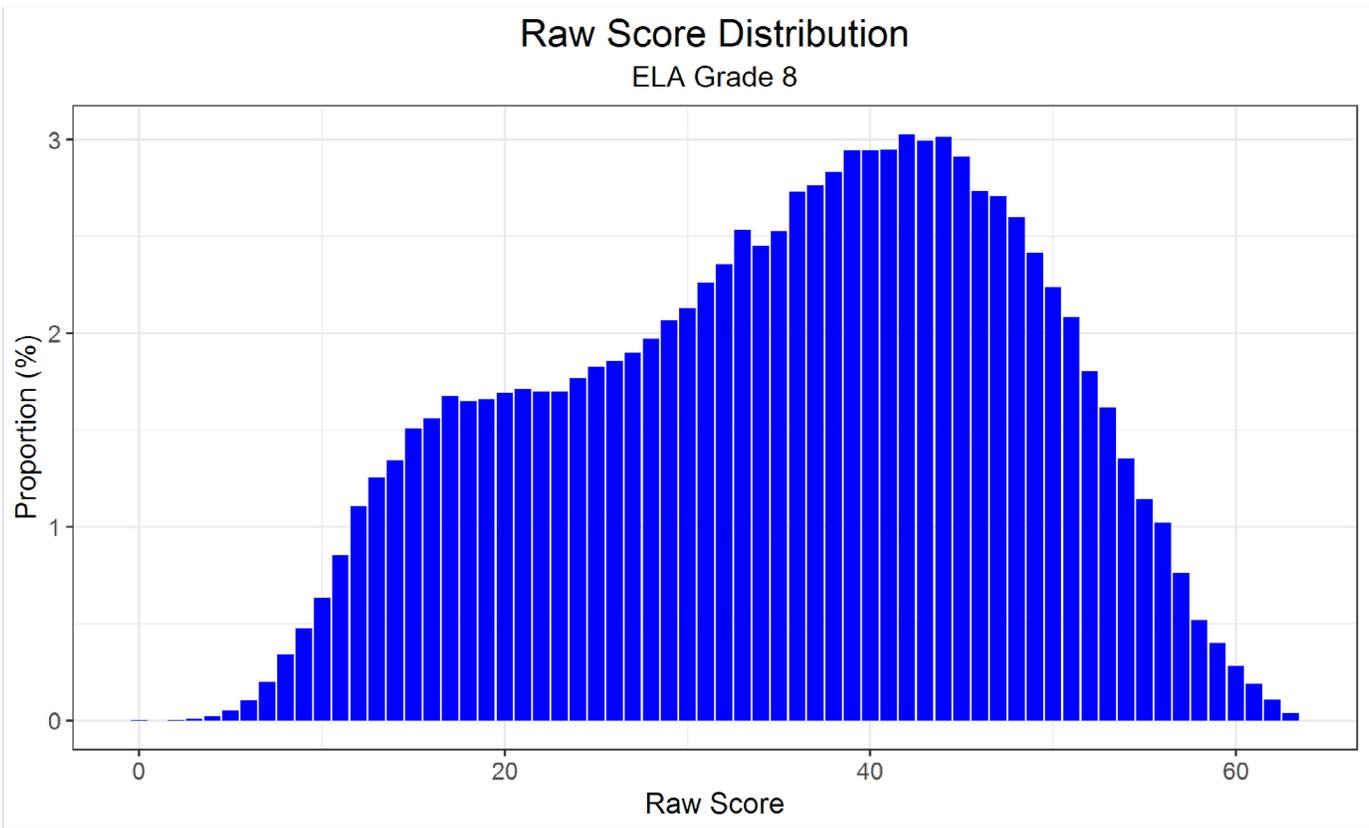
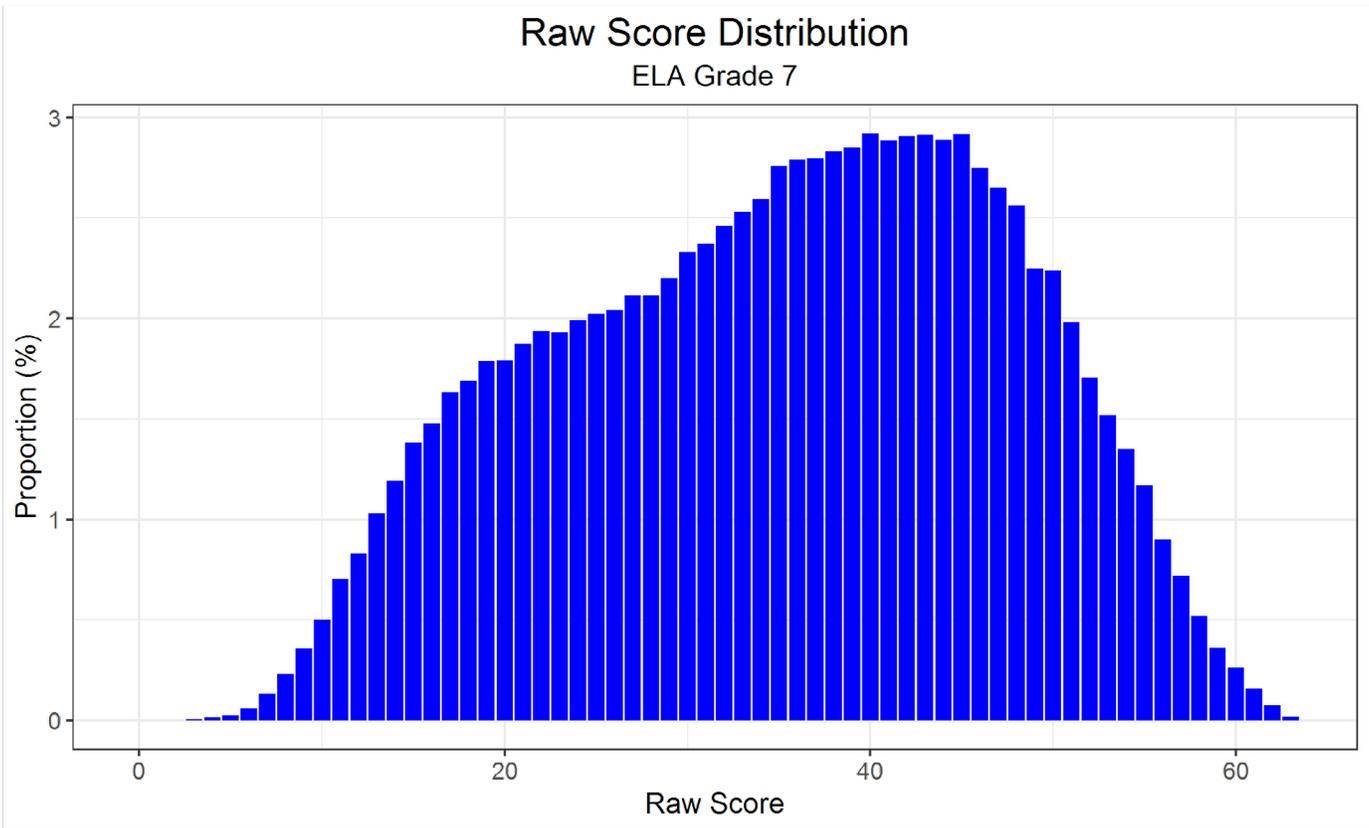
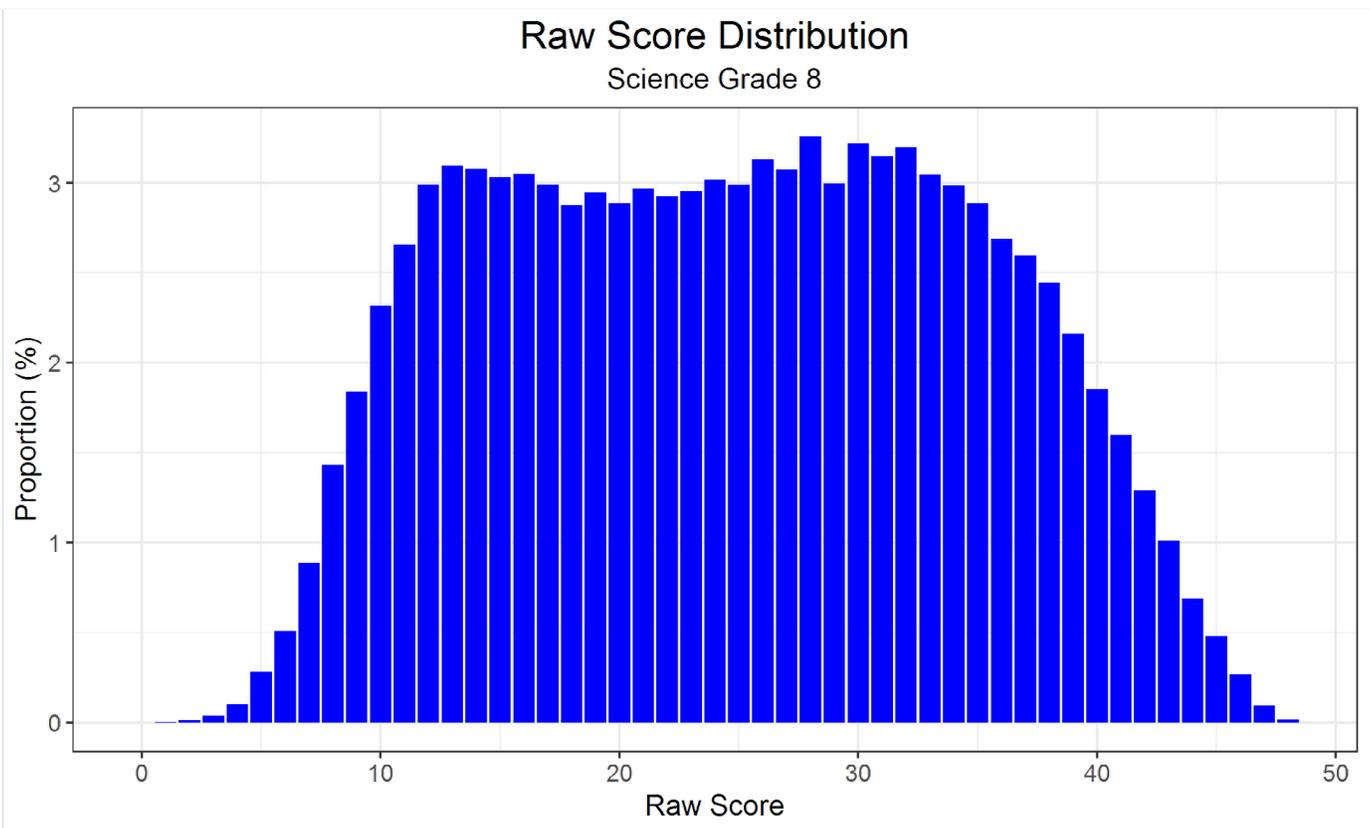
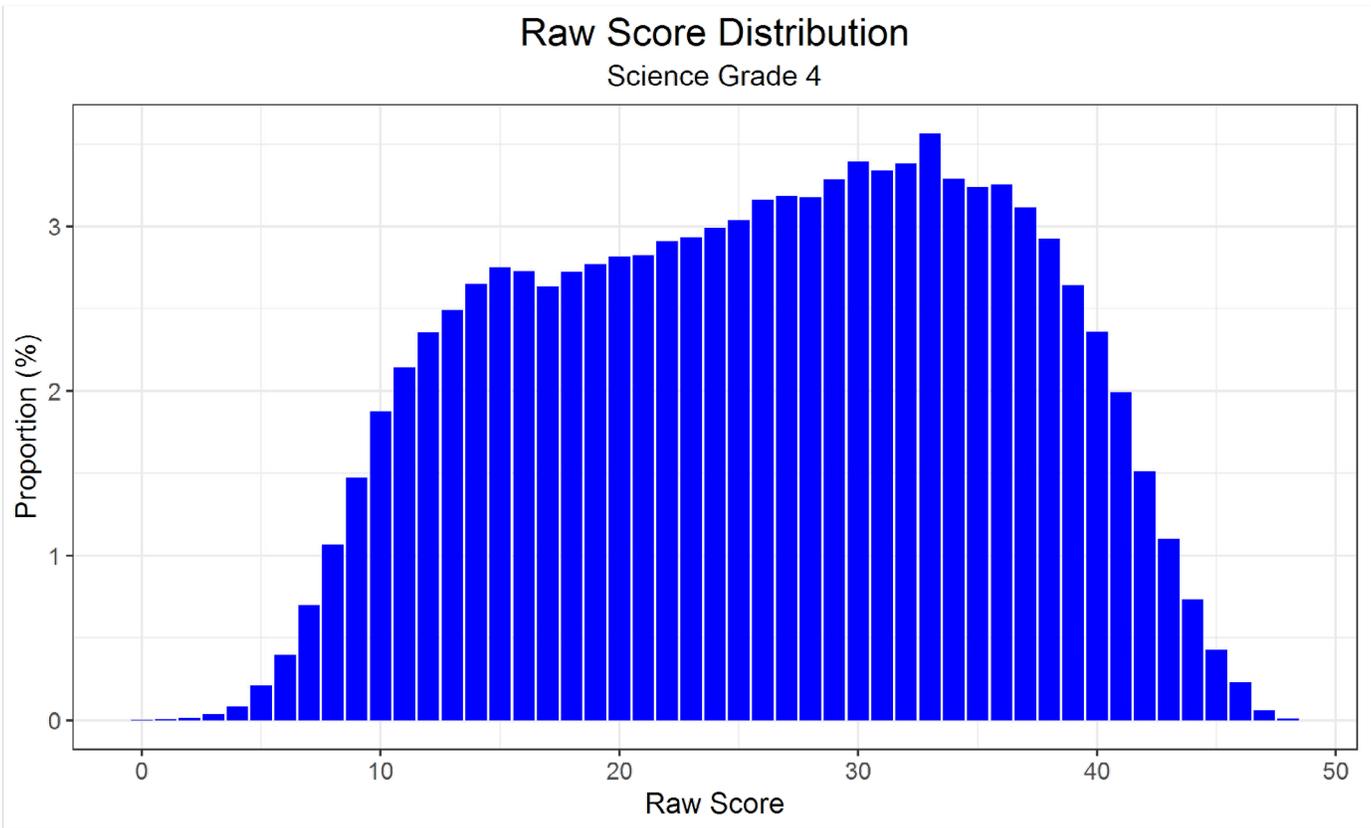


Figure 17–1 (continued). 2022 PSSA Raw Score Distributions



CHAPTER EIGHTEEN: RELIABILITY

This chapter addresses the reliability of PSSA test scores. According to the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014), the general notion of reliability/precision refers to:

the consistency of scores across replications of a testing procedure, regardless of how this consistency is estimated or reported (p.33).

This chapter will use the term reliability.

Frisbie (2005) highlighted several elements of reliability. First, reliability is a property of test scores, not a test itself. Many may appreciate this distinction, but in casual usage, individuals frequently refer to a reliable test. While reliability concerns test scores (and not the test specifically), it is important to emphasize the fact that test scores can be affected by characteristics of the instrument. For example, all other things being equal, tests with more items or points tend to be more reliable than tests with fewer items or points. Second, reliability coefficients are group specific. Reliabilities tend to be higher in populations that are more heterogeneous and lower in populations that are more homogeneous. Consequently, both test length and population heterogeneity should be considered when evaluating reliability.

There is a reliability consideration that may be less evident from the *Standard's* definition, yet still important for test users to understand. While freedom from measurement error is very important, reliability is specifically concerned with random sources of error. Indeed, the degree of inconsistency due to random error sources is what determines reliability: less consistency is associated with lower reliability and more consistency is associated with higher reliability. Of course, systematic error sources also exist. These can artificially increase reliability and decrease validity. (Validity is further discussed in Chapter Nineteen.)

Another noteworthy issue is that multiple sources of error exist (e.g., the day of testing, the items used, the raters who score the items). However, most widely used reliability indices only reflect a single type of error. Consequently, it is important for test users to understand what specific type of error is being considered in a reliability study, and equally, if not more important, what types are not.

Understanding the distinction between relative error and absolute error is also important as many reliability indices only reflect relative error. Relative error is of interest whenever the relative ordering of individuals respective to their test performance is of interest. Understanding examinee rank-order stability is important; however, such stability might be well achieved even when the specific score values are considerably different. When specific score values are considered important (e.g., if cuts cores are used), then absolute error is too. Generally, there is more error variance when considering the absolute scores of examinees, which in turn suggests lower reliability.

As suggested, reliability is a complex, nonunitary notion that cannot be adequately represented by a single number. There are several reliability indices available, and these may not provide the same results (Frisbie, 2005). The remainder of this chapter covers the following:

- Reliability coefficients and their interpretation
- Unconditional and conditional standard errors of measurement (SEMs and CSEMs)
- Decision consistency
- Rater agreement

RELIABILITY INDICES

As the equation shows below, the reliability coefficient expresses the consistency of test scores as the ratio of true score variance to total score variance. The total variance contains two components: 1) the variance in true scores and 2) the variance due to the imperfections in the measurement process. Put differently, total variance equals true score variance plus error variance.¹

$$\rho_x^2 = \frac{\sigma_T^2}{\sigma_X^2} = \frac{\sigma_T^2}{\sigma_T^2 + \sigma_E^2}$$

Reliability coefficients indicate the degree to which differences in test scores reflect true differences in the attribute being tested rather than random fluctuations. Total test score variance (i.e., individual differences) is partly due to real differences in the attribute (true variance) and partly due to random error in the measurement process (error variance).

Reliability coefficients range from 0.0 to 1.0. If all test score variances were true, the index would equal 1.0. The index will be 0.0 if none of the test score variances were true. Such scores would be pure random noise (i.e., all measurement error). A reliability index of 1.0 would indicate that scores were perfectly consistent (i.e., contain no measurement error). Although values of 1.0 are never achieved in practice, larger coefficients are more desirable because they indicate that test scores are less influenced by random error. (How big is big enough and how small is too small are issues considered in a later section.)

As previously noted, there are several different indices that can be used to estimate this ratio. One approach is referred to as internal consistency, which is derived from analyzing the performance consistency of individuals over the items within a test. As discussed below, these internal consistency indices do not account for other sources of error, for example, variations due to random errors associated with the linking process, day-to-day variations (student health, testing environment, etc.), and rater inconsistency.

COEFFICIENT ALPHA

Although several reliability indices exist, perhaps the one most frequently reported for achievement tests is Coefficient Alpha. Consequently, this index is the one reported for the PSSA. Alpha indicates the internal consistency over the responses to a set of items measuring an underlying trait, in this case, academic achievement in subject areas such as mathematics, ELA, and science.

Alpha is an internal consistency index. It can be conceptualized as the extent to which an exchangeable set of items from the same domain would result in a similar rank ordering of students. Note that relative error is reflected in this index. Consider two hypothetical vocabulary tests intended for the same group of students. Each test contains different sets of unique words that are believed to be randomly equivalent, perhaps like the ones shown below.

Table 18–1. Two Hypothetical Vocabulary Tests

| Test One | Test Two |
|------------|------------|
| Abase | Abate |
| Boon | Bilk |
| Capricious | Circuitous |
| Deface | Debase |
| | |
| Zealous | Zenith |

¹ A covariance term is not required as true scores and error are assumed to be uncorrelated in classical test theory.

If a representative group of students could take both tests, and the correlation between the scores could be obtained, then that result would represent the parallel forms reliability of the test scores. However, such data-collection designs are impractical in large-scale settings and experimental confounds like fatigue and practice effects are likely to affect the results. Internal-consistency reliability indices arose in part to provide reliability measures using the data from just a single test administration. So, if students only took Test One and the Coefficient Alpha index for those test scores was high, then this would suggest that Test Two would provide a very similar rank ordering of the students if they had taken it instead. If Coefficient Alpha were low, dissimilar rank orderings would likely be observed—again, relative-error variance is reflected in Alpha. (It should also be noted that Coefficient Alpha is algebraically identical to a *Person* × *Item* design under Generalizability Theory when relative error variance is assumed.)

FORMULA

Consider the data matrix in Table 18–2 representing the scores of persons (*p*) in rows, and items (*i*) in columns. Each cell is the score of person “*p*” on item *i*, and *Y* represents each item raw score for each person.

Table 18–2. Person × Item Score (X_{pi}) Infinite (Population-Universe) Matrix

| Person | Item 1 | Item 2 | Item <i>i</i> |
|----------|----------|----------|----------------|
| 1 | Y_{11} | Y_{12} | $\dots Y_{1i}$ |
| 2... | Y_{21} | Y_{22} | $\dots Y_{2i}$ |
| <i>p</i> | Y_{p1} | Y_{p2} | $\dots Y_{pi}$ |

The general computational formula for Alpha is as follows:

$$\alpha = \frac{N}{N-1} \left(1 - \frac{\sum_{i=1}^N \sigma_{Y_i}^2}{\sigma_X^2} \right),$$

where *N* is the number of parts (items or testlets), σ_X^2 is the variance of total test scores, and $\sigma_{Y_i}^2$ is the variance of part *i*.

FURTHER INTERPRETATIONS

RULES OF THUMB

What reliability value is considered high enough? What values are considered too low? Although frequently asked for, any rules of thumb for interpreting the magnitude of reliability indices are mostly arbitrary. Another approach is to research the reliabilities from similar testing instruments to see what values are commonly observed. For the PSSA, comparisons to tests of similar lengths that were administered to similar student populations from other large-scale assessment programs would be relevant. For many other state assessment programs, reliabilities in the low 0.90s are usually the highest ever observed and reliabilities in the high 0.80s are very common.

The lower a given reliability coefficient, the greater the potential for over-interpretation of the associated results. As suggested above, there is no firm guideline regarding how low is too low. However, as an informative point of reference, a reliability coefficient of 0.50 would suggest that there is as much error variance as true-score variance in the scores.

IS ALPHA A LOWER LIMIT TO RELIABILITY?

According to Brennan (1998), “the conventional wisdom that Coefficient Alpha is a lower limit to reliability is based largely on a misunderstanding.” In reflecting on the 50th anniversary of his seminal 1951 article, Cronbach—in Cronbach and Shavelson (2004)—expressed similar misgivings about this conventional wisdom:

one could argue that alpha was almost an unbiased estimate of the desired reliability.... the almost in the preceding sentence refers to a small mathematical detail that causes the alpha coefficient to run a trifle lower than the desired value. This detail is of no consequence and does not support the statement made frequently in textbooks or in articles that alpha is a lower value to the reliability coefficient. That statement is justified by reasoning that starts with the definition of the desired coefficient as the expected consistency among measurements that had a higher degree of parallelism than the random parallel concept implied.

The assumptions for three common parallelism models are presented in Table 18–3. Alpha’s assumptions come from the Essentially-Tau Equivalent model, which does not require equal means or equal variances across test parts. Based on this, Brennan (1998) asserts that the lower-limit issue, as conceptualized by many, provides an answer to a question that is of minimal importance. Reframed differently, the goal of selecting a reliability coefficient is not to find the one that provides the highest coefficient, but the one that most accurately reflects the test data under study.

It is important to note that there are factors encountered in practice that may legitimately make Coefficient Alpha an underestimate of reliability. However, there are also factors that might make Coefficient Alpha an overestimate of reliability. Both possibilities are discussed further below and generally arise when the Essentially-Tau Equivalent assumptions are strained.

Table 18–3. Summary of Expectations/Observable Relationships for Different Parallelism Models

| Relationship | Classically Parallel | Essentially-Tau Equivalent | Congeneric |
|--|----------------------|----------------------------|------------|
| Content Similarity | Yes | Yes | Yes |
| Equal Means across Parts | Yes | No | No |
| Equal Variances across Parts | Yes | No | No |
| Equal Covariances across Parts | Yes | Yes | No |
| Equal Covariances with Other Variables | Yes | Yes | No |

* Other models exist, but are not considered here due to their limited application in practice.

FACTORS OR BIASES THAT MAY UNDERESTIMATE ALPHA

There are factors that might negatively bias Coefficient Alpha, which possibly lower the resultant reliability coefficients. Two situations frequently encountered in practice that might cause this include tests that are composed of mixed item types (e.g., multiple-choice (MC) and open-ended (OE) items) and tests that include a planned stratification of the test items according to topics or subdomains.

Although both situations strictly violate the assumptions on which Coefficient Alpha is derived (i.e., the tests are not based on equal part lengths in the former case and are not randomly parallel in the latter case), neither necessarily guarantees that the reliability will be markedly lower. In the latter case, reliability will be underestimated only when strand items are homogeneous enough for the average covariance within strata to exceed the average covariance between strata. Although both are potential influences for the PSSAs, most of the total test score reliabilities reported in Appendix P are all close to or above 0.90, indicating highly consistent test scores for these instruments.

BIASES THAT MIGHT MAKE ALPHA AN OVERESTIMATE OF RELIABILITY

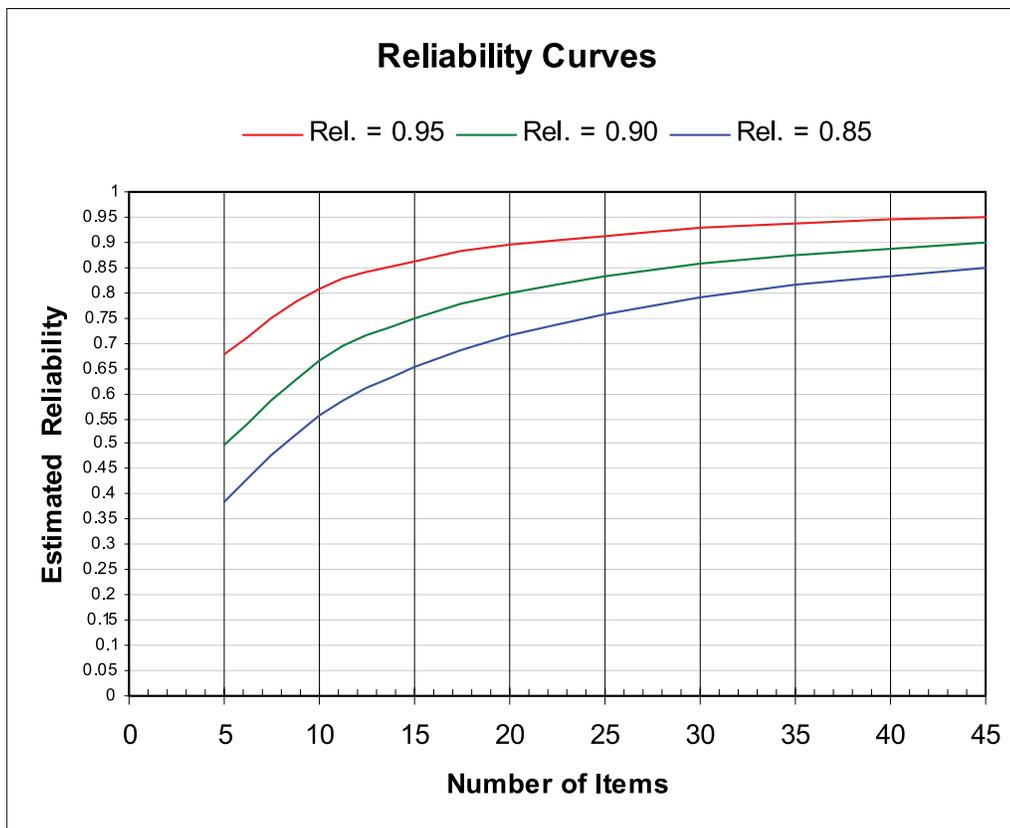
As emphasized in earlier sections, Coefficient Alpha only takes into account measurement error that arises from the selection of items used on a particular test form. There are other sources of random inaccuracy. One is due to the occasion of testing. Other various random conditions that might affect students on any particular testing occasions include illness, fatigue, and anxiety. Also, when a test includes OE items, as the PSSA does, another source that can cause random fluctuation is the OE item scorers. In a sense, Alpha may be positively biased because it does not take into account these other important sources of random error. Any internal consistency reliability index could understate the overall problem of measurement error because it ignores such sources or random error.

Another positive bias can occur when items are associated (clustered) with a common stimulus. Item bundles and testlets are other frequently used terms for this situation. One concrete example is when multiple reading comprehension items are associated with a common passage selection. Again, such a situation does not guarantee that the reliability estimate will be markedly affected, but the potential exists.

STRAND SCORES

As noted in the introduction, reliabilities tend to go up in value with an increase in test length and go down in value with a decrease in test length. Figure 18–1 illustrates this relationship for a hypothetical 45-point test with three total score reliabilities: 0.95, 0.90, and 0.85. As an example, the curve for reliability equal to 0.90 suggests that a 15-item strand would be expected to have a score reliability of 0.75. The use of the Spearman-Brown prophecy formula assumes all items are exchangeable, which in practice they may not be. While such a chart may not perfectly model actual strand correlations, the intent is only to illustrate the substantial impact that limited numbers of strand items can have on strand-score reliability. One should not be surprised that strand scores with more points tend to show higher reliability coefficients and those with fewer points tend to show lower reliability coefficients. Further, what is most important for PSSA users to note is that some strand score reliabilities may be too low to warrant interpretation at the individual student level.

Figure 18–1. Example of the Relationship between Test Length and Reliability



Note. Tabled values derived using the Spearman-Brown formula.

INDIVIDUAL-LEVEL VERSUS GROUP-LEVEL SCORES

The results presented in this chapter pertain to the reliability of individual scores. Group results (e.g., state and district levels) are also provided on PSSA score reports, but the reliability of those scores is not specifically calculated here. However, as a general rule, the reliabilities of group mean scores are almost always higher (sometimes substantially) than the corresponding reliabilities for individual scores. This is especially important to remember for strand scores because those scores can be quite reliable at the group level, even though their individual reliabilities may be low. Because the reliability of group mean scores (e.g., school or district means) tends to be higher than that of individual scores, the interpretation of strand scores at these aggregate levels is likely very reasonable in most instances. Even though the reliability for means scores based on only a few items might be adequate, the validity of those same scores might be suspect because use of only a few items may not adequately cover the construct of interest. Validity is further discussed in Chapter Nineteen.

RELIABILITY OF WRITING SCORES

An extension of Coefficient Alpha that was derived to specifically fit stratified parallel tests (sometimes called stratified alpha; Cronbach, Schonemann, & McKie, 1965) was used to compute the PSSA ELA score reliabilities. This approach is often used when it is believed that Alpha may be yielding a lower coefficient than it should for the reasons noted above. Although originally developed for content-stratified tests, Qualls (1995) demonstrated its utility for mixed-format tests as well when the stratification is based on item type. It may be computed as

$$\rho_{xx'}^{strat\alpha} = 1 - \frac{\sum \sigma^2 x_h (1 - \rho_{x_h x_{h'}})}{\sigma^2 x}$$

where h indexes the individual strata.

The reliability of ELA assessments (and many other performance-based tests) with mixed-format tends to be lower than reliabilities for other tests. Part of the reason for this is that there can be student-by-task, rater-by-task, and rater-by-examinee response interactions on such assessments. In the case of ELA, individual student performance may fluctuate significantly across text-dependent analysis (TDA) and evidence-based selected-response (EBSR) item types on the same test. In principle, adding more prompts and items can improve reliability to a more acceptable level. However, this is challenging in practice because of costs, testing time, and student fatigue. These conditions can result in reliabilities for ELA assessments that are slightly lower than those for mathematics and science assessments.

STANDARD ERROR OF MEASUREMENT

The reliability coefficient is a unit-free indicator that reflects the degree to which scores are free of measurement error. The reliability coefficient always ranges between 0 and 1 regardless of the test's scale. Reliability coefficients best reflect the extent to which measurement inconsistencies may be present or absent in a group. However, they are not that useful for helping users interpret test scores. The standard error of measurement (SEM) is another indicator of degree of consistency for the scores obtained by individual examinees. A relatively large SEM indicates relatively low reliability. The conditional SEMs (CSEM) discussed further below is the SEM at the score level.

TRADITIONAL STANDARD ERROR OF MEASUREMENT

A precise, theoretical interpretation of the SEM is somewhat unwieldy. A beginning point for understanding the concept is as follows. If everyone being tested had the same true score,² there would still be some variation in observed scores due to imperfections in the measurement process, such as random differences in attention during instruction or concentration during testing and the sampling of test items. The standard error is defined as the standard deviation³ of the distribution of observed scores for students with identical true scores. Because the SEM is an index of the random variability in test scores in actual score units, it represents very important information for test score users.

² True score is the score the person would receive if the measurement process were perfect.

³ The standard deviation of a distribution is a measure of the dispersion of the observations. For the normal distribution, about 16 percent of the observations are more than one standard deviation above the mean.

The SEM formula is provided below.

$$SEM = SD\sqrt{1-reliability}$$

This formula indicates the value of the SEM depends on both the reliability coefficient and the standard deviation of test scores. If the reliability were equal to 0.00 (the lowest possible value) the SEM would be equal to the standard deviation of the test scores. If test reliability were equal to 1.00 (the highest possible value) the SEM would be 0.0. In other words, a perfectly reliable test has no measurement error (Harvill, 1991). Additionally, the value of the SEM takes the group variation (i.e., score standard deviation) into account. Consider that an SEM of 3 on a 10point test would be very different than an SEM of 3 on a 100-point test.

TRADITIONAL STANDARD ERROR OF MEASUREMENT CONFIDENCE INTERVALS

The SEM is an index of the random variability in test scores in actual score units, which is why it has such great utility for test score users. SEMs allow statements regarding the precision of individual test scores. SEMs help place ‘reasonable limits’ (Gulliksen, 1950) around observed scores through construction of an approximate score band. Often referred to as confidence intervals, these bands are constructed by taking the observed scores, X , and adding and subtracting a multiplicative factor of the SEM. As an example, students with a given true score will have observed scores that fall between ± 1 SEM about two-thirds of the time.⁴ For ± 2 SEM confidence intervals, this increases to about 95 percent.

FURTHER INTERPRETATIONS

ONE STANDARD ERROR OF MEASUREMENT FOR ALL TEST SCORES

The SEM approach described above only provides a single numerical estimate for constructing the confidence intervals for examinees regardless of their score level. However, such confidence intervals vary according to a student’s score. Consequently, care should be taken using the SEM for students with extreme scores. (In the next sections, an alternate approach is described that conditions the SEM on a student’s score estimate.)

GROUP SPECIFIC

As noted in the introduction, reliabilities are group specific. The same is true for SEMs because both score reliabilities and score standard deviations vary across groups.

RAW-SCORE METRIC

The SEM approach is calculated using raw scores, and as such, the resulting confidence interval bands are on the raw score metric. Error bands on the scaled score metric are considered in the next section.

TYPE OF ERROR REFLECTED

The interpretation of the SEM should be driven by the type of score reliability that underpins it. So, the PSSA SEMs involve the same source of error relevant to internal consistency indices. As noted earlier, a precise technical explanation of the SEM (and resulting confidence intervals) can be unwieldy. Because of this, score users are often provided less complex interpretations.

One simpler description is that a confidence interval represents the possible score range one would observe if a student could be tested twice with the same instrument. Taking the same test on a different day implies the only source of random error being considered is related to the occasion of testing, such as a student might be sleepier one day than another, or may be sick, or did not get a good breakfast. There is a reliability index that captures this source of random error, and it is referred to as the test-retest reliability coefficient. This is not the type of reliability computed for the PSSAs. When internal consistency reliability estimates are used, such an explanation blurs the fact that random error based on testing is not considered.

When SEMs are derived from internal consistency reliability estimates, a better approach is to describe the confidence interval as providing reasonable bounds for the range of scores that a student might receive if he or she took an equivalent version of the test; that is, the student took a test that covered exactly the same content

⁴ Some prefer the following interpretation: if a student were tested an infinite number of times, the ± 1 SEM confidence intervals constructed for each score would capture the student’s true score 68 percent of the time.

but included a different set of items (if an infinite number of tests with equivalent content were taken, the student's true score will lie within the constructed confidence intervals 68 percent of the time). As an example, if the PSSA score was 1150 and the SEM band was 1100 to 1200, then a student would be likely to receive a score somewhere between 1100 and 1200 if a different version of the test had been taken.

RESULTS AND OBSERVATIONS

Reliability coefficients and associated (traditional) SEMs for PSSA scores are documented in Table 18–4 and Appendix P. Values were derived using the PSSA final data file (see Chapter Nine). The reliabilities for all student scores reported in Table 18–4 and Appendix P differ only for ELA grades 4 to 8 as reliabilities were calculated differently. The Stratified Alpha Coefficient based on unweighted raw scores was used to estimate the reliabilities in Table 18–4, whereas the Coefficient Alpha based on total (weighted raw scores) was used to estimate the reliabilities in Appendix P. It is not appropriate to estimate Stratified Alpha by reporting category (as shown in Appendix P) because often the number of items is smaller by reporting category and each category may not include more than one item of each item format. Moreover, the purpose of Appendix P is to show the comparability of the Cronbach Alpha coefficient across reporting categories and also to show the total score reliability for consistency.

Results are organized by subject and grade level. Each table in Appendix P also disaggregates the various reporting categories and groups of interest (i.e., the total student population, gender and ethnic groups, English learners (EL), students with individualized education plan (IEP), and students who are economically disadvantaged). The statistics reported in Appendix P include number of points possible (Total Points), number of items (N Items), number of students tested (N), mean number of score points received (Mean), standard deviation of test scores (SD), reliability (r), traditional standard error of measurement (SEM), and item types (Item Types). Reliabilities for reporting category “E” for ELA grades 4 to 8 are not computed because it only consists of one Text-Dependent Analysis (TDA) item and reliabilities cannot be computed for only one item.

The reliabilities and standard error of measurement for each subject and grade level are reported in Table 18–4. The reliability of mathematics scores range from .91 to .92, the reliability of ELA scores range from .90 to .93, and the reliability of science scores are .90 and .91 for grade 4 and grade 8, respectively.

Table 18–4. Reliabilities and Standard Errors of Measurement

| Subject | Grade | Reliability | SEM |
|----------------|--------------|--------------------|------------|
| Mathematics | 3 | 0.92 | 3.21 |
| Mathematics | 4 | 0.92 | 3.14 |
| Mathematics | 5 | 0.91 | 3.39 |
| Mathematics | 6 | 0.92 | 3.10 |
| Mathematics | 7 | 0.91 | 3.25 |
| Mathematics | 8 | 0.91 | 3.36 |
| ELA | 3 | 0.90 | 3.01 |
| ELA | 4 | 0.91 | 3.10 |
| ELA | 5 | 0.91 | 3.11 |
| ELA | 6 | 0.90 | 3.09 |
| ELA | 7 | 0.90 | 3.09 |
| ELA | 8 | 0.91 | 3.15 |
| Science | 4 | 0.90 | 3.05 |
| Science | 8 | 0.91 | 3.03 |

Note. Reliabilities are based on unweighted raw scores.

Note that these tables in Appendix P report the standard deviations of observed scores. Assuming normally distributed scores, one would expect about two-thirds of the observations to be within one standard deviation of the mean. An estimate of the standard deviation of the true scores can be computed as

$$\hat{\sigma}_T = \sqrt{\hat{\sigma}_x^2 - \hat{\sigma}_x^2(1 - \hat{\rho}_{xx})}$$

The results are historically consistent with past PSSA reliability results. The overall test score reliability values are strong, as they are all greater than or equal to .90. In theory and in practice, test reliability is influenced by test length. However, theory and practice also provide methods to offset this tendency and facilitate the production of reliable assessments under different test length scenarios. These methods focus on the statistical information that is provided by items. When this information is proven to be high during field testing, and is balanced with test blueprint requirements, the use of such items allows for the optimization of content validity and test reliability. This is the approach that was used for construction of the 2019 PSSAs and will continue to be used moving forward as the item pool is routinely replenished with similarly high-quality items.

Across the grades and subjects tabled in Appendix P, reliabilities for each reporting category are also provided. Reporting categories are detailed in Chapter Two. Reporting categories with more items tend to show higher reliability coefficients, but the test length reductions implemented in 2018 resulted in a larger decrease of score reliability at the reporting category level compared to the total test level. Also, groups exhibiting more variability in test scores tended to have higher reliability coefficients. Perhaps the most significant result pertains to an earlier caution (i.e., that some reporting category reliabilities may be too low to warrant interpretation at the individual student level). Once again, there is no firm guideline regarding how low is too low. The lower a given reliability coefficient, the greater the potential for over-interpretation. As a point of reference, a reliability coefficient of 0.50 would suggest that there is as much error variance as true-score variance in the scores. It should be noted that the reliability of group mean scores (e.g., school or district means) tends to be higher than that of individual scores, suggesting interpretation of strand scores at these aggregate levels is likely reasonable.

RASCH CONDITIONAL STANDARD ERROR OF MEASUREMENT

The CSEM also indicates the degree of measurement error but does so in scaled-score units and varies as a function of a student’s actual scaled score. Therefore, the CSEM may be especially useful in characterizing measurement precision with respect to score levels used for decision-making—such as cut scores for identifying students who meet a performance standard.

Technically, when a Rasch model is applied, the CSEM at any given point on the ability continuum is defined as the reciprocal of the square root of the test information function derived from the Rasch scaling model.

$$CSEM(\hat{\theta}) = \frac{1}{\sqrt{I(\hat{\theta})}}$$

where $CSEM(\hat{\theta})$ is the conditional standard error of measurement and $I(\hat{\theta})$ is the test information function. Test information depends on the sum of the corresponding information functions for the test items. Item information depends on each item’s difficulty and conditional item score variance. The formula above utilizes the Rasch ability (θ) metric. The conditional standard error on the scaled score (SS) metric is determined by simply multiplying the $CSEM(\hat{\theta})$ by the slope (multiplicative constant, m) of the linear transformation equation used to convert the Rasch ability estimates to scaled scores.

$$CSEM(SS) = CSEM(\hat{\theta}) * m$$

Chapter Fourteen provides the linear transformation formulas for each PSSA test.

RASCH CONDITIONAL STANDARD ERROR OF MEASUREMENT CONFIDENCE INTERVALS

CSEMs also allow statements regarding the precision of individual tests scores. And like SEMs, they help place reasonable limits around observed scaled scores through construction of an approximate score band. The confidence intervals are constructed by adding and subtracting a multiplicative factor of the CSEM and may be interpreted as described in the earlier section.

FURTHER INTERPRETATIONS

DIFFERENT CONDITIONAL STANDARD ERROR OF MEASUREMENT FOR DIFFERENT TEST SCORES

The CSEM approach provides different numerical estimates for constructing the confidence intervals for examinees depending on their specific score level. The magnitude of the CSEM values is U-shaped with larger CSEM values associated with lower and higher scores.

GROUP SPECIFIC

Assuming reasonable model-data fit—as explored in Chapter Twelve—the Rasch based CSEMs (conditioned on score level) should not vary across groups.

SCALED-SCORE METRIC

The CSEM and associated confidence interval bands are on the scaled score metric.

TYPE OF ERROR REFLECTED

The SEMs documented on the PSSA score reports are the Rasch-based conditional standard errors of measurement described above. These are provided by the WINSTEPS scaling program described in Chapter Twelve. As noted earlier, these CSEMs are based on the concept of statistical information. To provide a simpler explanation of SEMs to test score users, the earlier description of SEMs framed using the idea of internal consistency reliability was provided in the PSSA score report interpretive documents.⁵ Score report content is considered in greater detail in Chapter Sixteen.

RESULTS AND OBSERVATIONS

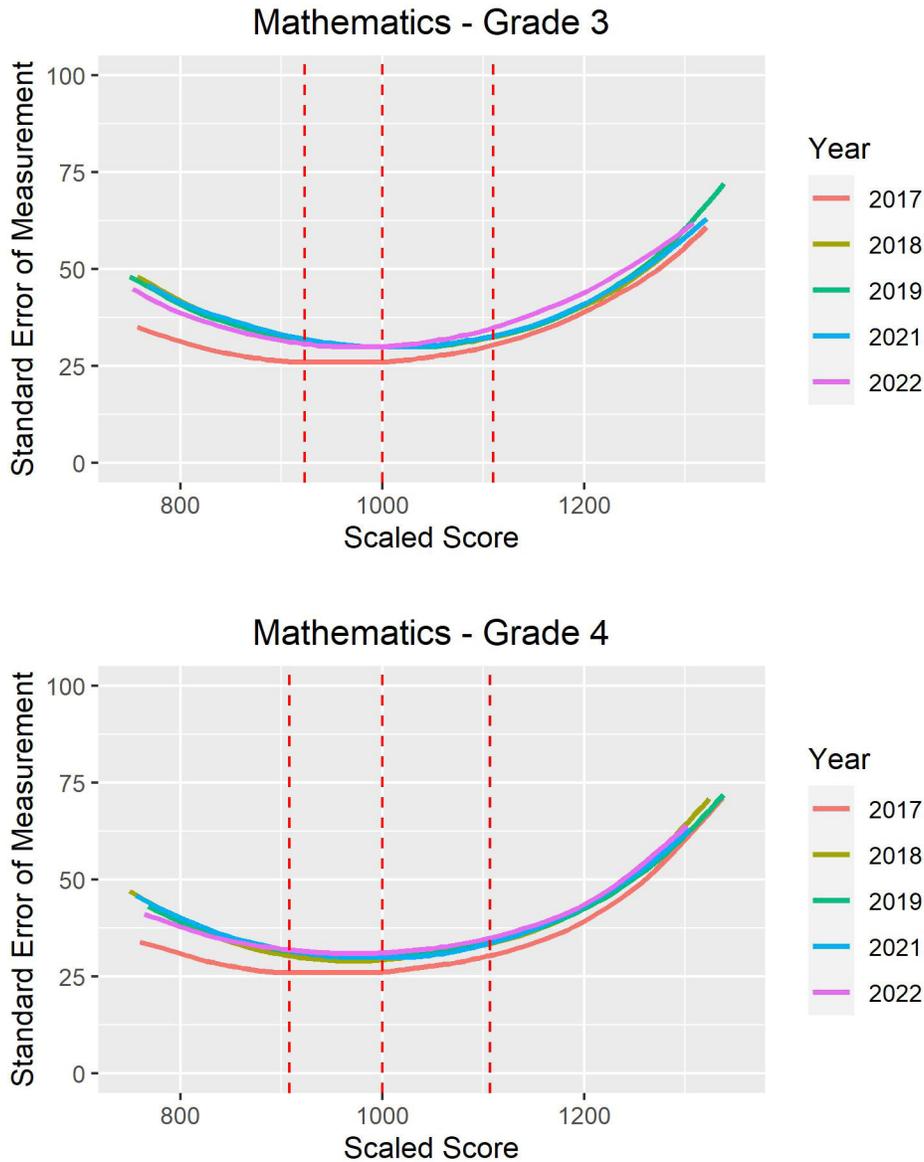
Figure 18–2 shows the Rasch CSEMs associated across the scaled score distribution. (This information is also provided in the raw-to-scaled score conversion tables in Appendix N.) Values were derived using the pre-equated data file described in Chapter Nine, and the post-equated data file described in Chapter Fifteen. The values are consistent across a large range of the scaled scores, as demonstrated by the relatively flat bottoms of most plots. The values increase at both extremes (i.e., at smaller and larger scaled scores) giving these figures their typical U-shaped pattern. (Only the SEMs for scores greater than the lowest observable scaled scores [LOSS] are shown in the figures; consequently, the complete U-shape does not appear in most plots.) The three red-dashed lines represent the Basic, Proficient, and Advanced scaled score cuts, respectively, moving from lower to higher scaled score values. CSEM values at the cut score lines were generally associated with smaller CSEM values, indicating more precise measurement occurs at these points on the scales. The curves are presented for the current year, and the most recent four administrations. Similar to the small changes in reliability, the CSEM comparisons show generally that the test length reduction that was implemented first in 2018 resulted in minimal increases in conditional error and are within expectations for a shorter test.

Because the 2019 examinations were pre-equated, considerable effort was placed on producing tables with CSEM as comparable as possible to the 2018 full length tests. Grade 4 Science showed the largest differences in test information around the basic and proficient cut scores, and a corresponding increase in CSEMs in this range. This is primarily due to the result of an effort to shift test difficulty during construction of the 2017 PSSAs to better align test difficulty with student performance distributions in support of providing the best measurement where the most students are in the distribution.

⁵ Because IRT CSEMs are based on statistical information, it is questionable whether they account for error variance due to items. However, it seems difficult to construct a simple explanation of IRT CSEMs for the general public.

Figure 18–2 displays the CSEM curves for each PSSA from 2017 through 2022⁶. Generally, small differences are noted for the shortened tests (beginning in 2018), with increases of roughly 5–8 across the cut points for all tests. Across all plots, the shape of the 2017 and 2022 curves is quite similar, pointing to good isolation of the statistical impact of the reduction alone as the primary source of difference. Moreover, the CSEM curves from 2018 through 2022 are often overlapping, showing similarity in the precision of scores at each cut-score. The greatest change in CSEM is noted at the basic cut point for the two science tests. This is also likely to be the result of the 2017 shift to test difficulty, impacting science more than ELA and mathematics.

Figure 18–2. Conditional Standard Error Plots by Subject and Grade



⁶ Figure 18-2 does not show the SEM curves for 2020 due to the cancellation of state-wide summative tests.

Figure 18–2 (continued). Conditional Standard Error Plots by Subject and Grade

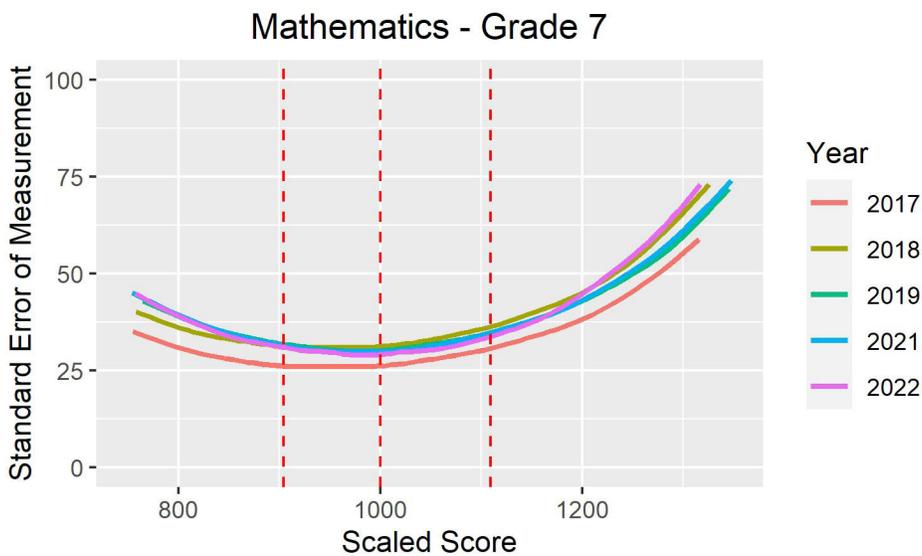
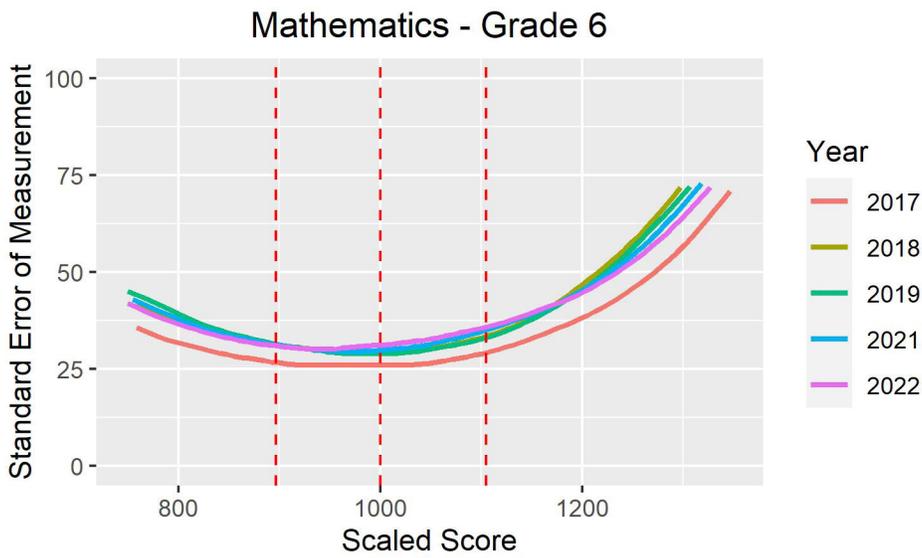
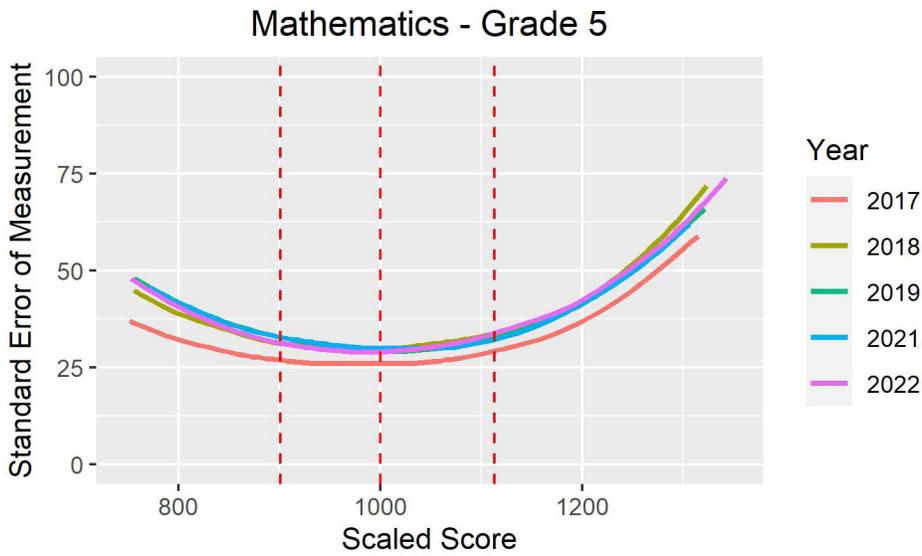


Figure 18–2 (continued). Conditional Standard Error Plots by Subject and Grade

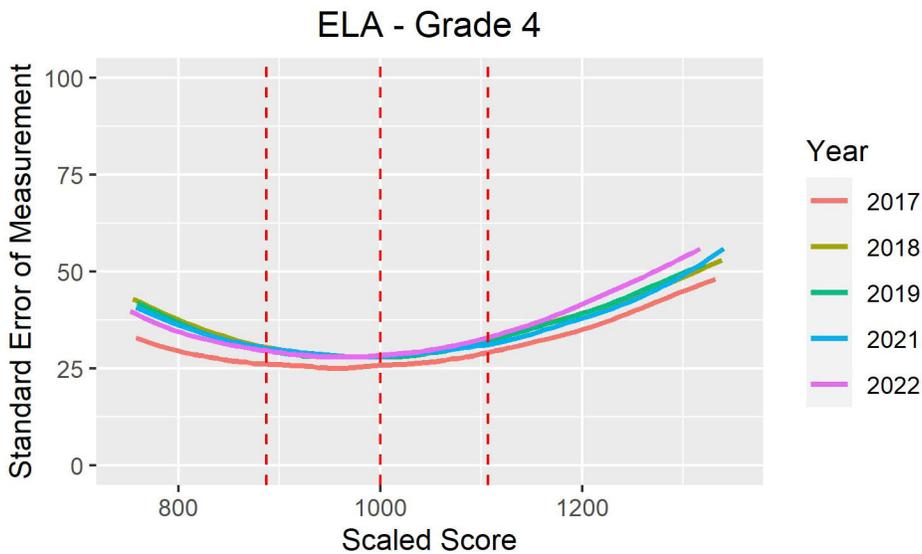
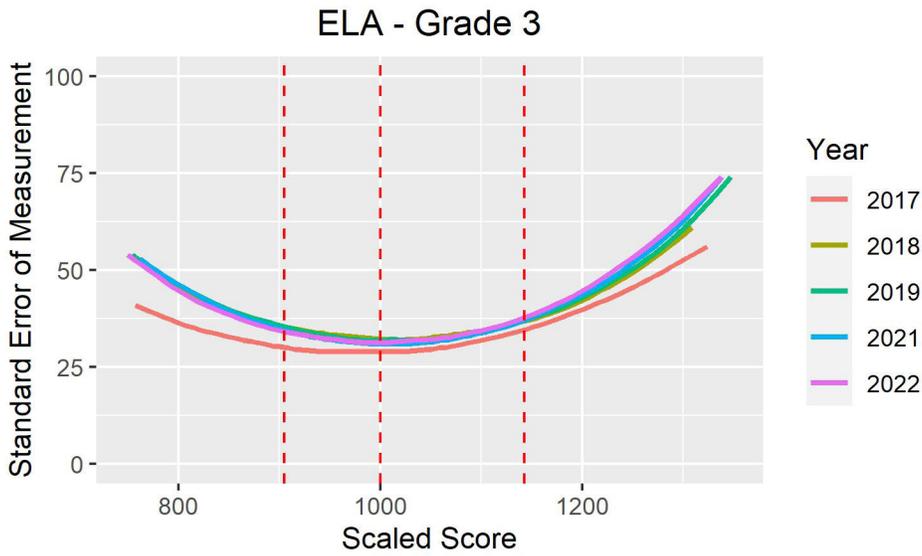
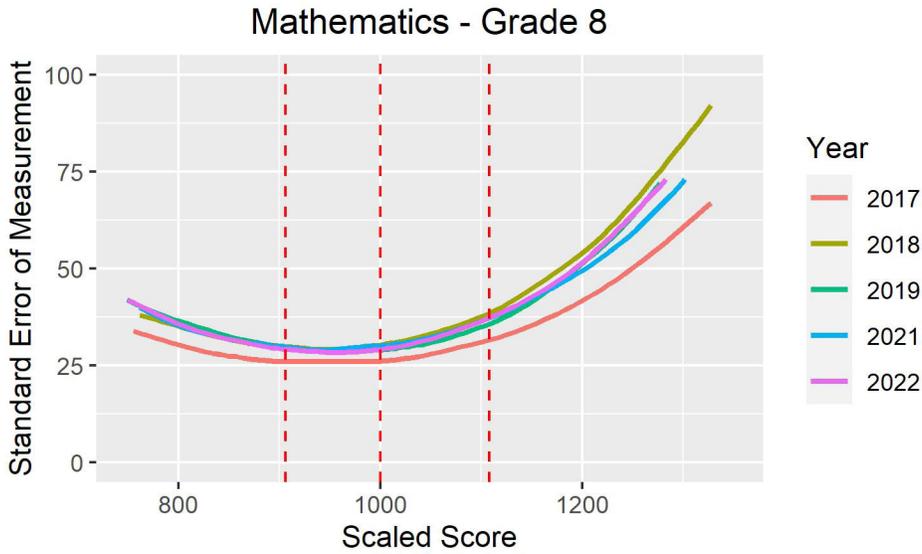


Figure 18–2 (continued). Conditional Standard Error Plots by Subject and Grade

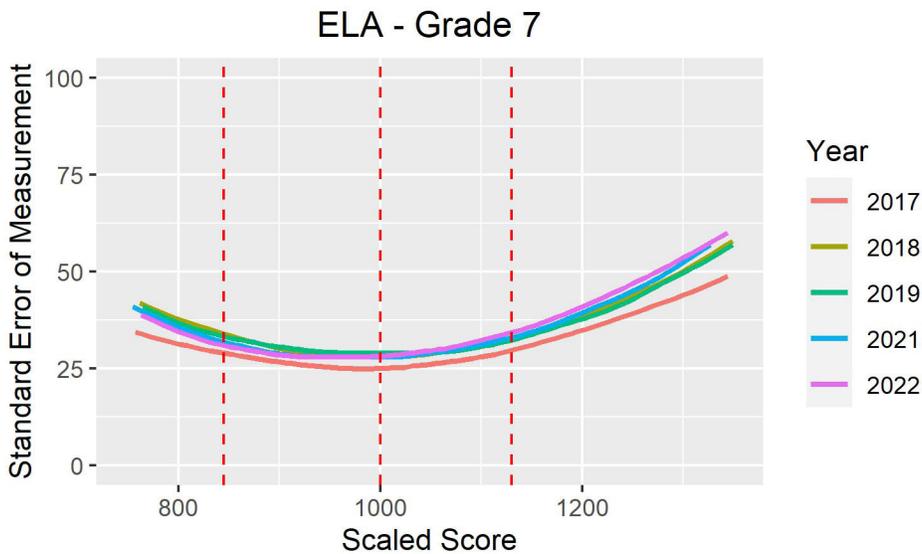
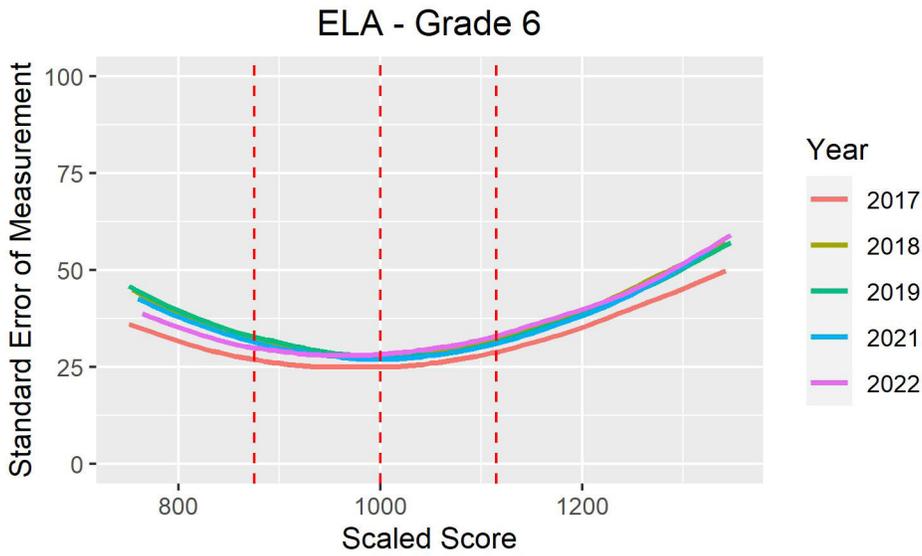
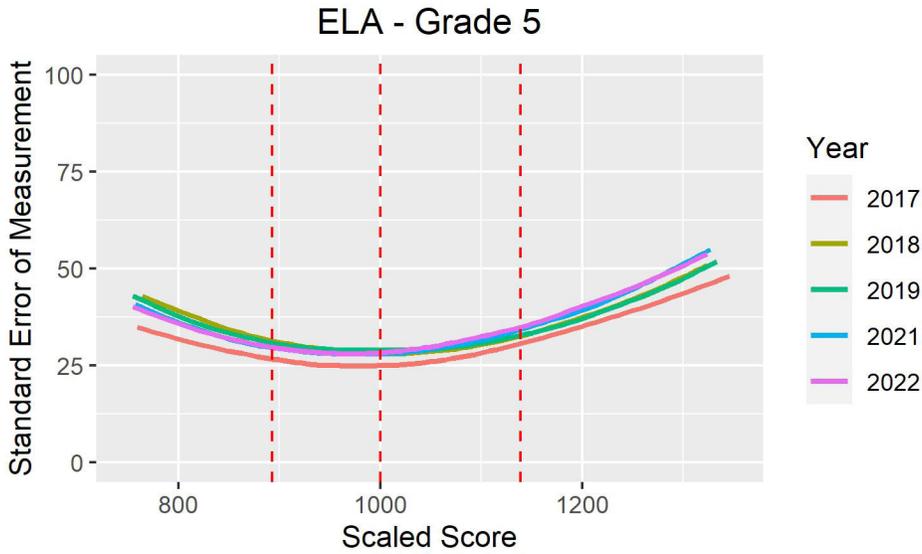
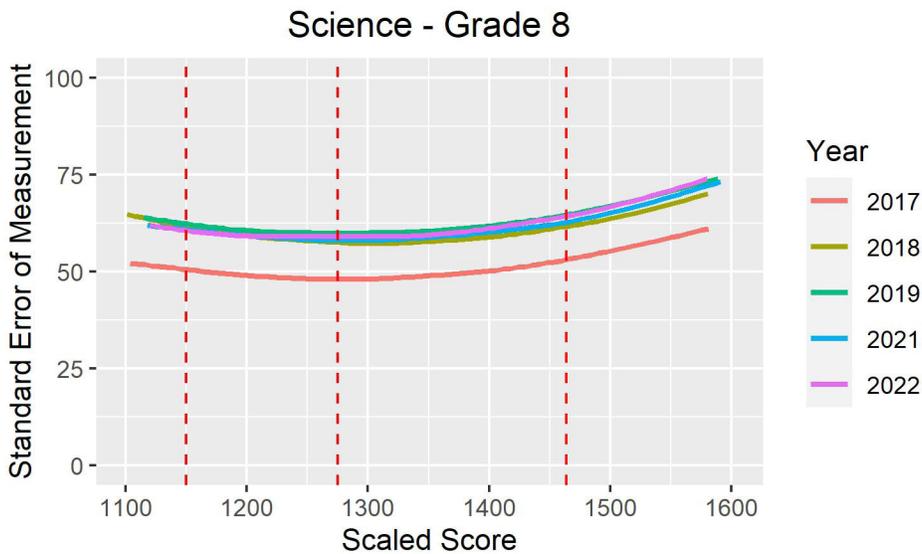
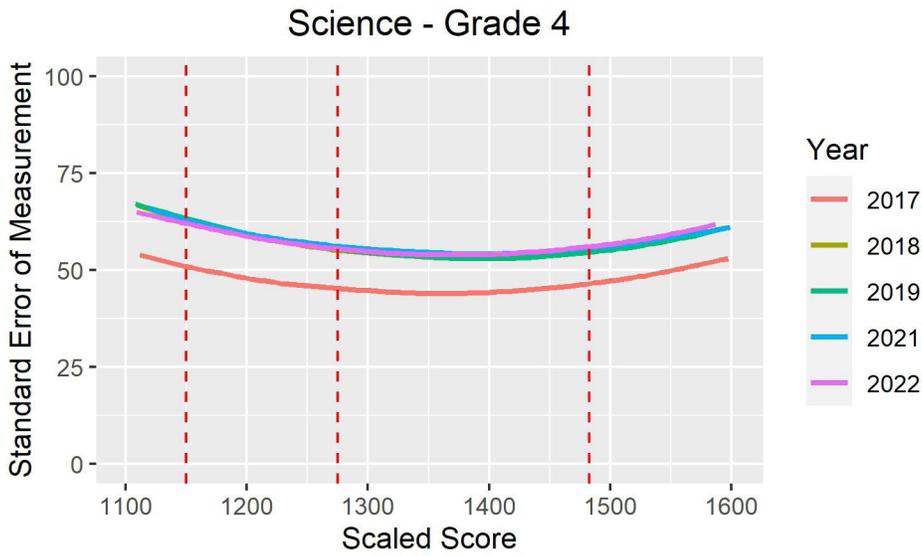
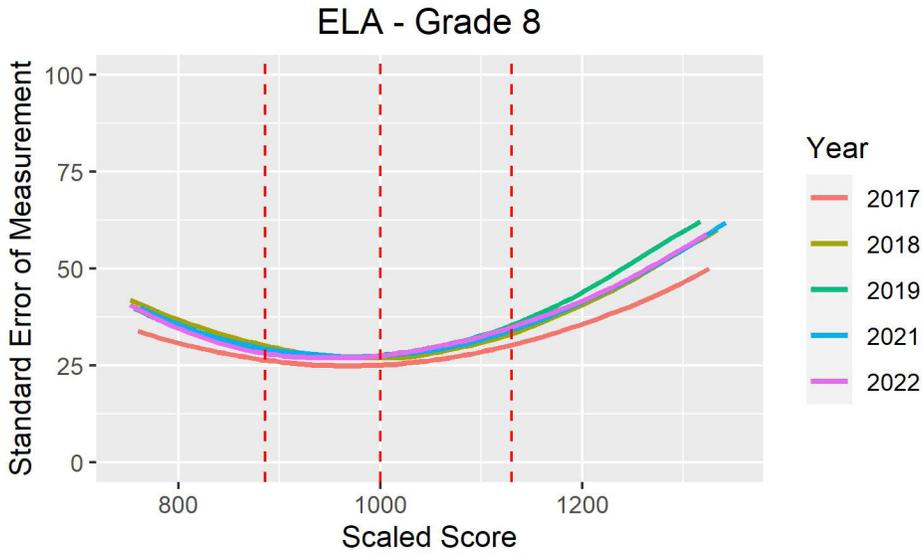


Figure 18–2 (continued). Conditional Standard Error Plots by Subject and Grade



DECISION CONSISTENCY AND ACCURACY

In a standards-based testing program there should be great interest in knowing how accurately students are classified into performance categories. In contrast to Coefficient Alpha that is concerned with the relative rank-ordering of students, it is the absolute values of student scores that are important in decision consistency and accuracy.

Classification consistency refers to the degree to which the achievement level for each student can be replicated upon retesting using an equivalent form (Huynh, 1976). Decision consistency answers the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test. If two parallel forms of the test were given to the same students, the consistency of the measure would be reflected by the extent that the classification decisions made from the first set of test scores matched the decisions based on the second set of test scores. Consider Tables 18–5 and 18–6 below.

Table 18–5. Pseudo-Decision Table for Two Hypothetical Categories

| Tests One and Two | Test One Level I | Test One Level II | Test One Marginal |
|-------------------|--------------------|--------------------|-------------------|
| Test Two Level I | ϕ_{11} | ϕ_{12} | $\phi_{1\bullet}$ |
| Test Two Level II | ϕ_{21} | ϕ_{22} | $\phi_{2\bullet}$ |
| Test Two Marginal | $\phi_{\bullet 1}$ | $\phi_{\bullet 2}$ | 1 |

Table 18–6. Pseudo-Decision Table for Four Hypothetical Categories

| Tests One and Two | Test One Level I | Test One Level II | Test One Level III | Test One Level IV | Test One Marginal |
|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
| Test Two Level I | ϕ_{11} | ϕ_{12} | ϕ_{13} | ϕ_{14} | $\phi_{1\bullet}$ |
| Test Two Level II | ϕ_{21} | ϕ_{22} | ϕ_{23} | ϕ_{24} | $\phi_{2\bullet}$ |
| Test Two Level III | ϕ_{31} | ϕ_{32} | ϕ_{33} | ϕ_{34} | $\phi_{3\bullet}$ |
| Test Two Level IV | ϕ_{41} | ϕ_{42} | ϕ_{43} | ϕ_{44} | $\phi_{4\bullet}$ |
| Test Two Marginal | $\phi_{\bullet 1}$ | $\phi_{\bullet 2}$ | $\phi_{\bullet 3}$ | $\phi_{\bullet 4}$ | 1 |

If a student is classified as being in one category based on Test One’s score, how probable would it be that the student would be reclassified as being in the same category if he or she took Test Two (a non-overlapping, equally difficult form of the test)?

The proportions of correct decisions, ϕ , for two and four categories are computed by the following two formulas, respectively:

$$\phi = \phi_{11} + \phi_{22}$$

$$\phi = \phi_{11} + \phi_{22} + \phi_{33} + \phi_{44}$$

It is the sum of the diagonal entries—that is, the proportion of students classified by the two forms into the same achievement level—that signifies the overall consistency.

Classification accuracy refers to the agreement of the observed classifications of students with the classifications made based on their true scores. An observed score contains measurement error while a true score is free of measurement error. A student’s observed score can be formulated by the sum of his or her true score plus measurement error, or. Decision accuracy is an index to determine the extent to which measurement error causes a classification different than expected from the true score.

Since true scores are unobserved and since it is not feasible to repeat PSSA testing to estimate the proportion of students who would be reclassified in the same performance levels, a statistical model needs to be imposed on the data to estimate the true scores and to project the consistency and accuracy of classifications solely using data from the available administration (Hambleton & Novick, 1973). Although several procedures are available, one well-known method was developed by Livingston and Lewis (1995) utilizing a specific True Score Model. This approach is fairly complex, and the cited source contains details regarding the statistical model used to calculate decision consistency and accuracy from the single PSSA administration.

FURTHER INTERPRETATIONS

Several factors might affect decision consistency and accuracy. One important factor is the reliability of the scores. All other things being equal, more reliable test scores tend to result in more similar reclassifications and less measurement error. Another factor is the location of the cut score in the score distribution. More consistent and accurate classifications are observed when the cut scores are located away from the mass of the score distribution. For example, when scores are close to being normally distributed, the mass is concentrated in the middle of the distribution, and, thus classifications tend to become more consistent when cut scores go up from 70 percent to 80 percent to 90 percent or, alternatively, go down from 30 percent to 20 percent to 10 percent. The number of performance levels is also a consideration. Consistency and accuracy indices for four performance levels should be lower than those based on two categories. This is not surprising since classification and accuracy using four levels would allow more opportunity to change achievement levels. Hence, there would be more classification errors and less accuracy with four achievement levels, resulting in lower consistency indices.

RESULTS AND OBSERVATIONS

The results for the overall consistency across all four performance levels as well as for the dichotomies created by the three cut scores are presented in Table 18–7. The tabled values were derived using the program *BB-Class* (Brennan, 2004) and applies the Livingston and Lewis (1995) method. Across all subjects and grade levels, the overall decision accuracy ranged from the 0.71 to 0.84 ($M = 0.77$) while the decision consistency ranged from 0.60 to 0.80 ($M = 0.68$). It should be noted that the overall consistency and accuracy indices across the four performance levels should be lower than those based on two categories (discussed above). Dichotomous decisions between each adjacent pair of performance level classifications have accuracy values that range from 0.88 to 0.97 ($M = 0.92$) and consistency values that range from 0.84 to 0.96 ($M = 0.89$).

Table 18–7. Decision Consistency and Accuracy Results

| Subject | Grade | Statistic | Overall | Bel. Basic/ Basic | Basic/ Proficient | Proficient/ Advanced |
|-------------|-------|-------------|---------|----------------------|----------------------|-------------------------|
| Mathematics | 3 | accuracy | 0.79 | 0.93 | 0.92 | 0.94 |
| Mathematics | 3 | consistency | 0.71 | 0.90 | 0.89 | 0.91 |
| Mathematics | 4 | accuracy | 0.79 | 0.92 | 0.92 | 0.95 |
| Mathematics | 4 | consistency | 0.71 | 0.89 | 0.89 | 0.93 |
| Mathematics | 5 | accuracy | 0.78 | 0.90 | 0.93 | 0.96 |
| Mathematics | 5 | consistency | 0.70 | 0.86 | 0.90 | 0.94 |
| Mathematics | 6 | accuracy | 0.82 | 0.92 | 0.94 | 0.96 |
| Mathematics | 6 | consistency | 0.74 | 0.89 | 0.91 | 0.94 |
| Mathematics | 7 | accuracy | 0.81 | 0.90 | 0.94 | 0.97 |
| Mathematics | 7 | consistency | 0.74 | 0.86 | 0.92 | 0.96 |
| Mathematics | 8 | accuracy | 0.84 | 0.92 | 0.95 | 0.97 |
| Mathematics | 8 | consistency | 0.77 | 0.88 | 0.92 | 0.96 |
| ELA | 3 | accuracy | 0.77 | 0.92 | 0.91 | 0.94 |
| ELA | 3 | consistency | 0.68 | 0.89 | 0.87 | 0.92 |
| ELA | 4 | accuracy | 0.71 | 0.92 | 0.89 | 0.89 |
| ELA | 4 | consistency | 0.61 | 0.89 | 0.85 | 0.85 |
| ELA | 5 | accuracy | 0.73 | 0.93 | 0.90 | 0.91 |
| ELA | 5 | consistency | 0.63 | 0.90 | 0.85 | 0.88 |
| ELA | 6 | accuracy | 0.74 | 0.95 | 0.89 | 0.90 |
| ELA | 6 | consistency | 0.64 | 0.93 | 0.84 | 0.86 |
| ELA | 7 | accuracy | 0.75 | 0.96 | 0.89 | 0.90 |
| ELA | 7 | consistency | 0.65 | 0.94 | 0.84 | 0.86 |
| ELA | 8 | accuracy | 0.72 | 0.93 | 0.89 | 0.90 |
| ELA | 8 | consistency | 0.62 | 0.90 | 0.85 | 0.86 |
| Science | 4 | accuracy | 0.79 | 0.95 | 0.92 | 0.92 |
| Science | 4 | consistency | 0.71 | 0.93 | 0.89 | 0.88 |
| Science | 8 | accuracy | 0.77 | 0.92 | 0.92 | 0.93 |
| Science | 8 | consistency | 0.69 | 0.89 | 0.88 | 0.90 |

Note. Results derived using PSSA final data file (see Chapter Nine).

RATER AGREEMENT

Because open-ended items are included on the PSSAs, another source of random error is related to the scorers of those items. Frisbie (2005) noted that “test score reliability differs from scorer reliability” and that “the need for one kind of estimate cannot be satisfied by the other.” Additionally, the data most easily obtainable that captures this information comes from the “10 percent read behinds” collected during the scoring process (see Chapter Eight for a description). Partly because of the way that this data is obtained and reported (i.e., it is not a ratio of true score variance over observed score variance), the term rater agreement or inter-rater agreement are used here, rather than rater reliability or inter-rater reliability as these terms are somewhat misleading as explained above.

FURTHER INTERPRETATIONS

For the PSSAs, both within-year and across-year rater consistency are available. As part of the data collected for that process, additional across-year rater consistency data is available for consideration.

RESULTS AND OBSERVATIONS

Within-year rater agreement information is provided in Chapter Eight. This information is reformatted in Tables 18–8 through 18–10 for PSSA mathematics, ELA, and science OE items, respectively. In addition, the percentages awarded to each score point are also presented in these tables. As seen from these tables, the inter-rater exact agreement percentages range from 80 percent to 92 percent for mathematics, 83 percent to 90 percent for ELA, and 87 percent to 99 percent for science. Mathematics had validity ranging from 75 percent to 94 percent; ELA had validity ranging from 80 percent to 93 percent; and science had validity ranging from 88 percent to 98 percent. (Validity in terms of scoring practices is discussed further in Chapter Eight.)

Table 18–8a. Inter-Rater Agreement for OE Items—Mathematics

| Grade | Item | Percent Exact | Percent Adjacent | Validity |
|-------|------|---------------|------------------|----------|
| 3 | 1 | 91 | 9 | 93 |
| 3 | 2 | 92 | 8 | 93 |
| 3 | 3 | 91 | 9 | 85 |
| 4 | 1 | 84 | 15 | 83 |
| 4 | 2 | 88 | 12 | 87 |
| 4 | 3 | 89 | 11 | 89 |
| 5 | 1 | 86 | 14 | 85 |
| 5 | 2 | 84 | 16 | 82 |
| 5 | 3 | 86 | 14 | 83 |
| 6 | 1 | 89 | 11 | 84 |
| 6 | 2 | 88 | 12 | 80 |
| 6 | 3 | 87 | 12 | 81 |
| 7 | 1 | 92 | 8 | 91 |
| 7 | 2 | 80 | 20 | 75 |
| 7 | 3 | 91 | 9 | 88 |
| 8 | 1 | 90 | 10 | 94 |
| 8 | 2 | 88 | 12 | 89 |
| 8 | 3 | 90 | 10 | 89 |

Note. For more information regarding validity, see the section on Handscoring Validity Process in Chapter Eight.

Table 18–8b. Percentage Awarded for Each Score Point for OE Items—Mathematics

| Grade | Item | 0 | 1 | 2 | 3 | 4 | Blank or non-scoreable |
|--------------|-------------|----------|----------|----------|----------|----------|-------------------------------|
| 3 | 1 | 30 | 23 | 19 | 15 | 8 | 4 |
| 3 | 2 | 11 | 31 | 39 | 11 | 4 | 4 |
| 3 | 3 | 11 | 21 | 29 | 28 | 5 | 6 |
| 4 | 1 | 31 | 39 | 11 | 8 | 6 | 4 |
| 4 | 2 | 23 | 35 | 20 | 11 | 3 | 8 |
| 4 | 3 | 10 | 53 | 21 | 10 | 2 | 5 |
| 5 | 1 | 23 | 28 | 22 | 14 | 7 | 5 |
| 5 | 2 | 19 | 19 | 19 | 21 | 15 | 8 |
| 5 | 3 | 20 | 41 | 19 | 13 | 3 | 5 |
| 6 | 1 | 16 | 57 | 16 | 4 | 1 | 6 |
| 6 | 2 | 34 | 31 | 15 | 8 | 3 | 10 |
| 6 | 3 | 19 | 20 | 44 | 8 | 4 | 6 |
| 7 | 1 | 39 | 33 | 10 | 5 | 5 | 7 |
| 7 | 2 | 28 | 26 | 22 | 8 | 3 | 12 |
| 7 | 3 | 43 | 28 | 11 | 6 | 2 | 9 |
| 8 | 1 | 33 | 21 | 15 | 15 | 8 | 8 |
| 8 | 2 | 19 | 37 | 19 | 10 | 3 | 12 |
| 8 | 3 | 35 | 24 | 14 | 11 | 4 | 12 |

Table 18–9a. Inter-Rater Agreement for OE Items—ELA

| Grade | Item | Item Type | Percent Exact | Percent Adjacent | Validity |
|-------|------|-----------|---------------|------------------|----------|
| 3 | 1 | SA | 84 | 16 | 85 |
| 3 | 2 | SA | 88 | 12 | 93 |
| 4 | 1 | TDA | 90 | 10 | 80 |
| 5 | 1 | TDA | 83 | 17 | 83 |
| 6 | 1 | TDA | 86 | 14 | 81 |
| 7 | 1 | TDA | 87 | 13 | 82 |
| 8 | 1 | TDA | 89 | 11 | 83 |

Note. EBSR items are machine scored because they are two-part MC like items and not shown in this table. For more information regarding validity, see the section on Handscoring Validity Process in Chapter Eight.

Table 18–9b. Percentage Awarded for Each Score Point for OE Items—ELA

| Grade | Item | Item Type | 0 | 1 | 2 | 3 | 4 | Blank or non-scoreable |
|-------|------|-----------|----|----|----|----|----|------------------------|
| 3 | 1 | SA | 22 | 31 | 26 | 6 | NA | 9 |
| 3 | 2 | SA | 41 | 17 | 21 | 12 | NA | 10 |
| 4 | 1 | TDA | NA | 27 | 33 | 11 | 2 | 27 |
| 5 | 1 | TDA | NA | 27 | 44 | 13 | 2 | 13 |
| 6 | 1 | TDA | NA | 21 | 47 | 17 | 1 | 12 |
| 7 | 1 | TDA | NA | 25 | 35 | 19 | 4 | 16 |
| 8 | 1 | TDA | NA | 21 | 39 | 17 | 4 | 19 |

Note. EBSR items are machine scored because they are two-part MC like items and not shown in this table.

Table 18–10a. Inter-Rater Agreement for OE Items—Science

| Grade | Item | Percent Exact | Percent Adjacent | Validity |
|-------|------|---------------|------------------|----------|
| 4 | 1 | 91 | 9 | 97 |
| 4 | 2 | 95 | 5 | 97 |
| 4 | 3 | 93 | 7 | 97 |
| 4 | 4 | 99 | 1 | 98 |
| 4 | 5 | 87 | 13 | 90 |
| 8 | 1 | 97 | 3 | 98 |
| 8 | 2 | 97 | 3 | 94 |
| 8 | 3 | 95 | 5 | 94 |
| 8 | 4 | 96 | 4 | 96 |
| 8 | 5 | 89 | 11 | 88 |

Note. For more information regarding validity, see the section on Handscoring Validity Process in Chapter Eight.

Table 18–10b. Percentage Awarded for Each Score Point for OE Items—Science

| Grade | Item | 0 | 1 | 2 | Blank or non-scoreable |
|-------|------|----|----|----|------------------------|
| 4 | 1 | 32 | 44 | 17 | 6 |
| 4 | 2 | 17 | 55 | 20 | 7 |
| 4 | 3 | 10 | 34 | 49 | 7 |
| 4 | 4 | 12 | 53 | 28 | 7 |
| 4 | 5 | 26 | 44 | 23 | 7 |
| 8 | 1 | 48 | 33 | 10 | 9 |
| 8 | 2 | 36 | 43 | 8 | 11 |
| 8 | 3 | 41 | 26 | 17 | 15 |
| 8 | 4 | 22 | 47 | 17 | 12 |
| 8 | 5 | 17 | 32 | 39 | 12 |

CHAPTER NINETEEN: VALIDITY

As defined in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014), validity refers to “the degree to which evidence and theory support the interpretation of test scores entailed by proposed uses of tests” (p. 11). The *Standards* provides a framework for describing the sources of evidence that should be considered when evaluating validity. These sources include evidence based on 1) test content, 2) response processes, 3) the internal structure of the test, 4) the relationships between test scores and other variables, and 5) the consequences of testing. In addition, when Item Response Theory (IRT) models are used to analyze assessment data, validity considerations related to those processes should also be explored.

The validity process involves the collection of evidence from a variety of sources to support the proposed test score interpretations and uses. This technical report describes throughout, the technical aspects of the PSSA tests in support of their score interpretations and uses. Each of the previous chapters contributes important evidence components that pertain to score validation: test development, test administration, test scoring, item analysis, Rasch calibration, scaling, linking, score reporting, and reliability. This chapter summarizes and synthesizes the evidence based on the *Standards*’ framework. The purposes and intended uses of PSSA test scores are reviewed first, then each type of validity evidence is addressed in turn.

PURPOSES AND INTENDED USES OF THE PSSA

The *Standards* emphasize that validity pertains to how test scores are used. To help contextualize the evidence that will be presented below, the purposes of the PSSA will be reviewed first. As stated in Chapter One, the purpose of the PSSA is to measure how well students acquire the knowledge and skills described in the *Pennsylvania Assessment Anchor Content Standards* (Assessment Anchors) as defined by the Eligible Content for mathematics, ELA, and Science. The intended uses of the PSSA are to:

1. Provide information for use in school and district accountability systems
2. Improve curricular and instructional practices to help students reach proficiency in the Pennsylvania Core Standards (ELA and Mathematics) or the Pennsylvania Academic Standards (Science)

TEST LENGTH REDUCTION

The Pennsylvania Department of Education (PDE) established new, reduced length PSSA test designs in 2017 for administration beginning in 2018. The PSSA test length reductions were designed to reduce PSSA testing burdens while maintaining rigor in test reliabilities, and test score validity arguments. The approved test design changes can be briefly summarized as:

- Mathematics
 - Proportional reduction of each reporting category
 - Grades 3–8: 72 to 52 total raw score points
- ELA
 - Removed writing prompt and selection of standalone multiple-choice language items
 - Grade 3: 62 to 45 total raw score points (weighted)
 - Grades 4–8: 84 to 63 total raw score points (weighted)
- Science
 - Proportional reduction of each reporting category
 - Grades 4 and 8: 68 to 48 total raw score points

The PSSA tests have been consistently constructed with attention to balancing content and statistical requirements to optimize test score reliability and validity. This remained true during construction of the reduced length tests. Although test reliability is influenced by test length (Spearman & Brown, 1910), the use of high quality items, with strong statistical features, can facilitate the production of reliable assessments under different test length scenarios. As discussed in Chapter Eighteen, reliability results for the shortened tests continued to show strong internal consistency of scores.

As there was a change to the test blueprint for ELA beyond a proportional reduction of the content, caution was used to ensure that the original 2015 standards appropriately defined performance on the reduced length ELA tests. Consequently, a standards validation was conducted in June of 2018 prior to formally reporting ELA scores. The purpose of the standards validation was to consider if the 2015 cut scores continued to reflect appropriate distinctions in performance on the ELA tests, given the removal of the writing prompt and nine language items. Pennsylvania educators participated in a four-day workshop to review the new tests and applied a modified Bookmark standard setting procedure. Results of the standards validation confirmed that the existing standards still appropriately classify examinee performance into the four levels of Below Basic, Basic, Proficient, and Advance. For example, a score of 1000 was determined to appropriately separate examinee performance on the ELA tests between the Below Basic and Proficient levels. The same was true for each of the remaining cut scores for grades 3 through 8, Below Basic and Advanced. Please refer to the Pennsylvania System of School Assessment Grades 3–8 English Language Arts Standards Validation 2018 Final Technical Report for full details regarding the standards validation design, implementation, committee review, and final results.

Beyond standards validation, the provision of ongoing validity evidence will continue to be a central feature in the PSSA technical documentation. This chapter proceeds with a discussion of five sources of validity evidence for the PSSA, including studies that were conducted to evaluate the PSSAs for evidence of any shifts in the ELA construct related to the test design modification for ELA, i.e. removal of the writing prompt and nine language items.

EVIDENCE BASED ON TEST CONTENT

Test content validity evidence for the PSSA rests greatly on establishing a link between each component of the assessment (i.e., the items) and what the students should know and be able to do as required by the Assessment Anchors, Eligible Content, and/or the Academic Content Standards (refer to Chapter Two for a description of each of these elements). The PSSA tests are intended to measure students' knowledge and skills described in the Assessment Anchors as defined by the Eligible Content for mathematics, ELA, and science. Thus, the evidence supporting the alignment among the PSSA tasks, the Assessment Anchors as defined by the Eligible Content and the Academic Content Standards should be provided.

Lane (1999) suggests taking the following steps to support the content validity of tests:

- Evaluate the degree to which the test specifications represent and align with the knowledge and skills described in the Assessment Anchors as defined by the Eligible Content for mathematics, ELA, and science.
- Evaluate the alignment between the test items and test specifications to ensure representativeness.
- Evaluate the extent to which the curriculum aligns with the Assessment Anchors. If some contents are not included in the curriculum, then low scores on the test should not be interpreted as meaning that instruction was ineffective.
- Conduct content reviews of the test items using a panel of content experts to see whether they measure the intended construct or are the sources of construct-irrelevant variance.
- Conduct fairness reviews of the items to avoid issues related to a specific subpopulation.
- Evaluate procedures for administration and scoring, such as the appropriateness of instructions to examinees, time limit for the assessment, and training of raters.
- Submit operational tests to third-party, independent reviews.

Chapters Two through Eight of this report present evidence related to test content. As described in these chapters, all PSSA test blueprints (specifications) and items were developed and aligned with the PSSA Assessment Anchors and Eligible Content for mathematics, ELA, and science, consistently following well-established procedures. After the items were developed, they underwent multiple rounds of content and bias reviews. After they were field tested, they were reviewed with respect to their statistical properties. Items selected for the operational assessment had to pass content, psychometric, and PDE reviews. Tests were administered according to standardized procedures with allowable accommodations. The following summarizes the efforts described in greater detail in Chapters Two through Eight:

- DRC used Webb’s (1999) Depth of Knowledge (DOK) model to ensure the PSSA items aligned with the Assessment Anchors as defined by the Eligible Content and the Academic Content Standards in terms of both content and cognitive levels.
- DRC established detailed test and item/passage development specifications and ensured the items were sufficient in number and adequately distributed across content and levels of cognitive complexity and difficulty.
- DRC selected qualified item writers and provided training to help ensure they wrote high-quality items.
- Each newly-developed item was first reviewed by content specialists and editors at DRC to make sure that all items measured the intended Assessment Anchors, as defined by the Eligible Content for Mathematics, ELA, and Science. Appropriateness for the intended grade was also considered, as well as depth of knowledge, graphics, grammar/punctuation, language demand, and distractor reasonableness.
- Before field testing, the test items were submitted to content committees (composed of Pennsylvania educators) for review using, but not limited to, the following categories:
 - Overall quality and clarity
 - Anchor, eligible content, and/or standard alignment
 - Grade-level appropriateness
 - Difficulty level
 - Depth of knowledge
 - Appropriate sources of challenge (e.g., unintended content and skills)
 - Correct answer
 - Quality of distractors
 - Graphics
 - Appropriate language demand
 - Freedom from bias
- The items were also submitted to a Bias, Fairness, and Sensitivity Committee for review. This committee reviewed items for issues related to diversity, gender, and other pertinent factors.
- Items passing all the prior hurdles were tried out in a field-test event. Several statistical analyses were conducted on the field-test data, including classical item analyses, distractor analyses, and differential item functioning (DIF). Items were once again carefully reviewed by DRC staff and a committee of Pennsylvania teachers with respect to their statistical characteristics. DIF was used to detect test items that might bias test scores for subgroups. Empirical investigation of DIF strengthens the validity evidence related to score interpretations for student groups by eliminating potential sources of construct-irrelevant variance as such, DIF results might be better considered as internal structure validity evidence.

- The PSSA tests were administered according to standardized procedures with allowable accommodations and recommended testing times.
- As shown in Chapter Eight, the raters for open-ended (OE) items were carefully recruited and well trained. Their scoring was monitored throughout the scoring session to ensure that an acceptable level of scoring accuracy was maintained.

In addition to the foundational and routine procedures described above and in Chapters Two through Five, and summarized in Appendix C, two external studies were conducted to assess the alignment of the PSSA tests to the PSSA Assessment Anchors and Eligible Content. Achieve, Inc., Washington, D.C., conducted a preliminary review of the science Assessment Anchors in 2003 to evaluate the alignment with the Academic Standards and produced a follow-up report on the anchors in 2005.

EVIDENCE BASED ON RESPONSE PROCESSES

Response-process evidence is used to examine the extent to which the cognitive skills and processes employed by students match that identified in the test developer’s defined construct domains for all students and for each subgroup. Think-aloud procedures or cognitive labs can be used to collect this type of evidence. In addition, when an assessment includes OE items, an examination of the extent to which the raters interpret and apply the scoring criteria accurately when assigning scores to students’ responses on OE items also provides validity of the response-processes evidence.

For the PSSA science tests, DRC conducted a science cognitive lab study to gather relative information about the thinking processes students used to solve science scenario items. The use of the cognitive lab helped ensure that the intended response processes were employed by students.

For all the PSSA tests, well-organized scorer training and subsequent monitoring of rating accuracy helped ensure that raters strictly followed the scoring criteria to minimize rater biases that may affect their scoring. Refer to Chapter Eight for a detailed description of all hand-scoring procedures, and to Chapter Eighteen for statistical information regarding inter-rater reliability.

EVIDENCE BASED ON INTERNAL STRUCTURE

As described in the *Standards* (2014), internal-structure evidence refers to the degree to which the relationships between test items and test components conform to the construct on which the proposed test interpretations are based. For each PSSA test, one total test score as well as strand scores are reported (see Chapter Sixteen for more information about PSSA scores). Additionally, principle component and parallel analyses were conducted and provide strong internal-structure evidence of the unidimensionality of the PSSAs.

ITEM DIFFICULTY RANGES AND DISCRIMINATION

Multiple sources of evidence are provided that address the appropriateness of the range of difficulty and discrimination of the items on the PSSA tests. Plots of item p -values by point biserial correlations are provided in Chapter Eleven, and summary statistics are provided for IRT item difficulty parameters in Chapter Twelve.

ITEM RESPONSE THEORY DIMENSIONALITY

Results from principle component and parallel analyses were presented in Chapter Twelve. The PSSA mathematics, ELA and science tests are shown through a principle components analysis to be strongly unidimensional, providing evidence that the tests are measuring a single construct without undue irrelevant variance.

A confirmatory factor analysis was also applied to the 2017 original length and 2022 reduced length test data to assess the degree to which the intended construct for each test explains performance on the operational test items. Specifically, significant factor loadings, consistency of standardized variances of the unique factor scores, and model fit were examined across the CFA models for the original and reduced length tests, for each PSSA test.

Using *Mplus* (Muthén & Muthén, 1998–2012) a single factor model was specified for the original and reduced length tests, for each PSSA test as:

$$y_i = \tau + \Lambda\eta_i + \varepsilon_i$$

where y_2 is the outcome vector, τ is the intercept vector, Λ is the factor loading matrix, η_i is the common factor score, and represents the unique factor scores. For each model, the factor variance was fixed to 1.0 for model identification purposes. As the indicators in these models are ordered categorical variables and likely violate the assumption of multivariate normality required for maximum likelihood estimation, the models were fit using robust weighted least squares estimation. Model fit was evaluated for each model using adjusted Chi-Square tests of fit (Satorra & Bentler, 1994; Asparouhov & Muthén, 2010), Root Mean Square Error of Approximation (RMSEA), and the comparative fit index (CFI). RMSEA values below 0.06 and CFI values of 0.90 and above were considered to represent good fit (Hu & Bentler, 1999).

The Chi-square test of fit results for the CFAs show that, for all tests, the model does not fit perfectly in the population with p -values < 0.000. MacCallum (2001) notes that this is often the finding with larger sample sizes. Consistent with results from the shortened test in 2018 and 2019 the RMSEA results indicate good fit for the 2022 PSSA with values ranging between 0.015 and 0.025 for the original length tests in 2017 and between 0.016 and 0.024 for the reduced length tests in 2022. The CFI results also show good fit with values ranging from 0.926 to 0.972 for the original length tests in 2017 and from 0.979 to 0.99 for the reduced length tests in 2022. Table 19–1 provide a summary of the CFA results for the 2022 PSSA.

Note that as the models are not nested, a direct statistical comparison of model fit would not be informative. Procedures that allows for the comparison of non-nested models such as Akaike’s Information Criterion (AIC; Akaike, 1973) and the Bayesian Information Criterion (BIC; Schwarz, 1978) are designed primarily for model selection purposes, so are less useful here where the model has been chosen based on based on criteria external to the test.

Overall, the factor analysis results suggest that a single factor (the ELA construct as detailed in Chapter Two) is explaining the variance in responses well for both the 2017 and 2022 (Table 19–1) reduced length tests, supporting an overall conclusion of construct stability between the original and reduced length tests.

Table 19–1. CFA Model Fit for Reduced Length PSSAs – 2022

| Subject | Grade | N Items | N | RMSEA | CFI | Chi-Square DF | Chi-Square Adj. P-Value |
|-------------|-------|---------|--------|-------|-------|---------------|-------------------------|
| Mathematics | 3 | 43 | 114714 | 0.024 | 0.983 | 860 | <.0000 |
| Mathematics | 4 | 43 | 114822 | 0.024 | 0.980 | 860 | <.0000 |
| Mathematics | 5 | 43 | 116489 | 0.021 | 0.980 | 860 | <.0000 |
| Mathematics | 6 | 43 | 115844 | 0.023 | 0.982 | 860 | <.0000 |
| Mathematics | 7 | 43 | 118357 | 0.018 | 0.987 | 860 | <.0000 |
| Mathematics | 8 | 43 | 119039 | 0.020 | 0.985 | 860 | <.0000 |
| ELA | 3 | 35 | 114398 | 0.022 | 0.984 | 560 | <.0000 |
| ELA | 4 | 39 | 114533 | 0.023 | 0.984 | 702 | <.0000 |
| ELA | 5 | 39 | 116274 | 0.017 | 0.990 | 702 | <.0000 |
| ELA | 6 | 39 | 115785 | 0.022 | 0.979 | 702 | <.0000 |
| ELA | 7 | 39 | 118352 | 0.021 | 0.984 | 702 | <.0000 |
| ELA | 8 | 39 | 119366 | 0.022 | 0.983 | 702 | <.0000 |
| Science | 4 | 43 | 114497 | 0.016 | 0.988 | 860 | <.0000 |
| Science | 8 | 43 | 118412 | 0.018 | 0.988 | 860 | <.0000 |

EVIDENCE RELATED TO THE USE OF THE RASCH MODEL

Since the Rasch model is the basis of all calibration, scaling, and linking analyses associated with the PSSA, the validity of the inferences from these results depends on the degree to which the assumptions of the model are met as well as the fit between the model and test data. As discussed at length in Chapter Twelve, the underlying assumptions of Rasch models were essentially met for all the PSSA data, indicating the appropriateness of using the Rasch models to analyze the PSSA data.

In addition, the Rasch model was also used to link science operational PSSA tests across years. The accuracy of the linking also affects the accuracy of student scores and the validity of score uses. As described in Chapter Fifteen, DRC Psychometric Services staff utilize a linking procedure previously vetted by the Pennsylvania National TAC. Moreover, DRC internal replication and review ensured the accuracy of the linking and equating results.

TEST RELIABILITY, ERRORS OF MEASUREMENT, AND DECISION CONSISTENCY AND ACCURACY

Reliability estimates, SEM, and decision consistency and accuracy results are presented in Chapter Eighteen and provide important evidence that the PSSA tests have strong internal consistency, expected measurement errors, and that examinees are being appropriately classified into performance levels based on the test scores and standards set on those scores.

STRAND CORRELATIONS

Correlations and disattenuated correlations between strand scores within each subject area are presented below. Values were computed using the PSSA final data file (see Chapter Nine). This data can also provide information on score dimensionality that is part of internal-structure validity evidence. As noted in Chapter Two, the PSSA mathematics tests have four strands (denoted by M.A, M.B, M.C, and M.D). The PSSA ELA tests have four strands (denoted by E.A, E.B, E.D, and E.E), except grade 3 which has three strands (E.A, E.B, and E.D). The PSSA science tests have four strands (denoted by S.A, S.B, S.C, and S.D).

For each grade, Pearson’s correlation coefficients between these strands are reported in Tables 19–2a through 19–2f. The inter-correlations between the strands within the content areas are positive and generally range from moderate to high in value, and correlations between strands across content areas are generally slightly lower, providing contrasting evidence of convergent and discriminant validity.

Table 19–2a. Correlations between Mathematics and ELA Strands for Grade 3

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D |
|-----|------|------|------|------|------|------|-----|
| M.A | - | | | | | | |
| M.B | 0.78 | - | | | | | |
| M.C | 0.73 | 0.69 | - | | | | |
| M.D | 0.78 | 0.76 | 0.71 | - | | | |
| E.A | 0.68 | 0.64 | 0.65 | 0.65 | - | | |
| E.B | 0.71 | 0.68 | 0.67 | 0.69 | 0.78 | - | |
| E.D | 0.59 | 0.56 | 0.58 | 0.58 | 0.62 | 0.62 | - |

Table 19–2b. Correlations between Mathematics, ELA, and Science Strands for Grade 4

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | E.E | S.A | S.B | S.C | S.D |
|-----|------|------|------|------|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | | | | | |
| M.B | 0.77 | - | | | | | | | | | | |
| M.C | 0.66 | 0.63 | - | | | | | | | | | |
| M.D | 0.77 | 0.73 | 0.65 | - | | | | | | | | |
| E.A | 0.64 | 0.66 | 0.55 | 0.60 | - | | | | | | | |
| E.B | 0.69 | 0.69 | 0.59 | 0.65 | 0.79 | - | | | | | | |
| E.D | 0.64 | 0.64 | 0.55 | 0.60 | 0.67 | 0.69 | - | | | | | |
| E.E | 0.54 | 0.54 | 0.46 | 0.51 | 0.55 | 0.58 | 0.53 | - | | | | |
| S.A | 0.74 | 0.73 | 0.63 | 0.71 | 0.73 | 0.78 | 0.68 | 0.56 | - | | | |
| S.B | 0.63 | 0.62 | 0.54 | 0.59 | 0.64 | 0.68 | 0.58 | 0.49 | 0.73 | - | | |
| S.C | 0.61 | 0.60 | 0.53 | 0.58 | 0.59 | 0.63 | 0.57 | 0.46 | 0.69 | 0.60 | - | |
| S.D | 0.60 | 0.59 | 0.53 | 0.57 | 0.59 | 0.63 | 0.55 | 0.45 | 0.69 | 0.60 | 0.57 | - |

Table 19–2c. Correlations between Mathematics and ELA Strands for Grade 5

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | E.E |
|-----|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | |
| M.B | 0.73 | - | | | | | | |
| M.C | 0.70 | 0.61 | - | | | | | |
| M.D | 0.75 | 0.65 | 0.63 | - | | | | |
| E.A | 0.66 | 0.57 | 0.56 | 0.60 | - | | | |
| E.B | 0.68 | 0.58 | 0.58 | 0.62 | 0.78 | - | | |
| E.D | 0.60 | 0.53 | 0.52 | 0.55 | 0.63 | 0.64 | - | |
| E.E | 0.54 | 0.46 | 0.44 | 0.48 | 0.57 | 0.55 | 0.49 | - |

Table 19–2d. Correlations between Mathematics and ELA Strands for Grade 6

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | E.E |
|-----|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | |
| M.B | 0.80 | - | | | | | | |
| M.C | 0.70 | 0.68 | - | | | | | |
| M.D | 0.71 | 0.71 | 0.65 | - | | | | |
| E.A | 0.65 | 0.69 | 0.55 | 0.59 | - | | | |
| E.B | 0.66 | 0.69 | 0.55 | 0.59 | 0.75 | - | | |
| E.D | 0.58 | 0.62 | 0.47 | 0.52 | 0.63 | 0.62 | - | |
| E.E | 0.52 | 0.55 | 0.43 | 0.48 | 0.55 | 0.55 | 0.51 | - |

Table 19–2e. Correlations between Mathematics and ELA Strands for Grade 7

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | E.E |
|-----|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | |
| M.B | 0.80 | - | | | | | | |
| M.C | 0.71 | 0.69 | - | | | | | |
| M.D | 0.68 | 0.68 | 0.59 | - | | | | |
| E.A | 0.62 | 0.64 | 0.54 | 0.58 | - | | | |
| E.B | 0.64 | 0.66 | 0.56 | 0.59 | 0.76 | - | | |
| E.D | 0.59 | 0.60 | 0.52 | 0.54 | 0.66 | 0.66 | - | |
| E.E | 0.55 | 0.57 | 0.48 | 0.53 | 0.60 | 0.59 | 0.55 | - |

Table 19–2f. Correlations between Mathematics, ELA, and Science Strands for Grade 8

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | E.E | S.A | S.B | S.C | S.D |
|-----|------|------|------|------|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | | | | | |
| M.B | 0.70 | - | | | | | | | | | | |
| M.C | 0.58 | 0.70 | - | | | | | | | | | |
| M.D | 0.61 | 0.78 | 0.63 | - | | | | | | | | |
| E.A | 0.49 | 0.64 | 0.51 | 0.61 | - | | | | | | | |
| E.B | 0.54 | 0.70 | 0.56 | 0.67 | 0.77 | - | | | | | | |
| E.D | 0.49 | 0.63 | 0.52 | 0.59 | 0.62 | 0.66 | - | | | | | |
| E.E | 0.46 | 0.57 | 0.47 | 0.54 | 0.61 | 0.61 | 0.52 | - | | | | |
| S.A | 0.58 | 0.75 | 0.61 | 0.70 | 0.69 | 0.76 | 0.64 | 0.57 | - | | | |
| S.B | 0.51 | 0.66 | 0.53 | 0.62 | 0.64 | 0.71 | 0.58 | 0.52 | 0.76 | - | | |
| S.C | 0.53 | 0.69 | 0.55 | 0.65 | 0.63 | 0.71 | 0.58 | 0.51 | 0.76 | 0.70 | - | |
| S.D | 0.45 | 0.58 | 0.48 | 0.54 | 0.54 | 0.60 | 0.50 | 0.44 | 0.65 | 0.60 | 0.60 | - |

The correlations in Tables 19–2a through 19–2f are based on the observed strand scores. These observed-score correlations are weakened by the existing measurement error contained within each strand. As a result, disattenuating the observed correlations can provide an estimate of the relationships between strands if there were no measurement error. (An important caveat is provided further below.) The disattenuated correlation coefficients (R_{xy}) can be computed by using the formula (Spearman 1904, 1910) below:

$$R_{xy} = \frac{r_{xy}}{\sqrt{r_{xx} r_{yy}}}$$

where r_{xy} is the observed correlation, and r_{xx} and r_{yy} are the reliabilities for strand X and strand Y. Disattenuated correlations very near 1.00 might suggest that the same or very similar constructs are being measured. Values somewhat less than 1.00 might suggest that different strands are measuring slightly different aspects of the same construct. Values markedly less than 1.00 might suggest the strands reflect different constructs.

Tables 19–3a through 19–3f show the corresponding disattenuated correlations for the 2022 PSSA tests for each grade. Note that with ELA, text-dependent analysis (TDA) items belongs to a separate strand and is the only item for the strand. Given that this strand (E.E) has only one item, reliability cannot be computed. Therefore, disattenuated correlation cannot be computed with these strands and is not included in Table 19–3. Where reliability can be computed, the disattenuated strand correlations are higher than their observed score counterparts, given that strand scores do not have perfect reliabilities (see Chapter Eighteen).

Some within-subject correlations are very high (e.g., above 0.95), suggesting that the within-subject strands appear to be measuring essentially the same construct. This, in turn, suggests that some strand scores might not provide entirely unique information about the strengths or weaknesses of students.

Table 19–3a. Disattenuated Strand Correlations for Mathematics and ELA for Grade 3

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D |
|-----|------|------|------|------|------|------|-----|
| M.A | - | | | | | | |
| M.B | 0.99 | - | | | | | |
| M.C | 1.07 | 1.00 | - | | | | |
| M.D | 1.04 | 1.00 | 1.08 | - | | | |
| E.A | 0.87 | 0.81 | 0.95 | 0.86 | - | | |
| E.B | 0.92 | 0.87 | 0.99 | 0.92 | 1.00 | - | |
| E.D | 0.89 | 0.83 | 0.99 | 0.90 | 0.93 | 0.94 | - |

Table 19–3b. Disattenuated Strand Correlations for Mathematics and ELA for Grade 4

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | S.A | S.B | S.C | S.D |
|-----|------|------|------|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | | | | |
| M.B | 1.00 | - | | | | | | | | | |
| M.C | 0.92 | 0.91 | - | | | | | | | | |
| M.D | 1.03 | 1.02 | 0.98 | - | | | | | | | |
| E.A | 0.80 | 0.86 | 0.77 | 0.82 | - | | | | | | |
| E.B | 0.86 | 0.90 | 0.82 | 0.88 | 0.99 | - | | | | | |
| E.D | 0.86 | 0.90 | 0.84 | 0.89 | 0.93 | 0.94 | - | | | | |
| S.A | 0.90 | 0.93 | 0.87 | 0.94 | 0.90 | 0.95 | 0.91 | - | | | |
| S.B | 0.89 | 0.93 | 0.87 | 0.92 | 0.93 | 0.97 | 0.92 | 1.03 | - | | |
| S.C | 0.91 | 0.94 | 0.90 | 0.95 | 0.91 | 0.96 | 0.94 | 1.02 | 1.04 | - | |
| S.D | 0.88 | 0.91 | 0.87 | 0.92 | 0.89 | 0.94 | 0.90 | 1.00 | 1.03 | 1.03 | - |

Table 19–3c. Disattenuated Strand Correlations for Mathematics and ELA for Grade 5

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D |
|-----|------------|------------|------------|------------|------------|------------|------------|
| M.A | - | | | | | | |
| M.B | 1.07 | - | | | | | |
| M.C | 0.98 | 1.06 | - | | | | |
| M.D | 1.11 | 1.20 | 1.10 | - | | | |
| E.A | 0.81 | 0.86 | 0.82 | 0.92 | - | | |
| E.B | 0.83 | 0.89 | 0.84 | 0.94 | 0.99 | - | |
| E.D | 0.86 | 0.93 | 0.87 | 0.99 | 0.93 | 0.94 | - |

Table 19–3d. Disattenuated Strand Correlations for Mathematics and ELA for Grade 6

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D |
|-----|------------|------------|------------|------------|------------|------------|------------|
| M.A | - | | | | | | |
| M.B | 0.99 | - | | | | | |
| M.C | 0.92 | 0.90 | - | | | | |
| M.D | 0.96 | 0.96 | 0.94 | - | | | |
| E.A | 0.82 | 0.86 | 0.74 | 0.80 | - | | |
| E.B | 0.85 | 0.89 | 0.76 | 0.83 | 0.99 | - | |
| E.D | 0.83 | 0.87 | 0.71 | 0.80 | 0.91 | 0.91 | - |

Table 19–3e. Disattenuated Strand Correlations for Mathematics and ELA for Grade 7

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D |
|-----|------------|------------|------------|------------|------------|------------|------------|
| M.A | - | | | | | | |
| M.B | 1.03 | - | | | | | |
| M.C | 0.97 | 0.97 | - | | | | |
| M.D | 1.09 | 1.12 | 1.04 | - | | | |
| E.A | 0.78 | 0.84 | 0.75 | 0.95 | - | | |
| E.B | 0.82 | 0.87 | 0.78 | 0.97 | 0.99 | - | |
| E.D | 0.82 | 0.86 | 0.79 | 0.97 | 0.94 | 0.95 | - |

Table 19–3f. Disattenuated Strand Correlations for Mathematics, ELA, and Science for Grade 8

| | M.A | M.B | M.C | M.D | E.A | E.B | E.D | S.A | S.B | S.C | S.D |
|-----|------|------|------|------|------|------|------|------|------|------|-----|
| M.A | - | | | | | | | | | | |
| M.B | 0.94 | - | | | | | | | | | |
| M.C | 0.98 | 1.04 | - | | | | | | | | |
| M.D | 1.00 | 1.12 | 1.15 | - | | | | | | | |
| E.A | 0.72 | 0.81 | 0.83 | 0.94 | - | | | | | | |
| E.B | 0.73 | 0.84 | 0.86 | 0.97 | 0.99 | - | | | | | |
| E.D | 0.78 | 0.87 | 0.91 | 1.00 | 0.93 | 0.93 | - | | | | |
| S.A | 0.79 | 0.90 | 0.94 | 1.03 | 0.90 | 0.93 | 0.90 | - | | | |
| S.B | 0.75 | 0.85 | 0.88 | 0.98 | 0.90 | 0.93 | 0.89 | 1.01 | - | | |
| S.C | 0.78 | 0.89 | 0.91 | 1.03 | 0.89 | 0.93 | 0.88 | 1.00 | 1.00 | - | |
| S.D | 0.77 | 0.87 | 0.92 | 1.00 | 0.88 | 0.92 | 0.89 | 1.00 | 1.00 | 0.99 | - |

Some caution is needed in interpreting the disattenuated results because the reliabilities used to calculate the disattenuated correlations are subject to both upward and downward biases. (These are also discussed in some detail in Chapter Eighteen.) Consequently, some of the values tabled above may be higher or lower than they should be, depending on which bias prevails for any given pair of strand scores. When the reliabilities are lower than they should be, the disattenuated correlations will be inflated (and in some instances, can appear larger than the theoretical correlation maximum value of 1.00).

EVIDENCE BASED ON RELATIONSHIPS WITH OTHER VARIABLES

As described in the *Standards* (2014), “Evidence based on relationships with other variables provides evidence about the degree to which relationships are consistent with the construct underlying the proposed test score interpretations” (p. 16). This category of evidence is classified by three types—convergent, discriminant, and criterion-related evidence. Convergent evidence is provided by relationships between students’ performance on different assessments intended to measure a similar construct. Discriminant evidence is provided by relationships between students’ performance on different tests intended to measure different constructs. Criterion-related evidence, either predictive or concurrent, is provided by relationships between students’ test scores and their performance on a criterion measure (Cronbach, 1971; Messick, 1989).

Evidence of the relationship of the PSSA with other variables for previous PSSA mathematics and reading tests has been examined by HumRRO in a series of independent studies using 2001–2003 PSSA data (Koger, Thacker & Dickinson, 2004; Sinclair & Thacker, 2005; Thacker, Dickinson, & Koger, 2004).

As useful validity studies rely heavily on the technical quality of the criteria measures, the Pennsylvania Classroom Diagnostic Tools (CDT) assessments were used to assess convergent and discriminant validity. The CDT is a well-documented high-quality computer-based series of assessments aligned to the same Assessment Anchors and Eligible Content as the PSSA tests. Table 19–4 shows the correlations between the PSSA and CDT assessments. The within subject correlations are strong, ranging from 0.74 to 0.82. This illustrates a strong positive relationship between the PSSA and the CDT where the subjects are the same or similar. Conversely, the correlations between different content areas in 2022 are noticeably lower, ranging from 0.66 to 0.78. These patterns demonstrate reasonable convergent and discriminant validity of performance on PSSA.

Table 19–4. Correlations among Student Performance on PSSA and CDT

| PSSA | CDT | N | R |
|---------------------|-------------------------------|----------|----------|
| Mathematics Grade 3 | Mathematics - Lower Grades | 14282 | 0.80 |
| Mathematics Grade 3 | Reading - Lower Grades | 13411 | 0.72 |
| Mathematics Grade 3 | Science - Lower Grades | 1731 | 0.71 |
| Mathematics Grade 3 | Writing - Lower Grades | 1832 | 0.69 |
| Mathematics Grade 4 | Mathematics - Lower Grades | 15278 | 0.82 |
| Mathematics Grade 4 | Reading - Lower Grades | 14975 | 0.73 |
| Mathematics Grade 4 | Science - Lower Grades | 8781 | 0.71 |
| Mathematics Grade 4 | Writing - Lower Grades | 2239 | 0.70 |
| Mathematics Grade 5 | Mathematics - Lower Grades | 18284 | 0.79 |
| Mathematics Grade 5 | Reading - Lower Grades | 17006 | 0.71 |
| Mathematics Grade 5 | Science - Lower Grades | 3205 | 0.67 |
| Mathematics Grade 5 | Writing - Lower Grades | 2854 | 0.66 |
| Mathematics Grade 6 | Mathematics | 21590 | 0.82 |
| Mathematics Grade 6 | Reading/Literature | 17722 | 0.72 |
| Mathematics Grade 6 | Science | 8441 | 0.71 |
| Mathematics Grade 6 | Writing/English Comprehension | 4145 | 0.71 |
| Mathematics Grade 7 | Mathematics | 24283 | 0.79 |
| Mathematics Grade 7 | Reading/Literature | 20000 | 0.70 |
| Mathematics Grade 7 | Science | 13688 | 0.69 |
| Mathematics Grade 7 | Writing/English Comprehension | 5827 | 0.71 |
| Mathematics Grade 8 | Mathematics | 20937 | 0.77 |
| Mathematics Grade 8 | Reading/Literature | 19403 | 0.68 |
| Mathematics Grade 8 | Science | 22058 | 0.68 |
| Mathematics Grade 8 | Writing/English Comprehension | 5740 | 0.68 |
| ELA Grade 3 | Mathematics - Lower Grades | 14276 | 0.71 |
| ELA Grade 3 | Reading - Lower Grades | 13401 | 0.80 |
| ELA Grade 3 | Science - Lower Grades | 1712 | 0.74 |
| ELA Grade 3 | Writing - Lower Grades | 1833 | 0.79 |
| ELA Grade 4 | Mathematics - Lower Grades | 15259 | 0.73 |
| ELA Grade 4 | Reading - Lower Grades | 14956 | 0.81 |
| ELA Grade 4 | Science - Lower Grades | 8756 | 0.76 |
| ELA Grade 4 | Writing - Lower Grades | 2233 | 0.79 |
| ELA Grade 5 | Mathematics - Lower Grades | 18274 | 0.73 |
| ELA Grade 5 | Reading - Lower Grades | 16985 | 0.82 |
| ELA Grade 5 | Science - Lower Grades | 3202 | 0.75 |
| ELA Grade 5 | Writing - Lower Grades | 2844 | 0.77 |

Table 19–4 (continued). Correlations among Student Performance on PSSA and CDT

| PSSA | CDT | N | R |
|-----------------|-------------------------------|-------|------|
| ELA Grade 6 | Mathematics | 21585 | 0.73 |
| ELA Grade 6 | Reading/Literature | 17724 | 0.79 |
| ELA Grade 6 | Science | 8432 | 0.73 |
| ELA Grade 6 | Writing/English Comprehension | 4144 | 0.78 |
| ELA Grade 7 | Mathematics | 24307 | 0.72 |
| ELA Grade 7 | Reading/Literature | 20025 | 0.78 |
| ELA Grade 7 | Science | 13664 | 0.72 |
| ELA Grade 7 | Writing/English Comprehension | 5827 | 0.77 |
| ELA Grade 8 | Mathematics | 21001 | 0.70 |
| ELA Grade 8 | Reading/Literature | 19466 | 0.76 |
| ELA Grade 8 | Science | 22100 | 0.72 |
| ELA Grade 8 | Writing/English Comprehension | 5782 | 0.74 |
| Science Grade 4 | Mathematics - Lower Grades | 15253 | 0.76 |
| Science Grade 4 | Reading - Lower Grades | 14956 | 0.78 |
| Science Grade 4 | Science - Lower Grades | 8772 | 0.79 |
| Science Grade 4 | Writing - Lower Grades | 2235 | 0.73 |
| Science Grade 8 | Mathematics | 20818 | 0.71 |
| Science Grade 8 | Reading/Literature | 19319 | 0.74 |
| Science Grade 8 | Science | 21982 | 0.78 |
| Science Grade 8 | Writing/English Comprehension | 5737 | 0.72 |

To further assess discriminant validity for the 2022 PSSA tests, correlations between students' test scores on different PSSA tests, including mathematics, ELA, and science are shown in Table 19–5. In this table, both the observed and disattenuated correlations are reported.

Table 19–5. Correlations among Students' Performance on All PSSA Tests

| Grade | Mathematics/ELA | Mathematics/Science | ELA/Science |
|-------|-----------------|---------------------|-------------|
| 3 | 0.81 (0.89) | | |
| 4 | 0.79 (0.90) | 0.83 (0.91) | 0.84 (0.95) |
| 5 | 0.77 (0.87) | | |
| 6 | 0.78 (0.88) | | |
| 7 | 0.77 (0.88) | | |
| 8 | 0.77 (0.87) | 0.80 (0.88) | 0.82 (0.94) |

Note. Numbers in the parenthesis are disattenuated correlations. The PSSA final data file was used for these calculations (see Chapter Nine). Case-wise elimination of missing data was used.

Each PSSA assessment measures a different construct, so the correlations between them were not expected to be extremely high. The values in this table are consistent with this expectation. As can be seen, the correlations between the PSSA subject tests range from 0.77 to 0.84.

As 2015 was the first year of new PSSA mathematics and ELA, several additional analyses were conducted in 2017 in support of the federal peer review process for the PSSA. These studies included 1) an analysis of how well the PSSA scores predict performance (predictive validity) on high school exams in Algebra I and Literature (Keystone exams), and 2) multiple comparisons of PSSA mathematics and ELA results with other external criteria. These studies provide additional evidence in support of arguments for the convergent and discriminant validity of the PSSA test results detailed in the 2015 and 2016 PSSA Technical Reports referenced above. This report provides a summary of these seven additional analyses and results:

- Keystone predictions
- PSSA relation to other variables:
 - PSSA mathematics and ELA relationship with NAEP
 - PSSA mathematics and ELA relationship with Classroom Diagnostic Tools (CDT)
 - PSSA ELA relationship with GRADE (Group Reading Assessment and Diagnostic Evaluation) literacy assessments
 - PSSA mathematics and ELA relationship with Terra Nova Complete Battery ELA and mathematics
 - PSSA mathematics and ELA relationship with teacher ratings of student proficiency
 - PSSA mathematics and ELA subscore correlations

The results of these analyses provide reasonably strong evidence of the convergent and discriminant validity of the PSSA, as well its predictive relationship with college and career readiness expectations. Results for this set of analyses are reported in Appendix T of the 2018 PSSA Technical Report.

EVIDENCE BASED ON CONSEQUENCES OF TESTING

Based on the *Standards* (2014), evidence supporting the appropriateness of the consequences of testing is an additional source of validity information. Often, this part of the validity argument for a test includes evidence that the test serves all students comparably. The most common methods that are used for this purpose are those that examine the invariance of construct measurement across student groups, and those that seek to detect bias in test content that might lead to some construct irrelevant variation in examinee responses.

As reported in Chapter Five and Appendix F, review and consideration of differential item functioning results with respect to gender and ethnicity offers some evidence that construct-irrelevant variance affecting these groups differentially is not present. The presence of construct-irrelevant variance is generally considered to be a serious threat to the validity of inferences made from test scores, where those differences are due to content that is unrelated to the intended construct for one or more groups. A distinct limitation of DIF methods is that they treat such variance at the examinee group level and not at the individual level. As not all members of a defined group can ever be assumed to share the exact same characteristics, it can be inappropriate to generalize the group level results to all group members. Nevertheless, the presence of suspected group level construct irrelevant variance may indicate the need to review and reconsider the inclusion of items that have been statistically flagged for DIF. As noted in that chapter, field-test items are screened and reviewed for DIF. Only items approved by teacher committees are eligible for operational use.

Additionally, analyses were conducted to assess the comparability of scores across paper-pencil and computer-based modes of assessment (PPT and CBT) by evaluating differences in person fit. Results of these analyses indicate that the PSSA tests are functioning similarly across mode and mode by subgroups. Refer to Appendix S for a detailed discussion of these analyses and findings.

A comprehensive independent study of the invariance of scores across accommodations was also conducted by Sireci and Wells (2016) with results that support claims of measurement invariance across the PSSA tests for accommodated groups with sufficient cases for analysis.

As evidence of consequential validity is related to its uses, as well as to statistical measures of invariance, it is difficult to directly measure all aspects of consequential validity. Test data provide important evidence of the validity of PSSA scores for their intended uses, and as such, may serve to warrant the intended purpose and use that is defined in this technical report and supporting documentation. Generally, the results of the many content development and review procedures, and the statistical analyses discussed throughout this report, provide evidence that PSSA scores are sufficiently comparable across all examinees, regardless of conditions of gender, ethnicity, test mode, and accommodations used. This has remained true under the reduced test length design. Population invariance, however, will be monitored annually for violations.

Regarding the use of test scores, Chapter Sixteen provides an explanation of the different types of scores and shows samples of the various score reports distributed for the PSSA. Chapter Sixteen also provides accurate and clear test score and report information to help users avoid unintended uses and interpretations of the PSSA results. The extent to which various groups of users (e.g., students, teachers, and parents) interpret these scores and reports appropriately affects the validity of subsequent uses of these results. PDE continues to gather evidence to improve or guide decisions pertaining to all aspects of intended and unintended consequences of the PSSA program.

VALIDITY EVIDENCE SUMMARY

Validity evidence related to test content was reviewed earlier in this chapter. Overall, the early chapters of this technical report show that a strong link can be established between each PSSA item and its associated eligible content. Details regarding how the PSSA operational assessments were assembled to reflect the state content standards and detailed information regarding educator reviews (including content, bias, data, and sensitivity reviews) are presented in Chapters Three and Five.

Evidence of the validity of score interpretations is also provided as it relates to response processes. Cognitive labs for Science scenario-based items showed that examinees were responding as intended and routine hand-scoring processes describe in Chapter Eight provide evidence that ratings show reasonable consistency and that rigorous scoring processes are in place to reduce rater bias and increase consistency.

Evidence of the validity related to internal test structure is provided through the results of multiple analyses including, high test score reliabilities, reasonable SEM and CSEM values, good decision consistency and accuracy, strongly unidimensional constructs, and selections of items that have appropriate difficulty ranges, and discriminate performance well.

Strand score inter-correlations are also presented in this chapter. In general, within-subject-area strands (e.g., mathematics) correlate more highly with themselves than they do with other subject-area strands (e.g., ELA). These results, as well as the additional analyses of the relationship between the PSSA ELA and Mathematics tests with other established measures and classroom performance provides evidence of their convergent, discriminant and predictive validity.

A study of the relationship of PSSA scores with CDT scores shows a strong relationship between similar content areas, and a slightly weaker relationship across different content areas, providing useful convergent and discriminant validity evidence.

Last, evidence that PSSA test scores are largely invariant across multiple subgroups of students is also provided through the results of DIF analyses and subsequent item selection processes, a multi-method study on the invariance of accommodated test scores, and a person fit analysis to investigate the comparability of scores from different modes of administration for different populations of students.

APPENDIX A: GENERAL SCORING GUIDELINES

GENERAL DESCRIPTION OF SCORING GUIDELINES FOR READING SHORT-ANSWER QUESTIONS

3 Points

- The response provides a complete answer to the task (e.g., a statement that offers a correct answer as well as text-based support).
- The response provides specific, appropriate, and accurate details (e.g., naming, describing, explaining, or comparing) or examples.

2 Points

- The response provides a partial answer to the task (e.g., indicates some awareness of the task and at least one text-based detail).
- The response attempts to provide sufficient, appropriate details (e.g., naming, describing, explaining, or comparing) or examples; may contain minor inaccuracies.

1 Point

- The response provides an incomplete answer to the task (e.g., indicating either a misunderstanding of the task or no text-based details).
- The response provides insufficient or inappropriate details or examples that have a major effect on accuracy.
- The response consists entirely of relevant copied text.

0 Points

- The response provides insufficient material for scoring.
- The response is inaccurate in all aspects.

Categories within zero reported separately:

BLK (blank) No response or written refusal to respond too brief to determine response

OT Off task/topic

LOE Response in a language other than English

IL Illegible

TEXT-DEPENDENT ANALYSIS SCORING GUIDELINES

| Score | Description |
|-------|---|
| 4 | <ul style="list-style-type: none"> • Effectively addresses all parts of the task demonstrating in-depth analytic understanding of the text(s) • Effective introduction, development, and conclusion identifying an opinion, topic, or controlling idea related to the text(s) • Strong organizational structure that effectively supports the focus and ideas • Thorough analysis of explicit and implicit meanings from text(s) to effectively support claims, opinions, ideas, and inferences • Substantial, accurate, and direct reference to the text(s) using relevant key details, examples, quotes, facts, and/or definitions • Substantial reference to the main idea(s) and relevant key details of the text(s) to support the writer’s purpose • Skillful use of transitions to link ideas • Effective use of precise language and domain-specific vocabulary drawn from the text(s) to explain the topic and/or to convey experiences/events • Few errors, if any, are present in sentence formation, grammar, usage, spelling, capitalization, and punctuation; errors present do not interfere with meaning |
| 3 | <ul style="list-style-type: none"> • Adequately addresses all parts of the task demonstrating sufficient analytic understanding of the text(s) • Clear introduction, development, and conclusion identifying an opinion, topic, or controlling idea related to the text(s) • Appropriate organizational structure that adequately supports the focus and ideas • Clear analysis of explicit and implicit meanings from text(s) to support claims, opinions, ideas, and inferences • Sufficient, accurate, and direct reference to the text(s) using relevant details, examples, quotes, facts, and/or definitions • Sufficient reference to the main idea(s) and relevant key details of the text(s) to support the writer’s purpose • Appropriate use of transitions to link ideas • Appropriate use of precise language and domain-specific vocabulary drawn from the text(s) to explain the topic and/or to convey experiences/events • Some errors may be present in sentence formation, grammar, usage, spelling, capitalization, and punctuation; errors present seldom interfere with meaning |

| Score | Description |
|-------|--|
| 2 | <ul style="list-style-type: none"> • Inconsistently addresses some parts of the task demonstrating partial analytic understanding of the text(s) • Weak introduction, development, and/or conclusion identifying an opinion, topic, or controlling idea somewhat related to the text(s) • Weak organizational structure that inconsistently supports the focus and ideas • Weak or inconsistent analysis of explicit and/or implicit meanings from text(s) that somewhat supports claims, opinions, ideas, and inferences • Vague reference to the text(s) using some details, examples, quotes, facts, and/or definitions • Weak reference to the main idea(s) and relevant details of the text(s) to support the writer's purpose • Inconsistent use of transitions to link ideas • Inconsistent use of precise language and domain-specific vocabulary drawn from the text(s) to explain the topic and/or to convey experiences/events • Errors may be present in sentence formation, grammar, usage, spelling, capitalization, and punctuation; errors present may interfere with meaning |
| 1 | <ul style="list-style-type: none"> • Minimally addresses part(s) of the task demonstrating inadequate analytic understanding of the text(s) • Minimal evidence of an introduction, development, and/or conclusion • Minimal evidence of an organizational structure • Insufficient or no analysis of the text(s); may or may not support claims, opinions, ideas, and inferences • Insufficient reference to the text(s) using few details, examples, quotes, facts, and/or definitions • Minimal reference to the main idea(s) and/or relevant details of the text(s) • Few, if any, transitions to link ideas • Little or no use of precise language or domain-specific vocabulary drawn from the text(s) • Many errors may be present in sentence formation, grammar, usage, spelling, capitalization, and punctuation; errors present often interfere with meaning |

GENERAL DESCRIPTION OF SCORING GUIDELINES FOR MATHEMATICS OPEN-ENDED QUESTIONS

4–The response demonstrates a *thorough* understanding of the mathematical concepts and procedures required by the task.

The response provides correct answer(s) with clear and complete mathematical procedures shown and a correct explanation, as required by the task. Response may contain a minor “blemish” or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

3–The response demonstrates a *general* understanding of the mathematical concepts and procedures required by the task.

The response and explanation (as required by the task) are mostly complete and correct. The response may have minor errors or omissions that do not detract from demonstrating a *general* understanding.

2–The response demonstrates a *partial* understanding of the mathematical concepts and procedures required by the task.

The response is somewhat correct with *partial* understanding of the required mathematical concepts and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

1–The response demonstrates a *minimal* understanding of the mathematical concepts and procedures required by the task.

0–The response has no correct answer and *insufficient* evidence to demonstrate any understanding of the mathematical concepts and procedures required by the task for that grade level.

Response may show only information copied from the question.

Special Categories within zero reported separately:

- BLK (blank).....Blank, entirely erased, or written refusal to respond
- OT.....Off-task
- LOE.....Response in a language other than English
- IL.....Illegible

GENERAL DESCRIPTION OF SCORING GUIDELINES FOR SCIENCE OPEN-ENDED QUESTIONS

2 Points

- The response demonstrates a *thorough* understanding of the scientific content, concepts, and procedures required by the task(s).
- The response provides a clear, complete, and correct response as required by the task(s). The response may contain a minor blemish or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

1 Point

- The response demonstrates a *partial* understanding of the scientific content, concepts, and procedures required by the task(s).
- The response is somewhat correct with *partial* understanding of the required scientific content, concepts, and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

0 Points

- The response provides *insufficient* evidence to demonstrate any understanding of the scientific content, concepts, and procedures as required by the task(s) for that grade level.
- The response may show only information copied or rephrased from the question or *insufficient* correct information to receive a score of 1.

Special Categories within zero reported separately:

Blank..... Blank, entirely erased, entirely crossed out, or consists entirely of whitespace

Refusal..... Refusal to respond to the task

Off Task..... Makes no reference to the item but is not an intentional refusal

Foreign Language..... Written entirely in a language other than English

Illegible Illegible or incoherent

APPENDIX B: TALLY SHEETS

Grade 03

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|--|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| A-T: Numbers and Operations in Base Ten | 1 | | | Use place-value understanding and properties of operations to perform multi-digit arithmetic. | | 4 | | | | 4 | 4 | | | 1 | | | | 1 | 1 |
| | 1 | 1 | | Apply place-value strategies to solve problems. | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Round two- and three-digit whole numbers to the nearest ten or hundred, respectively. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| | 1 | 1 | 2 | Add two- and three-digit whole numbers and/or subtract two- and three-digit numbers from three-digit whole numbers. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | | 2 | | 2 |
| | 1 | 1 | 3 | Multiply one-digit whole numbers by two-digit multiples of ten. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | | 2 | | 2 |
| | 1 | 1 | 4 | Order a set of whole numbers from least to greatest or greatest to least. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | | 2 | | 2 |
| | Total for Assessment Anchor A-T.1 Use place-value understanding and properties of operations to perform multi-digit arithmetic. | | | | 4 | 4 | 3 | | 7 | 4 | 11 | 4 | 1 | 3 | | | 7 | 1 | 8 |
| Total For Reporting Category A-T | | | | 4 | 4 | 3 | | 7 | 4 | 11 | 4 | 1 | 3 | | | 7 | 1 | 8 | |

Grade 03

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | |
|--|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE |
| A-F: Numbers and Operations—Fractions | 1 | | | Develop an understanding of fractions as numbers. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 |
| | 1 | 1 | | Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | 2 | | 2 |
| | 1 | 1 | 1 | Demonstrate that when a whole or set is partitioned into y equal parts, the fraction 1/y represents 1 part of the whole and/or the fraction x/y represents x equal parts of the whole. | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 |
| | 1 | 1 | 2 | Represent fractions on a number line. | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 |
| | 1 | 1 | 3 | Recognize and generate simple equivalent fractions. | | | | | | | | | | | | | |
| | 1 | 1 | 4 | Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 |
| | 1 | 1 | 5 | Compare two fractions with the same denominator, using the symbols >, =, or <, and/or justify the conclusions. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | 2 | | 2 |
| | Total for Assessment Anchor A-F.1 Develop an understanding of fractions as numbers. | | | | | 8 | | 2 | | 10 | | 10 | 8 | | 2 | 10 | |
| Total For Reporting Category A-F | | | | | 8 | | 2 | | 10 | | 10 | 8 | | 2 | 10 | | 10 |

Grade 03

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|-----------------------------------|---|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| Operations and Algebraic Thinking | 1 | | | Represent and solve problems involving multiplication and division. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Understand various meanings of multiplication and division. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 1 | Interpret and/or describe products of whole numbers. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 2 | Interpret and/or describe whole-number quotients of whole numbers. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 1 | 2 | | Solve mathematical and real-world problems using multiplication and division, including determining a missing number in a multiplication and/or division equation. | | | | | | | | | | | | | | | |
| | 1 | 2 | 1 | Use multiplication and/or division to solve word problems in situations involving equal groups, arrays, and/or measurement quantities. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 2 | 2 | Determine the unknown whole number in a multiplication or division equation relating three whole numbers. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | Total For Assessment Anchor B-O.1 Represent and solve problems involving multiplication and division. | | | | | 5 | | 2 | | 7 | | 7 | 5 | | 2 | | 7 | | 7 |
| | 2 | | | Understand properties of multiplication and the relationship between multiplication and division. | | | | | | | | | | | | | | | |
| | 2 | 1 | | Use properties to simplify and solve multiplication problems. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | |
| | 2 | 1 | 1 | Apply the commutative property of multiplication (not identification or definition of the property). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 2 | 1 | 2 | Apply the associative property of multiplication (not identification or definition of the property). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 2 | 2 | | Relate division to a missing-number multiplication equation. | | | | | | | | | | | | | | | |
| | 2 | 2 | 1 | Interpret and/or model division as a multiplication equation with an unknown factor. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | Total For Assessment Anchor B-O.2 Understand properties of multiplication and the relationship between multiplication and division. | | | | | 3 | | 1 | | 4 | | 4 | 3 | | 1 | | 4 | | 4 |

| | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|----|---|----|----|---|---|---|----|---|---|--|----|---|
| B-O: Op | 3 | | | Solve problems involving the four operations, and identify and explain patterns in arithmetic. | | | | | | | | | | | | | | | |
| | 3 | 1 | | Use operations, patterns, and estimation strategies to solve problems (may include word problems). | 1 | | | 1 | | 1 | 1 | | | | | 1 | | 1 | |
| | 3 | 1 | 1 | Solve two-step word problems using the four operations. Limit to problems with whole numbers and having whole-number answers. | 1 | | 1 | 2 | | 2 | 1 | | 1 | | 2 | | | 2 | |
| | 3 | 1 | 2 | Represent two-step word problems using equations with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole-number answers. | 1 | | | 1 | | 1 | 1 | | | | 1 | | | 1 | |
| | 3 | 1 | 3 | Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers. | | | | | | | | | | | | | | | |
| | 3 | 1 | 4 | Solve two-step equations using order of operations (equation is explicitly stated with no grouping symbols). | 1 | | 1 | 2 | | 2 | 1 | | 1 | | 2 | | | | 2 |
| | 3 | 1 | 5 | Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations. | 1 | | | 1 | | 1 | 1 | | | | 1 | | | | 1 |
| | 3 | 1 | 6 | Create or match a story to a given combination of symbols and numbers. | | | | | | | | | | | | | | | |
| | 3 | 1 | 7 | Identify the missing symbol that makes a number sentence true. | 1 | | 1 | 2 | | 2 | 1 | | 1 | | 2 | | | | 2 |
| | Total For Assessment Anchor B-O.3 Solve problems involving the four operations, and identify and explain patterns in arithmetic. | | | | 6 | | 3 | 9 | | 9 | 6 | | 3 | | 9 | | | | 9 |
| Total For Reporting Category B-O | | | | 14 | | 6 | 20 | | 20 | 14 | | 6 | | 20 | | | | 20 | |

Grade 03

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|----------------------------------|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| C-G: Geometry | 1 | | | Reason with shapes and their attributes. | | | | | | | | | | | | | | |
| | 1 | 1 | | Analyze characteristics of polygons. | 2 | 4 | | | 2 | 4 | 6 | 2 | 1 | | | 2 | 1 | 3 |
| | 1 | 1 | 1 | Explain that shapes in different categories may share attributes and that the shared attributes can define a larger category. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 2 | Recognize rhombi, rectangles, and squares as examples of quadrilaterals and/or draw examples of quadrilaterals that do not belong to any of these subcategories. | | | | | | | | | | | | | | |
| | 1 | 1 | 3 | Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | Total For Assessment Anchor C-G.1 Reason with shapes and their attributes. | | | | | 4 | 4 | 2 | | 6 | 4 | 10 | 4 | 1 | 2 | | 6 | 1 |
| Total For Reporting Category C-G | | | | | 4 | 4 | 2 | | 6 | 4 | 10 | 4 | 1 | 2 | | 6 | 1 | 7 |

Grade 03

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--|-------------------|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----------|----|----------|-----------------------|----------|----|----------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| | 1 | | | Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 1 | | Determine or calculate time and elapsed time. | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Tell, show, and/or write time (analog) to the nearest minute. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 2 | Calculate elapsed time to the minute in a given situation. | | | | | | | | | | | | | | |
| | 1 | 2 | | Use the attributes of liquid volume, mass, and length of objects. | | | | | | | | | | | | | | |
| | 1 | 2 | 1 | Measure and estimate liquid volumes and masses of objects using standard units and metric units. | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| | 1 | 2 | 2 | Add, subtract, multiply, and divide to solve one-step word problems involving masses or liquid volumes that are given in the same units. | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | Use a ruler to measure lengths to the nearest quarter inch or centimeter. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 3 | | Count, compare, and make change using a collection of coins and one-dollar bills. | | | | | | | | | | | | | | |
| | 1 | 3 | 1 | Compare total values of combinations of coins and/or dollar bills less than \$5.00. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 3 | 2 | Make change for an amount up to \$5.00 with no more than \$2.00 change given. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 3 | 3 | Round amounts of money to the nearest dollar. | | | | | | | | | | | | | | |
| Total For Assessment Anchor D-M.1 | | | | | 5 | | 3 | | 8 | | 8 | 5 | | 3 | | 8 | | 8 |
| Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects. | | | | | | | | | | | | | | | | | | |

D-M: Measurement and Data

| | | | | | | | | | | | | | | | | | | |
|--|---|---|--|---|---|---|--|---|---|---|---|---|---|--|--|---|---|---|
| 2 | | | Represent and interpret data. | | | | | | | | | | | | | | | |
| 2 | 1 | | Organize, display, and answer questions based on data. | | 4 | | | 4 | 4 | | 1 | | | | | 1 | 1 | |
| 2 | 1 | 1 | Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | | 2 | | 2 |
| 2 | 1 | 2 | Solve one- and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs. | | | | | | | | | | | | | | | |
| 2 | 1 | 3 | Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| 2 | 1 | 4 | Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables. | | | | | | | | | | | | | | | |
| Total For Assessment Anchor D-M.2 Represent and interpret data. | | | | 2 | 4 | 1 | | 3 | 4 | 7 | 2 | 1 | 1 | | | 3 | 1 | 4 |
| 3 | | | Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | | | | | | | | | | | | | | | |
| 3 | 1 | | Find the areas of plane figures. | | | 1 | | 1 | | 1 | | | 1 | | | 1 | | 1 |
| 3 | 1 | 1 | Measure areas by counting unit squares. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| 3 | 1 | 2 | Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| Total For Assessment Anchor D-M.3 Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | | | | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | | 3 | | 3 |

| | | | | | | | | | | | | | | | | | |
|--|---|---|---|----|---|---|---|----|---|----|----|---|---|---|----|---|----|
| 4 | | | Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. | | | | | | | | | | | | | | |
| 4 | 1 | | Find and use the perimeters of plane figures. | | | | | | | | | | | | | | |
| 4 | 1 | 1 | Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem. | 1 | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| Total For Assessment Anchor D-M.4 Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. | | | | 1 | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| Total For Reporting Category D-M | | | | 10 | 4 | 5 | | 15 | 4 | 19 | 10 | 1 | 5 | | 15 | 1 | 16 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | Items | | | | | |
|---|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-------|-----------------|----|-------|----|-----------------------|----|-------|----|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| A-T: Numbers and Operations in Base Ten | 1 | | | Generalize place-value understanding for multi-digit whole numbers. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Apply place-value and numeration concepts to compare, find equivalencies, and round. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | |
| | 1 | 1 | 1 | Demonstrate an understanding that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | |
| | 1 | 1 | 2 | Read and write whole numbers in expanded, standard, and word form through 1,000,000. | 1 | | | | 1 | | 1 | | 1 | | | 1 | | 1 | |
| | 1 | 1 | 3 | Compare two multi-digit numbers through 1,000,000 based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols. | 1 | | | | 1 | | 1 | | 1 | | | 1 | | 1 | |
| | 1 | 1 | 4 | Round multi-digit whole numbers to any place. | 1 | 4 | | | 1 | 4 | 5 | 1 | 1 | | | 1 | 1 | 2 | |
| | Total For Assessment Anchor A-T.1 Generalize place-value understanding for multi-digit whole numbers. | | | | | 3 | 4 | 2 | | 5 | 4 | 9 | 3 | 1 | 2 | | 5 | 1 | 6 |
| | 2 | | | Use place-value understanding and properties of operations to perform multi-digit arithmetic. | | | | | | | | | | | | | | | |
| | 2 | 1 | | Use operations to solve problems. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | 2 | 1 | 1 | Add and subtract multi-digit whole numbers. | | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 |
| | 2 | 1 | 2 | Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers. | | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 |
| | 2 | 1 | 3 | Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | 2 | 1 | 4 | Estimate the answer to addition, subtraction, and multiplication problems using whole numbers through six digits. | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-T.2 Use place-value understanding and properties of operations to perform multi-digit arithmetic. | | | | | 3 | | 4 | | 7 | | 7 | 3 | | 4 | | 7 | | 7 |
| | Total For Reporting Category A-T | | | | | 6 | 4 | 6 | | 12 | 4 | 16 | 6 | 1 | 6 | | 12 | 1 | 13 |

Grade 04

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | Items | | | | | | |
|---------------------------------------|--|-------------------------|------------------|--|----------------|----|----------------|----|--------------|----|-------|-----------------|----|-------|----|-----------------------|----|-------|---|----|
| | | | | | Student Scores | | Equating Block | | Total Points | | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | |
| A-F: Numbers and Operations—Fractions | 1 | | | Extend understanding of fraction equivalence and ordering. | | | | | | | | | | | | | | | | |
| | 1 | 1 | | Find equivalencies and compare fractions. | | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Recognize and generate equivalent fractions. | 1 | | | | 1 | | 1 | | | | | | 1 | | 1 | |
| | 1 | 1 | 2 | Compare two fractions with different numerators and different denominators using the symbols $>$, $=$, or $<$ and justify the conclusions. | 1 | | | | 1 | | 1 | | | | | | 1 | | 1 | |
| | Total For Assessment Anchor A-F.1 Extend understanding of fraction equivalence and ordering. | | | | | 2 | | | | 2 | | 2 | | | | | 2 | | 2 | |
| | 2 | | | Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. | | | | | | | | | | | | | | | | |
| | 2 | 1 | | Solve problems involving fractions and whole numbers (straight computation or word problems). | 1 | | | | 1 | | 1 | | | | | | 1 | | 1 | |
| | 2 | 1 | 1 | Add and subtract fractions with a common denominator. | 1 | | 2 | | 3 | | 3 | | 1 | | 2 | | 3 | | 3 | |
| | 2 | 1 | 2 | Decompose a fraction or a mixed number into a sum of fractions with the same denominator. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 1 | 3 | Add and subtract mixed numbers with a common denominator. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | 1 | |
| | 2 | 1 | 4 | Solve word problems involving addition and subtraction of fractions referring to the same whole or set and having like denominators. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | 1 | |
| | 2 | 1 | 5 | Multiply a whole number by a unit fraction. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | 2 | 1 | 6 | Multiply a whole number by a non-unit fraction. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 1 | 7 | Solve word problems involving multiplication of a whole number by a fraction. | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-F.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. | | | | | 5 | | 5 | | 10 | | 10 | | 5 | | 5 | | 10 | | 10 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|----|--|---|----|--|----|----|--|--|---|----|--|----|
| 3 | | | Understand decimal notation for fractions and compare decimal fractions. | 1 | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 3 | 1 | | Use operations to solve problems involving decimals, including converting between fractions and decimals. | | | 1 | 1 | | 1 | | | | 1 | 1 | | 1 |
| 3 | 1 | 1 | Add two fractions with respective denominators 10 and 100. | 1 | | 1 | 2 | | 2 | 1 | | | 1 | 2 | | 2 |
| 3 | 1 | 2 | Use decimal notation for fractions with denominators of 10 or 100. | 1 | | 1 | 2 | | 2 | 1 | | | 1 | 2 | | 2 |
| 3 | 1 | 3 | Compare two decimals to hundredths using the symbols $>$, $=$, or $<$, and justify the conclusions. | 1 | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor A-F.3 Understand decimal notation for fractions and compare decimal fractions. | | | | 4 | | 3 | 7 | | 7 | 4 | | | 3 | 7 | | 7 |
| Total For Reporting Category A-F | | | | 11 | | 8 | 19 | | 19 | 11 | | | 8 | 19 | | 19 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | Items | | | | | |
|---|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-------|-----------------|----|-------|----|-----------------------|----|-------|--|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| B-O: Operations and Algebraic Thinking | 1 | | | Use the four operations with whole numbers to solve problems. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Use numbers and symbols to model the concepts of expressions and equations. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 1 | Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 2 | Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 3 | Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 1 | 1 | 4 | Identify the missing symbol that makes a number sentence true. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | Total For Assessment Anchor B-O.1 | | | | | 5 | | 2 | | 7 | | 7 | 5 | | 2 | | 7 | 7 | |
| | 2 | | | Gain familiarity with factors and multiples. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | |
| | 2 | 1 | | Develop and apply number theory concepts to represent numbers in various ways. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 2 | 1 | 1 | Find all factor pairs for a whole number in the interval 1 through 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the interval 1 through 100 is a multiple of a given one-digit number. Determine whether a given whole number in the interval 1 through 100 is prime or composite. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | Total For Assessment Anchor B-O.2 | | | | | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | 3 | 3 | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|--|---|---|---|--|----|---|----|---|---|---|--|----|---|----|
| 3 | | | Generate and analyze patterns. | | 4 | 1 | | 1 | 4 | 5 | | 1 | 1 | | 1 | 1 | 2 |
| 3 | 1 | | Recognize, describe, extend, create, and replicate a variety of patterns. | | | | | | | | | | | | | | |
| 3 | 1 | 1 | Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 3 | 1 | 2 | Determine the missing elements in a function table. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| 3 | 1 | 3 | Determine the rule for a function given a table. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor B-O.3 Generate and analyze patterns. | | | | 2 | 4 | 2 | | 4 | 4 | 8 | 2 | 1 | 2 | | 4 | 1 | 5 |
| Total For Reporting Category B-O | | | | 9 | 4 | 5 | | 14 | 4 | 18 | 9 | 1 | 5 | | 14 | 1 | 15 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|----------------------------------|---|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| C-G: Geometry | 1 | | | Draw and identify lines and angles, and classify shapes by properties of their lines and angles. | | | | | | | | | | | | | | |
| | 1 | 1 | | List properties, classify, draw, and identify geometric figures in two dimensions. | 1 | | 2 | | 3 | | 3 | | 1 | | 2 | | 3 | 3 |
| | 1 | 1 | 1 | Draw points, lines, line segments, rays, angles, and perpendicular and parallel lines. Identify these in two-dimensional figures. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | 3 |
| | 1 | 1 | 2 | Classify two-dimensional figures based on the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. | 2 | | | | 2 | | 2 | | 2 | | | | 2 | 2 |
| | 1 | 1 | 3 | Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts. Identify line-symmetric figures and draw lines of symmetry. | 2 | | | | 2 | | 2 | | 2 | | | | 2 | 2 |
| | Total For Assessment Anchor C-G.1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles. | | | | | 7 | | 3 | | 10 | | 10 | | 7 | | 3 | | 10 |
| Total For Reporting Category C-G | | | | | 7 | | 3 | | 10 | | 10 | | 7 | | 3 | | 10 | 10 |

Grade 04

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|----------------------------|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| Assessment and Data | 1 | | | Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. | | | | | | | | | | | | | | |
| | 1 | 1 | | Solve problems involving length, weight (mass), liquid volume, time, area, and perimeter. | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| | 1 | 1 | 1 | Know relative sizes of measurement units within one system of units including standard units, metric units, and time. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. | 1 | 4 | | | 1 | 4 | 5 | 1 | 1 | | 1 | 1 | 2 | |
| | 1 | 1 | 2 | Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects; money, including problems involving simple fractions or decimals; and problems that require expressing measurements given in a larger unit in terms of a smaller unit. | | | | | | | | | | | | | | |
| | 1 | 1 | 3 | Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. | | | | | | | | | | | | | | |
| | 1 | 1 | 4 | Identify time (analog or digital) as the amount of minutes before or after the hour. | | | | | | | | | | | | | | |
| | Total For Assessment Anchor D-M.1 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. | | | | | 1 | 4 | 1 | | 2 | 4 | 6 | 1 | 1 | 1 | | 2 | 1 |

| | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|--|---|---|---|---|----|---|----|---|---|---|---|----|---|----|---|
| D-M: Me | 2 | | | Represent and interpret data. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 2 | 1 | | Organize, display, and answer questions based on data. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 2 | 1 | 1 | Make a line plot to display a data set of measurements in fractions of a unit. | | | | | | | | | | | | | | | |
| | 2 | 1 | 2 | Solve problems involving addition and subtraction of fractions by using information presented in line plots. | | | | | | | | | | | | | | | |
| | 2 | 1 | 3 | Translate information from one type of display to another. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | Total For Assessment Anchor D-M.2 | | | | | 3 | | 2 | | 5 | | 5 | 3 | | 2 | | 5 | | 5 |
| | Represent and interpret data. | | | | | | | | | | | | | | | | | | |
| | 3 | | | Geometric measurement: understand concepts of angle; measure and create angles. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 3 | 1 | | Use appropriate tools and units to sketch an angle and determine angle measurements. | | | | | | | | | | | | | | | |
| | 3 | 1 | 1 | Measure angles in whole-number degrees using a protractor. With the aid of a protractor, sketch angles of a specified measure. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 3 | 1 | 2 | Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | Total For Assessment Anchor D-M.3 | | | | | 3 | | 1 | | 4 | | 4 | 3 | | 1 | | 4 | | 4 |
| Geometric measurement: understand concepts of angle; measure and create angles. | | | | | | | | | | | | | | | | | | | |
| Total For Reporting Category D-M | | | | | 7 | 4 | 4 | | 11 | 4 | 15 | 7 | 1 | 4 | | 11 | 1 | 12 | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|--|-------------------|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|-----------|----|-----------------------|----|-----------|-------|-----------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| | 1 | | | Understand the place-value system. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Demonstrate understanding of place-value of whole numbers and decimals, and compare quantities or magnitudes of numbers. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 1 | Demonstrate an understanding that in a multi-digit number, a digit in one place represents 1/10 of what it represents in the place to its left. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 2 | Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| | 1 | 1 | 3 | Read and write decimals to thousandths using base-ten numerals, word form, and expanded form. | 2 | | | | 2 | | 2 | | 2 | | | | 2 | | 2 |
| | 1 | 1 | 4 | Compare two decimals to thousandths based on meanings of the digits in each place using >, =, and < symbols. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| | 1 | 1 | 5 | Round decimals to any place. | | | | | | | | | | | | | | | |
| Total For Assessment Anchor A-T.1 | | | | | 6 | | 2 | | 8 | | 8 | | 6 | | 2 | | 8 | | 8 |
| | 2 | | | Perform operations with multi-digit whole numbers and with decimals to hundredths. | | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 |
| | 2 | 1 | | Use whole numbers and decimals to compute accurately. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | 2 | 1 | 1 | Multiply multi-digit whole numbers. | 2 | | | | 2 | | 2 | | 2 | | | | 2 | | 2 |
| | 2 | 1 | 2 | Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | 2 | 1 | 3 | Add, subtract, multiply, and divide decimals to hundredths. | 1 | | 2 | | 3 | | 3 | | 1 | | 2 | | 3 | | 3 |
| Total For Assessment Anchor A-T.2 | | | | | 7 | | 5 | | 12 | | 12 | | 7 | | 5 | | 12 | | 12 |
| Total For Reporting Category A-T | | | | | 13 | | 7 | | 20 | | 20 | | 13 | | 7 | | 20 | | 20 |

Grade 05

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|--|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|----|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| A-F: Numbers and Operations—Fractions | 1 | | | Use equivalent fractions as a strategy to add and subtract fractions. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | | Solve addition and subtraction problems involving fractions. | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Add and subtract fractions with unlike denominators. | 3 | 4 | 2 | | 5 | 4 | 9 | | 3 | 1 | 2 | | 5 | 1 | 6 |
| | Total For Assessment Anchor A-F.1 Use equivalent fractions as a strategy to add and subtract fractions. | | | | 4 | 4 | 3 | | 7 | 4 | 11 | | 4 | 1 | 3 | | 7 | 1 | 8 |
| | 2 | | | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | | | | | | | | | | | | | | | |
| | 2 | 1 | | Solve multiplication and division problems involving fractions and whole numbers. | 2 | | 2 | | 4 | | 4 | | 2 | | 2 | | 4 | | 4 |
| | 2 | 1 | 1 | Solve word problems involving division of whole numbers leading to answers in the form of fractions. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| | 2 | 1 | 2 | Multiply a fraction by a fraction. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | 2 | 1 | 3 | Demonstrate an understanding of multiplication as scaling. | 1 | | 2 | | 3 | | 3 | | 1 | | 2 | | 3 | | 3 |
| | 2 | 1 | 4 | Divide unit fractions by whole numbers and whole numbers by unit fractions. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | Total For Assessment Anchor A-F.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | | | | 6 | | 6 | | 12 | | 12 | | 6 | | 6 | | 12 | | 12 |
| Total For Reporting Category A-F | | | | 10 | 4 | 9 | | 19 | 4 | 23 | | 10 | 1 | 9 | | 19 | 1 | 20 | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--|---|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| B-O: Operations and Algebraic Thinking | 1 | | | Write and interpret numerical expressions. | | | | | | | | | | | | | | |
| | 1 | 1 | | Analyze and complete calculations by applying the order of operations. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| | 1 | 1 | 1 | Use multiple grouping symbols in numerical expressions and evaluate expressions containing these symbols. | 1 | 4 | | | 1 | 4 | 5 | 1 | 1 | | | 1 | 1 | 2 |
| | 1 | 1 | 2 | Write simple expressions that model calculations with numbers and interpret numerical expressions without evaluating them. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | Total For Assessment Anchor B-O.1 Write and interpret numerical expressions. | | | | 2 | 4 | 2 | | 4 | 4 | 8 | 2 | 1 | 2 | | 4 | 1 | 5 |
| | 2 | | | Analyze patterns and relationships. | | | | | | | | | | | | | | |
| | 2 | 1 | | Create, extend, and analyze patterns. | | | | | | | | | | | | | | |
| | 2 | 1 | 1 | Generate two numerical patterns using two given rules. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| | 2 | 1 | 2 | Identify apparent relationships between corresponding terms of two patterns with the same starting numbers that follow different rules. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | Total For Assessment Anchor B-O.2 Analyze patterns and relationships. | | | | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | 3 | | 3 |
| Total For Reporting Category B-O | | | | 4 | 4 | 3 | | 7 | 4 | 11 | 4 | 1 | 3 | | 7 | 1 | 8 | |

Grade 05

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--------------------|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| C-G: Geometry | 1 | | | Graph points on the coordinate plane to solve real-world and mathematical problems. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 1 | | Identify parts of a coordinate grid and describe or interpret points given an ordered pair. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 1 | 1 | Identify parts of the coordinate plane and the ordered pair. Limit the coordinate plane to quadrant I. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | 2 | | 2 | |
| | 1 | 1 | 2 | Represent real-world and mathematical problems by plotting points in quadrant I of the coordinate plane and interpret coordinate values of points in the context of the situation. | 2 | | 1 | | 3 | | 3 | 2 | | 1 | 3 | | 3 | |
| | Total For Assessment Anchor C-G.1 Graph points on the coordinate plane to solve real-world and mathematical problems. | | | | | 5 | | 2 | | 7 | | 7 | 5 | | 2 | | 7 | 7 |
| | 2 | | | Classify two-dimensional figures into categories based on their properties. | | | | | | | | | | | | | | |
| | 2 | 1 | | Use basic properties to classify two-dimensional figures. | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 | |
| | 2 | 1 | 1 | Classify two-dimensional figures in a hierarchy based on properties. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | Total For Assessment Anchor C-G.2 Classify two-dimensional figures into categories based on their properties. | | | | | 3 | | | | 3 | | 3 | 3 | | | 3 | | 3 |
| | Total For Reporting Category C-G | | | | | 8 | | 2 | | 10 | | 10 | 8 | | 2 | | 10 | 10 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | | |
|---------------------------|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|----|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | |
| D-M: Measurement and Data | 1 | | | Convert like measurement units within a given measurement system. | | | | | | | | | | | | | | | | |
| | 1 | 1 | | Solve problems using simple conversions. | | | 1 | | 1 | | 1 | | | 1 | | 1 | 1 | | | |
| | 1 | 1 | 1 | Convert between different-sized measurement units within a given measurement system. | 2 | | | | 2 | | 2 | | | | | 2 | | 2 | | |
| | Total for Assessment Anchor D-M.1 Convert like measurement units within a given measurement system. | | | | | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | 2 | | | Represent and interpret data. | | | | | | | | | | | | | | | | |
| | 2 | 1 | | Organize, display, and answer questions based on data. | | 4 | 1 | | 1 | 4 | 5 | | 1 | 1 | | 1 | 1 | 2 | | |
| | 2 | 1 | 1 | Solve problems involving computation of fractions by using information presented in line plots. | 1 | | | | 1 | | 1 | | 1 | | | 1 | | 1 | | |
| | 2 | 1 | 2 | Display and interpret data shown in tallies, tables, charts, pictographs, bar graphs, and line graphs, and use a title, appropriate scale, and labels. A grid will be provided to display data on bar graphs or line graphs. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | Total For Assessment Anchor D-M.2 Represent and interpret data. | | | | | 2 | 4 | 2 | | 4 | 4 | 8 | 2 | 1 | 2 | | 4 | 1 | 5 | |
| | 3 | | | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. | | | | | | | | | | | | | | | | |
| | 3 | 1 | | Use, describe, and develop procedures to solve problems involving volume. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | | |
| | 3 | 1 | 1 | Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. | | | | | | | | | | | | | | | | |
| | 3 | 1 | 2 | Find volumes of solid figures composed of two non-overlapping right rectangular prisms. | 1 | | | | 1 | | 1 | | 1 | | | 1 | | 1 | | |
| | Total For Assessment Anchor D-M.3 Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. | | | | | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | Total For Reporting Category D-M | | | | | 5 | 4 | 4 | | 9 | 4 | 13 | 5 | 1 | 4 | | 9 | 1 | 10 | |

Grade 06

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|--------------------|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| | 1 | | | Apply and extend previous understandings of multiplication and division to divide fractions by fractions. | | | 1 | | 1 | | 1 | | | 1 | | | | | |
| | 1 | 1 | | Solve real-world and mathematical problems involving division of fractions. | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions. | 2 | | 3 | | 5 | | 5 | | 2 | | 3 | | 5 | | 5 |
| | Total For Assessment Anchor A-N.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions. | | | | 2 | | 4 | | 6 | | 6 | | 2 | | 4 | | 6 | | 6 |
| | 2 | | | Compute with multi-digit numbers and find common factors and multiples. | | | | | | | | | | | | | | | |
| | 2 | 1 | | Compute with multi-digit numbers using the four arithmetic operations with or without a calculator. | | | | | | | | | | | | | | | |
| | 2 | 1 | 1 | Solve problems involving operations with whole numbers, decimals, straight computation, or word problems. | 2 | 4 | 3 | | 5 | 4 | 9 | | 2 | 1 | 3 | | 5 | 1 | 6 |
| | 2 | 2 | | Apply number theory concepts. | | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 |
| | 2 | 2 | 1 | Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. | | | | | | | | | | | | | | | |
| | 2 | 2 | 2 | Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor. | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-N.2 Compute with multi-digit numbers and find common factors and multiples. | | | | 2 | 4 | 4 | | 6 | 4 | 10 | | 2 | 1 | 4 | | 6 | 1 | 7 |

ystem

| | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|--|---|---|---|---|----|---|----|---|---|---|--|----|---|----|---|
| A-N: The Number Sy | 3 | | Apply and extend previous understandings of numbers to the system of rational numbers. | | | | | | | | | | | | | | | |
| | 3 | 1 | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values and locations on the number line and coordinate plane. | | | | | | | | | | | | | | | |
| | 3 | 1 | 1 | Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation. | | | | | | | | | | | | | | |
| | 3 | 1 | 2 | Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself. | | | | | | | | | | | | | | |
| | 3 | 1 | 3 | Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | 2 |
| | 3 | 2 | | Understand ordering and absolute value of rational numbers. | | | | | | | | | | | | | | |
| | 3 | 2 | 1 | Write, interpret, and explain statements of order for rational numbers in real-world contexts. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | 1 |
| | 3 | 2 | 2 | Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation. | | | | | | | | | | | | | | |
| | 3 | 2 | 3 | Solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-N.3 Apply and extend previous understandings of numbers to the system of rational numbers. | | | | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | |
| Total For Reporting Category A-N | | | | 6 | 4 | 9 | | 15 | 4 | 19 | 6 | 1 | 9 | | 15 | 1 | 16 | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--|---|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| A-R: Ratios and Proportional Relationships | 1 | | | Understand ratio concepts and use ratio reasoning to solve problems. | | | | | | | | | | | | | | |
| | 1 | 1 | | Represent and/or solve real-world and mathematical problems using rates, ratios, and/or percents. | 2 | | | | 2 | | 2 | | | | 2 | | 2 | |
| | 1 | 1 | 1 | Use ratio language and notation to describe a ratio relationship between two quantities. | 1 | | | | 1 | | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 2 | Find the unit rate a/b associated with a ratio $a:b$ and use rate language in the context of a ratio relationship. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | 3 |
| | 1 | 1 | 3 | Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios. | 1 | | | | 1 | | 1 | | | | | 1 | | 1 |
| | 1 | 1 | 4 | Solve unit rate problems including those involving unit pricing and constant speed. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | 3 |
| | 1 | 1 | 5 | Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percentage. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | 2 |
| | Total For Assessment Anchor A-R.1 Understand ratio concepts and use ratio reasoning to solve problems. | | | | | 9 | | 3 | | 12 | | 12 | | 9 | | 3 | | 12 |
| Total For Reporting Category A-R | | | | | 9 | | 3 | | 12 | | 12 | | 9 | | 3 | | 12 | 12 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--------------------|---|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| | 1 | | | Apply and extend previous understandings of arithmetic to numerical and algebraic expressions. | | | | | | | | | | | | | | |
| | 1 | 1 | | Identify, write, and evaluate numerical and algebraic expressions. | | | 1 | | 1 | | | 1 | | 1 | | 1 | | |
| | 1 | 1 | 1 | Write and evaluate numerical expressions involving whole-number exponents. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 2 | Write algebraic expressions from verbal descriptions. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| | 1 | 1 | 3 | Identify parts of an expression using mathematical terms. | | | | | | | | | | | | | | |
| | 1 | 1 | 4 | Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 1 | 5 | Apply the properties of operations to generate equivalent expressions. | | | | | | | | | | | | | | |
| | Total For Assessment Anchor B-E.1 Apply and extend previous understandings of arithmetic to numerical and algebraic expressions. | | | | 3 | | 2 | | 5 | | 5 | 3 | | 2 | | 5 | | 5 |
| | 2 | | | Interpret and solve one-variable equations and inequalities. | | | | | | | | | | | | | | |
| | 2 | 1 | | Create, solve, and interpret one-variable equations or inequalities in real-world and mathematical problems. | 1 | 4 | | | 1 | 4 | 5 | 1 | 1 | | 1 | 1 | 2 | |
| | 2 | 1 | 1 | Use substitution to determine whether a given number in a specified set makes an equation or inequality true. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 2 | 1 | 2 | Write algebraic expressions to represent real-world or mathematical problems. | | | | | | | | | | | | | | |
| | 2 | 1 | 3 | Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q , and x are all non-negative rational numbers. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 2 | 1 | 4 | Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines. | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | 3 | | 3 |

B-E: Expressions and Equations

| | | | | | | | | | | | | | | |
|--|---|---|---|--|---|---|----|---|---|---|--|---|---|---|
| Total For Assessment Anchor B-E.2 Interpret and solve one-variable equations and inequalities. | 5 | 4 | 2 | | 7 | 4 | 11 | 5 | 1 | 2 | | 7 | 1 | 8 |
|--|---|---|---|--|---|---|----|---|---|---|--|---|---|---|

| | | | | | | | | | | | | | | | | | |
|--|---|---|--|----|---|---|--|----|---|----|----|---|---|--|----|---|----|
| 3 | | | Represent and analyze quantitative relationships between dependent and independent variables. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| 3 | 1 | | Use variables to represent two quantities in a real-world problem that change in relationship to one another. | | | | | | | | | | | | | | |
| 3 | 1 | 1 | Write an equation to express the relationship between the dependent and independent variables. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| 3 | 1 | 2 | Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation. | 2 | | | | 2 | | 2 | 2 | | | | 2 | | 2 |
| Total For Assessment Anchor B-E.3 Represent and analyze quantitative relationships between dependent and independent variables. | | | | 3 | | 2 | | 5 | | 5 | 3 | | 2 | | 5 | | 5 |
| Total For Reporting Category B-E | | | | 11 | 4 | 6 | | 17 | 4 | 21 | 11 | 1 | 6 | | 17 | 1 | 18 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|----------------------------------|---|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|----|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| C-G: Geometry | 1 | | | Solve real-world and mathematical problems involving area, surface area, and volume. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Find area, surface area, and volume by applying formulas and using various strategies. | 1 | | | | 1 | | 1 | | | | 1 | | 1 | | |
| | 1 | 1 | 1 | Determine the area of triangles and special quadrilaterals. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | |
| | 1 | 1 | 2 | Determine the area of irregular or compound polygons. | 2 | | | | 2 | | 2 | | | | 2 | | 2 | | |
| | 1 | 1 | 3 | Determine the volume of right rectangular prisms with fractional edge lengths. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 4 | Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon. | 2 | | | | 2 | | 2 | | | | | 2 | | 2 | |
| | 1 | 1 | 5 | Represent three-dimensional figures using nets made of rectangles and triangles. | 2 | | | | 2 | | 2 | | | | | 2 | | 2 | |
| | 1 | 1 | 6 | Determine the surface area of triangular and rectangular prisms. | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C-G.1 Solve real-world and mathematical problems involving area, surface area, and volume. | | | | | 8 | | 2 | | 10 | | 10 | | 8 | | 2 | | 10 | |
| Total For Reporting Category C-G | | | | | 8 | | 2 | | 10 | | 10 | | 8 | | 2 | | 10 | | 10 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|----------------------------------|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| D-S: Statistics and Probability | 1 | | | Demonstrate understanding of statistical variability by summarizing and describing distributions. | | 4 | | | | 4 | 4 | | | 1 | | | 1 | 1 |
| | 1 | 1 | | Display, analyze, and summarize numerical data sets in relation to their context. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 1 | Display numerical data in plots on a number line, including line plots, histograms, and box-and-whisker plots. | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | 3 | | 3 |
| | 1 | 1 | 2 | Determine quantitative measures of center and variability. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 1 | 3 | Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered. | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | 3 | | 3 |
| | 1 | 1 | 4 | Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. | | | | | | | | | | | | | | |
| | Total For Assessment Anchor D-S.1 Demonstrate understanding of statistical variability by summarizing and describing distributions. | | | | | 6 | 4 | 4 | | 10 | 4 | 14 | 6 | 1 | 4 | | 10 | 1 |
| Total For Reporting Category D-S | | | | | 6 | 4 | 4 | | 10 | 4 | 14 | 6 | 1 | 4 | | 10 | 1 | 11 |

Grade 07

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | |
|----------------------------------|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE |
| A-N: The Number System | 1 | | | Apply and extend previous understandings of operations to add, subtract, multiply, and divide rational numbers. | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| | 1 | 1 | | Solve real-world and mathematical problems involving the four operations with rational numbers. | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Apply properties of operations to add and subtract rational numbers, including real-world contexts. | 2 | | 3 | | 5 | | 5 | | 2 | | 3 | | 5 |
| | 1 | 1 | 2 | Represent addition and subtraction on a horizontal or vertical number line. | 3 | | 1 | | 4 | | 4 | | 3 | | 1 | | 4 |
| | 1 | 1 | 3 | Apply properties of operations to multiply and divide rational numbers, including real-world contexts; demonstrate that the decimal form of a rational number terminates or eventually repeats. | 3 | | | | 3 | | 3 | | 3 | | | | 3 |
| | Total For Assessment Anchor A-N.1 Apply and extend previous understandings of operations to add, subtract, multiply, and divide rational numbers. | | | | | 8 | | 5 | | 13 | | 13 | | 8 | | 5 | |
| Total For Reporting Category A-N | | | | | 8 | | 5 | | 13 | | 13 | | 8 | | 5 | | 13 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--|---|-------------------------|------------------|--|----------------|----|----------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| A-R: Ratios and Proportional Relationships | 1 | | | Demonstrate an understanding of proportional relationships. | | | | | | | | | | | | | | |
| | 1 | 1 | | Analyze, recognize, and represent proportional relationships and use them to solve real-world and mathematical problems. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | |
| | 1 | 1 | 1 | Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. | 2 | 4 | 1 | | 3 | 4 | 7 | 2 | 1 | 1 | 3 | 1 | 4 | |
| | 1 | 1 | 2 | Determine whether two quantities are proportionally related. | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 | |
| | 1 | 1 | 3 | Identify the constant of proportionality in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | 2 | | 2 | |
| | 1 | 1 | 4 | Represent proportional relationships by equations. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | 2 | | 2 | |
| | 1 | 1 | 5 | Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r), where r is the unit rate. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | 2 | | 2 | |
| | 1 | 1 | 6 | Use proportional relationships to solve multi-step ratio and percent problems. | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 | |
| | Total For Assessment Anchor A-R.1 Demonstrate an understanding of proportional relationships. | | | | | 9 | 4 | 5 | | 14 | 4 | 18 | 9 | 1 | 5 | 14 | 1 | 15 |
| Total For Reporting Category A-R | | | | | 9 | 4 | 5 | | 14 | 4 | 18 | 9 | 1 | 5 | 14 | 1 | 15 | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | | |
|--------------------------------|---|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|----|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | |
| B-E: Expressions and Equations | 1 | | | Represent expressions in equivalent forms. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | 1 | 1 | | Use properties of operations to generate equivalent expressions. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 1 | Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients. | 1 | 4 | 1 | | 2 | 4 | 6 | | 1 | 1 | 1 | | 2 | 1 | 3 | |
| | Total For Assessment Anchor B-E.1 Represent expressions in equivalent forms. | | | | | 3 | 4 | 2 | | 5 | 4 | 9 | | 3 | 1 | 2 | | 5 | 1 | 6 |
| | 2 | | | Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 1 | | Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers. | | | 1 | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 1 | 1 | Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 2 | | Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | 2 | 2 | 1 | Solve word problems leading to equations of the form $px + q = r$ and $p(x+q) = r$, where p , q , and r are specific rational numbers. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 2 | 2 | Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers, and graph the solution set of the inequality. | | | | | | | | | | | | | | | | |
| | 2 | 3 | | Determine the reasonableness of the answer(s) in problem-solving situations. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 3 | 1 | Determine the reasonableness of answer(s) or interpret the solution(s) in the context of the problem. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | Total For Assessment Anchor B-E.2 Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities. | | | | | 6 | | 3 | | 9 | | 9 | | 6 | | 3 | | 9 | | 9 |
| | Total For Reporting Category B-E | | | | | 9 | 4 | 5 | | 14 | 4 | 18 | | 9 | 1 | 5 | | 14 | 1 | 15 |

Grade 07

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | Items | | | | | | | | |
|----------------------------------|---|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-------|-----------------|----|----|----|-----------------------|----|-------|----|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | |
| C-G: Geometry | 1 | | | Demonstrate an understanding of geometric figures and their properties. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | 1 | 1 | | Demonstrate and apply properties of geometric figures. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 1 | Solve problems involving scale drawings of geometric figures, including finding length and area. | | | | | | | | | | | | | | | | |
| | 1 | 1 | 2 | Identify or describe the properties of all types of triangles based on angle and side measures. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 3 | Use and apply the triangle inequality theorem. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |
| | 1 | 1 | 4 | Describe the two-dimensional figures that result from slicing three-dimensional figures. | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C-G.1 Demonstrate an understanding of geometric figures and their properties. | | | | | 4 | | 2 | | 6 | | 6 | | 4 | | 2 | | 6 | | 6 |
| | 2 | | | Solve real-world and mathematical problems involving angle measure, circumference, area, surface area, and volume. | | | | | | | | | | | | | | | | |
| | 2 | 1 | | Identify, use, and describe properties of angles and their measures. | | | | | | | | | | | | | | | | |
| | 2 | 1 | 1 | Identify and use properties of supplementary, complementary, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. | | | | | 1 | | 1 | | | | | | 1 | | 1 | |
| | 2 | 1 | 2 | Identify and use properties of angles formed when two parallel lines are cut by a transversal. | 3 | | | | 3 | | 3 | | | | | | 3 | | 3 | |
| | 2 | 2 | | Determine circumference, area, surface area, and volume. | | | | | | | | | | | | | | | | |
| | 2 | 2 | 1 | Find the area and circumference of a circle. Solve problems involving area and circumference of a circle(s). | 2 | | | | 2 | | 2 | | | 2 | | | | 2 | | 2 |
| | 2 | 2 | 2 | Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. | 1 | | | | 1 | | 2 | | | 1 | | 1 | | 2 | | 2 |
| | Total For Assessment Anchor C-G.2 Solve real-world and mathematical problems involving angle measure, circumference, area, surface area, and volume. | | | | | 6 | | 2 | | 8 | | 8 | | 6 | | 2 | | 8 | | 8 |
| Total For Reporting Category C-G | | | | | 10 | | 4 | | 14 | | 14 | | 10 | | 4 | | 14 | | 14 | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | Items | | | | | | | | |
|---------------------------------|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-------|-----------------|----|----|----|-----------------------|----|-------|---|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | |
| D-S: Statistics and Probability | 1 | | | Use random sampling to draw inferences about a population. | | 4 | | | | 4 | 4 | | 1 | | | 1 | 1 | | | |
| | 1 | 1 | | Use random samples. | | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Determine whether a sample is a random given a real-world situation. | | | | | | | | | | | | | | | | |
| | 1 | 1 | 2 | Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | | |
| | Total For Assessment Anchor D-S.1 Use random sampling to draw inferences about a population. | | | | | | 4 | 1 | | 1 | 4 | 5 | | 1 | 1 | | 1 | 1 | 2 | |
| | 2 | | | Draw comparative inferences about populations. | | | | | | | | | | | | | | | | |
| | 2 | 1 | | Use statistical measures to compare two numerical data distributions. | | | | | | | | | | | | | | | | |
| | 2 | 1 | 1 | Compare two numerical data distributions using measures of center and variability. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 | |
| | Total For Assessment Anchor D-S.2 Draw comparative inferences about populations. | | | | | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | 3 | | | Investigate chance processes and develop, use, and evaluate probability models. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 3 | 1 | | Predict or determine the likelihood of outcomes. | | | | | | | | | | | | | | | | |
| | 3 | 1 | 1 | Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 | |
| | 3 | 2 | | Use probability to predict outcomes. | | | | | | | | | | | | | | | | |
| | 3 | 2 | 1 | Determine the probability of a chance event given relative frequency. Predict the approximate relative frequency given the probability. | | | | | | | | | | | | | | | | |
| | 3 | 2 | 2 | Find the probability of a simple event, including the probability of a simple event not occurring. | | | | | | | | | | | | | | | | |
| | 3 | 2 | 3 | Find probabilities of independent compound events using organized lists, tables, tree diagrams, and simulation. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | 1 | |
| | Total For Assessment Anchor D-S.3 Investigate chance processes and develop, use, and evaluate probability models. | | | | | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | Total For Reporting Category D-S | | | | | 4 | 4 | 3 | | 7 | 4 | 11 | | 4 | 1 | 3 | | 7 | 1 | 8 |

Grade 08

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|----------------------------------|---|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| A-N: The Number System | 1 | | | Demonstrate an understanding of rational and irrational numbers. | | | | | | | | | | | | | | |
| | 1 | 1 | | Apply concepts of rational and irrational numbers. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | |
| | 1 | 1 | 1 | Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats. | 2 | | | | 2 | | 2 | | | 2 | | 2 | | |
| | 1 | 1 | 2 | Convert a terminating or repeating decimal to a rational number. | 1 | | 1 | | 2 | | 2 | | 1 | 1 | 2 | | 2 | |
| | 1 | 1 | 3 | Estimate the value of irrational numbers without a calculator. | | | 3 | | 3 | | 3 | | | 3 | | 3 | | |
| | 1 | 1 | 4 | Use rational approximations of irrational numbers to compare and order irrational numbers. | 2 | | | | 2 | | 2 | | | | 2 | | 2 | |
| | 1 | 1 | 5 | Locate/identify rational and irrational numbers at their approximate locations on a number line. | 2 | | | | 2 | | 2 | | | | 2 | | 2 | |
| | Total For Assessment Anchor A-N.1 Demonstrate an understanding of rational and irrational numbers. | | | | | 7 | | 5 | | 12 | | 12 | | 7 | | 5 | | 12 |
| Total For Reporting Category A-N | | | | | 7 | | 5 | | 12 | | 12 | | 7 | | 5 | | 12 | |

| Grade 08 | | | | Mathematics | | | | | | | | | | | | | | | |
|---|-------------------|-------------------------|------------------|---|----------------|----|----------------|----|--------------|----|-----------------|----|----|-----------------------|-------------|----|----|-------|----|
| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
| | | | | | Student Scores | | Equating Block | | Total Points | | Number of Items | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| | 1 | | | Demonstrate an understanding of expressions and equations with radicals and integer exponents. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Represent and use expressions and equations to solve problems involving radicals and integer exponents. | 2 | | 1 | | 3 | | 3 | | 2 | | 1 | | 3 | | 3 |
| | 1 | 1 | 1 | Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| | 1 | 1 | 2 | Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of perfect squares and cube roots of perfect cubes without a calculator. | 1 | | 2 | | 3 | | 3 | | 1 | | 2 | | 3 | | 3 |
| | 1 | 1 | 3 | Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another. | 2 | | | | 2 | | 2 | | 2 | | | | 2 | | 2 |
| | 1 | 1 | 4 | Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Express answers in scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor B-E.1 Demonstrate an understanding of expressions and equations with radicals and integer exponents. | | | | | 7 | | 3 | | 10 | | 10 | | 7 | | 3 | | 10 | | 10 |

B-E: Expressions and Equations

| | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|--|---|--|---|--|---|---|--|---|--|---|--|---|
| 2 | | | Understand the connections between proportional relationships, lines, and linear equations. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| 2 | 1 | | Analyze and describe linear relationships between two variables, using slope. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 2 | 1 | 1 | Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. | 2 | | | | 2 | | 2 | 2 | | | | 2 | | 2 |
| 2 | 1 | 2 | Use similar right triangles to show and explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| 2 | 1 | 3 | Derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b . | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor B-E.2 Understand the connections between proportional relationships, lines, and linear equations. | | | | 5 | | 2 | | 7 | | 7 | 5 | | 2 | | 7 | | 7 |

| | | | | | | | | | | | | | | | |
|---|---|---|--|----|---|----|----|----|---|----|----|--|--|--|---|
| 3 | | | Analyze and solve linear equations and pairs of simultaneous linear equations. | | | | | | | | | | | | |
| 3 | 1 | | Write, solve, graph, and interpret linear equations in one or two variables, using various methods. | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | | | | |
| 3 | 1 | 1 | Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results. | 1 | | 1 | 1 | 1 | | | 1 | | | | 1 |
| 3 | 1 | 2 | Solve linear equations that have rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | | | | 2 |
| 3 | 1 | 3 | Interpret solutions to a system of two linear equations in two variables as points of intersection of their graphs because points of intersection satisfy both equations simultaneously. | 1 | | 1 | 1 | 1 | | | 1 | | | | 1 |
| 3 | 1 | 4 | Solve systems of two linear equations in two variables algebraically and estimate solutions by graphing the equations. Solve simple cases by inspection. | | 1 | 1 | 1 | | 1 | 1 | | | | | 1 |
| 3 | 1 | 5 | Solve real-world and mathematical problems leading to two linear equations in two variables. | | | | | | | | | | | | |
| Total For Assessment Anchor B-E.3 Analyze and solve linear equations and pairs of simultaneous linear equations. | | | | 4 | 3 | 7 | 7 | 4 | 3 | 7 | 7 | | | | |
| Total For Reporting Category B-E | | | | 16 | 8 | 24 | 24 | 16 | 8 | 24 | 24 | | | | |

Grade 08

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|--|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| B-F: Functions | 1 | | | Analyze and interpret functions. | 1 | 4 | | | 1 | 4 | 5 | 1 | 1 | | | 1 | 1 | 2 | |
| | 1 | 1 | | Define, evaluate, and compare functions displayed algebraically, graphically, or numerically in tables or by verbal descriptions. | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Determine whether a relation is a function. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 2 | Compare properties of two functions, each represented in a different way. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 1 | 1 | 3 | Interpret the equation $y = mx + b$ as defining a linear function whose graph is a straight line; give examples of functions that are not linear. | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor B-F.1 Analyze and interpret functions. | | | | | 3 | 4 | 1 | | 4 | 4 | 8 | 3 | 1 | 1 | | 4 | 1 | 5 |
| | 2 | | | Use functions to model relationships between quantities. | | | | | | | | | | | | | | | |
| | 2 | 1 | | Represent or interpret functional relationships between quantities using tables, graphs, and descriptions. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 | |
| | 2 | 1 | 1 | Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values. | 2 | | | | 2 | | 2 | 2 | | | | 2 | | 2 | |
| | 2 | 1 | 2 | Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch or determine a graph that exhibits the qualitative features of a function that has been described verbally. | 2 | | 1 | | 3 | | 3 | 2 | | 1 | | 3 | | 3 | |
| Total For Assessment Anchor B-F.2 Use functions to model relationships between quantities. | | | | | 5 | | 2 | | 7 | | 7 | 5 | | 2 | | 7 | | 7 | |
| Total For Reporting Category B-F | | | | | 8 | 4 | 3 | | 11 | 4 | 15 | 8 | 1 | 3 | | 11 | 1 | 12 | |

Grade 08

Mathematics

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|----------------------|--|-------------------------|------------------|---|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | (EB) | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| C-G: Geometry | 1 | | | Demonstrate an understanding of geometric transformations. | | 4 | 1 | | 1 | 4 | 5 | | 1 | 1 | | 1 | 1 | 2 | |
| | 1 | 1 | | Apply properties of geometric transformations to verify congruence or similarity. | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Identify and apply properties of rotations, reflections, and translations. | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | |
| | 1 | 1 | 2 | Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| | 1 | 1 | 3 | Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. | | | | | | | | | | | | | | | |
| | 1 | 1 | 4 | Given two similar two-dimensional figures, describe a sequence of transformations that exhibits the similarity between them. | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C-G.1 Demonstrate an understanding of geometric transformations. | | | | | 1 | 4 | 2 | | 3 | 4 | 7 | 1 | 1 | 2 | | 3 | 1 | 4 |
| | 2 | | | Understand and apply the Pythagorean theorem. | | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 |
| | 2 | 1 | | Solve problems involving right triangles by applying the Pythagorean theorem. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| | 2 | 1 | 1 | Apply the converse of the Pythagorean theorem to show a triangle is a right triangle. | | | | | | | | | | | | | | | |
| | 2 | 1 | 2 | Apply the Pythagorean theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| | 2 | 1 | 3 | Apply the Pythagorean theorem to find the distance between two points in a coordinate system. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| | Total For Assessment Anchor C-G.2 Understand and apply the Pythagorean theorem. | | | | | 3 | | 1 | | 4 | | 4 | 3 | | 1 | | 4 | | 4 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|--|---|---|---|--|---|---|----|---|---|---|--|---|---|----|
| 3 | | | Solve real-world and mathematical problems involving volume. | | | | | | | | | | | | | | |
| 3 | 1 | | Apply volume formulas of cones, cylinders, and spheres. | | | | | | | | | | | | | | |
| 3 | 1 | 1 | Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | 2 | |
| Total For Assessment Anchor C-G.3 Solve real-world and mathematical problems involving volume. | | | | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | 2 | |
| Total For Reporting Category C-G | | | | 5 | 4 | 4 | | 9 | 4 | 13 | 5 | 1 | 4 | | 9 | 1 | 10 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | |
|----------------------------------|--|-------------------------|------------------|--|----------------|----|---------------------|----|--------------|----|-----------------|----|----|----|-----------------------|----|----|-------|---|
| | | | | | Student Scores | | Equating Block (EB) | | Total Points | | Number of Items | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | (Core & EB) | | Core | | EB | | (Core & EB) | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | |
| D-S: Statistics and Probability | 1 | | | Investigate patterns of association in bivariate data. | | | | | | | | | | | | | | | |
| | 1 | 1 | | Analyze and interpret bivariate data displayed in multiple representations. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | 2 | |
| | 1 | 1 | 1 | Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear association, and nonlinear association. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | 2 | |
| | 1 | 1 | 2 | For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line. | | | | | | | | | | | | | | | |
| | 1 | 1 | 3 | Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | 1 | |
| | 1 | 2 | | Understand that patterns of association can be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. | | | | | | | | | | | | | | | |
| | 1 | 2 | 1 | Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible associations between the two variables. | 1 | 4 | 1 | | 2 | 4 | 6 | | 1 | 1 | 1 | | 2 | 1 | 3 |
| | Total For Assessment Anchor D-S.1 Investigate patterns of association in bivariate data. | | | | | 4 | 4 | 3 | | 7 | 4 | 11 | | 4 | 1 | 3 | | 7 | 1 |
| Total For Reporting Category D-S | | | | | 4 | 4 | 3 | | 7 | 4 | 11 | | 4 | 1 | 3 | | 7 | 1 | 8 |

Grade 03

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | |
|--------------------|--|---|------------------|-------|--|-----|----|---------------------|-----|----|--------------|-----|----|-------|----|-----|-----------------|----|-----|----|----|-----|-----------------------|-------|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | | | Number of Items | | | | | | Total Number of Items | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | | | | Core | | | EB | | | (Core & EB) | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | |
| A: Literature Text | A-K | 1 | 1 | 1 | Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. | 3 | | | 8 | | | 11 | | | 11 | 3 | | | 8 | | | 11 | | | 11 |
| | | 1 | 1 | 2 | Recount poems, dramas, or stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text. | 1 | | | 6 | 3 | | 7 | 3 | | 10 | 1 | | | 6 | 1 | | 7 | 1 | | 8 |
| | | 1 | 1 | 3 | Describe characters in a story and explain how their actions contribute to the sequence of events. | 1 | 3 | 3 | 9 | 2 | | 10 | 5 | 3 | 18 | 1 | 1 | 1 | 9 | 1 | | 10 | 2 | 1 | 13 |
| | Total For Assessment Anchor A-K.1 Key Ideas and Details | | | | | 5 | 3 | 3 | 23 | 5 | | 28 | 8 | 3 | 39 | 5 | 1 | 1 | 23 | 2 | | 28 | 3 | 1 | 32 |
| | A-C | 2 | 1 | 1 | Explain the point of view from which a story is narrated, including the difference between first- and third-person narrations. | 1 | 2 | | 7 | | | 8 | 2 | | 10 | 1 | 1 | | 7 | | | 8 | 1 | | 9 |
| | | Total For Assessment Anchor A-C.2 Craft and Structure | | | | | 1 | 2 | | 7 | | | 8 | 2 | | 10 | 1 | 1 | | 7 | | | 8 | 1 | |
| | A-C | 3 | 1 | 1 | Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters. | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-C.3 Integration of Knowledge and Ideas | | | | | | | | | | | | | | | | | | | | | | | | |
| | A-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies. | 2 | | | 7 | | | 9 | | | 9 | 2 | | | 7 | | | 9 | | | 9 |
| | | 4 | 1 | 2 | Demonstrate understanding of word relationships and nuances in word meanings. | 2 | | | 7 | | | 9 | | | 9 | 2 | | | 7 | | | 9 | | | 9 |
| | Total For Assessment Anchor A-V.4 Vocabulary Acquisition and Use | | | | | 4 | | | 14 | | | 18 | | | 18 | 4 | | | 14 | | | 18 | | | 18 |
| | Total For Reporting Category A | | | | | 10 | 5 | 3 | 44 | 5 | | 54 | 10 | 3 | 67 | 10 | 2 | 1 | 44 | 2 | | 54 | 4 | 1 | 59 |

Grade 03

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | | | |
|------------------------------|---|-------------------------|------------------|-------|--|-----|----|---------------------|-----|----|--------------|-----|----|-----------------|----|-----|-------|----|-----|-----------------------|----|-----|----|-------|----|--|--|--|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | Number of Items | | | | | | Total Number of Items | | | | | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | Core | | | EB | | | (Core & EB) | | | | | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | | | |
| B: Informational Text | B-K | 1 | 1 | 1 | Answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. | 1 | 3 | 3 | 16 | | | 17 | 3 | 3 | 23 | 1 | 1 | 1 | 16 | | | 17 | 1 | 1 | 19 | | | |
| | | 1 | 1 | 2 | Determine the main idea of a text; recount the key details and explain how they support the main idea. | 1 | 2 | | 1 | | | 2 | 2 | | 4 | 1 | 1 | | 1 | | | 2 | 1 | | 3 | | | |
| | | 1 | 1 | 3 | Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. | 1 | | | 13 | 7 | | 14 | 7 | | 21 | 1 | | | 13 | 3 | | 14 | 3 | | 17 | | | |
| | Total For Assessment Anchor B-K.1 Key Ideas and Details | | | | | 3 | 5 | 3 | 30 | 7 | | 33 | 12 | 3 | 48 | 3 | 2 | 1 | 30 | 3 | | 33 | 5 | 1 | 39 | | | |
| | B-C | 2 | 1 | 1 | Explain the point of view from which a text is written. | 2 | | | 8 | | | 10 | | | 10 | 2 | | | 8 | | | 10 | | | 10 | | | |
| | | 2 | 1 | 2 | Use text features and search tools to efficiently locate information relevant to a given topic. | 1 | | | 7 | | | 8 | | | 8 | 1 | | | 7 | | | 8 | | | 8 | | | |
| | Total For Assessment Anchor B-C.2 Craft and Structure | | | | | 3 | | | 15 | | | 18 | | | 18 | 3 | | | 15 | | | 18 | | | 18 | | | |
| | B-C | 3 | 1 | 1 | Describe the logical connection between particular sentences and paragraphs to support specific points in a text. | 2 | | | 2 | 3 | | 4 | 3 | | 7 | 2 | | | 2 | 1 | | 4 | 1 | | 5 | | | |
| | | 3 | 1 | 2 | Compare and contrast the most important points and key details presented in two texts on the same topic. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3 | 1 | 3 | Use information gained from illustrations, maps, photographs, and the words in a text to demonstrate understanding of the text. | | | | 1 | | | 1 | | | 1 | | | | 1 | | | 1 | | | 1 | | | |
| | Total For Assessment Anchor B-C.3 Integration of Knowledge and Ideas | | | | | 2 | | | 3 | 3 | | 5 | 3 | | 8 | 2 | | | 3 | 1 | | 5 | 1 | | 6 | | | |
| | B-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies. | 2 | | | 3 | | | 5 | | | 5 | 2 | | | 3 | | | 5 | | | 5 | | | |
| | | 4 | 1 | 2 | Demonstrate understanding of word relationships and nuances in word meanings. | | | | 1 | | | 1 | | | 1 | | | | 1 | | | 1 | | | 1 | | | |
| | Total For Assessment Anchor B-V.4 Vocabulary Acquisition and Use | | | | | 2 | | | 4 | | | 6 | | | 6 | 2 | | | 4 | | | 6 | | | 6 | | | |
| | Total For Reporting Category B | | | | | 10 | 5 | 3 | 52 | 10 | | 62 | 15 | 3 | 80 | 10 | 2 | 1 | 52 | 4 | | 62 | 6 | 1 | 69 | | | |

Grade 03

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | | | |
|---------------------------------------|--|-------------------------|------------------|-------|---|-----|----|---------------------|-----|----|--------------|-----|----|-----------------|----|-----|-------|----|-----|-----------------------|----|-----|----|-------|--|--|--|--|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | Number of Items | | | | | | Total Number of Items | | | | | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | Core | | | EB | | | (Core & EB) | | | | | | | | |
| | | | | | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | Total | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | Total | | | | |
| C: Writing | C | 1 | 1 | | Write opinion pieces on topics or texts, supporting a point of view with reasons. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | | Write informative/explanatory texts to examine a topic and convey ideas and information clearly. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 3 | | Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. | | | | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C.1 Text Types and Purposes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total For Reporting Category C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Grade 03

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | | | |
|---------------------------------------|-------------------|--|------------------|-------|---|-----|----------|----------------|-----|-----------|--------------|----------|-----------|-----------|----------|-----------|-----------------|-----------|-----|-----------|-----------|-----|-----------------------|----------|---|-----------|--|--|
| | | | | | Student Scores | | | Equating Block | | | Total Points | | | | | | Number of Items | | | | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | | | | Core | | | EB | | | (Core & EB) | | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | | | |
| D: Language | D | 1 | 1 | 1 | Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 | | | |
| | | 1 | 1 | 2 | Form and use regular and irregular plural nouns. | | | | 1 | | | 1 | | | 1 | | | | 1 | | | 1 | | | 1 | | | |
| | | 1 | 1 | 3 | Use abstract nouns. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 4 | Form and use regular and irregular verbs. | | | | 2 | | | 2 | | | 2 | | | | 2 | | | 2 | | | 2 | | | |
| | | 1 | 1 | 5 | Form and use the simple verb tenses. | 1 | | | 2 | | | 3 | | | 3 | 1 | | | 2 | | | 3 | | | 3 | | | |
| | | 1 | 1 | 6 | Ensure subject-verb and pronoun-antecedent agreement. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 | | | |
| | | 1 | 1 | 7 | Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 8 | Use coordinating and subordinating conjunctions. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 | | | |
| | | 1 | 1 | 9 | Produce simple, compound, and complex sentences. | | | | 2 | | | 2 | | | 2 | | | | 2 | | | 2 | | | 2 | | | |
| | | 1 | 2 | 1 | Capitalize appropriate words in titles. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 | | | |
| | | 1 | 2 | 2 | Use commas in addresses. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 3 | Use commas and quotation marks in dialogue. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 | | | |
| | | 1 | 2 | 4 | Form and use possessives. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | 1 | | | 1 | | | |
| | | 1 | 2 | 5 | Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 6 | Use spelling patterns and generalizations in writing words. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | 1 | | | 1 | | | |
| | | Total For Assessment Anchor D.1 Conventions of Standard English | | | | | 8 | | | 12 | | | 20 | | | 20 | 8 | | | 12 | | | 20 | | | 20 | | |
| | | 2 | 1 | 1 | Choose words and phrases for effect. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | 1 | | | 1 | | | |
| | | Total For Assessment Anchor D.2 Knowledge of Language | | | | | 1 | | | | | 1 | | | 1 | 1 | | | | | 1 | | | 1 | | | | |
| Total For Reporting Category D | | | | | 9 | | | 12 | | | 21 | | | 21 | 9 | | | 12 | | | 21 | | | | | | | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | | | |
|--------------------|---------------------------------------|-------------------------|------------------|---|---|--|----|---------------------|-----|----|--------------|-----|----|-------|----|-----|-----------------|----|-----|----|----|-----|-----------------------|-------|----|---|--|--|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | | | Number of Items | | | | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | | | | Core | | | EB | | | (Core & EB) | | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | | | |
| A: Literature Text | A-K | 1 | 1 | 1 | Refer to details and examples in a text when explaining what the text explicitly says and when drawing inferences from the text. | 3 | 3 | | 14 | | | 17 | 3 | | 20 | 3 | 1 | | 14 | | | 17 | 1 | | 18 | | | |
| | | 1 | 1 | 2 | Determine a theme of a story, drama, or poem from details in the text; summarize the text. | | | | 7 | 3 | | 7 | 3 | | 10 | | | | 7 | 1 | | 7 | 1 | | 8 | | | |
| | | 1 | 1 | 3 | Describe in depth a character, setting, or event in a story, drama, or poem, drawing on specific details in the text. | 3 | 4 | | 7 | 2 | | 10 | 6 | | 16 | 3 | 2 | | 7 | 1 | | 10 | 3 | | 13 | | | |
| | | | | Total For Assessment Anchor A-K.1 Key Ideas and Details | 6 | 7 | | 28 | 5 | | 34 | 12 | | 46 | 6 | 3 | | 28 | 2 | | 34 | 5 | | 39 | | | | |
| | | A-C | 2 | 1 | 1 | Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations. | | | | 1 | | | 1 | | | 1 | | | | | | 1 | | | 1 | | | |
| | | | | | Total For Assessment Anchor A-C.2 Craft and Structure | | | | 1 | | | 1 | | | 1 | | | | | | 1 | | | 1 | | | | |
| | 3 | | 1 | 1 | Compare and contrast the treatment of similar themes and topics and patterns of events in stories, myths, and traditional literature from different cultures. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Total For Assessment Anchor A-C.3 Integration of Knowledge and Ideas | | | | | | | | | | | | | | | | | | | | | | | | |
| | | A-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies. | 1 | | | 7 | | | 8 | | | 8 | 1 | | | 7 | | | 8 | | | 8 | | |
| | 4 | | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 3 | | | 7 | | | 10 | | | 10 | 3 | | | 7 | | | 10 | | | 10 | | | |
| | | | | Total For Assessment Anchor A-V.4 Vocabulary Acquisition and Use | 4 | | | 14 | | | | 18 | | | 18 | 4 | | | 14 | | | 18 | | | 18 | | | |
| | Total For Reporting Category A | | | | | 10 | 7 | | 43 | 5 | | 53 | 12 | | 65 | 10 | 3 | | 43 | 2 | | 53 | 5 | | 58 | | | |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | | | |
|------------------------------|--|-------------------------|------------------|-------|---|-----|----|---------------------|-----|----|--------------|-----|----|-----------------|----|-----|-------|----|-----|-----------------------|----|-----|----|-------|----|--|--|--|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | Number of Items | | | | | | Total Number of Items | | | | | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | Core | | | EB | | | (Core & EB) | | | | | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | | | |
| B: Informational Text | B-K | 1 | 1 | 1 | Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. | 2 | | | 10 | | | 12 | | | 12 | 2 | | | 10 | | | 12 | | | 12 | | | |
| | | 1 | 1 | 2 | Determine the main idea of a text and explain how it is supported by key details; summarize the text. | 1 | 3 | | 6 | 5 | | 7 | 8 | | 15 | 1 | 1 | | 6 | 2 | | 7 | 3 | | 10 | | | |
| | | 1 | 1 | 3 | Explain events, procedures, ideas, steps, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. | 1 | | | 9 | | | 10 | | | 10 | 1 | | | 9 | | | 10 | | | 10 | | | |
| | Total For Assessment Anchor B-K.1 Key Ideas and Details | | | | | 4 | 3 | | 25 | 5 | | 29 | 8 | | 37 | 4 | 1 | | 25 | 2 | | 29 | 3 | | 32 | | | |
| | B-C | 2 | 1 | 1 | Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | 1 | 2 | Describe the overall structure of events, ideas, concepts, or information and text features in a text or part of a text. | 2 | | | 1 | | | 3 | | | 3 | 2 | | | 1 | | | 3 | | | 3 | | | |
| | Total For Assessment Anchor B-C.2 Craft and Structure | | | | | 2 | | | 1 | | | 3 | | | 3 | 2 | | | 1 | | | 3 | | | 3 | | | |
| | B-C | 3 | 1 | 1 | Explain how an author uses reasons and evidence to support particular points in a text. | 2 | 2 | | 1 | 5 | | 3 | 7 | | 10 | 2 | 1 | | 1 | 2 | | 3 | 3 | | 6 | | | |
| | | 3 | 1 | 2 | Integrate information from two texts on the same topic in order to demonstrate subject knowledge. | | 3 | | | | | 3 | | | 3 | | 1 | | | | | | 1 | | 1 | | | |
| | | 3 | 1 | 3 | Interpret text features and/or make connections between text and the content of text features. | 1 | | | 7 | | | 8 | | | 8 | 1 | | | 7 | | | 8 | | | 8 | | | |
| | Total For Assessment Anchor B-C.3 Integration of Knowledge and Ideas | | | | | 3 | 5 | | 8 | 5 | | 11 | 10 | | 21 | 3 | 2 | | 8 | 2 | | 11 | 4 | | 15 | | | |
| | B-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies. | 1 | | | 10 | | | 11 | | | 11 | 1 | | | 10 | | | 11 | | | 11 | | | |
| | | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 3 | | | 8 | | | 11 | | | 11 | 3 | | | 8 | | | 11 | | | 11 | | | |
| | Total For Assessment Anchor B-V.4 Vocabulary Acquisition and Use | | | | | 4 | | | 18 | | | 22 | | | 22 | 4 | | | 18 | | | 22 | | | 22 | | | |
| | Total For Reporting Category B | | | | | 13 | 8 | | 52 | 10 | | 65 | 18 | | 83 | 13 | 3 | | 52 | 4 | | 65 | 7 | | 72 | | | |

Grade 05

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | Items | | | | | | | | | | | |
|--|--|-------------------------|------------------|-------|---|-----|-----|---------------------|-----|-----|--------------|-----|-----|-----------------|----|-----|-----|----|-----|-----------------------|----|-----|-----|-------|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | Number of Items | | | | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | Core | | | EB | | | (Core & EB) | | | | | |
| | | | | | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | |
| A: Literature Text | A-K | 1 | 1 | 1 | Quote accurately from a text when explaining what the text says explicitly and when drawing inferences and/or making generalizations from the text. | 1 | 2 | | 10 | 3 | | 11 | 5 | | 16 | 1 | 1 | | 10 | 1 | | 11 | 2 | | 13 |
| | | 1 | 1 | 2 | Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text. | 2 | | | 9 | 3 | | 11 | 3 | | 14 | 2 | | | 9 | 1 | | 11 | 1 | | 12 |
| | | 1 | 1 | 3 | Compare and contrast two or more characters, settings, or events in a story, drama, or poem, drawing on specific details in the text. | 3 | 3 | | 14 | 4 | | 17 | 7 | | 24 | 3 | 1 | | 14 | 2 | | 17 | 3 | | 20 |
| | Total For Assessment Anchor A-K.1 Key Ideas and Details | | | | | 6 | 5 | | 33 | 10 | | 39 | 15 | | 54 | 6 | 2 | | 33 | 4 | | 39 | 6 | | 45 |
| | A-C | 2 | 1 | 1 | Describe how a narrator's or speaker's point of view influences how events are described; describe an author's purpose and explain how it is conveyed in the text. | | 3 | | 2 | | | 2 | 3 | | 5 | | 1 | | 2 | | | 2 | 1 | | 3 |
| | Total For Assessment Anchor A-C.2 Craft and Structure | | | | | | 3 | | 2 | | | 2 | 3 | | 5 | | 1 | | 2 | | | 2 | 1 | | 3 |
| | A-C | 3 | 1 | 1 | Compare and contrast stories in the same genre on their approaches to similar themes and topics. | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-C.3 Integration of Knowledge and Ideas | | | | | | | | | | | | | | | | | | | | | | | | |
| | A-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies. | 2 | | | 6 | | | 8 | | | 8 | 2 | | | 6 | | | 8 | | | 8 |
| | | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 3 | | | 10 | | | 13 | | | 13 | 3 | | | 10 | | | 13 | | | 13 |
| Total For Assessment Anchor A-V.4 Vocabulary Acquisition and Use | | | | | 5 | | | 16 | | | 21 | | | 21 | 5 | | | 16 | | | 21 | | | 21 | |
| Total For Reporting Category A | | | | | 11 | 8 | | 51 | 10 | | 62 | 18 | | 80 | 11 | 3 | | 51 | 4 | | 62 | 7 | | 69 | |

Grade 05

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | Items | | | | | | | | | | | | |
|-----------------------|--|-------------------------|------------------|-------|--|-----|-----|---------------------|-----|-----|--------------|-----|-----|-----------------|----|-----|-----|----|-----|-----------------------|----|-----|-----|-------|----|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | Number of Items | | | | | | Total Number of Items | | | | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | Core | | | EB | | | (Core & EB) | | | | | | |
| | | | | | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | | |
| B: Informational Text | B-K | 1 | 1 | 1 | Quote accurately from a text when explaining what the text says explicitly and when drawing inferences and/or making generalizations from the text. | 1 | 3 | | 13 | | | 14 | 3 | | 17 | 1 | 1 | | 13 | | | 14 | 1 | | 15 | |
| | | 1 | 1 | 2 | Determine two or more main ideas of a text and explain how they are supported by key details: summarize the text. | 1 | | | 7 | 3 | | 8 | 3 | | 11 | 1 | | | 7 | 1 | | 8 | 1 | | 9 | |
| | | 1 | 1 | 3 | Explain the relationships or interactions between two or more individuals, events, ideas, steps, or concepts in a historical, scientific, or technical text based on specific information in the text. | 3 | 2 | | 3 | | | 6 | 2 | | 8 | 3 | 1 | | 3 | | | 6 | 1 | | 7 | |
| | Total For Assessment Anchor B-K.1 Key Ideas and Details | | | | | 5 | 5 | | 23 | 3 | | 28 | 8 | | 36 | 5 | 2 | | 23 | 1 | | 28 | 3 | | 31 | |
| | B-C | 2 | 1 | 1 | Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent. | | | | 6 | | | 6 | | | 6 | | | | 6 | | | 6 | | | 6 | |
| | | 2 | 1 | 2 | Compare and contrast the overall structure of events, ideas, concepts, or information and text features in two or more texts. | | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor B-C.2 Craft and Structure | | | | | | | | 6 | | | 6 | | | 6 | | | | 6 | | | 6 | | | 6 | |
| | B-C | 3 | 1 | 1 | Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). | 1 | 2 | | | 2 | | 1 | 4 | | 5 | 1 | 1 | | | 1 | | | 1 | 2 | | 3 |
| | | 3 | 1 | 2 | Integrate information from several texts on the same topic in order to demonstrate subject knowledge. | | | | | | | | | | | | | | | | | | | | | |
| | | 3 | 1 | 3 | Interpret text features and/or make connections between text and the content of text features. | 2 | | | | | | 2 | | | 2 | 2 | | | | | | | 2 | | | 2 |
| | Total For Assessment Anchor B-C.3 Integration of Knowledge and Ideas | | | | | 3 | 2 | | | 2 | | 3 | 4 | | 7 | 3 | 1 | | | 1 | | | 3 | 2 | | 5 |
| | B-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies. | 2 | | | 8 | | | 10 | | | 10 | 2 | | | | 8 | | | 10 | | | 10 |
| | | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 2 | | | 7 | | | 9 | | | 9 | 2 | | | | 7 | | | 9 | | | 9 |
| | Total For Assessment Anchor B-V.4 Vocabulary Acquisition and Use | | | | | 4 | | | 15 | | | 19 | | | 19 | 4 | | | | 15 | | | 19 | | | 19 |
| | Total For Reporting Category B | | | | | 12 | 7 | | 44 | 5 | | 56 | 12 | | 68 | 12 | 3 | | | 44 | 2 | | 56 | 5 | | 61 |

Grade 05

English Language Arts

| Reporting Category | Assessment Descriptor (Sub-anchors) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | | | | | |
|---|-------------------------------------|---|--------------------------------------|----------------|---|----|---------------------|-----|----|--------------------------|-----|----|-------|-----------------|-----|----|----|--------------------------|----|-------|-----|----|----|-----|----|-------|----|
| | | | | Student (Core) | | | Equating Block (EB) | | | Total Points (Core & EB) | | | | Number of Items | | | | Total Number (Core & EB) | | | | | | | | | |
| | | | | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | Total | Core | | | EB | | | Total | | | | | | | |
| | | | | | | | | | | | | | | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | Total | |
| D: Language | D | 1 | 1 | 1 | Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. | | | | 1 | | | 1 | | | | 1 | | | 1 | | | 1 | | | | | |
| | | 1 | 1 | 2 | Form and use the perfect verb tenses. | 1 | | | 2 | | | 3 | | | | 3 | 1 | | 2 | | | 3 | | 3 | | | |
| | | 1 | 1 | 3 | Use verb tense to convey various times, sequences, states, and conditions. | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 4 | Recognize and correct inappropriate shifts in verb tense. | | | | 1 | | | 1 | | | | | | | 1 | | | 1 | | | 1 | | |
| | | 1 | 1 | 5 | Use correlative conjunctions. | 1 | | | 2 | | | 3 | | | | | 3 | 1 | | 2 | | | 3 | | 3 | | |
| | | 1 | 1 | 6 | Produce complete sentences, recognizing and correcting inappropriate fragments and run-on sentences. | | | | 1 | | | 1 | | | | | | | | 1 | | | 1 | | | 1 | |
| | | 1 | 1 | 7 | Correctly use frequently confused words. | 1 | | | 1 | | | 2 | | | | | 2 | 1 | | 1 | | | 2 | | | 2 | |
| | | 1 | 1 | 8 | Ensure subject-verb and pronoun-antecedent agreement. | 1 | | | | | | 1 | | | | | 1 | 1 | | | | | 1 | | | 1 | |
| | | 1 | 2 | 1 | Use punctuation to separate items in a series. | 1 | | | 1 | | | 2 | | | | | 2 | 1 | | 1 | | | 2 | | | 2 | |
| | | 1 | 2 | 2 | Use a comma to separate an introductory element from the rest of the sentence. | | | | 1 | | | 1 | | | | | | | | 1 | | | 1 | | | 1 | |
| | | 1 | 2 | 3 | Use a comma to set off the words yes and no, to set off a tag question from the rest of the sentence, and to indicate direct address. | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 4 | Use underlining, quotation marks, or italics to indicate titles of works. | 1 | | | | | | 1 | | | | | 1 | 1 | | | | | 1 | | | 1 | |
| | | 1 | 2 | 5 | Spell grade-appropriate words correctly. | | | | | | | | | | | | | | | | | | | | | | |
| | | Total For Assessment Anchor D.1 Conventions of Standard English | | | | | 6 | | | 10 | | | 16 | | | | 16 | 6 | | | 10 | | | 16 | | | 16 |
| | | 2 | 1 | 1 | Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. | 2 | | | | | | 2 | | | | | 2 | 2 | | | | | 2 | | | 2 | |
| | | 2 | 1 | 2 | Choose words and phrases to convey ideas precisely. | | | | 2 | | | 2 | | | | | | | | 2 | | | 2 | | | 2 | |
| | | 2 | 1 | 3 | Choose punctuation for effect. | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1 | 4 | Choose words and phrases for effect. | 1 | | | | | | 1 | | | | | 1 | 1 | | | | | 1 | | | 1 | | | |
| Total For Assessment Anchor D.2 Knowledge of Language | | | | | 3 | | | 2 | | | 5 | | | | 5 | 3 | | | 2 | | | 5 | | | 5 | | |
| Total For Reporting Category D | | | | | 9 | | | 12 | | | 21 | | | | 21 | 9 | | | 12 | | | 21 | | | 21 | | |

Grade 05

English Language Arts

| Reporting Category | Assessment Descriptor (Sub-anchors) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | | | |
|----------------------------|-------------------------------------|---|-------|----------------|--|-----|---------------------|-----|-----|--------------------------|-----|-----|-------|-----------------|-----|-----|----|--------------------------|-----|-------|-----|-----|----|-----|-----|
| | | | | Student (Core) | | | Equating Block (EB) | | | Total Points (Core & EB) | | | | Number of Items | | | | Total Number (Core & EB) | | | | | | | |
| | | | | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | Core | | | EB | | | Total | | | | | |
| | | | | | | | | | | | | | | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA |
| E: Text-Dependent Analysis | E | 1 | 1 | 1 | Draw evidence from literary or informational texts to support analysis, reflection, and/or research. | | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | 1 | 1 |
| | | Total For Assessment Anchor E.1 Evidence-based Analysis of Text | | | | | | | | 4 | | | | | 4 | 4 | | | 1 | | | | | 1 | 1 |
| | | Total For Reporting Category E | | | | | | | | 4 | | | | | 4 | 4 | | | 1 | | | | | 1 | 1 |

Grade 06

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | | |
|--------------------|--|--|------------------|-------|--|-----|----|---------------------|-----|----|--------------|-----|----|-------|-----------------|-----|----|----|-----|----|-----------------------|-----|----|-------|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | Number of Items | | | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | | Core | | | EB | | | (Core & EB) | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | |
| A: Literature Text | A-K | 1 | 1 | 1 | Cite textual evidence to support analysis of what the text says explicitly as well as inferences and/or generalizations drawn from the text. | | | | 3 | 5 | | 3 | 5 | | 8 | | | | 3 | 2 | | 3 | 2 | | 5 |
| | | 1 | 1 | 2 | Determine a theme or central idea of a text and how it is conveyed through relevant details; provide a summary of the text distinct from personal opinions or judgments. | 2 | | | 2 | | | 4 | | | 4 | 2 | | | 2 | | | 4 | | | 4 |
| | | 1 | 1 | 3 | Describe how the plot of a particular story, drama, or poem unfolds; as well as how the characters respond or change as the plot moves toward a resolution. | 2 | 6 | | 7 | 5 | | 9 | 11 | | 20 | 2 | 2 | | 7 | 2 | | 9 | 4 | | 13 |
| | Total For Assessment Anchor A-K.1 Key Ideas and Details | | | | | 4 | 6 | | 12 | 10 | | 16 | 16 | | 32 | 4 | 2 | | 12 | 4 | | 16 | 6 | | 22 |
| | A-C | 2 | 1 | 1 | Determine an author's purpose in a text and explain how it is conveyed in the text; explain how an author develops the point of view of the narrator or speaker in a text; describe the effectiveness of the point of view used by the author. | | 2 | | 7 | | | 7 | 2 | | 9 | | 1 | | 7 | | | 7 | 1 | | 8 |
| | | 2 | 1 | 2 | Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot. | 1 | | | 7 | | | 8 | | | 8 | 1 | | | 7 | | | 8 | | | 8 |
| | | 2 | 1 | 3 | Determine how the author uses the meaning of words or phrases, including figurative and connotative meanings, in a text; analyze the impact of a specific word choice on meaning and tone. | 3 | | | 8 | | | 11 | | | 11 | 3 | | | 8 | | | 11 | | | 11 |
| | Total For Assessment Anchor A-C.2 Craft and Structure | | | | | 4 | 2 | | 22 | | | 26 | 2 | | 28 | 4 | 1 | | 22 | | | 26 | 1 | | 27 |
| | | 3 | 1 | 1 | Compare and contrast texts in different forms or genres in terms of their approaches to similar themes and topics. | | | | | | | | | | | | | | | | | | | | |
| | | Total For Assessment Anchor A-C.3 Integration of Knowledge and Ideas | | | | | | | | | | | | | | | | | | | | | | | |
| | A-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies. | 3 | | | 2 | | | 5 | | | 5 | 3 | | | 2 | | | 5 | | | 5 |
| | | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 2 | | | 14 | | | 16 | | | 16 | 2 | | | 14 | | | 16 | | | 16 |
| | Total For Assessment Anchor A-V.4 Vocabulary Acquisition and Use | | | | | 5 | | | 16 | | | 21 | | | 21 | 5 | | | 16 | | | 21 | | | 21 |
| | Total For Reporting Category A | | | | | 13 | 8 | | 50 | 10 | | 63 | 18 | | 81 | 13 | 3 | | 50 | 4 | | 63 | 7 | | 70 |

Grade 06

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | |
|-----------------------|--|--|------------------|-------|--|-----|----|---------------------|-----|----|--------------|-----|----|-------|----|-----|-----------------|----|-----|----|----|-----|-----------------------|-------|----|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | | | Number of Items | | | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | | | | Core | | | EB | | | (Core & EB) | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | |
| B: Informational Text | B-K | 1 | 1 | 1 | Cite textual evidence to support analysis of what the text says explicitly as well as inferences and/or generalizations drawn from the text. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 | |
| | | 1 | 1 | 2 | Determine a central idea of a text and how it is conveyed through relevant details; provide a summary of the text distinct from personal opinions or judgments. | 2 | | | | | | 2 | | | 2 | 2 | | | | | | 2 | | | 2 | |
| | | 1 | 1 | 3 | Analyze in detail how a key individual, event, or idea is introduced, illustrated, or elaborated in a text. | 2 | 2 | | 13 | 2 | | | 15 | 4 | | 19 | 2 | 1 | | 13 | 1 | | 15 | 2 | | 17 |
| | | Total For Assessment Anchor B-K.1 Key Ideas and Details | | | | | 5 | 2 | | 14 | 2 | | 19 | 4 | | 23 | 5 | 1 | | 14 | 1 | | 19 | 2 | | 21 |
| | B-C | 2 | 1 | 1 | Determine an author's point of view or purpose in a text and explain how it is conveyed in the text. | | | | 7 | | | 7 | | | 7 | | | | 7 | | | 7 | | | 7 | |
| | | 2 | 1 | 2 | Analyze how a particular sentence, paragraph, chapter, section, or text feature fits into the overall development of the ideas. | 1 | 5 | | 8 | | | 9 | 5 | | 14 | 1 | 2 | | 8 | | | 9 | 2 | | 11 | |
| | | 2 | 1 | 3 | Determine how the author uses the meaning of words or phrases, including figurative, connotative, or technical meanings, in a text. | | | | | | | | | | | | | | | | | | | | | |
| | | Total For Assessment Anchor B-C.2 Craft and Structure | | | | | 1 | 5 | | 15 | | | 16 | 5 | | 21 | 1 | 2 | | 15 | | | 16 | 2 | | 18 |
| | | 3 | 1 | 1 | Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. | 2 | | | 6 | 3 | | | 8 | 3 | | 11 | 2 | | | 6 | 1 | | 8 | 1 | | 9 |
| | | 3 | 1 | 2 | Compare and contrast one author's presentation of events with that of another. | | | | | | | | | | | | | | | | | | | | | |
| | | Total For Assessment Anchor B-C.3 Integration of Knowledge and Ideas | | | | | 2 | | | 6 | 3 | | 8 | 3 | | 11 | 2 | | | 6 | 1 | | 8 | 1 | | 9 |
| | B-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies. | 2 | | | | | | 2 | | | 2 | 2 | | | | | | 2 | | | 2 | |
| | | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | | | | 8 | | | 8 | | | 8 | | | | 8 | | | 8 | | | 8 | |
| | Total For Assessment Anchor B-V.4 Vocabulary Acquisition and Use | | | | | 2 | | | 8 | | | 10 | | | 10 | 2 | | | 8 | | | 10 | | | 10 | |
| | Total For Reporting Category B | | | | | 10 | 7 | | 43 | 5 | | 53 | 12 | | 65 | 10 | 3 | | 43 | 2 | | 53 | 5 | | 58 | |

Grade 06

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | | | | | |
|--------------------|---|---|------------------|---|--|-----|----|----------------|-----|----|--------------|-----|----|-------|-----------------|-----|----|----|-----|----|-----------------------|-----|----|-------|--|----|----|--|
| | | | | | Student Scores | | | Equating Block | | | Total Points | | | | Number of Items | | | | | | Total Number of Items | | | | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | | Core | | | EB | | | (Core & EB) | | | | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | | | |
| D: Language | D | 1 | 1 | 1 | Ensure that pronouns are in the proper case. | 1 | | | | | | 1 | | | | 1 | 1 | | | | | 1 | | | | 1 | | |
| | | 1 | 1 | 2 | Use intensive pronouns. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 3 | Recognize and correct inappropriate shifts in pronoun number and person. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 4 | Recognize and correct vague pronouns. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 5 | Recognize and correct inappropriate shifts in verb tense. | 1 | | | 2 | | | 3 | | | 3 | 1 | | | 2 | | | | 3 | | | | 3 | |
| | | 1 | 1 | 6 | Produce complete sentences, recognizing and correcting inappropriate fragments and run-on sentences. | 1 | | | 2 | | | 3 | | | 3 | 1 | | | 2 | | | | 3 | | | | 3 | |
| | | 1 | 1 | 7 | Correctly use frequently confused words. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | | 2 | | | | 2 | |
| | | 1 | 1 | 8 | Ensure subject-verb and pronoun-antecedent agreement. | 1 | | | 2 | | | 3 | | | 3 | 1 | | | 2 | | | | 3 | | | | 3 | |
| | | 1 | 2 | 1 | Use punctuation to set of nonrestrictive/parenthetical elements. | | | | 1 | | | 1 | | | 1 | | | | 1 | | | | 1 | | | | 1 | |
| | | 1 | 2 | 2 | Spell correctly. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | | 1 | | | | 1 | |
| | | 1 | 2 | 3 | Use punctuation to separate items in a series. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | | 2 | | | | 2 | |
| | | Total For Assessment Anchor D.1 Conventions of Standard English | | | | | 7 | | | 9 | | | 16 | | | 16 | 7 | | | 9 | | | 16 | | | | 16 | |
| | | 2 | 1 | 1 | Vary sentence patterns for meaning, reader/listener interest, and style. | | | | 1 | | | 1 | | | 1 | | | | 1 | | | | 1 | | | | 1 | |
| | | 2 | 1 | 2 | Maintain consistency in style and tone. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | | 1 | | | | 1 | |
| | 2 | 1 | 3 | Choose words and phrases to convey ideas precisely. | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | 1 | 4 | Choose punctuation for effect. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | | 1 | | | | 1 | | |
| | 2 | 1 | 5 | Choose words and phrases for effect. | | | | 2 | | | 2 | | | 2 | | | | 2 | | | | 2 | | | | 2 | | |
| | Total For Assessment Anchor D.2 Knowledge of Language | | | | | 2 | | | 3 | | | 5 | | | 5 | 2 | | | 3 | | | 5 | | | | 5 | | |
| | Total For Reporting Category D | | | | | 9 | | | 12 | | | 21 | | | 21 | 9 | | | 12 | | | 21 | | | | 21 | | |

Grade 06

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | | |
|--------------------------|---|-------------------------|------------------|-------|--|-----|-----|---------------------|-----|-----|--------------------------|-----|-----|-------|----|-----|-----------------|----|-----|-----|----|-----|-----------------------------------|-------|--|---|---|
| | | | | | Student Scores (Core Points) | | | Equating Block (EB) | | | Total Points (Core & EB) | | | | | | Number of Items | | | | | | Total Number of Items (Core & EB) | | | | |
| | | | | | | | | | | | Core | | | EB | | | Core | | | EB | | | | | | | |
| | | | | | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | | | |
| E: Text-Dependent | E | 1 | 1 | | Draw evidence from literary or informational texts to support analysis, reflection, and/or research. | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | | | | 1 | 1 |
| | Total For Assessment Anchor E.1 Evidence-based Analysis of Text | | | | | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | | | | 1 | 1 |
| | Total For Reporting Category E | | | | | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | | | | 1 | 1 |

Grade 07

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | | | Items | | | | | | | | | |
|--------------------------------|--|-------------------------|------------------|-------|---|-----|----|---------------------|-----|----|--------------|-----|----|-------|----|-----|-----------------|----|-----|----|----|-----|-----------------------|-------|----|--|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | | | Number of Items | | | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | | | | Core | | | EB | | | (Core & EB) | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | | |
| A: Literature Text | A-K | 1 | 1 | 1 | Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences, conclusions, and/or generalizations drawn from the text. | | 2 | | 1 | 2 | | 1 | 4 | | 5 | | 1 | | 1 | 1 | | 1 | 2 | | 3 | |
| | | 1 | 1 | 2 | Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text. | | | | 9 | 3 | | 9 | 3 | | 12 | | | | 9 | 1 | | 9 | 1 | | 10 | |
| | | 1 | 1 | 3 | Analyze how particular elements of a story, drama, or poem interact. | 2 | 5 | | 9 | 3 | | 11 | 8 | | 19 | 2 | 2 | | 9 | 1 | | 11 | 3 | | 14 | |
| | Total For Assessment Anchor A-K.1 Key Ideas and Details | | | | | 2 | 7 | | 19 | 8 | | 21 | 15 | | 36 | 2 | 3 | | 19 | 3 | | 21 | 6 | | 27 | |
| | A-C | 2 | 1 | 1 | Analyze how an author develops and contrasts the points of view of different characters or narrators in a text. | 1 | | | 1 | 2 | | 2 | 2 | | 4 | 1 | | | 1 | 1 | | 2 | 1 | | 3 | |
| | | 2 | 1 | 2 | Analyze how a drama's or poem's form or structure contributes to its meaning. | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | 1 | 3 | Determine how the author uses the meaning of words or phrases, including figurative and connotative meanings, in a text; analyze the impact of rhymes and other repetitions of sounds on a specific verse or stanza of a poem or section of a story or drama. | 3 | | | 14 | | | 17 | | | 17 | 3 | | | 14 | | | 17 | | | 17 | |
| | Total For Assessment Anchor A-C.2 Craft and Structure | | | | | 4 | | | 15 | 2 | | 19 | 2 | | 21 | 4 | | | 15 | 1 | | 19 | 1 | | 20 | |
| | A-C | 3 | 1 | 1 | Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history. | | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-C.3 Integration of Knowledge and Ideas | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies. | 3 | | | 9 | | | 12 | | | 12 | 3 | | | 9 | | | 12 | | | 12 | |
| | | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 2 | | | 9 | | | 11 | | | 11 | 2 | | | 9 | | | 11 | | | 11 | |
| | Total For Assessment Anchor A-V.4 Vocabulary Acquisition and Use | | | | | 5 | | | 18 | | | 23 | | | 23 | 5 | | | 18 | | | 23 | | | 23 | |
| Total For Reporting Category A | | | | | 11 | 7 | | 52 | 10 | | 63 | 17 | | 80 | 11 | 3 | | 52 | 4 | | 63 | 7 | | 70 | | |

Grade 07

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | | |
|--------------------|---|-------------------------|------------------|-------|---|-----|----|---------------------|-----|----|--------------|-----|----|-------|-----------------|-----|----|----|-----|----|-----------------------|-----|----|-------|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | Number of Items | | | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | | | Core | | | EB | | | (Core & EB) | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | |
| Informational Text | B-K | 1 | 1 | 1 | Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences, conclusions, and/or generalizations drawn from the text. | 2 | | | 6 | 2 | | 8 | 2 | | 10 | 2 | | | 6 | 1 | | 8 | 1 | | 9 |
| | | 1 | 1 | 2 | Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text. | 1 | 3 | | 1 | | | 2 | 3 | | 5 | 1 | 1 | | 1 | | | 2 | 1 | | 3 |
| | | 1 | 1 | 3 | Analyze the interactions between individuals, events, and ideas in a text. | 1 | 3 | | 1 | 3 | | 2 | 6 | | 8 | 1 | 1 | | 1 | 1 | | 2 | 2 | | 4 |
| | Total For Assessment Anchor B-K.1 Key Ideas and Details | | | | | 4 | 6 | | 8 | 5 | | 12 | 11 | | 23 | 4 | 2 | | 8 | 2 | | 12 | 4 | | 16 |
| | B-C | 2 | 1 | 1 | Determine an author's point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 |
| | | 2 | 1 | 2 | Analyze the structure an author uses to organize a text, including how major sections and text features contribute to the whole and to the development of the ideas. | | | | 7 | | | 7 | | | 7 | | | | 7 | | | 7 | | | 7 |
| | | 2 | 1 | 3 | Determine how the author uses the meaning of words or phrases, including figurative, connotative, or technical meanings, in a text; analyze the impact of a specific word choice on meaning and tone. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | | 2 |
| | Total For Assessment Anchor B-C.2 Craft and Structure | | | | | 2 | | | 9 | | | 11 | | | 11 | 2 | | | 9 | | | 11 | | | 11 |

Grade 07

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | Items | | | | | | | | | | | |
|--------------------------------|---|---|------------------|--------------------------------------|---|-----|----|---------------------|-----|----|--------------|-----|-----------------|-------|----|-----|----|----|-----------------------|----|----|-----|----|-------|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | Number of Items | | | | | | Total Number of Items | | | | | |
| | | | | | (Core Points) | | | | | | (Core & EB) | | Core | | | EB | | | (Core & EB) | | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total |
| D: Language | D | 1 | 1 | 1 | Explain the function of phrases and clauses in general and their function in specific sentences. | 1 | | | | | | 1 | | | 1 | 1 | | | | | 1 | | | 1 |
| | | 1 | 1 | 2 | Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas. | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 3 | Place phrases and clauses within a sentence, recognizing and correcting misplaced and dangling modifiers. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | 1 | | 1 |
| | | 1 | 1 | 4 | Recognize and correct inappropriate shifts in pronoun number and person. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | 1 | | 1 |
| | | 1 | 1 | 5 | Recognize and correct vague pronouns. | 1 | | | 2 | | | 3 | | | 3 | 1 | | | 2 | | | 3 | | 3 |
| | | 1 | 1 | 6 | Recognize and correct inappropriate shifts in verb tense. | | | | | | | | | | | | | | | | | | | |
| | | 1 | 1 | 7 | Produce complete sentences, recognizing and correcting inappropriate fragments and run-on sentences. | | | | 1 | | | 1 | | | 1 | | | 1 | | | | 1 | | 1 |
| | | 1 | 1 | 8 | Correctly use frequently confused words. | | | | 1 | | | 1 | | | 1 | | | 1 | | | | 1 | | 1 |
| | | 1 | 1 | 9 | Ensure subject-verb and pronoun-antecedent agreement. | | | | 1 | | | 1 | | | 1 | | | 1 | | | | 1 | | 1 |
| | | 1 | 2 | 1 | Use a comma to separate coordinate adjectives. | 1 | | | | | | 1 | | | 1 | 1 | | | | | | 1 | | 1 |
| | | 1 | 2 | 2 | Spell correctly. | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 3 | Use punctuation to set of nonrestrictive/parenthetical elements. | | | | | | | | | | | | | | | | | | | |
| | | 1 | 2 | 4 | Use punctuation to separate items in a series. | | | | 2 | | | 2 | | | 2 | | | 2 | | | | 2 | | 2 |
| | | Total For Assessment Anchor D.1 Conventions of Standard English | | | | 5 | | | 7 | | | 12 | | | 12 | 5 | | | 7 | | | 12 | | 12 |
| | | 2 | 1 | 1 | Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | 2 |
| | | 2 | 1 | 2 | Vary sentence patterns for meaning, reader/listener interest, and style. | | | | | | | | | | | | | | | | | | | |
| | | 2 | 1 | 3 | Maintain consistency in style and tone. | | | | 2 | | | 2 | | | 2 | | | 2 | | | | 2 | | 2 |
| | 2 | 1 | 4 | Choose punctuation for effect. | 1 | | | 1 | | | 2 | | | 2 | 1 | | | 1 | | | 2 | | 2 | |
| | 2 | 1 | 5 | Choose words and phrases for effect. | 2 | | | 1 | | | 3 | | | 3 | 2 | | | 1 | | | 3 | | 3 | |
| | Total For Assessment Anchor D.2 Knowledge of Language | | | | 4 | | | 5 | | | 9 | | | 9 | 4 | | | 5 | | | 9 | | 9 | |
| Total For Reporting Category D | | | | | 9 | | | 12 | | | 21 | | | 21 | 9 | | | 12 | | | 21 | | 21 | |

Grade 07

English Language Arts

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | Items | | | | | | | | | | | | |
|-----------------------------------|---|-------------------------|------------------|-------|--|-----|-----|---------------------|-----|-----|--------------------------|-----|-------|-------|-----------------|-----|-----|----|-----|-----|-----------------------------------|-----|-----|-------|---|
| | | | | | Student Scores (Core Points) | | | Equating Block (EB) | | | Total Points (Core & EB) | | | | Number of Items | | | | | | Total Number of Items (Core & EB) | | | | |
| | | | | | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | MC | ESR | TDA | MC | ESR | TDA | MC | ESR | TDA | Total | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| E: Text-Dependent Analysis | E | 1 | 1 | | Draw evidence from literary or informational texts to support analysis, reflection, and/or research. | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | | 1 | 1 |
| | Total For Assessment Anchor E.1 Evidence-based Analysis of Text | | | | | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | | 1 | 1 |
| | Total For Reporting Category E | | | | | | | 4 | | | | | | 4 | 4 | | | 1 | | | | | | 1 | 1 |

Grade 08

English Language Arts

| Reporting Category | Assessment Anchor | DesRiptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | |
|--------------------|--|------------------------|------------------|-------|--|-----|----|---------------------|-----|----|--------------|-----|----|-------|-----------------|-----|----|----|-----|----|-----------------------|-----|----|-------|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | Number of Items | | | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | | Core | | | EB | | | (Core & EB) | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total |
| A: Literature Text | A-K | 1 | 1 | 1 | Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences, conclusions, and/or generalizations drawn from the text. | 1 | | | 6 | 3 | | 7 | 3 | | 10 | 1 | | 6 | 1 | | 7 | 1 | | 8 |
| | A-K | 1 | 1 | 2 | Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text. | | | | 9 | | | 9 | | | 9 | | | 9 | | | 9 | | | 9 |
| | A-K | 1 | 1 | 3 | Analyze how particular lines of dialogue or incidents in a story, drama, or poem propel the action, reveal aspects of a character, or provoke a decision. | 2 | 6 | | 15 | 5 | | 17 | 11 | | 28 | 2 | 2 | 15 | 2 | | 17 | 4 | | 21 |
| | Total For Assessment Anchor A-K.1 Key Ideas and Details | | | | | 3 | 6 | | 30 | 8 | | 33 | 14 | | 47 | 3 | 2 | 30 | 3 | | 33 | 5 | | 38 |
| | A-C | 2 | 1 | 1 | Analyze how differences in the points of view of the characters and the audience or reader ESReate such effects as suspense or humor. | 2 | | | 8 | 2 | | 10 | 2 | | 12 | 2 | | 8 | 1 | | 10 | 1 | | 11 |
| | A-C | 2 | 1 | 2 | Compare and contrast the structure of two or more texts, and analyze how the differing structure of each text contributes to its meaning and style. | | | | | | | | | | | | | | | | | | | |
| | A-C | 2 | 1 | 3 | Determine how the author uses the meaning of words or phrases, including figurative and connotative meanings, in a text; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts. | 1 | | | 3 | | | 4 | | | 4 | 1 | | 3 | | | 4 | | | 4 |
| | Total For Assessment Anchor A-C.2 ESraft and Structure | | | | | 3 | | | 11 | 2 | | 14 | 2 | | 16 | 3 | | 11 | 1 | | 14 | 1 | | 15 |
| | A-C | 3 | 1 | 1 | Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths and traditional stories, including desERbing how the material is rendered new. | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor A-C.3 Integration of Knowledge and Ideas | | | | | | | | | | | | | | | | | | | | | | | |
| | A-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies. | 1 | 2 | | 9 | | | 10 | 2 | | 12 | 1 | 1 | 9 | | | 10 | 1 | | 11 |
| | A-V | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 3 | | | 2 | | | 5 | | | 5 | 3 | | 2 | | | 5 | | | 5 |
| | Total For Assessment Anchor A-V.4 Vocabulary Acquisition and Use | | | | | 4 | 2 | | 11 | | | 15 | 2 | | 17 | 4 | 1 | 11 | | | 15 | 1 | | 16 |
| | Total For Reporting Category A | | | | | 10 | 8 | | 52 | 10 | | 62 | 18 | | 80 | 10 | 3 | 52 | 4 | | 62 | 7 | | 69 |

Grade 08

English Language Arts

| Reporting Category | Assessment Anchor | DesESRiptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | | |
|--------------------------------|--|--------------------------|------------------|-------|---|-----|----|---------------------|-----|----|--------------|-----|----|-------|-----------------|-----|----|----|-----|----|-----------------------|-----|----|-------|----|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | Number of Items | | | | | | Total Number of Items | | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | | Core | | | EB | | | (Core & EB) | | | | |
| | | | | | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | MC | ESR | OE | MC | ESR | OE | MC | ESR | OE | Total | |
| B: Informational Text | B-K | 1 | 1 | 1 | Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences, conclusions and/or generalizations drawn from the text. | 2 | | | 1 | 3 | | 3 | 3 | | 6 | 2 | | | 1 | 1 | | 3 | 1 | | 4 |
| | B-K | 1 | 1 | 2 | Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text. | | 5 | | 7 | | | 7 | 5 | | 12 | 2 | | | 7 | | | 7 | 2 | | 9 |
| | B-K | 1 | 1 | 3 | Analyze how a text makes connections among and distinctions between individuals, ideas, or events. | 1 | | | 13 | 2 | | 14 | 2 | | 16 | 1 | | | 13 | 1 | | 14 | 1 | | 15 |
| | Total For Assessment Anchor B-K.1 Key Ideas and Details | | | | | 3 | 5 | | 21 | 5 | | 24 | 10 | | 34 | 3 | 2 | | 21 | 2 | | 24 | 4 | | 28 |
| | B-C | 2 | 1 | 1 | Determine an author's point of view or purpose in a text and analyze how the author acknowledges and responds to conflicting evidence or viewpoints. | | 2 | | 1 | | | 1 | 2 | | 3 | | 1 | | 1 | | | 1 | 1 | | 2 |
| | B-C | 2 | 1 | 2 | Analyze in detail the structure of a specific paragraph in a text, including the role of particular sentences in developing and refining a key concept. | 2 | | | 7 | | | 9 | | | 9 | 2 | | | 7 | | | 9 | | | 9 |
| | B-C | 2 | 1 | 3 | Determine how the author uses the meaning of words or phrases, including figurative, connotative, or technical meanings, in a text; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts. | 1 | | | 7 | | | 8 | | | 8 | 1 | | | 7 | | | 8 | | | 8 |
| | Total For Assessment Anchor B-C.2 ESRAft and Structure | | | | | 3 | 2 | | 15 | | | 18 | 2 | | 20 | 3 | 1 | | 15 | | | 18 | 1 | | 19 |
| | B-C | 3 | 1 | 1 | Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient; recognize when irrelevant evidence is introduced. | 2 | | | | | | 2 | | | 2 | 2 | | | | | | 2 | | | 2 |
| | B-C | 3 | 1 | 2 | Analyze a case in which two or more texts provide conflicting information on the same topic, and identify where the texts disagree on matters of fact or interpretation. | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor B-C.3 Integration of Knowledge and Ideas | | | | | 2 | | | | | | 2 | | | 2 | 2 | | | | | | 2 | | | 2 |
| | B-V | 4 | 1 | 1 | Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies. | 3 | | | 7 | | | 10 | | | 10 | 3 | | | 7 | | | 10 | | | 10 |
| | B-V | 4 | 1 | 2 | Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. | 2 | | | 1 | | | 3 | | | 3 | 2 | | | 1 | | | 3 | | | 3 |
| | Total For Assessment Anchor B-V.4 Vocabulary Acquisition and Use | | | | | 5 | | | 8 | | | 13 | | | 13 | 5 | | | 8 | | | 13 | | | 13 |
| Total For Reporting Category B | | | | | 13 | 7 | | 44 | 5 | | 57 | 12 | | 69 | 13 | 3 | | 44 | 2 | | 57 | 5 | | 62 | |

Grade 08

English Language Arts

| Reporting Category | Assessment Anchor | DesESRiptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | | | | Items | | | | | | | | | |
|--------------------------------|---|--------------------------|------------------|---|----------------|-----|----|---------------------|-----|----|--------------|-----|----|-------|-----------------|-----|----|----|-----|----|-----------------------|-----|----|-------|
| | | | | | Student Scores | | | Equating Block (EB) | | | Total Points | | | | Number of Items | | | | | | Total Number of Items | | | |
| | | | | | (Core Points) | | | (EB) | | | (Core & EB) | | | | Core | | | EB | | | (Core & EB) | | | |
| | | | | | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | Total | MC | ESR | WP | MC | ESR | WP | MC | ESR | WP | Total |
| C: Writing | C | 1 | 1 | Write arguments to support claims with clear reasons and relevant evidence. | | | | | | | | | | | | | | | | | | | | |
| | C | 1 | 2 | Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. | | | | | | | | | | | | | | | | | | | | |
| | C | 1 | 3 | Write narratives to develop real or imagined experiences or events using effective techniques, relevant descriptive details, and well-structured event sequences. | | | | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C.1 Text Types and Purposes | | | | | | | | | | | | | | | | | | | | | | | |
| Total For Reporting Category C | | | | | | | | | | | | | | | | | | | | | | | | |

Grade 04

Science

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | |
|---|-------------------|-------------------------|------------------|--|------------------------------|----------|---------------------|-----|--------------------------|----------|-----------------|----------|----------|----------|-----------------------|----------|-----------|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | Number of Items | | | | Total Number of Items | | |
| | | | | | | | | | | | Core | | EB | | (Core & EB) | | |
| | | | | | MC | SCR | MC | SCR | MC | SCR | Total | MC | SCR | MC | SCR | MC | SCR |
| | 1 | 1 | 1 | Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results (e.g., a scientific fact can be supported by making observations). | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 |
| | 1 | 1 | 2 | Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications). | 2 | | | | 2 | | 2 | 2 | | | 2 | | 2 |
| | 1 | 3 | 1 | Observe and record change by using time and measurement. | | | | | | | | | | | | | |
| | 1 | 3 | 2 | Describe relative size, distance, or motion. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 |
| | 1 | 3 | 3 | Observe and describe the change to objects caused by temperature change or light. | 2 | | 2 | | 4 | | 4 | 2 | | 2 | 4 | | 4 |
| | 1 | 3 | 4 | Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else). | | | 2 | | | | 2 | 2 | | 1 | | | 1 |
| | 1 | 3 | 5 | Provide examples, predict, or describe how everyday human activities (e.g., solid waste production, food production and consumption, transportation, water consumption, energy production and use) may change the environment. | 2 | | 1 | | 3 | | 3 | 2 | | 1 | 3 | | 3 |
| Total For Assessment Anchor A.1 Reasoning and Analysis | | | | | 9 | 2 | 3 | | 12 | 2 | 14 | 9 | 1 | 3 | 12 | 1 | 13 |

| | | | | | | | | | | | | | | | | | | |
|----------|---|---|---|--|---|---|---|--|----|---|----|---|---|---|--|----|---|----|
| A | 2 | 1 | 1 | Generate questions about objects, organisms, or events that can be answered through scientific investigations. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 2 | 1 | 2 | Design and describe an investigation (a fair test) to test one variable. | | 2 | 1 | | 1 | 2 | 3 | | 1 | 1 | | 1 | 1 | 2 |
| | 2 | 1 | 3 | Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations. | 1 | | 2 | | 3 | | 3 | 1 | | 2 | | 3 | | 3 |
| | 2 | 1 | 4 | State a conclusion that is consistent with the information/data. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 2 | 2 | 1 | Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length - ruler, mass - balance scale, volume - beaker, temperature - thermometer; making observations: hand lens, binoculars, telescope). | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | Total For Assessment Anchor A.2 Processes, Procedures, and Tools of Scientific Investigations | | | | 4 | 2 | 6 | | 10 | 2 | 12 | 4 | 1 | 6 | | 10 | 1 | 11 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|--|----|---|----|--|----|---|----|----|---|----|--|----|---|----|
| 3 | 1 | 1 | Categorize systems as either natural or human-made (e.g., ballpoint pens, simple electrical circuits, plant anatomy, water cycle). | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| 3 | 1 | 2 | Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium). | | | | | | | | | | | | | | |
| 3 | 1 | 3 | Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system. | | | | | | | | | | | | | | |
| 3 | 1 | 4 | Identify the parts of the food and fiber systems as they relate to agricultural products from the source to the consumer. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 3 | 2 | 1 | Identify what different models represent (e.g., maps show physical features, directions, distances; globes represent Earth; drawings of watersheds depict terrain; dioramas show ecosystems; concept maps show relationships of ideas). Identify what different models represent | 1 | | 2 | | 3 | | 3 | 1 | | 2 | | 3 | | 3 |
| 3 | 2 | 2 | Use models to make observations to explain how systems work (e.g., water cycle, Sun-Earth-Moon system). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| 3 | 2 | 3 | Use appropriate, simple modeling tools and techniques to describe or illustrate a system (e.g., two cans and string to model a communications system, terrarium to model an ecosystem). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 3 | 3 | 1 | Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 3 | 3 | 2 | Predict future conditions/events based on observable patterns (e.g., day/night, seasons, sunrise/sunset, lunar phases). | 2 | | | | 2 | | 2 | 2 | | | | 2 | | 2 |
| Total For Assessment Anchor A.3 Systems, Models, and Patterns | | | | 7 | | 4 | | 11 | | 11 | 7 | | 4 | | 11 | | 11 |
| Total For Reporting Category A: Nature of Science | | | | 20 | 4 | 13 | | 33 | 4 | 37 | 20 | 2 | 13 | | 33 | 2 | 35 |

Grade 04

Science

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | | | |
|--|-------------------|-------------------------|------------------|---|------------------------------|-----|---------------------|-----|--------------------------|-----|-----------------|----|----------|----|-----------------------|----|----------|-------|----------|---|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | Number of Items | | | | Total Number of Items | | | | | |
| | | | | | | | | | | | Core | | EB | | (Core & EB) | | | | | |
| | | | | | MC | SCR | MC | SCR | MC | SCR | Total | MC | SCR | MC | SCR | MC | SCR | Total | | |
| | 1 | 1 | 1 | Identify life processes of living things (e.g., growth, digestion, respiration). | | | | | | | | | | | | | | | | |
| | 1 | 1 | 2 | Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | | |
| | 1 | 1 | 3 | Describe basic needs of plants and animals (e.g., air, water, food). | 1 | | | | 1 | | 1 | | | | | 1 | | 1 | | |
| | 1 | 1 | 4 | Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | | |
| | 1 | 1 | 5 | Describe the life cycles of different organisms (e.g., moth, grasshopper, frog, seed-producing plant). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 | | |
| Total For Assessment Anchor B.1 Structures and Functions of Organisms | | | | | 1 | | 3 | | 4 | | 4 | | 1 | | 3 | | 4 | | 4 | |
| | 2 | 1 | 1 | Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest). | | | | | | | | | | | | | | | | |
| | 2 | 1 | 2 | Explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water). | 1 | | 1 | | 2 | | 2 | | | 1 | | 1 | | 2 | | 2 |
| | 2 | 2 | 1 | Identify physical characteristics (e.g., height, hair color, eye color, attached earlobes, ability to roll tongue) that appear in both parents and could be passed on to offspring. | | | | | | | | | | | | | | | | |
| Total For Assessment Anchor B.2 Continuity of Life | | | | | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 | |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|--|----|---|----|---|---|---|--|----|---|----|
| B | 3 | 1 | 1 | Describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park, playground). | 1 | 2 | | | 1 | 2 | 3 | 1 | 1 | | | 1 | 1 | 2 |
| | 3 | 1 | 2 | Describe interactions between living and nonliving components (e.g. plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, temperature) of a local ecosystem. | | | | | | | | | | | | | | |
| | 3 | 2 | 1 | Describe what happens to a living thing when its habitat is changed. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| | 3 | 2 | 2 | Describe and predict how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems. | | | | | | | | | | | | | | |
| | 3 | 2 | 3 | Explain and predict how changes in seasons affect plants, animals, or daily human life (e.g., food availability, shelter, mobility). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| | 3 | 3 | 1 | Identify everyday human activities (e.g., driving, washing, eating, manufacturing, farming) within a community that depend on the natural environment. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| | 3 | 3 | 2 | Describe the human dependence on the food and fiber systems from production to consumption (e.g., food, clothing, shelter, products). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| | 3 | 3 | 3 | Identify biological pests (e.g., fungi – molds, plants – foxtail, purple loosestrife, Eurasian water milfoil; animals – aphides, ticks, zebra mussels, starlings, mice) that compete with humans for resources. | | | | | | | | | | | | | | |
| | 3 | 3 | 4 | Identify major land uses in the urban, suburban and rural communities (e.g., housing, commercial, recreation). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| | 3 | 3 | 5 | Describe the effects of pollution (e.g., litter) in the community. | | | | | | | | | | | | | | |
| Total For Assessment Anchor B.3 Ecological Behavior and Systems | | | | | 4 | 2 | 2 | | 6 | 2 | 8 | 4 | 1 | 2 | | 6 | 1 | 7 |
| Total For Reporting Category B: Biology | | | | | 6 | 2 | 6 | | 12 | 2 | 14 | 6 | 1 | 6 | | 12 | 1 | 13 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--------------------|---|-------------------------|------------------|--|------------------------------|-----|---------------------|-----|--------------------------|-----|-----------------|----|-----|----|-----------------------|----|-----|-------|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | Number of Items | | | | Total Number of Items | | | |
| | | | | | | | | | | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | SCR | MC | SCR | MC | SCR | Total | MC | SCR | MC | SCR | MC | SCR | Total |
| C | 1 | 1 | 1 | Use physical properties [e.g., mass, shape, size, volume, color, texture, magnetism, state to describe matter. | | | | | | | | | | | | | | |
| | 1 | 1 | 2 | Categorize/group objects using physical characteristics. | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C.1 Structures, Properties, and Interaction of Matter and Energy | | | | | | | | | | | | | | | | | |
| | 2 | 1 | 1 | Identify energy forms, energy transfer, and energy examples (e.g., light, heat, electrical). | 1 | | | | 1 | | 1 | | | | 1 | | 1 | |
| | 2 | 1 | 2 | Describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan). | | 2 | 1 | | 1 | 2 | 3 | | 1 | 1 | 1 | 1 | 2 | |
| | 2 | 1 | 3 | Recognize or illustrate simple direct current series and parallel circuits composed of batteries, light bulbs (or other common loads), wire, and on/off switches. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | |
| | 2 | 1 | 4 | Identify characteristics of sound (e.g., pitch, loudness, reflection). | 2 | | | | 2 | | 2 | | 2 | | | | 2 | |
| | Total For Assessment Anchor C.2 Forms, Sources, Conversions, and Transfer of Energy | | | | 4 | 2 | 2 | | 6 | 2 | 8 | | 4 | 1 | 2 | | 6 | 1 |
| | 3 | 1 | 1 | Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | 1 |
| | 3 | 1 | 2 | Compare the relative movement of objects or describe types of motion that are evident (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round). | 1 | | | | 1 | | 1 | | | | | 1 | | 1 |
| | 3 | 1 | 3 | Describe the position of an object by locating it relative to another object or a stationary background (e.g., geographic direction, left, up). | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | |
| | Total For Assessment Anchor C.3 Principles of Motion and Force | | | | 2 | | 2 | | 4 | | 4 | | 2 | | 2 | | 4 | |
| | Total For Reporting Category C: Physical Sciences | | | | 6 | 2 | 4 | | 10 | 2 | 12 | | 6 | 1 | 4 | | 10 | 1 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | Items | | | | | | | |
|--|-------------------|-------------------------|--|--|------------------------------|-----|---------------------|-----|--------------------------|-----|-----------------|----|-----|----|-----------------------|----|-----|-------|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | Number of Items | | | | Total Number of Items | | | |
| | | | | | | | | | | | Core | | EB | | (Core & EB) | | | |
| | | | | | MC | SCR | MC | SCR | MC | SCR | Total | MC | SCR | MC | SCR | MC | SCR | Total |
| D | 1 | 1 | 1 | Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, caves, sinkholes, lakes, rivers) were formed. | 1 | | | | 1 | | 1 | 1 | | | 1 | | 1 | |
| | 1 | 1 | 2 | Identify various Earth structures (e.g., mountains, watersheds, peninsulas, lakes, rivers, valleys) through the use of models. | | | | | | | | | | | | | | |
| | 1 | 1 | 3 | Describe the composition of soil as weathered rock and decomposed organic remains. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 2 | 1 | Identify products and by-products of plants and animals for human use (e.g., food, clothing, building materials, paper products). | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | 2 |
| | 1 | 2 | 2 | Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics). | | | 2 | 2 | 2 | 2 | 4 | | 1 | 2 | | 2 | 1 | 3 |
| | 1 | 2 | 3 | Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation). | | | | | | | | | | | | | | |
| | 1 | 3 | 1 | Describe types of freshwater and saltwater bodies (e.g., lakes, rivers, wetlands, oceans). | | | | | | | | | | | | | | |
| | 1 | 3 | 2 | Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting). | | | | | | | | | | | | | | |
| | 1 | 3 | 3 | Describe or compare lentic systems (i.e., ponds, lakes, and bays) and lotic systems (i.e., streams, creeks, and rivers). | | | | | | | | | | | | | | |
| | 1 | 3 | 4 | Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water source, water cycle). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor D.1 Earth Features and Processes that Change Earth and its Resources | | | | | 4 | 2 | 4 | | 8 | 2 | 10 | 4 | 1 | 4 | | 8 | 1 | 9 |
| 2 | 1 | 1 | Identify basic cloud types (i.e., cirrus, cumulus, stratus, and cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature, precipitation). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 | |

| | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|--|----|---|----|---|---|---|---|----|---|----|---|
| 2 | 1 | 2 | Identify weather patterns from data charts or graphs of the data (e.g., temperature, wind direction, wind speed, cloud types, precipitation). | | | | | | | | | | | | | | | |
| 2 | 1 | 3 | Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure. | | | | | | | | | | | | | | | |
| Total For Assessment Anchor D.2 Weather, Climate, and Atmospheric Processes | | | | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| 3 | 1 | 1 | Describe motions of the Sun - Earth - Moon system. | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| 3 | 1 | 2 | Explain how the motion of the Sun - Earth - Moon system relates to time (e.g., days, months, years). | | | 1 | | 1 | | 1 | | | | 1 | | 1 | | 1 |
| 3 | 1 | 3 | Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of Earth's axis. | | | | | | | | | | | | | | | |
| Total For Assessment Anchor D.3 Composition and Structure of the Universe | | | | 1 | | 1 | | 2 | | 2 | 1 | | | 1 | | 2 | | 2 |
| Total For Reporting Category D: Earth and Space Sciences | | | | 6 | 2 | 5 | | 11 | 2 | 13 | 6 | 1 | 5 | | 11 | 1 | 12 | |

| | | | | | | | | | | | | | | | | | |
|--|---|---|--|---|---|---|--|----|---|----|---|---|---|--|----|---|----|
| 1 | 3 | 1 | Use ratio to describe change (e.g., percents, parts per million, grams per cubic centimeter, mechanical advantage). | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| 1 | 3 | 2 | Use evidence, observations, or explanations to make inferences about change in systems over time (e.g., carrying capacity, succession, population dynamics, loss of mass in chemical reactions, indicator fossils in geologic time scale) and the variables affecting these changes. | | | | | | | | | | | | | | |
| 1 | 3 | 3 | Examine systems changing over time, identifying the possible variables causing this change, and drawing inferences about how these variables affect this change. | 2 | 1 | | | 1 | 2 | 3 | | 1 | 1 | | 1 | 1 | 2 |
| 1 | 3 | 4 | Given a scenario, explain how a dynamically changing environment provides for the sustainability of living systems. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor A.1 Reasoning and Analysis | | | | 5 | 4 | 7 | | 12 | 4 | 16 | 5 | 2 | 7 | | 12 | 2 | 14 |

A: Nature of Science

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|----|---|----|---|---|---|--|----|---|----|
| 2 | 1 | 1 | Use evidence, observations, or a variety of scales (e.g., mass, distance, volume, temperature) to describe relationships. | | 2 | | | | 2 | 2 | | 1 | | | 1 | 1 | |
| 2 | 1 | 2 | Use space/time relationships, define concepts operationally, raise testable questions, or formulate hypotheses. | 1 | | | | 1 | | 1 | 1 | | | | 1 | 1 | |
| 2 | 1 | 3 | Design a controlled experiment by specifying how the independent variables will be manipulated, how the dependent variable will be measured, and which variables will be held constant. | 3 | | | | 3 | | 3 | 3 | | | | 3 | 3 | |
| 2 | 1 | 4 | Interpret data/observations; develop relationships among variables based on data/observations to design models as solutions. | | | | | | | | | | | | | | |
| 2 | 1 | 5 | Use evidence from investigations to clearly communicate and support conclusions. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | 2 | |
| 2 | 1 | 6 | Identify a design flaw in a simple technological system and devise possible working solutions. | 1 | | | | 1 | | 1 | 1 | | | | 1 | 1 | |
| 2 | 2 | 1 | Describe the appropriate use of instruments and scales to accurately and safely measure time, mass, distance, volume, or temperature under a variety of conditions. | 1 | | | | 1 | | 1 | 1 | | | | 1 | 1 | |
| 2 | 2 | 2 | Apply appropriate measurement systems (e.g., time, mass, distance, volume, temperature) to record and interpret observations under varying conditions. | | | | | | | | | | | | | | |
| 2 | 2 | 3 | Describe ways technology (e.g., microscope, telescope, micrometer, hydraulics, barometer) extends and enhances human abilities for specific purposes. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | 2 | |
| Total For Assessment Anchor A.2 Processes, Procedures, and Tools of Scientific Investigations | | | | 8 | 2 | 2 | | 10 | 2 | 12 | 8 | 1 | 2 | | 10 | 1 | 11 |

| | | | | | | | | | | | | | | | | |
|---|---|---|--|----|---|----|---|----|---|----|----|---|----|----|---|----|
| 3 | 1 | 1 | Describe a system (e.g., watershed, circulatory system, heating system, agricultural system) as a group of related parts with specific roles that work together to achieve an observed result. | 1 | | | 1 | 1 | 1 | | | 1 | 1 | | | |
| 3 | 1 | 2 | Explain the concept of order in a system [e.g., (first to last: manufacturing steps, trophic levels); (simple to complex: cell, tissue, organ, organ system)]. | | | 1 | 1 | 1 | | | 1 | 1 | 1 | | | |
| 3 | 1 | 3 | Distinguish between system inputs, system processes, system outputs, and feedback (e.g., physical, ecological, biological, informational). | 1 | | | 1 | 1 | 1 | | | 1 | 1 | | | |
| 3 | 1 | 4 | Distinguish between open loop (e.g., energy flow, food web) and closed loop (e.g., materials in the nitrogen and carbon cycles, closed-switch) systems. | | | | | | | | | | | | | |
| 3 | 1 | 5 | Explain how components of natural and human-made systems play different roles in a working system. | | | | | | | | | | | | | |
| 3 | 2 | 1 | Describe how scientists use models to explore relationships in natural systems (e.g., an ecosystem, river system, the solar system). | | | | | | | | | | | | | |
| 3 | 2 | 2 | Describe how engineers use models to develop new and improved technologies to solve problems. | 1 | | 1 | 2 | 2 | 1 | | 1 | 2 | 2 | | | |
| 3 | 2 | 3 | Given a model showing simple cause- and-effect relationships in a natural system, predict results that can be used to test the assumptions in the model (e.g., photosynthesis, water cycle, diffusion, infiltration). | 1 | | | 1 | 1 | 1 | | | 1 | 1 | | | |
| 3 | 3 | 1 | Identify and describe patterns as repeated processes or recurring elements in human-made systems (e.g., trusses, hub-and-spoke system in communications and transportation systems, feedback controls in regulated systems). | 1 | | | 1 | 1 | 1 | | | 1 | 1 | | | |
| 3 | 3 | 2 | Describe repeating structure patterns in nature (e.g., veins in a leaf, tree rings, crystals, water waves) or periodic patterns (e.g., daily, monthly, annually). | | | | | | | | | | | | | |
| Total For Assessment Anchor A.3 Systems, Models, and Patterns | | | | 5 | | 2 | 7 | 7 | 5 | | 2 | 7 | 7 | | | |
| Total For Reporting Category A | | | | 18 | 6 | 11 | | 29 | 6 | 35 | 18 | 3 | 11 | 29 | 3 | 32 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | Items | | | | | | | | | |
|------------------------|---|-------------------------|------------------|--|------------------------------|----|---------------------|----|--------------------------|----|-------|-----------------|----|----|----|-----------------------------------|----|-------|---|---|---|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | | Number of Items | | | | Total Number of Items (Core & EB) | | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| B: Biological Sciences | 1 | 1 | 1 | Describe the structures of living things that help them function effectively in specific ways (e.g., adaptations, characteristics). | | | 1 | | 1 | | | 1 | | | 1 | | | 1 | | | |
| | 1 | 1 | 2 | Compare similarities and differences in internal structures of organisms (e.g., invertebrate/vertebrate, vascular/nonvascular, single-celled/multi-celled) and external structures (e.g., appendages, body segments, type of covering, size, shape). | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 3 | Apply knowledge of characteristic structures to identify or categorize organisms (i.e., plants, animals, fungi, bacteria, and protista). | 1 | | 1 | | 2 | | | 2 | 1 | | 1 | | | 2 | 2 | | |
| | 1 | 1 | 4 | Identify the levels of organization from cell to organism and describe how specific structures (parts), which underlie larger systems, enable the system to function as a whole. | | | | | | | | | | | | | | | | | |
| | Total For Assessment Anchor B.1 Structures and Functions of Organisms | | | | | 1 | | 2 | | 3 | | | 3 | 1 | | 2 | | | 3 | 3 | |
| | 2 | 1 | 1 | Explain how inherited structures or behaviors help organisms survive and reproduce in different environments. | | | 2 | | | | 2 | | 2 | | 1 | | | | 1 | 1 | |
| | 2 | 1 | 2 | Explain how different adaptations in individuals of the same species may affect survivability or reproduction success. | 1 | | 1 | | 2 | | | 2 | 1 | | 1 | | | | 2 | 2 | |
| | 2 | 1 | 3 | Explain that mutations can alter a gene and are the original source of new variations. | | | | | | | | | | | | | | | | | |
| | 2 | 1 | 4 | Describe how selective breeding or biotechnology can change the genetic makeup of organisms. | | | | | | | | | | | | | | | | | |
| | 2 | 1 | 5 | Explain that adaptations are developed over long periods of time and are passed from one generation to another. | 1 | | | | 1 | | | 1 | 1 | | | | | | 1 | 1 | |
| | 2 | 2 | 1 | Identify and explain differences between inherited and acquired traits. | | | | | | | | | | | | | | | | | |
| | 2 | 2 | 2 | Recognize that the gene is the basic unit of inheritance, that there are dominant and recessive genes, and that traits are inherited. | 1 | | | | 1 | | | 1 | 1 | | | | | | 1 | 1 | |
| | Total For Assessment Anchor B.2 Continuity of Life | | | | | 3 | 2 | 1 | | 4 | 2 | 6 | 3 | 1 | 1 | | | | 4 | 1 | 5 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|----|---|----|---|---|---|--|----|---|--|----|
| 3 | 1 | 1 | Explain the flow of energy through an ecosystem (e.g., food chains, food webs). | | | | | | | | | | | | | | | |
| 3 | 1 | 2 | Identify major biomes and describe abiotic and biotic components (e.g., abiotic: different soil types, air, water sunlight; biotic: soil microbes, decomposers). | | | 1 | | 1 | | 1 | | | 1 | | 1 | | | 1 |
| 3 | 1 | 3 | Explain relationships among organisms (e.g., producers/consumers, predator/prey) in an ecosystem. | | | | | | | | | | | | | | | |
| 3 | 2 | 1 | Use evidence to explain factors that affect changes in populations (e.g., deforestation, disease, land use, natural disaster, invasive species). | | | | | | | | | | | | | | | |
| 3 | 2 | 2 | Use evidence to explain how diversity affects the ecological integrity of natural systems | 1 | | | | 1 | | 1 | 1 | | | | | 1 | | 1 |
| 3 | 2 | 3 | Describe the response of organisms to environmental changes (e.g., changes in climate, hibernation, migration, coloration) and how those changes affect survival. | | | | | | | | | | | | | | | |
| 3 | 3 | 1 | Explain how human activities may affect local, regional, and global environments. | | | | | | | | | | | | | | | |
| 3 | 3 | 2 | Explain how renewable and nonrenewable resources provide for human needs (i.e., energy, food, water, clothing, and shelter). | | | | | | | | | | | | | | | |
| 3 | 3 | 3 | Describe how waste management affects the environment (e.g., recycling, composting, landfills, incineration, sewage treatment). | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | | 2 |
| 3 | 3 | 4 | Explain the long-term effects of using integrated pest management (e.g., herbicides, natural predators, biogenetics) on the environment. | | | | | | | | | | | | | | | |
| Total For Assessment Anchor B.3 Ecological Behavior and Systems | | | | 2 | | 2 | | 4 | | 4 | 2 | | 2 | | 4 | | | 4 |
| Total For Reporting Category B | | | | 6 | 2 | 5 | | 11 | 2 | 13 | 6 | 1 | 5 | | 11 | 1 | | 12 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | Items | | | | | | |
|---|--|-------------------------|------------------|--|------------------------------|----|---------------------|----|--------------------------|----|-------|-----------------|----|----|----|-----------------------------------|----|-------|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | | Number of Items | | | | Total Number of Items (Core & EB) | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total |
| | | | | | | | | | | | | | | | | | | |
| C: Physical Sciences | 1 | 1 | 1 | Explain the differences among elements, compounds, and mixtures. | | | | | | | | | | | | | | |
| | 1 | 1 | 2 | Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test). | 1 | 2 | 1 | | 2 | 2 | 4 | 1 | 1 | 1 | | 2 | 1 | 3 |
| | 1 | 1 | 3 | Identify and describe reactants and products of simple chemical reactions. | | | | | | | | | | | | | | |
| | Total For Assessment Anchor C.1 Structures, Properties, and Interaction of Matter and Energy | | | | 1 | 2 | 1 | | 2 | 2 | 4 | 1 | 1 | 1 | | 2 | 1 | 3 |
| | 2 | 1 | 1 | Distinguish among forms of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) and sources of energy (i.e., renewable and nonrenewable energy) | 1 | | 2 | | 3 | | 3 | 1 | | 2 | | 3 | | |
| | 2 | 1 | 2 | Explain how energy is transferred from one place to another through convection, conduction, or radiation. | | | | | | | | | | | | | | |
| | 2 | 1 | 3 | Describe how one form of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) can be converted into a different form of energy. | | | | | | | | | | | | | | |
| | 2 | 2 | 1 | Describe the Sun as the major source of energy that impacts the environment. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | |
| | 2 | 2 | 2 | Compare the time span of renewability for fossil fuels and the time span of renewability for alternative fuels. | 1 | | 1 | | 2 | | 2 | 1 | | 1 | | 2 | | |
| | 2 | 2 | 3 | Describe the waste (i.e., kind and quantity) derived from the use of renewable and nonrenewable resources and their potential impact on the environment. | 1 | | | | 1 | | 1 | 1 | | | | 1 | | |
| Total For Assessment Anchor C.2 Forms, Sources, Conversions, and Transfer of Energy | | | | 4 | | 3 | | 7 | | 7 | 4 | | 3 | | 7 | | | |

| | | | | | | | | | | | | | | | | | |
|--|---|---|--|---|---|---|---|----|---|----|---|---|---|---|----|---|---|
| 3 | 1 | 1 | Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced). | | | | | | | | | | | | | | |
| 3 | 1 | 2 | Distinguish between kinetic and potential energy. | 1 | | | 1 | | 1 | 1 | | | | 1 | 1 | | |
| 3 | 1 | 3 | Explain that mechanical advantage helps to do work (physics) by either changing a force or changing the direction of the applied force (e.g., simple machines, hydraulic systems). | | | | | | | | | | | | | | |
| Total For Assessment Anchor C.3 Principles of Motion and Force | | | | 1 | | | 1 | | 1 | 1 | | | | 1 | 1 | | |
| Total For Reporting Category C | | | | 6 | 2 | 4 | | 10 | 2 | 12 | 6 | 1 | 4 | | 10 | 1 | 4 |

| Reporting Category | Assessment Anchor | Descriptor (Sub-anchor) | Eligible Content | Focus | Points | | | | | | | Items | | | | | | | | | | |
|--------------------|-------------------|-------------------------|------------------|---|------------------------------|----|---------------------|----|--------------------------|----|-------|-----------------|----|----|----|-----------------------------------|----|-------|---|---|---|---|
| | | | | | Student Scores (Core Points) | | Equating Block (EB) | | Total Points (Core & EB) | | | Number of Items | | | | Total Number of Items (Core & EB) | | | | | | |
| | | | | | MC | OE | MC | OE | MC | OE | Total | MC | OE | MC | OE | MC | OE | Total | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 1 | Explain the rock cycle as changes in the solid earth and rock types found in Pennsylvania (igneous – granite, basalt, pumice; sedimentary – limestone, sandstone, shale, coal; and metamorphic – slate, quartzite, marble, gneiss). | 1 | | | | | 1 | | | 1 | | | | 1 | | | 1 | | |
| | 1 | 1 | 2 | Describe natural processes that change Earth’s surface (e.g., landslides, volcanic eruptions, earthquakes, mountain building, new land being formed, weathering, erosion, sedimentation, soil formation). | | | 1 | | | 1 | | | | | 1 | | | | 1 | | 1 | |
| | 1 | 1 | 3 | Identify soil types (i.e., humus, topsoil, subsoil, loam, loess, and parent material) and their characteristics (i.e., particle size, porosity, and permeability) found in different biomes and in Pennsylvania, and explain how they formed. | | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 4 | Explain how fossils provide evidence about plants and animals that once lived throughout Pennsylvania’s history (e.g., fossils provide evidence of different environments). | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 1 | Describe a product’s transformation process from production to consumption (e.g., prospecting, propagating, growing, maintaining, adapting, treating, converting, distributing, disposing) and explain the process’s potential impact on Earth’s resources. | 1 | | | | | 1 | | | | 1 | | | | | 1 | | | 1 |
| | 1 | 2 | 2 | Describe potential impacts of human-made processes (e.g., manufacturing, agriculture, transportation, mining) on Earth’s resources, both nonliving (i.e., air, water, or earth materials) and living (i.e., plants and animals). | 1 | | | | | 1 | | | | 1 | | | | | 1 | | | 1 |

D: Earth and Space Sciences

| | | | | | | | | | | | | | | | | | | |
|---|---|---|--|---|--|---|--|---|--|---|--|---|--|---|--|---|--|---|
| 1 | 3 | 1 | Describe the water cycle and the physical processes on which it depends (i.e., evaporation, condensation, precipitation, transpiration, runoff, infiltration, energy inputs, and phase changes). | | | | | | | | | | | | | | | |
| 1 | 3 | 2 | Compare and contrast characteristics of freshwater and saltwater systems on the basis of their physical characteristics (i.e., composition, density, and electrical conductivity) and their use as natural resources. | | | | | | | | | | | | | | | |
| 1 | 3 | 3 | Distinguish among different water systems (e.g., wetland systems, ocean systems, river systems, watersheds) and describe their relationships to each other as well as to landforms. | 1 | | 1 | | 2 | | 2 | | 1 | | 1 | | 2 | | 2 |
| 1 | 3 | 4 | Identify the physical characteristics of a stream and how these characteristics determine the types of organisms found within the stream environment (e.g., biological diversity, water quality, flow rate, tributaries, surrounding watershed). | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| Total For Assessment Anchor D.1 Earth Features and Processes that Change Earth and its Resources | | | | 5 | | 2 | | 7 | | 7 | | 5 | | 2 | | 7 | | 7 |
| 2 | 1 | 1 | Explain the impact of water systems on the local weather or the climate of a region (e.g., lake effect snow, land/ocean breezes). | | | | | | | | | | | | | | | |
| 2 | 1 | 2 | Identify how global patterns of atmospheric movement influence regional weather and climate. | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |
| 2 | 1 | 3 | Identify how cloud types, wind directions, and barometric pressure changes are associated with weather patterns in different regions of the country. | | | | | | | | | | | | | | | |
| Total For Assessment Anchor D.2 Weather, Climate, and Atmospheric Processes | | | | 1 | | | | 1 | | 1 | | 1 | | | | 1 | | 1 |

| | | | | | | | | | | | | | |
|--|---|---|---|---|--|---|----|----|---|--|---|----|----|
| 3 | 1 | 1 | Describe patterns of Earth's movements (i.e., rotation and revolution) and the Moon's movements (i.e., phases, eclipses, and tides) in relation to the Sun. | 1 | | | 1 | 1 | 1 | | | 1 | 1 |
| 3 | 1 | 2 | Describe the role of gravity as the force that governs the movement of the solar system and universe. | | | 1 | 1 | 1 | | | 1 | 1 | 1 |
| 3 | 1 | 3 | Compare and contrast characteristics of celestial bodies found in the solar system (e.g., moons, asteroids, comets, meteors, inner and outer planets). | 1 | | 1 | 2 | 2 | 1 | | 1 | 2 | 2 |
| Total For Assessment Anchor D.3 Composition and Structure of the Universe | | | | 2 | | 2 | 4 | 4 | 2 | | 2 | 4 | 4 |
| Total For Reporting Category D | | | | 8 | | 4 | 12 | 12 | 8 | | 4 | 12 | 12 |

APPENDIX C: ITEM AND TEST DEVELOPMENT PROCESS

ITEM AND TEST DEVELOPMENT PROCESS FOR PSSA

| Step | Description |
|--|---|
| 1. Review Guiding Documentation | Each year item and test development specialists meet internally to review all guiding documentation related to the PSSA. Documentation reviewed includes the test design blueprints, the Pennsylvania Assessment Anchors and Eligible Content, the test item specifications, the test style specifications (style guide), and all test content descriptions. |
| 2. Meet with PDE to Confirm Understanding of Program | The goal of the meeting each year is to ensure that item and test development teams have a clear understanding of PDE's vision for test development. A successful development cycle requires a clear understanding of Pennsylvania's content-area test specifications and of any unique interpretations of the Pennsylvania Assessment Anchors (if any). |
| 3. Create Preliminary Test Item Development Plan | Item and test development specialists generate a preliminary development plan which includes an overview of the program, the internal and external (PDE) review and approval processes, a projected schedule for development of test items—including the number of test items to be developed for review by PDE and subsequent review by the committees of Pennsylvania educators. Item and test development specialists also generate strategies for securing passages and developing science scenarios and passage-based items, etc. |
| 4. Meet with PDE to Finalize Test Item Development Plan | Over the course of the meeting, item and test development specialists verify all steps in the development process including timelines and schedules for test item/test development. |
| 5. Analyze Item Bank | Existing test items in the current PSSA Item Bank are reviewed for technical psychometric quality as well as for their match to the Assessment Anchors. During this phase, test development specialists also make a tally of the test items by Assessment Anchor—including test development specialists' best thinking regarding the number of usable test items in the existing item bank. A tally is also made of the number of usable passages, as well as other stimulus prompts in the bank, including science scenarios. |
| 6. Refine Test Item Development Plan to Include Writers and Subcontractors | Item and test development specialists identify the writers who will write the test items (test development specialists or other professional item writers, subcontractors, etc.), the estimated number of writers needed, the qualifications of writers, and the approximate number of test items to be submitted by each source. |
| 7. Train Item Writers | Item and test development specialists train item writers, as needed. Item writers who have written for the PSSA in the past receive updated information, as needed. |
| 8. Write and Review Items | Test items are written by item writers after training is complete, and feedback is provided by the item and test development specialists to item writers on a regular basis. As test items are written, they are reviewed and edited in a series of internal reviews. Item and test development specialists review and edit items to include, but not limited to, the following: match to Assessment Anchor/Eligible Content, relevance to purpose, accuracy of content, item difficulty, interest level, grade appropriateness, depth of knowledge and cognitive complexity, adherence to the principles of Universal Design, and freedom from issues of bias/fairness/sensitivity. At the same time, the process of procuring permissions also begins, including securing permissions for passages, art, etc. |
| 9. Enter Test Items into Database | Upon acceptance from item writers, test items are entered into the item management system, IDEAS (<i>Item Development and Educational Assessment System</i>). Item data stored in the system database includes, but is not limited to, the following: readability, cognitive level, estimated level of difficulty, alignment to Assessment Anchors, and correlation to stimulus prompts and passages. |
| 10. Prepare Item Set for Sample Item Review by PDE | Item and test development specialists prepare a subset of the items for review by PDE. |

| Step | Description |
|---|---|
| 11. PDE Conducts Sample Item Review | After a subset of the items is submitted to PDE for review, PDE reviews the items and provides feedback to item and test development teams via a conference call. Items are revised per PDE feedback. |
| 12. Continue to Write and Review Items | The remaining items are written, and feedback is provided by the item and test development specialists to item writers on a regular basis. Items are entered into the item management system, IDEAS (<i>Item Development and Educational Assessment System</i>) (See step 8 and step 9). |
| 13. Review Items Prior to Test Item Review and Validation Sessions | Prior to New Item Content Review, all items are submitted to PDE for review. Item and test development specialists incorporate all PDE feedback, and PDE-requested edits to items are made. |
| 14. Prepare for Test Item Review Sessions (the New Item Content Review and the Bias, Fairness, and Sensitivity Review) | Item and test development specialists prepare all items and stimulus passages for review by the New Item Content Review Committee (consisting of Pennsylvania educators) and by the separate Bias, Fairness, and Sensitivity Committee (consisting of a panel of experts including Pennsylvania educators). Item and test development specialists also prepare training materials needed for training committee members to review items for content or for bias, fairness, and sensitivity issues. All training materials and other ancillary materials (e.g., agendas, presentations, etc.) are also developed and then submitted to PDE for review and approval. Invitations are sent to Pennsylvania educators and national experts from PDE-approved committee lists. |
| 15. Conduct Test Item Review Sessions (the New Item Content Review and the Bias, Fairness, and Sensitivity Review) | Committees of Pennsylvania educators and national experts review items in two meetings: one addressing item content and quality, the other addressing bias, fairness, and sensitivity. PDE, with support from item and test development specialists, presents training on how to review new test items for content considerations or bias/fairness/sensitivity issues. At the New Item Content Review, suggested edits to test items are made and/or replacement test items are written during the actual item review so that both the committee and the PDE are able to observe changes to the test items and approve the test items during the committee review process. At the Bias, Fairness, and Sensitivity Review, experts in bias, fairness, and sensitivity review all test items and passages and come to a consensus about any issues that are noted. At both meetings the results are carefully documented. |
| 16. Conduct Item Review Resolution and Cleanup | Following the conclusion of the New Item Content Review Committee meetings, PDE re-examines the consensus changes suggested by the committee members during the New Item Content Review Committee meetings. DRC item and test development specialists then record all of PDE's follow-up decisions and changes. During this cleanup process, PDE either accepts the changes as requested by the committee or rejects the decision of the committee. If a committee decision is rejected, PDE provides an alternate decision for DRC to implement. During this cleanup process, PDE also interprets the report from the Bias, Fairness, and Sensitivity Committee meetings and subsequently identifies changes to test items and passages. DRC item and test development specialists then apply the changes to the test items and passages per PDE's decisions. |
| 17. Submit Field-Test Items for Final Sign-Off | PDE-approved changes are applied to the items, scenarios, non-permissioned passages, prompts, etc. (Changes reflect PDE's arbitration of the committee decisions.) Once all revisions to the items, non-permissioned passage text, and/or the art used by test items and passages are completed, the test items are submitted to PDE for final review and sign-off. (Changes requested to permissioned passages are sought from the publisher of record, and, if approved by the copyright holders, changes are implemented.) [PDE's approval process for field-test items generally occurs simultaneously with PDE's approval of the core test forms. See step 25.] |
| <i>To follow the path for new field-test items, skip to step 22, or to follow the chronological test development path, continue with step 18.</i> | |

| Step | Description |
|--|--|
| 18. Review Results of the Field Test | Following the administration of a field-test form and the subsequent range-finding and field-test scoring processes for field-test items, performance data for all field-test items are analyzed by DRC psychometricians and test development specialists. Test item performance data that meet certain triggering criteria are flagged for additional reviews by test development specialists. Flagged field-test items with extreme performance data are considered psychometrically unusable and are removed from future operational consideration. Field-test items with marginal performance data are prepared for the Field-Test Item Data Review meeting. |
| 19. Prepare for Field-Test Item Data Review | Test development specialists prepare the items and stimulus passages for review by the Field-Test Item Data Review Committee (which consists of Pennsylvania educators). Psychometricians also prepare training materials needed for training committee members to review items for their performance. All training materials and other ancillary materials (e.g., agendas, presentations, etc.) are submitted to PDE for review and approval. Invitations are also sent to Pennsylvania educators from PDE-approved committee lists. |
| 20. Conduct Field-Test Item Data Review | Committees of Pennsylvania educators review the performance data of flagged field-test items. Psychometricians present training on how to review field-test items based on their performance data. At the Item Data Review, committee members examine the performance of the items and determine whether each field-test item is technically sound and appropriate for use on an operational PSSA test. Since test items cannot be modified at the Field-Test Item Data Review, the committee can either accept an item as is, or the committee can reject the item. |
| 21. Conduct Field-Test Item Data Review Reconciliation | Following the conclusion of the Field-Test Item Data Review Committee meetings, PDE re-examines the consensus decisions (accept or reject) suggested by the committee members during the Field-Test Item Data Review Committee meetings. Test development specialists record all of PDE's follow-up decisions and changes. During this cleanup process, PDE either accepts the decisions of the data review committee, or PDE rejects the decisions of the data review committee. If a committee decision is not accepted, PDE provides an alternate decision for test development specialists to implement. All PDE-approved changes to the test items status (accepted or rejected) are incorporated into the <i>Item Development and Educational Assessment System, IDEAS</i> . |
| 22. Select Items to Fill Core, Field-Test, and Equating Block Positions in Core and Field-Test Forms | After the PDE-approved changes to the new field-test items is completed AND the results of the prior field test have been finalized following data review, test development specialists collaborate with psychometricians to follow the Test Design Blueprints and build requirements to make the initial selection of items for core, field-test, and equating block positions for all test forms. |
| 23. Review Core and Equating Block Selections | After test content and psychometric requirements have been achieved for core and equating block positions, the core and equating block items are provided to PDE for review and approval. Any changes to the content of the core or equating block requested by PDE are balanced with psychometric requirements until all core and equating block positions are approved by PDE, test development specialists, and psychometricians. Test development specialists work with psychometricians and PDE staff to create scrambled versions of the core items that will appear across forms. |
| 24. Construct Test Forms | Items, passages, and test components are assembled into forms using the form construction and typesetting function of DRC's <i>Item Development and Educational Assessment System, IDEAS</i> . Forms are reviewed internally for style and formatting requirements. |
| 25. Review Typeset Forms | After forms are constructed in IDEAS, draft hard copies of the forms are produced and presented to PDE for review and approval. Any changes to the content of the core or equating block requested by PDE are balanced with psychometric requirements until all core and equating block positions are approved by PDE, test development specialists, and psychometricians. PDE also re-reviews all field-test items appearing in the test forms. DRC applies changes to the field-test items as required. |

| Step | Description |
|---|--|
| 26. Print Test Forms | Following PDE's approval of the test forms, DRC completes a series of final proofing of all test forms. Final forms (along with ancillary materials) are then approved for printing. |
| 27. Assemble Documentation of Test Materials | Metadata for each test item and form is documented and proofed, including: grade, form, session/section, item sequence, reporting category, Assessment Anchor, descriptor (sub-anchor), Eligible Content, number of points, item type, number of answer options, item usage, stimulus ID, etc. |
| 28. Prepare Online Forms | Following approval of the print forms, all online forms are prepared. Forms are rendered in form sets, and items and forms are compared for continuity with the print forms as well as to ensure that all tools and features are functioning as expected. |
| <i>To follow the path for new field-test items, return to step 18.</i> | |

APPENDIX D: ITEM AND DATA REVIEW CARD EXAMPLES

ITEM REVIEW CARD EXAMPLE

| | | |
|---|------------|-----------------------|
| Standard: Use the four operations with whole numbers to solve problems. | | PA - Item Card |
| 1. | [Redacted] | Item ID |
| | | [Redacted] |
| A. | [Redacted] | Content Area |
| | | Mathematics |
| | | Passage ID |
| | | [Redacted] |
| | | Passage Title |
| | | [Redacted] |
| | | Grade |
| | | 4 |
| | | CCAACS Standards |
| | | B-O.1 |
| | | Item Type |
| | | Open Ended |
| | | Points |
| | | 4 |
| | | Depth of Knowledge |
| | | 2 |
| | | Bloom's Taxonomy |
| | | [Redacted] |
| | | Est Difficulty |
| | | Medium |
| | | Key |
| | | [Redacted] |
| | | Calculator |
| | | C |

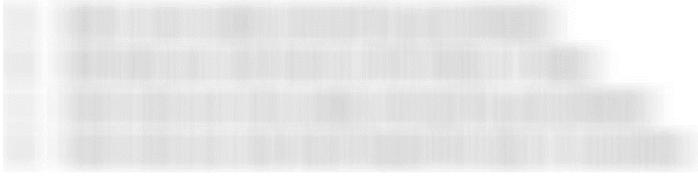
1. **Continued.** Please refer to the previous page for task explanation.

[Redacted]

c. [Redacted]

[Redacted]

[Redacted]

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|----------------|---|---------------------|---------|-------------------|--|----------------------|--|--------------|---|------------------|---------------|------------------|-----------------|---------------|---|---------------------------|---|-----------------------|--------|------------|---|--------------|--|
| <p>Standard: Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, caves, sinkholes, lakes, rivers) were formed.</p> | <p>PA - Data Card</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1. </p> <p></p> | <table border="1"> <tr><td>Item ID</td></tr> <tr><td></td></tr> <tr><td>Content Area</td></tr> <tr><td>Science</td></tr> <tr><td>Passage ID</td></tr> <tr><td></td></tr> <tr><td>Passage Title</td></tr> <tr><td></td></tr> <tr><td>Grade</td></tr> <tr><td>4</td></tr> <tr><td>Standards</td></tr> <tr><td>AACS: D.1.1.1</td></tr> <tr><td>Item Type</td></tr> <tr><td>Multiple Choice</td></tr> <tr><td>Points</td></tr> <tr><td>1</td></tr> <tr><td>Depth of Knowledge</td></tr> <tr><td>2</td></tr> <tr><td>Est Difficulty</td></tr> <tr><td>Medium</td></tr> <tr><td>Key</td></tr> <tr><td>A</td></tr> <tr><td>Focus</td></tr> <tr><td></td></tr> </table> | Item ID |  | Content Area | Science | Passage ID | | Passage Title | | Grade | 4 | Standards | AACS: D.1.1.1 | Item Type | Multiple Choice | Points | 1 | Depth of Knowledge | 2 | Est Difficulty | Medium | Key | A | Focus | |
| Item ID | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | |
| Content Area | | | | | | | | | | | | | | | | | | | | | | | | | |
| Science | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passage ID | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Passage Title | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grade | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standards | | | | | | | | | | | | | | | | | | | | | | | | | |
| AACS: D.1.1.1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Item Type | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multiple Choice | | | | | | | | | | | | | | | | | | | | | | | | | |
| Points | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Depth of Knowledge | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Est Difficulty | | | | | | | | | | | | | | | | | | | | | | | | | |
| Medium | | | | | | | | | | | | | | | | | | | | | | | | | |
| Key | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | | | | | | | | | | | | | | | | | | | | | | | | | |
| Focus | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

Data Recognition Corporation





PA - Master Statistics Data Card

Administration(s)

| Form Name | Use Function | Rptg Flag | Seq | Period | Year | Session | Calc | Model/Ext | Grade | N | P-Value | Item Total Corr |
|-----------|--------------|-----------|-----|--------|------|---------|------|-----------|-------|------|---------|-----------------|
| | | | | Spring | 2015 | | Yes | Rasch | 4 | 1548 | 0.54 | 0.34 |

Traditional Statistics

| N | P-Val | Mean | Item Total Corr |
|--------|-------|------|-----------------|
| 122762 | 0.54 | | 0.34 |

Distractor/Step Specific

| Label | Proportion | Corr | Avg Meas | Step Meas |
|-------|------------|-------|----------|-----------|
| A* | 0.54 | 0.34 | | |
| B | 0.20 | -0.10 | | |
| C | 0.14 | -0.21 | | |
| D | 0.12 | -0.16 | | |
| MULTS | 0.00 | | | |
| OMITS | 0.00 | | | |

DIF Analysis

| Category | Bias Code | Num Value | N - Ref | N - Focal |
|---------------|-----------|-----------|---------|-----------|
| MALEFEMALE | A- | -0.26 | 5349 | 5011 |
| WHITEBLACK | A+ | 0.14 | 7285 | 1569 |
| WHITEHISPANIC | A- | -0.40 | 7285 | 889 |

Item Review Criteria Guidelines

The purpose of this form is to provide guidelines to the item review process in terms of item characteristics that are essential in building a fair and balanced assessment. Use these guidelines in conjunction with the Item Rating Sheet when recording your feedback on individual items.

| | Content Alignment | Options |
|--------------------------------------|---|---|
| Standards, Anchors, Eligible Content | Does the content of the item align with the Standard/Anchor/Eligible Content? Each item was written to assess a particular Standard/Anchor/Eligible Content statement which is indicated on the individual Item Card. Consider the degree to which the item is, in fact, aligned with the indicated eligible content. In making this judgment, it is important to consider whether the content is aligned (e.g., do the eligible content and the item both deal with fractions) and whether the required performance is aligned (e.g., if the eligible content calls for a comparison to be made, is this reflected in the item). | <p>HIGHER—Aligns to the higher level of the EC</p> <p>LOWER—Aligns to the lower level of the EC</p> <p>NONE—No alignment with EC</p> |

| | Rigor Level Alignment | Options |
|--------------------|--|---|
| Grade | Is the item grade-level appropriate? Is the content consistent with the experiences of a student at the grade level assessed? Is the challenge level appropriate for the grade? | <p>ABOVE Grade Level</p> <p>AT Grade Level</p> <p>BELOW Grade Level</p> |
| Difficulty | Do you agree with the item's difficulty rating? Item Difficulty is indicated as Easy, Medium, and Hard? Is your rating in agreement with the difficulty rating on the Item Form? | <p>HARD</p> <p>MEDIUM</p> <p>EASY</p> |
| Depth of Knowledge | <p>Depth of Knowledge is based on the alignment work of Norman Webb. Rate each item based on the cognitive demand, using the following levels:</p> <ol style="list-style-type: none"> 1. Recall – <i>Recall</i> of a fact, information, or procedure. 2. Basic Application of Skill or Concept – <i>Use</i> of information, conceptual knowledge, procedures, two or more steps, etc. 3. Strategic Thinking – Requires reasoning, developing a plan or sequence of steps; has some complexity; more than one possible answer. 4. Extended Thinking – Requires an investigation, time to think and process multiple conditions of the problem or task, and more than 10 minutes to do non-routine manipulations. (This level is generally not assessed in on-demand assessments.) | <p>4 = Extended Thinking</p> <p>3 = Strategic Thinking</p> <p>2 = Basic Application</p> <p>1 = Recall</p> |

| | | |
|---------------------|---|-------------------|
| Source of Challenge | Is the source of challenge appropriately targeted to the content? The hardest part of the item (i.e., source of challenge) should be the content that is targeted. For example, in mathematics, the mathematics should be the major source of challenge rather than the wording or graphic. Students should not give an incorrect answer to a mathematics item because the reading level is too high or a graphic is flawed. Conversely, students should not give correct answers for reasons such as prior knowledge that make the answer to the question obvious (e.g., if the question asks which country has the largest population and students are to read a graph that includes China, there is no need to read the graph to answer the question). | Y = Yes N = No |
|---------------------|---|-------------------|

| Technical Design | | Options |
|-------------------------|---|-------------------|
| Correct Answer | Is there one clear, correct answer? There should be no other answer that “could” be correct. CAUTION: This does not mean that “good” distractors are unfair. | Y = Yes N = No |
| Distractors | Are distractors fair and appropriate? Distractors that are appropriate offer students reasonable choices that can be arrived at by making common errors. There should be no distractors that make no sense at all. It should be possible to examine each option and to reason how a student with some deficiency in knowledge or skill could choose it. The distractors should be formatted according to acceptable standards of test construction (e.g., a phrase that is common to each distractor should be placed in the stem). | Y = Yes N = No |
| Graphics | Are the graphics clear and accurate? | Y = Yes N = No |

| Universal Design | | Options |
|-------------------------|--|-------------------|
| Language Demand | Is language clear, well-formatted, and precise? Does the item use correct terminology for the content area? In order for all students to enter into the questions of the assessment, they must be able to understand them. If the items are formatted poorly, use unnecessarily complex words or phrases, or use figures or layouts that are difficult to understand, some students will give incorrect answers due to these factors rather than the content that is being assessed. | Y = Yes N = No |
| Bias | Is the item free of bias? All students will not be able to enter into the assessment if bias considerations are not resolved. Does the item contain clear bias problems? <i>A thorough, independent bias review (separate from this meeting) will be completed for all items.</i> | Y = Yes N = No |

| Status | | Options |
|-------------------|--|---|
| Acceptance Status | This is an overall judgment about the item. Based on the consensus of the committee, indicate whether the item was approved without revision to the content of the item or whether the item was accepted by the committee after revision of the content of the item. If there is a dissenting view (opposed to the committee consensus), record a brief explanation of the dissenting view on the back of the Item Rating Sheet. | —Approved as is —Accepted with suggested revisions —Dissenting View |

NOTES:

- If you leave a box blank on the Item Rating Sheet, it will be recorded to indicate that you did not have any specific feedback for that item or issue.
- If you object to the consensus of the committee, please note this on the item rating sheet and then record a brief explanation of the dissenting view on the back of the Item Rating Sheet.
- Do NOT remove any items from the item binder at any time.**
- You must sign your Item Rating Sheet.

APPENDIX F: ITEM STATISTICS

Appendix contains item statistics for each item type (multiple-choice, evidence-based selected-response, open-ended, and text-dependent analysis) by each mode (paper/pencil, and computer-based). Note that item statistics are not provided for field-test open-ended items or field-test text-dependent analysis items in 2021.

Multiple-Choice Paper/Pencil Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| PValue | <i>P</i> -Value |
| P(A) | Proportion A |
| P(B) | Proportion B |
| P(C) | Proportion C |
| P(D) | Proportion D |
| P(OMIT) | Proportion Omits |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(A) | Correlation A |
| Corr(B) | Correlation B |
| Corr(C) | Correlation C |
| Corr(D) | Correlation D |
| Corr(OMIT) | Correlation Omits |
| Corr(INV) | Correlation Invalid Responses |
| Final | IRT Difficulty Estimate |
| Final Err | IRT Difficulty Error |
| Infit-Z | Infit Z-Standardized |
| Infit-MS | Infit Mean Square |
| Outfit-Z | Outfit Z-Standardized |
| Outfit-MS | Outfit Mean Square |
| M/F | Male/Female DIF Code |
| W/B | White/Black DIF Code |
| W/H | White/Hispanic DIF Code |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 496239 | 0 | A-C | 3 | 87065 | 0.6244 | 0.6104 | 0.1515 | 0.0965 | 0.1192 | 0.0219 | 0.0006 | 0.5481 | 0.5533 | -0.2715 | -0.2562 | -0.2423 | -0.1199 | -0.0341 | 0.3248 | 0.0194 | -9.8991 | 0.8665 | -9.8992 | 0.8252 | A- | A+ | A+ |
| ELA | 3 | 496237 | 0 | A-K | 2 | 87750 | 0.4822 | 0.1744 | 0.0794 | 0.2564 | 0.475 | 0.0142 | 0.0006 | 0.4429 | -0.2829 | -0.2879 | -0.0584 | 0.447 | -0.0998 | -0.0296 | 0.7175 | 0.0194 | 0.931 | 1.007 | 1.781 | 1.0186 | A+ | A- | A+ |
| ELA | 3 | 496240 | 0 | A-K | 2 | 87264 | 0.6521 | 0.196 | 0.0684 | 0.0765 | 0.6389 | 0.0194 | 0.0008 | 0.571 | -0.2995 | -0.2754 | -0.2693 | 0.5738 | -0.1047 | -0.0417 | -0.343 | 0.0205 | -9.8991 | 0.8972 | -9.8992 | 0.8374 | A+ | A- | A+ |
| ELA | 3 | 496245 | 0 | A-K | 2 | 87309 | 0.5276 | 0.2224 | 0.0831 | 0.5172 | 0.1575 | 0.0189 | 0.0008 | 0.4139 | -0.1617 | -0.2675 | 0.4219 | -0.1438 | -0.1194 | -0.0363 | 0.5732 | 0.0194 | 4.111 | 1.0314 | 4.401 | 1.0459 | A+ | A+ | A+ |
| ELA | 3 | 578118 | 0 | A-K | 2 | 87300 | 0.3227 | 0.3868 | 0.1064 | 0.3163 | 0.1707 | 0.0188 | 0.0011 | 0.2989 | -0.0288 | -0.2541 | 0.305 | -0.0864 | -0.1199 | -0.0211 | 1.1682 | 0.0199 | 6.9411 | 1.0586 | 9.9011 | 1.1415 | A+ | A- | A- |
| ELA | 3 | 578121 | 0 | A-K | 2 | 87301 | 0.5018 | 0.153 | 0.4918 | 0.2545 | 0.0809 | 0.019 | 0.0008 | 0.4271 | -0.192 | 0.4348 | -0.1254 | -0.277 | -0.1264 | -0.0296 | 0.4671 | 0.0194 | 4.371 | 1.0334 | 4.351 | 1.0458 | A+ | A+ | A+ |
| ELA | 3 | 496242 | 0 | A-V | 2 | 87560 | 0.7861 | 0.0465 | 0.0851 | 0.7728 | 0.0787 | 0.0164 | 0.0005 | 0.5489 | -0.2702 | -0.3068 | 0.55 | -0.2796 | -0.0942 | -0.0321 | -0.7446 | 0.0217 | -9.8992 | 0.7582 | -9.8994 | 0.6286 | A- | A+ | A+ |
| ELA | 3 | 496244 | 0 | A-V | 2 | 87289 | 0.6526 | 0.6396 | 0.074 | 0.1685 | 0.098 | 0.0195 | 0.0005 | 0.5245 | 0.529 | -0.3069 | -0.2027 | -0.2762 | -0.1086 | -0.0308 | -0.1471 | 0.02 | -9.8991 | 0.9046 | -9.8992 | 0.848 | A- | A- | A- |
| ELA | 3 | 496246 | 0 | A-V | 2 | 87528 | 0.6329 | 0.1387 | 0.6219 | 0.1072 | 0.1148 | 0.0167 | 0.0006 | 0.5214 | -0.2564 | 0.526 | -0.2997 | -0.187 | -0.1038 | -0.0321 | -0.2641 | 0.0203 | -6.6991 | 0.9433 | -8.1291 | 0.8872 | A- | A+ | A+ |
| ELA | 3 | 578125 | 0 | A-V | 2 | 87208 | 0.6287 | 0.6156 | 0.0541 | 0.0644 | 0.2451 | 0.02 | 0.0009 | 0.4099 | 0.4203 | -0.2845 | -0.2683 | -0.1306 | -0.1215 | -0.0373 | -0.0065 | 0.0198 | 1.801 | 1.0145 | 3.201 | 1.0402 | A+ | A+ | A- |
| ELA | 3 | 493315 | 0 | B-C | 3 | 87525 | 0.5086 | 0.1977 | 0.1622 | 0.4998 | 0.1229 | 0.0163 | 0.001 | 0.4513 | -0.2245 | -0.2128 | 0.4548 | -0.1432 | -0.0907 | -0.0318 | 0.522 | 0.0194 | -2.609 | 0.9804 | -2.379 | 0.9756 | A- | A- | A- |
| ELA | 3 | 493316 | 0 | B-C | 2 | 87818 | 0.4188 | 0.0914 | 0.4129 | 0.0881 | 0.3935 | 0.0135 | 0.0006 | 0.3273 | -0.1017 | 0.3318 | -0.0879 | -0.2008 | -0.0895 | -0.0323 | 0.9316 | 0.0196 | 9.9011 | 1.1177 | 9.9012 | 1.1817 | A- | A+ | A+ |
| ELA | 3 | 493318 | 0 | B-C | 2 | 87937 | 0.7661 | 0.0805 | 0.085 | 0.7564 | 0.0654 | 0.0122 | 0.0005 | 0.5314 | -0.2859 | -0.2892 | 0.5345 | -0.2447 | -0.0893 | -0.0316 | -0.9312 | 0.0225 | -9.5691 | 0.8937 | -9.8993 | 0.741 | A- | A- | A+ |
| ELA | 3 | 579123 | 0 | B-C | 2 | 87028 | 0.5446 | 0.0684 | 0.5321 | 0.1795 | 0.1971 | 0.0213 | 0.0016 | 0.4122 | -0.2956 | 0.4159 | -0.2553 | -0.0525 | -0.0855 | -0.0423 | 0.317 | 0.0195 | 5.391 | 1.0416 | 5.5411 | 1.0608 | A- | A+ | A+ |
| ELA | 3 | 579124 | 0 | B-C | 3 | 86796 | 0.6972 | 0.134 | 0.0934 | 0.0677 | 0.6794 | 0.0231 | 0.0024 | 0.5674 | -0.2871 | -0.3126 | -0.2375 | 0.5662 | -0.0887 | -0.0515 | -0.4182 | 0.0207 | -9.8992 | 0.8435 | -9.8992 | 0.8223 | A- | A- | A- |
| ELA | 3 | 493319 | 0 | B-K | 2 | 87482 | 0.5044 | 0.1557 | 0.1876 | 0.1435 | 0.4954 | 0.0156 | 0.0022 | 0.3845 | -0.132 | -0.1748 | -0.1858 | 0.3901 | -0.0925 | -0.0501 | 0.6568 | 0.0194 | 7.5311 | 1.0582 | 7.0511 | 1.0744 | A- | A+ | A+ |
| ELA | 3 | 493321 | 0 | B-K | 1 | 87860 | 0.7643 | 0.7539 | 0.0383 | 0.0457 | 0.1486 | 0.013 | 0.0005 | 0.4168 | 0.422 | -0.2309 | -0.2081 | -0.2358 | -0.0841 | -0.0253 | -0.7381 | 0.0217 | -5.0191 | 0.9483 | -3.4591 | 0.9344 | A- | A- | A- |
| ELA | 3 | 579127 | 0 | B-K | 2 | 87445 | 0.5438 | 0.1019 | 0.5339 | 0.1013 | 0.2448 | 0.0172 | 0.001 | 0.5165 | -0.3243 | 0.5189 | -0.2445 | -0.1711 | -0.0945 | -0.0349 | 0.2063 | 0.0195 | -7.2391 | 0.9451 | -6.8891 | 0.9247 | A- | A+ | A+ |
| ELA | 3 | 493323 | 0 | B-V | 2 | 87838 | 0.5911 | 0.1209 | 0.0516 | 0.2307 | 0.583 | 0.0133 | 0.0005 | 0.4062 | -0.2357 | -0.2417 | -0.1471 | 0.4104 | -0.083 | -0.024 | 0.1714 | 0.0196 | 4.291 | 1.0337 | 4.6411 | 1.0537 | A- | A- | A- |
| ELA | 3 | 579130 | 0 | B-V | 2 | 87437 | 0.641 | 0.6293 | 0.1622 | 0.1132 | 0.0771 | 0.0176 | 0.0007 | 0.5424 | 0.5459 | -0.3514 | -0.2301 | -0.1757 | -0.1021 | -0.0363 | -0.1323 | 0.02 | -9.8991 | 0.8739 | -9.8992 | 0.812 | A- | A- | A- |
| ELA | 3 | 408513 | 0 | D | 2 | 88273 | 0.3038 | 0.2613 | 0.3011 | 0.3195 | 0.1092 | 0.0061 | 0.0028 | 0.3626 | -0.1717 | 0.364 | -0.0657 | -0.1747 | -0.0588 | -0.0353 | 1.6104 | 0.021 | 5.8711 | 1.0579 | 9.9012 | 1.1723 | A- | A- | A- |
| ELA | 3 | 409150 | 0 | D | 2 | 88475 | 0.4771 | 0.1722 | 0.1931 | 0.1541 | 0.4739 | 0.0056 | 0.001 | 0.384 | -0.157 | -0.2039 | -0.1338 | 0.3854 | -0.0451 | -0.0305 | 0.8968 | 0.0196 | 9.9011 | 1.0914 | 9.9011 | 1.1319 | A+ | A- | A- |
| ELA | 3 | 504084 | 0 | D | 3 | 87750 | 0.2947 | 0.3149 | 0.1298 | 0.2502 | 0.2903 | 0.0087 | 0.006 | 0.3163 | -0.096 | -0.1594 | -0.0863 | 0.3186 | -0.0671 | -0.0363 | 1.6571 | 0.0211 | 6.9711 | 1.0703 | 9.9012 | 1.2488 | A- | A- | A- |
| ELA | 3 | 581076 | 0 | D | 2 | 88497 | 0.763 | 0.0741 | 0.7581 | 0.099 | 0.0624 | 0.0057 | 0.0007 | 0.4963 | -0.2555 | 0.4979 | -0.2994 | -0.2149 | -0.0537 | -0.032 | -1.058 | 0.0231 | -2.559 | 0.9687 | -5.6291 | 0.8736 | A+ | A+ | A- |
| ELA | 3 | 581080 | 0 | D | 2 | 88441 | 0.3434 | 0.2765 | 0.1241 | 0.341 | 0.2514 | 0.0054 | 0.0017 | 0.3835 | -0.2122 | -0.1027 | 0.3848 | -0.1111 | -0.0549 | -0.0347 | 1.2838 | 0.0201 | 0.631 | 1.0054 | 4.0711 | 1.054 | A+ | A- | A- |
| ELA | 3 | 581082 | 0 | D | 2 | 88191 | 0.4057 | 0.1911 | 0.2065 | 0.4017 | 0.1908 | 0.0085 | 0.0014 | 0.4177 | -0.215 | -0.1116 | 0.4187 | -0.1773 | -0.0549 | -0.0247 | 1.1671 | 0.0199 | 5.441 | 1.0457 | 9.5711 | 1.1215 | A+ | A- | A- |
| ELA | 3 | 581083 | 0 | D | 2 | 87783 | 0.4401 | 0.1539 | 0.4337 | 0.1482 | 0.2497 | 0.0075 | 0.0069 | 0.2607 | -0.1458 | 0.2628 | -0.1583 | -0.0348 | -0.0584 | -0.0152 | 1.0555 | 0.0197 | 9.9012 | 1.2189 | 9.9013 | 1.3086 | A- | A- | A- |
| ELA | 3 | 581088 | 0 | D | 2 | 88426 | 0.514 | 0.1648 | 0.1535 | 0.1641 | 0.5103 | 0.0058 | 0.0014 | 0.3375 | -0.1554 | -0.1405 | -0.1521 | 0.3401 | -0.0583 | -0.0256 | 0.7682 | 0.0195 | 9.9011 | 1.1385 | 9.9012 | 1.1781 | A+ | A- | A- |
| ELA | 3 | 581090 | 0 | D | 2 | 88513 | 0.7703 | 0.7655 | 0.0793 | 0.05 | 0.0991 | 0.0052 | 0.001 | 0.3753 | 0.3789 | -0.2851 | -0.1591 | -0.1468 | -0.0649 | -0.0105 | -0.6193 | 0.0213 | -8.7891 | 0.9154 | -4.3791 | 0.9233 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 658479 | 1 | A-C | 3 | 7337 | 0.492 | 0.1559 | 0.1804 | 0.4844 | 0.1638 | 0.013 | 0.0024 | 0.3995 | -0.1514 | -0.1736 | 0.4042 | -0.1823 | -0.087 | -0.0613 | 0.5872 | 0.0678 | 2.2111 | 1.0615 | 2.0511 | 1.0767 | A+ | A- | A- |
| ELA | 3 | 658480 | 1 | A-K | 3 | 7307 | 0.4589 | 0.1935 | 0.1473 | 0.1897 | 0.4499 | 0.0174 | 0.002 | 0.3663 | -0.2351 | -0.1848 | -0.027 | 0.3737 | -0.1123 | -0.0514 | 0.9747 | 0.0689 | 1.7511 | 1.0511 | 1.6111 | 1.0663 | A+ | A- | A- |
| ELA | 3 | 658481 | 1 | A-K | 2 | 7163 | 0.663 | 0.1414 | 0.0776 | 0.6373 | 0.1049 | 0.0365 | 0.0023 | 0.5392 | -0.2633 | -0.2467 | 0.5315 | -0.2632 | -0.0745 | -0.0668 | -0.1166 | 0.0692 | -6.2492 | 0.8313 | -5.3192 | 0.7774 | A- | A- | A- |
| ELA | 3 | 658484 | 1 | A-K | 2 | 7272 | 0.7996 | 0.0717 | 0.7803 | 0.0502 | 0.0737 | 0.0233 | 0.0008 | 0.4699 | -0.2218 | 0.4657 | -0.2601 | -0.2554 | -0.0722 | -0.0422 | -0.8142 | 0.0754 | -4.9492 | 0.8322 | -4.5893 | 0.7152 | A+ | B- | A- |
| ELA | 3 | 658486 | 1 | A-K | 3 | 7324 | 0.4794 | 0.1848 | 0.4711 | 0.1009 | 0.226 | 0.0156 | 0.0016 | 0.3569 | -0.2047 | 0.3631 | -0.1582 | -0.0954 | -0.1002 | -0.0466 | 0.7107 | 0.068 | 2.6811 | 1.0759 | 2.6411 | 1.1013 | A+ | A- | A- |
| ELA | 3 | 658487 | 1 | A-V | 2 | 7346 | 0.4366 | 0.0929 | 0.2006 | 0.2619 | 0.4304 | 0.0129 | 0.0013 | 0.282 | -0.2979 | -0.0765 | -0.0293 | 0.2893 | -0.1027 | -0.046 | 0.7869 | 0.0682 | 3.6311 | 1.1048 | 3.7111 | 1.1469 | A+ | A+ | A- |
| ELA | 3 | 658488 | 1 | A-V | 2 | 7176 | 0.6083 | 0.1541 | 0.5857 | 0.1308 | 0.0923 | 0.0152 | 0.0219 | 0.3344 | -0.0747 | 0.3399 | -0.1538 | -0.2465 | -0.0842 | -0.0475 | 0.065 | 0.0684 | 0.481 | 1.0132 | 0.431 | 1.0173 | A- | A- | A- |
| ELA | 3 | 660573 | 1 | A-V | 2 | 7352 | 0.6993 | 0.6899 | 0.0654 | 0.1586 | 0.0727 | 0.0119 | 0.0015 | 0.3987 | 0.4056 | -0.2629 | -0.1436 | -0.2265 | -0.0844 | -0.057 | -0.3301 | 0.0705 | -1.179 | 0.9646 | -0.729 | 0.9622 | A- | A- | A+ |
| ELA | 3 | 623012 | 1 | B-C | 2 | 44050 | 0.6937 | 0.6859 | 0.0738 | 0.0991 | 0.13 | 0.0104 | 0.0009 | 0.5625 | 0.5623 | -0.2611 | -0.2492 | -0.3305 | -0.0592 | -0.0383 | -0.3882 | 0.029 | -9.8992 | 0.8018 | -9.8993 | 0.7009 | A- | A+ | A+ |
| ELA | 3 | 623100 | 1 | B-C | 2 | 43728 | 0.4742 | 0.1605 | 0.2437 | 0.1119 | 0.4654 | 0.0174 | 0.0011 | 0.3925 | -0.2963 | -0.0453 | -0.1844 | 0.395 | -0.0709 | -0.0416 | 0.7369 | 0.0275 | 1.451 | 1.0157 | 1.351 | 1.0196 | A- | A+ | A+ |
| ELA | 3 | 623013 | 1 | B-K | 2 | 43572 | 0.4668 | 0.0808 | 0.4565 | 0.0891 | 0.3516 | 0.021 | 0.001 | 0.3887 | -0.2685 | 0.3879 | -0.2412 | -0.0913 | -0.045 | -0.0401 | 0.7637 | 0.0275 | 0.591 | 1.0064 | 1.281 | 1.0187 | A- | A- | A- |
| ELA | 3 | 623103 | 1 | B-K | 2 | 44044 | 0.4845 | 0.224 | 0.0758 | 0.2099 | 0.479 | 0.0105 | 0.001 | 0.2911 | -0.1107 | -0.2484 | -0.0682 | 0.2951 | -0.0666 | -0.0315 | 0.6895 | 0.0274 | 9.9011 | 1.1267 | 9.9012 | 1.1532 | A+ | A- | A+ |
| ELA | 3 | 623104 | 1 | B-K | 2 | 43971 | 0.4316 | 0.1271 | 0.1717 | 0.426 | 0.2622 | 0.0121 | 0.001 | 0.4463 | -0.3188 | -0.0981 | 0.4477 | -0.1588 | -0.0655 | -0.0379 | 0.8776 | 0.0276 | -6.4991 | 0.9301 | -4.1791 | 0.9383 | A- | A- | A- |
| ELA | 3 | 623105 | 1 | B-K | 2 | 44198 | 0.7608 | 0.1351 | 0.0591 | 0.7547 | 0.0431 | 0.0073 | 0.0007 | 0.4712 | -0.2832 | -0.2462 | 0.4729 | -0.2117 | -0.0559 | -0.0337 | -0.7747 | 0.0308 | -9.8992 | 0.8499 | -8.9992 | 0.7703 | A+ | A- | A+ |
| ELA | 3 | 629366 | 1 | D | 1 | 7379 | 0.7092 | 0.1047 | 0.1005 | 0.7022 | 0.0828 | 0.0086 | 0.0012 | 0.4975 | -0.2743 | -0.2347 | 0.4958 | -0.2441 | -0.0407 | -0.0335 | -0.463 | 0.0716 | -3.6591 | 0.8896 | -3.9292 | 0.7967 | A+ | A- | B- |
| ELA | 3 | 662650 | 1 | D | 3 | 7376 | 0.5812 | 0.0629 | 0.5753 | 0.1107 | 0.2409 | 0.0085 | 0.0017 | 0.4512 | -0.2258 | 0.4506 | -0.2937 | -0.1671 | -0.0378 | -0.0188 | 0.0889 | 0.0683 | -1.509 | 0.9584 | -1.9091 | 0.9235 | A+ | A- | A- |
| ELA | 3 | 662659 | 1 | D | 3 | 7368 | 0.657 | 0.6496 | 0.182 | 0.068 | 0.0891 | 0.0101 | 0.0012 | 0.2867 | 0.2907 | -0.0377 | -0.2468 | -0.1949 | -0.0547 | -0.029 | -0.3994 | 0.0711 | 4.2011 | 1.1341 | 5.5913 | 1.3278 | A+ | A- | A- |
| ELA | 3 | 660236 | 2 | A-C | 2 | 7278 | 0.4711 | 0.3079 | 0.1186 | 0.0927 | 0.4625 | 0.0175 | 0.0008 | 0.3786 | -0.0718 | -0.1895 | -0.2905 | 0.3835 | -0.0879 | -0.0357 | 0.7196 | 0.0672 | 0.881 | 1.0232 | 0.861 | 1.0304 | A- | A+ | A- |
| ELA | 3 | 660238 | 2 | A-K | 2 | 7275 | 0.6063 | 0.1921 | 0.1244 | 0.595 | 0.0699 | 0.0178 | 0.0009 | 0.4895 | -0.2009 | -0.2512 | 0.4931 | -0.2616 | -0.0934 | -0.0328 | 0.1526 | 0.067 | -4.0691 | 0.9006 | -3.5291 | 0.8691 | A+ | A+ | A- |
| ELA | 3 | 660240 | 2 | A-K | 2 | 7301 | 0.4157 | 0.3023 | 0.1152 | 0.4094 | 0.1579 | 0.0146 | 0.0007 | 0.3334 | -0.0468 | -0.2028 | 0.3369 | -0.1896 | -0.08 | -0.0267 | 1.0915 | 0.0689 | -0.019 | 0.9991 | 1.091 | 1.0441 | A+ | A+ | A- |
| ELA | 3 | 660245 | 2 | A-K | 2 | 7215 | 0.6004 | 0.5843 | 0.1049 | 0.1592 | 0.1248 | 0.0232 | 0.0036 | 0.5142 | 0.5167 | -0.2496 | -0.2047 | -0.2616 | -0.0874 | -0.0609 | 0.0593 | 0.0673 | -6.9192 | 0.8335 | -5.7492 | 0.7845 | A+ | A+ | A- |
| ELA | 3 | 660247 | 2 | A-K | 2 | 7282 | 0.4989 | 0.2145 | 0.1613 | 0.1164 | 0.49 | 0.014 | 0.0038 | 0.4622 | -0.1706 | -0.2149 | -0.217 | 0.4677 | -0.0903 | -0.0734 | 0.5768 | 0.0668 | -3.2291 | 0.9192 | -2.7191 | 0.9074 | A+ | A+ | A- |
| ELA | 3 | 660251 | 2 | A-V | 2 | 7319 | 0.7539 | 0.0968 | 0.0763 | 0.7443 | 0.0697 | 0.0125 | 0.0003 | 0.5298 | -0.2788 | -0.2768 | 0.5307 | -0.2613 | -0.0777 | -0.0252 | -0.8252 | 0.0747 | -4.2591 | 0.8559 | -4.3593 | 0.7282 | A- | A+ | A- |
| ELA | 3 | 660253 | 2 | A-V | 2 | 7309 | 0.577 | 0.1664 | 0.1173 | 0.1333 | 0.5688 | 0.0135 | 0.0007 | 0.4349 | -0.2492 | -0.1797 | -0.1643 | 0.439 | -0.084 | -0.046 | 0.2611 | 0.0668 | -2.0391 | 0.9494 | -2.0891 | 0.9241 | A+ | A- | A- |
| ELA | 3 | 661914 | 2 | A-V | 2 | 7326 | 0.6381 | 0.1316 | 0.6306 | 0.1145 | 0.1114 | 0.0109 | 0.0009 | 0.3509 | -0.2061 | 0.36 | -0.1655 | -0.1258 | -0.1033 | -0.0337 | -0.1697 | 0.0684 | -0.179 | 0.9951 | 1.9611 | 1.0919 | A- | A- | A- |
| ELA | 3 | 629365 | 2 | D | 1 | 7328 | 0.7504 | 0.1757 | 0.0259 | 0.7417 | 0.045 | 0.0108 | 0.0008 | 0.4477 | -0.2919 | -0.1849 | 0.4487 | -0.2376 | -0.0536 | -0.0387 | -0.8811 | 0.0755 | -1.6891 | 0.9391 | -1.5091 | 0.8952 | A+ | A- | A- |
| ELA | 3 | 662651 | 2 | D | 3 | 7337 | 0.3413 | 0.45 | 0.1024 | 0.0995 | 0.3377 | 0.01 | 0.0004 | 0.3351 | -0.1064 | -0.1684 | -0.1598 | 0.3373 | -0.0736 | -0.0195 | 1.3793 | 0.0712 | 2.1711 | 1.0716 | 2.7111 | 1.1341 | A- | A+ | A- |
| ELA | 3 | 662661 | 2 | D | 2 | 7294 | 0.2872 | 0.2545 | 0.2826 | 0.14 | 0.3067 | 0.0144 | 0.0018 | 0.2539 | -0.134 | 0.2561 | -0.1499 | 0.008 | -0.0571 | -0.0425 | 1.6455 | 0.0741 | 3.3311 | 1.1249 | 5.5413 | 1.3441 | A+ | A+ | A+ |
| ELA | 3 | 659166 | 3 | A-C | 2 | 7333 | 0.4623 | 0.1764 | 0.1756 | 0.4569 | 0.1794 | 0.0101 | 0.0015 | 0.3712 | -0.2455 | -0.1773 | 0.3745 | -0.0438 | -0.0758 | -0.0287 | 0.758 | 0.0667 | -1.129 | 0.9715 | -0.769 | 0.9739 | A+ | A- | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 659167 | 3 | A-K | 3 | 7318 | 0.6782 | 0.669 | 0.1318 | 0.0923 | 0.0933 | 0.0125 | 0.0011 | 0.5004 | 0.504 | -0.2644 | -0.2473 | -0.226 | -0.0811 | -0.0424 | -0.1248 | 0.0689 | -6.2892 | 0.8326 | -5.8992 | 0.7611 | A+ | A+ | A+ |
| ELA | 3 | 659169 | 3 | A-K | 2 | 7313 | 0.6704 | 0.1684 | 0.0704 | 0.0861 | 0.6609 | 0.0133 | 0.0009 | 0.5313 | -0.2425 | -0.2848 | -0.2836 | 0.5327 | -0.0715 | -0.0283 | -0.1827 | 0.0693 | -6.1892 | 0.8318 | -5.8492 | 0.755 | A+ | A- | A- |
| ELA | 3 | 659171 | 3 | A-K | 3 | 7321 | 0.4363 | 0.214 | 0.1293 | 0.4305 | 0.213 | 0.0119 | 0.0013 | 0.348 | -0.2127 | -0.2024 | 0.3521 | -0.0224 | -0.0772 | -0.0447 | 1.0067 | 0.0675 | -0.079 | 0.9977 | 0.921 | 1.0335 | A+ | A- | A+ |
| ELA | 3 | 659172 | 3 | A-K | 3 | 7270 | 0.4773 | 0.2828 | 0.4677 | 0.1406 | 0.0888 | 0.0186 | 0.0015 | 0.3846 | -0.1305 | 0.3878 | -0.1899 | -0.2004 | -0.0771 | -0.0336 | 0.751 | 0.0667 | -1.959 | 0.951 | -1.9191 | 0.9363 | A+ | A- | A- |
| ELA | 3 | 659173 | 3 | A-K | 3 | 7323 | 0.4999 | 0.4935 | 0.21 | 0.1546 | 0.129 | 0.0096 | 0.0034 | 0.3129 | 0.3183 | -0.0516 | -0.2007 | -0.1662 | -0.0579 | -0.0727 | 0.608 | 0.0665 | 4.4311 | 1.1145 | 4.6212 | 1.1612 | A+ | A+ | A+ |
| ELA | 3 | 659175 | 3 | A-V | 2 | 7160 | 0.7385 | 0.1054 | 0.0992 | 0.0477 | 0.7128 | 0.0111 | 0.0239 | 0.531 | -0.3456 | -0.2033 | -0.256 | 0.524 | -0.0776 | -0.0493 | -0.6081 | 0.0735 | -6.0292 | 0.8053 | -5.4193 | 0.7083 | A- | A- | A- |
| ELA | 3 | 660746 | 3 | A-V | 2 | 7239 | 0.7554 | 0.737 | 0.1467 | 0.0447 | 0.0473 | 0.0237 | 0.0005 | 0.4909 | 0.4826 | -0.2873 | -0.2556 | -0.2315 | -0.0527 | -0.0349 | -0.7585 | 0.0756 | -3.9791 | 0.8583 | -4.0992 | 0.752 | A+ | A+ | A- |
| ELA | 3 | 629368 | 3 | D | 1 | 7308 | 0.4215 | 0.1822 | 0.1549 | 0.4152 | 0.2328 | 0.0147 | 0.0003 | 0.3419 | -0.1619 | -0.0942 | 0.3418 | -0.1587 | -0.0392 | -0.0046 | 0.8983 | 0.0671 | 1.881 | 1.0492 | 2.5111 | 1.09 | A- | A- | A- |
| ELA | 3 | 662652 | 3 | D | 3 | 7262 | 0.6692 | 0.6551 | 0.1915 | 0.0964 | 0.0359 | 0.0205 | 0.0007 | 0.5483 | 0.5453 | -0.3365 | -0.2472 | -0.2323 | -0.0704 | -0.0266 | -0.2882 | 0.0702 | -5.4892 | 0.8439 | -5.4392 | 0.7564 | A- | A+ | A+ |
| ELA | 3 | 662662 | 3 | D | 2 | 7350 | 0.4325 | 0.4285 | 0.153 | 0.2661 | 0.1431 | 0.0084 | 0.0009 | 0.2611 | 0.2648 | -0.1203 | -0.0579 | -0.1568 | -0.0731 | -0.0208 | 0.9029 | 0.0671 | 5.2311 | 1.141 | 4.5612 | 1.1685 | A+ | A- | A- |
| ELA | 3 | 660237 | 4 | A-C | 3 | 7293 | 0.4651 | 0.1609 | 0.1771 | 0.1882 | 0.4575 | 0.0129 | 0.0034 | 0.4729 | -0.2009 | -0.1535 | -0.2379 | 0.4746 | -0.0638 | -0.0661 | 0.7715 | 0.0672 | -4.1891 | 0.8934 | -4.0891 | 0.861 | A+ | A- | A- |
| ELA | 3 | 660241 | 4 | A-K | 2 | 7210 | 0.6325 | 0.6151 | 0.055 | 0.0664 | 0.236 | 0.0263 | 0.0012 | 0.5239 | 0.5228 | -0.1951 | -0.25 | -0.3136 | -0.0849 | -0.0264 | -0.0101 | 0.0685 | -5.8592 | 0.8456 | -4.9992 | 0.801 | A+ | A- | A- |
| ELA | 3 | 660244 | 4 | A-K | 2 | 7266 | 0.3397 | 0.2304 | 0.3329 | 0.1213 | 0.2955 | 0.0179 | 0.002 | 0.2881 | -0.0792 | 0.2917 | -0.2839 | 0.0009 | -0.0751 | -0.0422 | 1.4151 | 0.0705 | 2.0911 | 1.0653 | 3.5712 | 1.1798 | A+ | A- | A- |
| ELA | 3 | 660246 | 4 | A-K | 3 | 7140 | 0.3776 | 0.208 | 0.2928 | 0.0986 | 0.3636 | 0.0357 | 0.0012 | 0.2888 | -0.219 | 0.0859 | -0.2485 | 0.2928 | -0.0907 | -0.005 | 1.2496 | 0.0693 | 3.0411 | 1.0909 | 4.0312 | 1.1845 | A+ | A+ | A+ |
| ELA | 3 | 660248 | 4 | A-K | 3 | 7290 | 0.5461 | 0.537 | 0.1087 | 0.1264 | 0.2112 | 0.0156 | 0.0011 | 0.316 | 0.3239 | -0.1951 | -0.2484 | -0.0117 | -0.0979 | -0.0396 | 0.3803 | 0.0671 | 2.0111 | 1.0532 | 1.181 | 1.0428 | A- | A+ | A+ |
| ELA | 3 | 660252 | 4 | A-V | 3 | 7318 | 0.6734 | 0.0792 | 0.6647 | 0.1055 | 0.1377 | 0.0123 | 0.0007 | 0.5146 | -0.2002 | 0.5177 | -0.3252 | -0.234 | -0.0817 | -0.0318 | -0.2695 | 0.0702 | -6.3492 | 0.8215 | -5.8493 | 0.7356 | A+ | A- | A- |
| ELA | 3 | 660254 | 4 | A-V | 3 | 7207 | 0.6899 | 0.1343 | 0.1041 | 0.6706 | 0.063 | 0.026 | 0.0019 | 0.5124 | -0.2488 | -0.2516 | 0.5267 | -0.2412 | -0.1556 | -0.0577 | -0.3015 | 0.0705 | -6.4692 | 0.8164 | -6.4893 | 0.7049 | A+ | A- | A- |
| ELA | 3 | 661980 | 4 | A-V | 2 | 7325 | 0.7877 | 0.7783 | 0.0696 | 0.0735 | 0.0666 | 0.0117 | 0.0003 | 0.4684 | 0.4715 | -0.268 | -0.243 | -0.2219 | -0.0791 | -0.0239 | -0.9393 | 0.0783 | -2.2691 | 0.9106 | -2.5392 | 0.8187 | A- | A+ | A- |
| ELA | 3 | 629367 | 4 | D | 1 | 7328 | 0.4566 | 0.1565 | 0.4513 | 0.1873 | 0.1933 | 0.0107 | 0.0009 | 0.3478 | -0.1597 | 0.3474 | -0.1077 | -0.1752 | -0.0283 | -0.0233 | 0.8023 | 0.0673 | 2.2111 | 1.0594 | 1.7711 | 1.0641 | A- | A- | A- |
| ELA | 3 | 662653 | 4 | D | 3 | 7338 | 0.7405 | 0.0471 | 0.1032 | 0.7329 | 0.1066 | 0.009 | 0.0012 | 0.4055 | -0.1749 | -0.3124 | 0.41 | -0.1348 | -0.0737 | -0.0223 | -0.6543 | 0.0742 | -2.8091 | 0.9043 | -2.1991 | 0.8659 | A+ | C- | B- |
| ELA | 3 | 662663 | 4 | D | 2 | 7278 | 0.3751 | 0.1708 | 0.1202 | 0.3225 | 0.3682 | 0.0162 | 0.0022 | 0.2093 | -0.1433 | -0.1361 | 0.0061 | 0.2115 | -0.0471 | -0.0163 | 1.2254 | 0.0691 | 5.3912 | 1.1636 | 6.3413 | 1.2959 | A- | A- | A- |
| ELA | 3 | 658529 | 5 | A-C | 2 | 7243 | 0.4339 | 0.2504 | 0.4258 | 0.1623 | 0.1428 | 0.0169 | 0.0018 | 0.366 | -0.1067 | 0.3711 | -0.2124 | -0.127 | -0.0946 | -0.056 | 0.9235 | 0.0674 | 0.991 | 1.0261 | 0.601 | 1.0214 | A- | A+ | A+ |
| ELA | 3 | 658530 | 5 | A-C | 3 | 7227 | 0.4951 | 0.194 | 0.1366 | 0.4848 | 0.1638 | 0.0183 | 0.0026 | 0.3993 | -0.177 | -0.1913 | 0.4046 | -0.1382 | -0.0963 | -0.0489 | 0.6333 | 0.0669 | -0.299 | 0.9921 | -0.679 | 0.9761 | A- | A- | A- |
| ELA | 3 | 658533 | 5 | A-K | 2 | 7267 | 0.5221 | 0.1772 | 0.514 | 0.1488 | 0.1446 | 0.0145 | 0.0009 | 0.336 | -0.1433 | 0.3404 | -0.1974 | -0.0983 | -0.0798 | -0.0341 | 0.4905 | 0.067 | 0.801 | 1.0207 | 0.451 | 1.0154 | A- | A- | A+ |
| ELA | 3 | 658534 | 5 | A-K | 3 | 7142 | 0.2393 | 0.1694 | 0.1879 | 0.2315 | 0.3788 | 0.0312 | 0.0012 | -0.0379 | -0.099 | -0.0536 | -0.0293 | 0.1731 | -0.0691 | -0.0438 | 2.0076 | 0.0766 | 8.4214 | 1.3617 | 9.5618 | 1.7846 | A+ | A+ | A- |
| ELA | 3 | 658535 | 5 | A-K | 2 | 7232 | 0.3512 | 0.22 | 0.3441 | 0.2746 | 0.141 | 0.0187 | 0.0015 | 0.258 | -0.095 | 0.2624 | -0.0033 | -0.2039 | -0.085 | -0.0346 | 1.3442 | 0.0695 | 3.4811 | 1.1053 | 4.1312 | 1.1945 | A- | A- | A- |
| ELA | 3 | 658536 | 5 | A-K | 2 | 7235 | 0.5578 | 0.2123 | 0.0524 | 0.1687 | 0.5468 | 0.018 | 0.0018 | 0.2629 | -0.0759 | -0.2626 | -0.0857 | 0.2712 | -0.0861 | -0.0457 | 0.3304 | 0.0673 | 4.9411 | 1.1349 | 4.7312 | 1.1853 | A- | A- | A- |
| ELA | 3 | 658538 | 5 | A-V | 2 | 7312 | 0.4824 | 0.4778 | 0.153 | 0.2998 | 0.06 | 0.0084 | 0.0009 | 0.4474 | 0.4514 | -0.2547 | -0.1755 | -0.1829 | -0.0964 | -0.0383 | 0.667 | 0.0669 | -1.9991 | 0.9491 | -0.809 | 0.9718 | A- | A+ | A+ |
| ELA | 3 | 660621 | 5 | A-V | 2 | 7276 | 0.5341 | 0.2552 | 0.5265 | 0.1026 | 0.1015 | 0.0127 | 0.0015 | 0.4782 | -0.3502 | 0.4807 | -0.167 | -0.0862 | -0.0793 | -0.0462 | 0.4297 | 0.0671 | -4.1091 | 0.897 | -3.4591 | 0.8804 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 629359 | 5 | D | 1 | 7296 | 0.6875 | 0.115 | 0.0763 | 0.6796 | 0.1176 | 0.0103 | 0.0012 | 0.4603 | -0.1767 | -0.2834 | 0.4616 | -0.2388 | -0.0569 | -0.0323 | -0.347 | 0.0714 | -4.2191 | 0.8728 | -2.5591 | 0.8683 | A- | B- | A- |
| ELA | 3 | 662654 | 5 | D | 3 | 7300 | 0.8303 | 0.0992 | 0.0383 | 0.8212 | 0.0303 | 0.0106 | 0.0004 | 0.4661 | -0.2921 | -0.2257 | 0.4672 | -0.2382 | -0.0703 | -0.015 | -1.2385 | 0.0852 | -3.9292 | 0.8172 | -3.8593 | 0.6818 | A+ | A- | A- |
| ELA | 3 | 662718 | 5 | D | 2 | 7292 | 0.3188 | 0.3482 | 0.1367 | 0.315 | 0.1881 | 0.0118 | 0.0003 | 0.2632 | -0.0652 | -0.1577 | 0.2655 | -0.0796 | -0.0598 | -0.0336 | 1.5035 | 0.0707 | 2.6211 | 1.083 | 4.2512 | 1.222 | A- | A- | A+ |
| ELA | 3 | 622433 | 6 | A-C | 2 | 43879 | 0.7153 | 0.7051 | 0.1378 | 0.0852 | 0.0576 | 0.0135 | 0.0008 | 0.4272 | 0.4311 | -0.1355 | -0.276 | -0.2716 | -0.076 | -0.0285 | -0.4955 | 0.0296 | -6.8291 | 0.9107 | -6.4991 | 0.8534 | A+ | A+ | A- |
| ELA | 3 | 622431 | 6 | A-K | 1 | 44163 | 0.8434 | 0.0677 | 0.8367 | 0.0349 | 0.0528 | 0.0072 | 0.0007 | 0.396 | -0.263 | 0.3994 | -0.2234 | -0.1546 | -0.06 | -0.036 | -1.3812 | 0.0355 | -6.5891 | 0.8685 | -7.4993 | 0.7262 | B+ | A- | A- |
| ELA | 3 | 622440 | 6 | A-K | 2 | 43775 | 0.7896 | 0.0462 | 0.0822 | 0.7765 | 0.0786 | 0.016 | 0.0006 | 0.4729 | -0.2164 | -0.2931 | 0.4722 | -0.2282 | -0.0688 | -0.032 | -0.9354 | 0.032 | -8.9591 | 0.8596 | -9.3893 | 0.7356 | A+ | A- | A- |
| ELA | 3 | 624032 | 6 | A-K | 3 | 44060 | 0.5835 | 0.1651 | 0.1558 | 0.0913 | 0.5775 | 0.0092 | 0.001 | 0.3207 | -0.1023 | -0.184 | -0.1669 | 0.3257 | -0.0729 | -0.036 | 0.1817 | 0.0277 | 8.2211 | 1.0939 | 7.4911 | 1.1263 | A+ | A- | A- |
| ELA | 3 | 622435 | 6 | A-V | 2 | 43954 | 0.7816 | 0.1044 | 0.0597 | 0.7718 | 0.0516 | 0.0121 | 0.0005 | 0.4909 | -0.3215 | -0.2357 | 0.493 | -0.1984 | -0.0741 | -0.0363 | -0.9039 | 0.0318 | -9.8992 | 0.8324 | -9.8993 | 0.6997 | A- | A- | A- |
| ELA | 3 | 622438 | 6 | A-V | 2 | 43713 | 0.801 | 0.0873 | 0.0488 | 0.0593 | 0.7866 | 0.0174 | 0.0006 | 0.5179 | -0.3006 | -0.2301 | -0.2782 | 0.5183 | -0.0866 | -0.0366 | -1.0039 | 0.0324 | -9.8992 | 0.8003 | -9.8994 | 0.6416 | A+ | A- | A- |
| ELA | 3 | 663134 | 6 | B-C | 2 | 7249 | 0.2564 | 0.2252 | 0.2509 | 0.3935 | 0.1086 | 0.0202 | 0.0015 | 0.2225 | -0.0997 | 0.2254 | 0.0332 | -0.1952 | -0.0756 | -0.0232 | 1.8734 | 0.0755 | 1.4711 | 1.0555 | 3.4012 | 1.2296 | A- | A+ | A- |
| ELA | 3 | 663135 | 6 | B-C | 2 | 7294 | 0.5684 | 0.2564 | 0.5595 | 0.0402 | 0.1282 | 0.0134 | 0.0023 | 0.211 | -0.0448 | 0.2191 | -0.2249 | -0.1012 | -0.0962 | -0.0029 | 0.2634 | 0.0671 | 6.5712 | 1.1796 | 6.7113 | 1.2723 | A- | A- | A- |
| ELA | 3 | 663136 | 6 | B-C | 2 | 7222 | 0.3974 | 0.3 | 0.1046 | 0.3873 | 0.1827 | 0.0243 | 0.0011 | 0.3274 | -0.0096 | -0.1897 | 0.3316 | -0.2168 | -0.0907 | -0.0413 | 1.1122 | 0.0682 | -0.419 | 0.9883 | 0.691 | 1.0272 | A- | A- | A- |
| ELA | 3 | 663632 | 6 | B-C | 2 | 7301 | 0.5009 | 0.1609 | 0.4935 | 0.1999 | 0.131 | 0.0139 | 0.0008 | 0.4736 | -0.2054 | 0.4764 | -0.2521 | -0.1496 | -0.0898 | -0.0324 | 0.5858 | 0.0667 | -3.5591 | 0.9127 | -3.0191 | 0.898 | A- | A- | A- |
| ELA | 3 | 663138 | 6 | B-K | 2 | 7327 | 0.5128 | 0.507 | 0.2046 | 0.143 | 0.1341 | 0.0097 | 0.0015 | 0.3628 | 0.3677 | -0.1185 | -0.2868 | -0.0765 | -0.0814 | -0.0397 | 0.5201 | 0.0667 | 2.2011 | 1.0564 | 1.7911 | 1.0637 | A- | A- | A- |
| ELA | 3 | 663139 | 6 | B-K | 2 | 7310 | 0.719 | 0.7093 | 0.0657 | 0.0715 | 0.1399 | 0.0123 | 0.0012 | 0.5163 | 0.5222 | -0.2548 | -0.282 | -0.2551 | -0.1019 | -0.0455 | -0.519 | 0.0726 | -5.6392 | 0.8234 | -5.0793 | 0.7316 | A- | A- | A- |
| ELA | 3 | 663141 | 6 | B-K | 2 | 7279 | 0.472 | 0.1408 | 0.2294 | 0.4637 | 0.1484 | 0.0167 | 0.0009 | 0.3679 | -0.1916 | -0.1697 | 0.3722 | -0.1016 | -0.082 | -0.0307 | 0.7314 | 0.0668 | 1.511 | 1.0386 | 1.231 | 1.0436 | A- | A+ | A- |
| ELA | 3 | 663633 | 6 | B-K | 2 | 6958 | 0.3728 | 0.326 | 0.0995 | 0.1634 | 0.3501 | 0.0603 | 0.0007 | 0.3541 | -0.1515 | -0.1486 | -0.0369 | 0.3725 | -0.202 | -0.0184 | 1.3058 | 0.0694 | 1.551 | 1.0454 | 3.1311 | 1.1456 | A+ | A- | A- |
| ELA | 3 | 629361 | 6 | D | 1 | 14759 | 0.5934 | 0.0639 | 0.3161 | 0.5885 | 0.0232 | 0.0077 | 0.0007 | 0.3863 | -0.2728 | -0.1902 | 0.3874 | -0.2067 | -0.0412 | -0.0309 | 0.1286 | 0.0479 | 1.011 | 1.0193 | 0.121 | 1.0032 | A+ | A- | A- |
| ELA | 3 | 662655 | 6 | D | 2 | 7325 | 0.8685 | 0.0652 | 0.8586 | 0.0273 | 0.0375 | 0.0111 | 0.0004 | 0.4169 | -0.2995 | 0.4125 | -0.167 | -0.196 | -0.051 | -0.0021 | -1.5612 | 0.0918 | -3.1992 | 0.8245 | -4.1094 | 0.6146 | A+ | B- | B- |
| ELA | 3 | 662719 | 6 | D | 2 | 14703 | 0.4343 | 0.2379 | 0.429 | 0.1787 | 0.1423 | 0.0112 | 0.0009 | 0.3944 | -0.1841 | 0.3954 | -0.0754 | -0.2341 | -0.0547 | -0.0298 | 0.9185 | 0.0478 | -0.859 | 0.9837 | 0.181 | 1.0046 | A+ | A- | A- |
| ELA | 3 | 661038 | 7 | B-C | 2 | 7311 | 0.7255 | 0.7132 | 0.1086 | 0.0855 | 0.0757 | 0.016 | 0.0009 | 0.4688 | 0.4736 | -0.1896 | -0.3122 | -0.2069 | -0.0929 | -0.0484 | -0.5401 | 0.0726 | -3.4891 | 0.888 | -2.3791 | 0.8711 | A- | A- | A- |
| ELA | 3 | 661040 | 7 | B-C | 2 | 7288 | 0.3517 | 0.3446 | 0.3427 | 0.1206 | 0.172 | 0.0191 | 0.0009 | 0.1256 | 0.1323 | 0.2342 | -0.194 | -0.2615 | -0.0783 | -0.0479 | 1.3345 | 0.07 | 7.7112 | 1.2478 | 7.7214 | 1.4036 | A- | A+ | A- |
| ELA | 3 | 661046 | 7 | B-K | 2 | 7259 | 0.46 | 0.212 | 0.449 | 0.1872 | 0.1279 | 0.0223 | 0.0016 | 0.2939 | -0.0092 | 0.3004 | -0.1341 | -0.234 | -0.0901 | -0.0478 | 0.8058 | 0.0673 | 3.4611 | 1.0937 | 3.3311 | 1.1238 | A+ | A- | A- |
| ELA | 3 | 661048 | 7 | B-K | 3 | 7218 | 0.4141 | 0.2864 | 0.1269 | 0.4019 | 0.1553 | 0.0251 | 0.0043 | 0.2729 | 0.0069 | -0.2508 | 0.2804 | -0.1061 | -0.0993 | -0.0482 | 1.0393 | 0.0681 | 3.5011 | 1.0987 | 3.6011 | 1.1485 | A+ | A- | A- |
| ELA | 3 | 661052 | 7 | B-K | 2 | 7271 | 0.6289 | 0.0887 | 0.1347 | 0.6149 | 0.1393 | 0.0186 | 0.0038 | 0.4057 | -0.2556 | -0.3056 | 0.4138 | -0.0212 | -0.0902 | -0.0782 | -0.0107 | 0.0684 | -2.2591 | 0.9383 | -1.049 | 0.9574 | A- | A- | A- |
| ELA | 3 | 661042 | 7 | B-V | 2 | 7339 | 0.4826 | 0.2723 | 0.4763 | 0.1158 | 0.1225 | 0.012 | 0.0012 | 0.3056 | -0.04 | 0.3095 | -0.2835 | -0.1131 | -0.0687 | -0.0428 | 0.6724 | 0.067 | 2.2411 | 1.0591 | 2.4911 | 1.0886 | A+ | A+ | A+ |
| ELA | 3 | 661054 | 7 | B-V | 2 | 7324 | 0.7003 | 0.6897 | 0.0916 | 0.1166 | 0.087 | 0.0143 | 0.0009 | 0.4855 | 0.4903 | -0.2279 | -0.2068 | -0.2928 | -0.092 | -0.0428 | -0.4068 | 0.0712 | -3.5791 | 0.891 | -2.9791 | 0.8531 | A- | A+ | A+ |
| ELA | 3 | 661056 | 7 | B-V | 2 | 7149 | 0.3626 | 0.1467 | 0.3485 | 0.2754 | 0.1907 | 0.0206 | 0.0182 | 0.2931 | -0.1644 | 0.2998 | -0.0397 | -0.1142 | -0.112 | -0.0469 | 1.3138 | 0.0698 | 2.7411 | 1.0832 | 4.2312 | 1.207 | B- | A- | A- |
| ELA | 3 | 629362 | 7 | D | 1 | 14723 | 0.6433 | 0.0775 | 0.2025 | 0.0738 | 0.6381 | 0.0066 | 0.0015 | 0.4789 | -0.2453 | -0.2237 | -0.2665 | 0.4804 | -0.0516 | -0.0395 | -0.1292 | 0.049 | -6.6491 | 0.8694 | -6.5292 | 0.8055 | A- | B- | B- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 662657 | 7 | D | 3 | 14686 | 0.6894 | 0.0744 | 0.0401 | 0.6821 | 0.1928 | 0.0098 | 0.0007 | 0.3894 | -0.284 | -0.2412 | 0.3909 | -0.1381 | -0.0503 | -0.0273 | -0.3655 | 0.0503 | -0.849 | 0.981 | -0.019 | 0.9988 | A- | B- | B- |
| ELA | 3 | 662720 | 7 | D | 2 | 14654 | 0.4623 | 0.1946 | 0.1842 | 0.4564 | 0.152 | 0.0121 | 0.0006 | 0.3387 | -0.0768 | -0.1325 | 0.3406 | -0.2257 | -0.0578 | -0.0234 | 0.7777 | 0.0477 | 3.9011 | 1.0749 | 3.7911 | 1.0998 | A+ | A+ | A+ |
| ELA | 3 | 661041 | 8 | B-C | 2 | 7374 | 0.5574 | 0.2904 | 0.0923 | 0.0545 | 0.5506 | 0.0107 | 0.0015 | 0.489 | -0.2764 | -0.2077 | -0.2188 | 0.4915 | -0.076 | -0.0363 | 0.3326 | 0.0677 | -1.779 | 0.9525 | -1.9691 | 0.9255 | A+ | A- | A- |
| ELA | 3 | 661045 | 8 | B-K | 2 | 7350 | 0.5555 | 0.237 | 0.1423 | 0.547 | 0.0584 | 0.0145 | 0.0009 | 0.4163 | -0.1812 | -0.2225 | 0.4224 | -0.1793 | -0.1046 | -0.0314 | 0.3506 | 0.0677 | -0.699 | 0.9811 | -0.729 | 0.9717 | A- | A- | A- |
| ELA | 3 | 661049 | 8 | B-K | 3 | 7303 | 0.3052 | 0.245 | 0.2088 | 0.2986 | 0.2259 | 0.0189 | 0.0028 | 0.0666 | -0.0282 | -0.025 | 0.0758 | 0.0079 | -0.0913 | -0.0614 | 1.6358 | 0.0729 | 8.1313 | 1.298 | 8.9916 | 1.5953 | A+ | A- | A- |
| ELA | 3 | 661051 | 8 | B-K | 2 | 7338 | 0.5323 | 0.5232 | 0.2174 | 0.1758 | 0.0666 | 0.0159 | 0.0011 | 0.356 | 0.363 | -0.2104 | -0.0699 | -0.2154 | -0.0993 | -0.0544 | 0.4686 | 0.0675 | 2.1911 | 1.0596 | 2.1311 | 1.081 | A- | A+ | A+ |
| ELA | 3 | 661053 | 8 | B-K | 3 | 7256 | 0.2891 | 0.2347 | 0.2339 | 0.2224 | 0.281 | 0.0271 | 0.0009 | 0.2489 | 0.0298 | -0.1073 | -0.1554 | 0.2539 | -0.0972 | -0.0319 | 1.7391 | 0.074 | 2.3611 | 1.0843 | 5.2113 | 1.345 | A- | A+ | A- |
| ELA | 3 | 661039 | 8 | B-V | 2 | 7394 | 0.7731 | 0.1029 | 0.7657 | 0.0437 | 0.0782 | 0.0084 | 0.0011 | 0.5341 | -0.34 | 0.5373 | -0.2516 | -0.2383 | -0.0761 | -0.0587 | -0.8534 | 0.0772 | -5.5292 | 0.8009 | -5.2193 | 0.6591 | A- | A- | B- |
| ELA | 3 | 661055 | 8 | B-V | 3 | 7321 | 0.6943 | 0.6809 | 0.1127 | 0.0934 | 0.0938 | 0.018 | 0.0013 | 0.5367 | 0.5421 | -0.2881 | -0.2451 | -0.2549 | -0.108 | -0.0447 | -0.3462 | 0.0713 | -6.6492 | 0.8062 | -5.7893 | 0.7159 | A- | A- | A- |
| ELA | 3 | 661057 | 8 | B-V | 2 | 7260 | 0.3058 | 0.1502 | 0.2974 | 0.2591 | 0.2659 | 0.0251 | 0.0024 | 0.0797 | -0.1846 | 0.0905 | 0.0461 | 0.053 | -0.1063 | -0.0492 | 1.6428 | 0.073 | 7.4013 | 1.2697 | 8.2215 | 1.5396 | A- | A- | A- |
| ELA | 3 | 629370 | 8 | D | 2 | 14640 | 0.6275 | 0.1906 | 0.62 | 0.0903 | 0.0872 | 0.0101 | 0.0018 | 0.4705 | -0.243 | 0.4702 | -0.243 | -0.2031 | -0.0392 | -0.0455 | -0.0203 | 0.0489 | -4.6091 | 0.9089 | -4.6591 | 0.8575 | A+ | A- | A- |
| ELA | 3 | 662658 | 8 | D | 2 | 14671 | 0.8494 | 0.0331 | 0.0267 | 0.0894 | 0.8411 | 0.0094 | 0.0003 | 0.4536 | -0.212 | -0.2144 | -0.3044 | 0.4549 | -0.0693 | -0.0159 | -1.414 | 0.0621 | -4.8992 | 0.8306 | -5.7994 | 0.6323 | A+ | A- | A- |
| ELA | 3 | 662721 | 8 | D | 2 | 14619 | 0.5355 | 0.2175 | 0.1085 | 0.5285 | 0.1324 | 0.0118 | 0.0014 | 0.4353 | -0.1669 | -0.2247 | 0.4358 | -0.2133 | -0.0466 | -0.0388 | 0.4443 | 0.0479 | -1.069 | 0.9796 | -1.269 | 0.9662 | A- | A+ | A- |
| ELA | 3 | 663183 | 9 | B-C | 2 | 7121 | 0.5048 | 0.1869 | 0.162 | 0.4828 | 0.1246 | 0.0427 | 0.0009 | 0.4225 | -0.1162 | -0.1523 | 0.4231 | -0.2743 | -0.0907 | -0.0353 | 0.6298 | 0.0673 | -0.639 | 0.9831 | -0.509 | 0.9809 | A+ | A- | A- |
| ELA | 3 | 663184 | 9 | B-C | 2 | 7342 | 0.3609 | 0.1966 | 0.186 | 0.2475 | 0.3559 | 0.0133 | 0.0007 | 0.2434 | -0.198 | -0.0194 | -0.0517 | 0.2475 | -0.0791 | -0.0346 | 1.2753 | 0.0699 | 6.4512 | 1.2035 | 5.8713 | 1.2946 | A+ | A- | A- |
| ELA | 3 | 663185 | 9 | B-C | 2 | 7325 | 0.3451 | 0.3395 | 0.3344 | 0.1737 | 0.1362 | 0.0153 | 0.0009 | 0.2083 | 0.2122 | 0.0222 | -0.1478 | -0.1326 | -0.0683 | -0.0367 | 1.3635 | 0.0705 | 5.8412 | 1.1888 | 7.5614 | 1.4111 | A- | A+ | A+ |
| ELA | 3 | 663187 | 9 | B-C | 3 | 7302 | 0.4962 | 0.4866 | 0.1277 | 0.1664 | 0.2 | 0.0173 | 0.002 | 0.3609 | 0.3663 | -0.2644 | -0.1834 | -0.0325 | -0.0853 | -0.0535 | 0.6113 | 0.0673 | 1.9511 | 1.052 | 1.7011 | 1.0633 | A- | A+ | A- |
| ELA | 3 | 663188 | 9 | B-K | 2 | 7338 | 0.5692 | 0.0861 | 0.561 | 0.118 | 0.2204 | 0.0142 | 0.0003 | 0.5417 | -0.3061 | 0.5456 | -0.2101 | -0.2507 | -0.1097 | -0.0123 | 0.243 | 0.0677 | -6.8192 | 0.828 | -5.9392 | 0.7831 | A+ | A+ | A- |
| ELA | 3 | 663189 | 9 | B-K | 2 | 7282 | 0.7359 | 0.7197 | 0.0854 | 0.0794 | 0.0935 | 0.0216 | 0.0004 | 0.5314 | 0.5254 | -0.2852 | -0.271 | -0.2507 | -0.067 | -0.0154 | -0.6024 | 0.0736 | -6.8792 | 0.7813 | -6.3794 | 0.6495 | A- | A- | A- |
| ELA | 3 | 663191 | 9 | B-K | 2 | 7333 | 0.5715 | 0.2049 | 0.0682 | 0.1488 | 0.5629 | 0.0144 | 0.0008 | 0.4253 | -0.212 | -0.227 | -0.1638 | 0.4319 | -0.1018 | -0.0348 | 0.2336 | 0.0677 | -0.859 | 0.9768 | -1.159 | 0.9544 | A- | A- | A- |
| ELA | 3 | 663192 | 9 | B-K | 3 | 7291 | 0.7037 | 0.6891 | 0.0991 | 0.1029 | 0.0881 | 0.02 | 0.0008 | 0.4886 | 0.4922 | -0.2211 | -0.2638 | -0.2377 | -0.0935 | -0.0404 | -0.4268 | 0.0718 | -3.4691 | 0.8926 | -3.3692 | 0.8205 | A- | A+ | A- |
| ELA | 3 | 629364 | 9 | D | 2 | 7380 | 0.5385 | 0.1857 | 0.5337 | 0.1759 | 0.0958 | 0.0082 | 0.0007 | 0.3259 | -0.2153 | 0.3283 | -0.1048 | -0.1186 | -0.0543 | -0.012 | 0.3784 | 0.0674 | 4.7311 | 1.1298 | 3.7311 | 1.1472 | A- | A- | A- |
| ELA | 3 | 662660 | 9 | D | 2 | 7378 | 0.4888 | 0.4843 | 0.1009 | 0.1464 | 0.2593 | 0.0078 | 0.0013 | 0.1971 | 0.202 | -0.0801 | -0.167 | -0.0242 | -0.0774 | -0.0107 | 0.6226 | 0.0673 | 7.7012 | 1.2159 | 6.9913 | 1.2793 | A- | A- | A- |
| ELA | 3 | 662722 | 9 | D | 2 | 7343 | 0.5988 | 0.0799 | 0.5905 | 0.0614 | 0.2544 | 0.0136 | 0.0003 | 0.362 | -0.2546 | 0.3652 | -0.2046 | -0.123 | -0.0661 | -0.0114 | 0.0945 | 0.0682 | 2.1911 | 1.0612 | 2.4311 | 1.1051 | A- | A- | A- |
| ELA | 3 | 622412 | 10 | A-C | 2 | 7309 | 0.4135 | 0.2243 | 0.1368 | 0.4044 | 0.2126 | 0.0207 | 0.0012 | 0.3306 | -0.137 | -0.2653 | 0.3355 | -0.0068 | -0.0893 | -0.0246 | 1.0604 | 0.0686 | 1.8711 | 1.0536 | 2.9911 | 1.1246 | A- | A+ | A- |
| ELA | 3 | 622411 | 10 | A-K | 3 | 7369 | 0.7031 | 0.6933 | 0.097 | 0.0707 | 0.1251 | 0.013 | 0.0009 | 0.3843 | 0.3891 | -0.2838 | -0.2921 | -0.0341 | -0.073 | -0.0341 | -0.4198 | 0.0715 | -0.499 | 0.9842 | 0.9411 | 1.0521 | A+ | A- | A+ |
| ELA | 3 | 622415 | 10 | A-K | 1 | 7393 | 0.8263 | 0.0586 | 0.8175 | 0.0422 | 0.0711 | 0.0096 | 0.0011 | 0.5256 | -0.2915 | 0.5255 | -0.224 | -0.3194 | -0.0647 | -0.0344 | -1.2198 | 0.0829 | -5.6792 | 0.7605 | -6.3295 | 0.5301 | A+ | A- | A- |
| ELA | 3 | 622417 | 10 | A-K | 2 | 7355 | 0.6952 | 0.0994 | 0.1186 | 0.082 | 0.6842 | 0.0154 | 0.0004 | 0.5145 | -0.2786 | -0.2351 | -0.2546 | 0.5164 | -0.0843 | -0.0196 | -0.3688 | 0.071 | -5.7892 | 0.8319 | -5.6693 | 0.725 | A+ | A- | A+ |
| ELA | 3 | 622418 | 10 | A-K | 2 | 7255 | 0.6947 | 0.6744 | 0.1433 | 0.0854 | 0.0677 | 0.0286 | 0.0005 | 0.4555 | 0.4559 | -0.2277 | -0.2625 | -0.1806 | -0.0873 | -0.0243 | -0.3148 | 0.0706 | -3.4791 | 0.8983 | -2.7091 | 0.865 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 622419 | 10 | A-K | 2 | 7325 | 0.6351 | 0.1053 | 0.1457 | 0.6225 | 0.1067 | 0.0186 | 0.0012 | 0.502 | -0.269 | -0.2617 | 0.5048 | -0.1836 | -0.0848 | -0.0472 | -0.0377 | 0.0687 | -4.7491 | 0.8725 | -4.4592 | 0.8152 | A- | A- | A- |
| ELA | 3 | 622413 | 10 | A-V | 3 | 7342 | 0.3856 | 0.2187 | 0.1851 | 0.1999 | 0.3788 | 0.0166 | 0.0009 | 0.1962 | -0.1424 | -0.0473 | -0.0227 | 0.2027 | -0.0848 | -0.0387 | 1.1932 | 0.0694 | 5.7712 | 1.1786 | 4.8912 | 1.2248 | A+ | A- | A+ |
| ELA | 3 | 624149 | 10 | A-V | 2 | 7377 | 0.7405 | 0.0708 | 0.731 | 0.1314 | 0.0539 | 0.0122 | 0.0007 | 0.5147 | -0.2677 | 0.5175 | -0.2651 | -0.2728 | -0.0809 | -0.0289 | -0.6395 | 0.0738 | -4.9992 | 0.8382 | -4.6093 | 0.7343 | A- | A- | B- |
| ELA | 3 | 662723 | 10 | D | 2 | 7408 | 0.5386 | 0.1283 | 0.1603 | 0.5339 | 0.1687 | 0.0075 | 0.0012 | 0.3893 | -0.2374 | -0.1861 | 0.3915 | -0.1122 | -0.0561 | -0.0217 | 0.4111 | 0.0673 | 1.561 | 1.0416 | 0.801 | 1.0291 | A+ | A- | A- |
| ELA | 3 | 625452 | 11 | B-C | 2 | 7338 | 0.5173 | 0.5126 | 0.1156 | 0.0806 | 0.2821 | 0.0089 | 0.0003 | 0.345 | 0.3495 | -0.1871 | -0.2758 | -0.0693 | -0.0867 | -0.0248 | 0.5079 | 0.0674 | 2.3411 | 1.0633 | 3.1411 | 1.1175 | A- | A+ | A+ |
| ELA | 3 | 625454 | 11 | B-C | 2 | 7258 | 0.6236 | 0.0655 | 0.0694 | 0.6111 | 0.234 | 0.0193 | 0.0007 | 0.2026 | -0.2316 | -0.2125 | 0.2144 | 0.0482 | -0.0976 | -0.007 | 0.0128 | 0.0689 | 7.2612 | 1.2202 | 8.1514 | 1.392 | A- | A- | A- |
| ELA | 3 | 625450 | 11 | B-K | 2 | 7299 | 0.4361 | 0.354 | 0.4298 | 0.0897 | 0.1121 | 0.0124 | 0.002 | 0.163 | 0.0544 | 0.1703 | -0.1905 | -0.1418 | -0.0811 | -0.0484 | 0.9202 | 0.068 | 6.0012 | 1.1732 | 6.0913 | 1.2506 | A+ | A- | A- |
| ELA | 3 | 625451 | 11 | B-K | 2 | 7287 | 0.7556 | 0.104 | 0.0756 | 0.0609 | 0.7435 | 0.0153 | 0.0008 | 0.5257 | -0.2543 | -0.2901 | -0.2694 | 0.5295 | -0.0952 | -0.0289 | -0.7238 | 0.0755 | -6.7492 | 0.7719 | -5.8393 | 0.657 | A+ | A- | A- |
| ELA | 3 | 625456 | 11 | B-K | 2 | 7296 | 0.5928 | 0.1665 | 0.1443 | 0.0903 | 0.584 | 0.0144 | 0.0004 | 0.5799 | -0.2716 | -0.2669 | -0.2809 | 0.5802 | -0.0838 | -0.0229 | 0.1513 | 0.0682 | -6.5892 | 0.8287 | -6.1292 | 0.7729 | A- | A- | A- |
| ELA | 3 | 625458 | 11 | B-K | 2 | 7322 | 0.5792 | 0.1422 | 0.1306 | 0.5726 | 0.1433 | 0.0112 | 0.0001 | 0.511 | -0.2525 | -0.2862 | 0.513 | -0.1716 | -0.0841 | -0.0169 | 0.2085 | 0.068 | -5.3391 | 0.8608 | -5.2292 | 0.8085 | A- | A- | A- |
| ELA | 3 | 625457 | 11 | B-V | 2 | 7224 | 0.2385 | 0.4363 | 0.2326 | 0.1289 | 0.1776 | 0.0239 | 0.0007 | -0.0456 | 0.2916 | -0.0365 | -0.2083 | -0.1169 | -0.093 | -0.018 | 2.0281 | 0.0777 | 8.4514 | 1.3743 | 9.9019 | 1.8978 | A- | A- | A+ |
| ELA | 3 | 633104 | 11 | B-V | 2 | 7331 | 0.4947 | 0.4897 | 0.1377 | 0.0547 | 0.3077 | 0.0099 | 0.0003 | 0.4398 | 0.4423 | -0.2953 | -0.2691 | -0.1083 | -0.0786 | -0.0231 | 0.621 | 0.0674 | -0.299 | 0.9918 | -0.199 | 0.9923 | A- | A+ | A- |
| ELA | 3 | 623661 | 12 | B-C | 2 | 7119 | 0.624 | 0.1623 | 0.1195 | 0.0824 | 0.6044 | 0.0309 | 0.0005 | 0.457 | -0.2066 | -0.1636 | -0.2902 | 0.4556 | -0.0749 | -0.0313 | 0.0612 | 0.0689 | -1.379 | 0.9608 | -0.839 | 0.9631 | A- | A- | A+ |
| ELA | 3 | 623663 | 12 | B-C | 2 | 7206 | 0.6429 | 0.1808 | 0.6303 | 0.0918 | 0.0774 | 0.019 | 0.0005 | 0.4923 | -0.2814 | 0.494 | -0.1969 | -0.2304 | -0.0798 | -0.0357 | -0.0745 | 0.0696 | -2.8191 | 0.9191 | -3.0491 | 0.8631 | A- | A- | A- |
| ELA | 3 | 623665 | 12 | B-C | 3 | 7255 | 0.6642 | 0.1585 | 0.1166 | 0.6556 | 0.0563 | 0.0125 | 0.0004 | 0.4025 | -0.1739 | -0.2001 | 0.4077 | -0.2443 | -0.0823 | -0.0262 | -0.2099 | 0.0705 | -0.939 | 0.9713 | -0.759 | 0.9613 | A- | A- | A- |
| ELA | 3 | 623667 | 12 | B-C | 2 | 7229 | 0.549 | 0.1559 | 0.2064 | 0.0812 | 0.54 | 0.0156 | 0.0008 | 0.4242 | -0.1644 | -0.2022 | -0.2208 | 0.4277 | -0.0879 | -0.0174 | 0.3881 | 0.0679 | -0.719 | 0.9802 | -0.569 | 0.9777 | A- | A- | A- |
| ELA | 3 | 623660 | 12 | B-K | 2 | 7167 | 0.695 | 0.6777 | 0.0974 | 0.125 | 0.075 | 0.0237 | 0.0012 | 0.5166 | 0.5155 | -0.2582 | -0.244 | -0.2645 | -0.086 | -0.0273 | -0.3309 | 0.0714 | -5.4692 | 0.8368 | -4.7692 | 0.7615 | A- | A- | A- |
| ELA | 3 | 623755 | 12 | B-K | 2 | 7178 | 0.3867 | 0.1253 | 0.155 | 0.3777 | 0.3186 | 0.023 | 0.0004 | 0.2529 | -0.2072 | -0.1162 | 0.2556 | -0.0078 | -0.0618 | -0.0184 | 1.2103 | 0.0697 | 4.0011 | 1.1217 | 5.5713 | 1.2719 | A- | A- | A- |
| ELA | 3 | 623666 | 12 | B-V | 3 | 7265 | 0.6339 | 0.6265 | 0.1412 | 0.114 | 0.1067 | 0.0102 | 0.0014 | 0.4813 | 0.4839 | -0.3183 | -0.1975 | -0.1689 | -0.0742 | -0.0235 | -0.0544 | 0.0695 | -2.0491 | 0.941 | -2.0791 | 0.9059 | A- | A+ | A+ |
| ELA | 3 | 630437 | 12 | B-V | 2 | 7277 | 0.7334 | 0.0797 | 0.7261 | 0.0516 | 0.1327 | 0.0094 | 0.0005 | 0.4694 | -0.2708 | 0.4712 | -0.2692 | -0.2078 | -0.0646 | -0.0233 | -0.6111 | 0.0742 | -3.8391 | 0.8715 | -3.8492 | 0.7708 | A- | B- | A- |
| ELA | 4 | 409583 | 0 | A-K | 2 | 86614 | 0.606 | 0.6007 | 0.1301 | 0.1256 | 0.1348 | 0.007 | 0.0019 | 0.5358 | 0.54 | -0.3184 | -0.2053 | -0.2292 | -0.1054 | -0.0524 | 0.0935 | 0.0171 | -8.8391 | 0.9377 | -9.1391 | 0.9001 | A- | A+ | A+ |
| ELA | 4 | 409585 | 0 | A-K | 2 | 86521 | 0.6239 | 0.1942 | 0.0709 | 0.1073 | 0.6177 | 0.0077 | 0.0023 | 0.5545 | -0.2496 | -0.2752 | -0.2925 | 0.5586 | -0.1074 | -0.0453 | 0.0865 | 0.0171 | -9.8991 | 0.9071 | -9.8991 | 0.8839 | A+ | A+ | A+ |
| ELA | 4 | 409587 | 0 | A-K | 2 | 86558 | 0.666 | 0.116 | 0.6596 | 0.1486 | 0.0662 | 0.0077 | 0.0018 | 0.4935 | -0.3069 | 0.4997 | -0.1603 | -0.2802 | -0.1055 | -0.0608 | -0.1246 | 0.0174 | -8.4491 | 0.9375 | -1.239 | 0.9846 | A- | A+ | A+ |
| ELA | 4 | 579107 | 0 | A-K | 2 | 86311 | 0.6608 | 0.6526 | 0.1884 | 0.0789 | 0.0677 | 0.011 | 0.0014 | 0.5432 | 0.5483 | -0.2543 | -0.307 | -0.2605 | -0.1127 | -0.0444 | -0.2875 | 0.0176 | -9.8091 | 0.9245 | -7.2591 | 0.9046 | A- | A+ | A- |
| ELA | 4 | 579110 | 0 | A-K | 2 | 86082 | 0.4023 | 0.3206 | 0.1988 | 0.3963 | 0.0694 | 0.0127 | 0.0023 | 0.4101 | -0.1092 | -0.1787 | 0.4134 | -0.2612 | -0.1101 | -0.0257 | 1.0027 | 0.0171 | 8.3311 | 1.0596 | 9.9012 | 1.1842 | A- | A+ | A+ |
| ELA | 4 | 579116 | 0 | A-K | 2 | 86132 | 0.6628 | 0.1061 | 0.1575 | 0.6532 | 0.0688 | 0.0127 | 0.0017 | 0.4917 | -0.3101 | -0.15 | 0.4979 | -0.2863 | -0.1114 | -0.0458 | -0.4458 | 0.0179 | 1.261 | 1.0104 | 4.4311 | 1.067 | A+ | A- | A+ |
| ELA | 4 | 409584 | 0 | A-V | 2 | 86727 | 0.6925 | 0.1269 | 0.0913 | 0.6873 | 0.087 | 0.0057 | 0.0019 | 0.5384 | -0.2752 | -0.2519 | 0.5437 | -0.2763 | -0.0996 | -0.0594 | -0.5355 | 0.0182 | -7.7091 | 0.9356 | -7.5191 | 0.8873 | A+ | A+ | A+ |
| ELA | 4 | 409588 | 0 | A-V | 2 | 86749 | 0.8409 | 0.8347 | 0.0556 | 0.0692 | 0.0331 | 0.0057 | 0.0016 | 0.5177 | 0.5255 | -0.2704 | -0.316 | -0.2409 | -0.1078 | -0.0443 | -1.3022 | 0.0208 | -9.8992 | 0.7601 | -9.8994 | 0.5881 | A- | A+ | A- |
| ELA | 4 | 409589 | 0 | A-V | 2 | 86562 | 0.6597 | 0.0866 | 0.6535 | 0.1396 | 0.1108 | 0.0082 | 0.0012 | 0.4086 | -0.3182 | 0.4147 | -0.1785 | -0.1146 | -0.091 | -0.0503 | -0.0635 | 0.0173 | 5.361 | 1.0404 | 9.6711 | 1.1217 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 4 | 409591 | 0 | A-V | 1 | 86664 | 0.8286 | 0.0537 | 0.0514 | 0.0648 | 0.8218 | 0.006 | 0.0023 | 0.4039 | -0.2511 | -0.211 | -0.1826 | 0.4152 | -0.1059 | -0.0535 | -1.2482 | 0.0206 | -9.3691 | 0.8975 | -1.379 | 0.9679 | A+ | A+ | A+ |
| ELA | 4 | 493325 | 0 | B-C | 3 | 86284 | 0.3497 | 0.3737 | 0.1512 | 0.1171 | 0.3453 | 0.0112 | 0.0015 | 0.2618 | 0.0901 | -0.1724 | -0.2938 | 0.268 | -0.1234 | -0.0469 | 0.9344 | 0.0171 | 9.9012 | 1.1856 | 9.9013 | 1.3475 | A+ | A- | A- |
| ELA | 4 | 493326 | 0 | B-C | 2 | 86297 | 0.6009 | 0.5934 | 0.1315 | 0.1255 | 0.1371 | 0.0108 | 0.0017 | 0.5267 | 0.5309 | -0.2492 | -0.2351 | -0.2476 | -0.1121 | -0.0461 | -0.1437 | 0.0174 | 0.291 | 1.0021 | -1.729 | 0.9783 | A- | A+ | A+ |
| ELA | 4 | 493328 | 0 | B-C | 3 | 86417 | 0.6878 | 0.6801 | 0.0834 | 0.0978 | 0.1276 | 0.0097 | 0.0014 | 0.5525 | 0.5589 | -0.2726 | -0.3016 | -0.2453 | -0.1229 | -0.0488 | -0.67 | 0.0185 | -4.989 | 0.956 | -7.0391 | 0.886 | A+ | A+ | A- |
| ELA | 4 | 579407 | 0 | B-C | 2 | 87019 | 0.5334 | 0.1999 | 0.5311 | 0.0824 | 0.1824 | 0.0034 | 0.0009 | 0.4362 | -0.2172 | 0.4379 | -0.2718 | -0.1365 | -0.0542 | -0.0381 | 0.4392 | 0.0169 | 6.511 | 1.0453 | 7.2111 | 1.0765 | A- | A- | A- |
| ELA | 4 | 579408 | 0 | B-C | 2 | 86549 | 0.3586 | 0.1832 | 0.1961 | 0.3552 | 0.2559 | 0.0074 | 0.0022 | 0.3548 | -0.1987 | -0.0992 | 0.3572 | -0.1061 | -0.0725 | -0.0465 | 1.3632 | 0.0177 | 9.9011 | 1.1385 | 9.9014 | 1.4255 | A- | A- | A- |
| ELA | 4 | 493332 | 0 | B-K | 2 | 86650 | 0.6935 | 0.0784 | 0.1273 | 0.0982 | 0.6876 | 0.0068 | 0.0017 | 0.5844 | -0.3041 | -0.2854 | -0.2853 | 0.5898 | -0.12 | -0.0417 | -0.8846 | 0.0192 | 3.591 | 1.0352 | -2.6791 | 0.9497 | A- | A- | A- |
| ELA | 4 | 579410 | 0 | B-K | 2 | 87026 | 0.661 | 0.1319 | 0.1247 | 0.6583 | 0.0809 | 0.0031 | 0.001 | 0.602 | -0.3791 | -0.2782 | 0.6031 | -0.2256 | -0.0541 | -0.0401 | -0.2469 | 0.0176 | -9.8992 | 0.8394 | -9.8992 | 0.7665 | A- | A- | A- |
| ELA | 4 | 579411 | 0 | B-K | 3 | 86381 | 0.662 | 0.1359 | 0.1119 | 0.6543 | 0.0863 | 0.01 | 0.0015 | 0.5229 | -0.2097 | -0.286 | 0.5244 | -0.2804 | -0.0717 | -0.0382 | -0.1003 | 0.0173 | -9.8991 | 0.9159 | -9.8991 | 0.8747 | A- | A- | A+ |
| ELA | 4 | 579412 | 0 | B-K | 2 | 86425 | 0.4062 | 0.148 | 0.2405 | 0.1987 | 0.4017 | 0.009 | 0.0021 | 0.3445 | -0.2502 | -0.0326 | -0.1477 | 0.3471 | -0.0693 | -0.041 | 1.0992 | 0.0172 | 9.9012 | 1.1649 | 9.9013 | 1.3379 | A- | A+ | A+ |
| ELA | 4 | 493327 | 0 | B-V | 2 | 86542 | 0.7095 | 0.1139 | 0.0683 | 0.7026 | 0.1054 | 0.0086 | 0.0011 | 0.5358 | -0.2997 | -0.2585 | 0.5418 | -0.2451 | -0.1122 | -0.0477 | -0.8526 | 0.0191 | 1.141 | 1.011 | 0.831 | 1.0156 | A- | A+ | A- |
| ELA | 4 | 493333 | 0 | B-V | 2 | 86519 | 0.7375 | 0.1135 | 0.7301 | 0.077 | 0.0695 | 0.0085 | 0.0014 | 0.5302 | -0.2443 | 0.5387 | -0.2426 | -0.3275 | -0.1273 | -0.053 | -0.8334 | 0.019 | -7.6091 | 0.9294 | -7.6591 | 0.8647 | A- | A+ | A- |
| ELA | 4 | 493334 | 0 | B-V | 1 | 86611 | 0.5398 | 0.3018 | 0.535 | 0.08 | 0.0743 | 0.0073 | 0.0016 | 0.2197 | 0.0254 | 0.2285 | -0.188 | -0.2406 | -0.1151 | -0.0426 | 0.2754 | 0.017 | 9.9013 | 1.3289 | 9.9015 | 1.5048 | A- | A- | A- |
| ELA | 4 | 579405 | 0 | B-V | 2 | 86554 | 0.7887 | 0.7812 | 0.058 | 0.0537 | 0.0976 | 0.0069 | 0.0026 | 0.5069 | 0.5111 | -0.2719 | -0.3047 | -0.2358 | -0.0844 | -0.0412 | -1.1365 | 0.0201 | -7.8091 | 0.9181 | -8.4392 | 0.8257 | A- | A- | A- |
| ELA | 4 | 504068 | 0 | D | 2 | 86922 | 0.6214 | 0.0969 | 0.1987 | 0.081 | 0.6181 | 0.0032 | 0.0022 | 0.4001 | -0.2074 | -0.1836 | -0.206 | 0.4026 | -0.0569 | -0.0339 | -0.0349 | 0.0172 | 9.9011 | 1.0835 | 9.6311 | 1.1194 | A+ | A+ | A+ |
| ELA | 4 | 504071 | 0 | D | 2 | 86630 | 0.5897 | 0.1842 | 0.145 | 0.5845 | 0.0775 | 0.0065 | 0.0022 | 0.459 | -0.217 | -0.2182 | 0.463 | -0.2175 | -0.0855 | -0.047 | 0.0395 | 0.0172 | 6.9611 | 1.0515 | 5.2711 | 1.0621 | A- | A+ | A+ |
| ELA | 4 | 504085 | 0 | D | 2 | 86889 | 0.5872 | 0.5839 | 0.1873 | 0.1296 | 0.0935 | 0.0038 | 0.0019 | 0.4455 | 0.4483 | -0.1467 | -0.2529 | -0.2501 | -0.0665 | -0.0443 | 0.0741 | 0.0171 | 5.061 | 1.037 | 3.191 | 1.0367 | A+ | A- | A- |
| ELA | 4 | 504087 | 0 | D | 1 | 86934 | 0.845 | 0.0456 | 0.0693 | 0.8406 | 0.0393 | 0.0039 | 0.0014 | 0.5079 | -0.2858 | -0.3037 | 0.5112 | -0.2302 | -0.065 | -0.0435 | -1.4292 | 0.0214 | -9.8992 | 0.7718 | -9.8994 | 0.6168 | A+ | A+ | A+ |
| ELA | 4 | 581064 | 0 | D | 2 | 86524 | 0.4854 | 0.1936 | 0.4806 | 0.1847 | 0.1313 | 0.0078 | 0.0021 | 0.416 | -0.1908 | 0.4196 | -0.1466 | -0.2001 | -0.0871 | -0.0462 | 0.6524 | 0.0169 | 9.9011 | 1.0765 | 9.9011 | 1.1197 | A- | A- | A- |
| ELA | 4 | 581066 | 0 | D | 2 | 86595 | 0.5426 | 0.5377 | 0.188 | 0.075 | 0.1902 | 0.0067 | 0.0024 | 0.4301 | 0.4345 | -0.229 | -0.2637 | -0.1219 | -0.0924 | -0.0468 | 0.5729 | 0.0169 | 7.4411 | 1.0515 | 9.5411 | 1.1016 | A+ | A+ | A+ |
| ELA | 4 | 581095 | 0 | D | 2 | 86800 | 0.6828 | 0.1158 | 0.6782 | 0.1328 | 0.0664 | 0.0052 | 0.0016 | 0.4891 | -0.2674 | 0.4931 | -0.2433 | -0.2198 | -0.0756 | -0.0521 | -0.2741 | 0.0176 | -9.2891 | 0.9286 | -8.3691 | 0.8913 | A+ | A- | A- |
| ELA | 4 | 581097 | 0 | D | 2 | 86869 | 0.4062 | 0.3917 | 0.4037 | 0.0476 | 0.1509 | 0.0037 | 0.0022 | 0.2961 | -0.0617 | 0.2987 | -0.2285 | -0.173 | -0.0607 | -0.0455 | 1.0636 | 0.0172 | 9.9012 | 1.2169 | 9.9014 | 1.4127 | A- | A- | A- |
| ELA | 4 | 581099 | 0 | D | 2 | 86596 | 0.795 | 0.0851 | 0.0431 | 0.0749 | 0.7878 | 0.0061 | 0.003 | 0.5037 | -0.2466 | -0.2591 | -0.2936 | 0.5089 | -0.0839 | -0.0518 | -0.6838 | 0.0185 | -9.8992 | 0.78 | -9.8993 | 0.7145 | A+ | A- | A- |
| ELA | 4 | 658459 | 1 | A-C | 2 | 7256 | 0.622 | 0.0972 | 0.618 | 0.0759 | 0.2025 | 0.0055 | 0.001 | 0.4243 | -0.2583 | 0.4262 | -0.2502 | -0.1487 | -0.053 | -0.0218 | -0.1509 | 0.0598 | 2.2911 | 1.0597 | 2.1911 | 1.0953 | A+ | A+ | A+ |
| ELA | 4 | 658460 | 1 | A-K | 2 | 7282 | 0.7278 | 0.1332 | 0.0885 | 0.0497 | 0.7257 | 0.0023 | 0.0005 | 0.5222 | -0.3107 | -0.246 | -0.2503 | 0.525 | -0.0688 | -0.0468 | -0.6709 | 0.0628 | -4.9791 | 0.8619 | -4.2492 | 0.7796 | A- | A- | A- |
| ELA | 4 | 658461 | 1 | A-K | 2 | 7261 | 0.2343 | 0.5281 | 0.1402 | 0.2329 | 0.093 | 0.0038 | 0.0019 | 0.1622 | 0.1638 | -0.1946 | 0.1647 | -0.2662 | -0.0704 | -0.0491 | 1.7062 | 0.0657 | 5.4812 | 1.1872 | 9.9018 | 1.7827 | A+ | A- | A- |
| ELA | 4 | 658462 | 1 | A-K | 3 | 7219 | 0.4754 | 0.2311 | 0.1361 | 0.1513 | 0.4699 | 0.0101 | 0.0014 | 0.361 | -0.1228 | -0.2184 | -0.1316 | 0.3632 | -0.0562 | -0.048 | 0.5036 | 0.0589 | 5.7211 | 1.1461 | 6.0912 | 1.241 | A+ | A- | A- |
| ELA | 4 | 658464 | 1 | A-K | 2 | 7221 | 0.3842 | 0.3798 | 0.2284 | 0.113 | 0.2676 | 0.0103 | 0.001 | 0.1624 | 0.1649 | 0.0738 | -0.2849 | -0.035 | -0.0392 | -0.0443 | 1.0031 | 0.0603 | 9.9014 | 1.3997 | 9.9017 | 1.6529 | A- | A+ | A+ |
| ELA | 4 | 658465 | 1 | A-K | 2 | 7237 | 0.2848 | 0.2295 | 0.3612 | 0.2822 | 0.118 | 0.0058 | 0.0033 | 0.1091 | -0.0839 | 0.1044 | 0.1139 | -0.1763 | -0.0723 | -0.0657 | 1.6248 | 0.0649 | 8.5613 | 1.2914 | 9.9018 | 1.8311 | A- | A- | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 4 | 658467 | 1 | A-V | 2 | 7233 | 0.5534 | 0.1568 | 0.1017 | 0.5481 | 0.1838 | 0.0077 | 0.0019 | 0.4001 | -0.0869 | -0.223 | 0.4045 | -0.2411 | -0.0813 | -0.0418 | 0.1983 | 0.059 | 0.611 | 1.0149 | 2.0011 | 1.0768 | A+ | A- | A- |
| ELA | 4 | 660446 | 1 | A-V | 2 | 7246 | 0.7448 | 0.739 | 0.0716 | 0.0802 | 0.1013 | 0.0055 | 0.0023 | 0.4965 | 0.5005 | -0.2827 | -0.2876 | -0.2013 | -0.0764 | -0.0493 | -0.8645 | 0.0645 | -2.9991 | 0.9097 | -1.7191 | 0.8948 | A- | A+ | A- |
| ELA | 4 | 624726 | 1 | B-C | 3 | 43417 | 0.7041 | 0.0905 | 0.1169 | 0.7001 | 0.0868 | 0.0046 | 0.001 | 0.4024 | -0.2865 | -0.3039 | 0.4061 | -0.0029 | -0.0629 | -0.0363 | -0.5519 | 0.0257 | 2.401 | 1.0292 | 7.2112 | 1.1684 | A+ | A- | A+ |
| ELA | 4 | 624721 | 1 | B-K | 2 | 43378 | 0.5777 | 0.5739 | 0.1427 | 0.1751 | 0.1018 | 0.0058 | 0.0007 | 0.3846 | 0.3864 | -0.1918 | -0.1101 | -0.2566 | -0.0503 | -0.0277 | 0.1599 | 0.0242 | 5.3011 | 1.0548 | 6.0311 | 1.0976 | A+ | A- | A- |
| ELA | 4 | 624723 | 1 | B-K | 2 | 43500 | 0.6808 | 0.1243 | 0.111 | 0.0828 | 0.6783 | 0.0032 | 0.0005 | 0.5348 | -0.2953 | -0.2685 | -0.2363 | 0.536 | -0.0472 | -0.0375 | -0.3984 | 0.0253 | -9.8991 | 0.8713 | -9.8992 | 0.794 | A- | A- | A- |
| ELA | 4 | 624727 | 1 | B-K | 2 | 43387 | 0.7471 | 0.0834 | 0.7424 | 0.0746 | 0.0933 | 0.0044 | 0.0019 | 0.5075 | -0.2907 | 0.5104 | -0.2267 | -0.2652 | -0.0648 | -0.0424 | -0.6926 | 0.0262 | -9.8991 | 0.8686 | -9.3492 | 0.7915 | A+ | A- | A+ |
| ELA | 4 | 624718 | 1 | B-V | 2 | 43257 | 0.6488 | 0.0913 | 0.0602 | 0.1964 | 0.6428 | 0.0061 | 0.0031 | 0.4374 | -0.3299 | -0.1887 | -0.1597 | 0.4415 | -0.0765 | -0.0389 | -0.3338 | 0.0251 | -0.239 | 0.9972 | 1.311 | 1.0258 | A+ | A- | A- |
| ELA | 4 | 632344 | 1 | B-V | 2 | 43315 | 0.7728 | 0.7667 | 0.0843 | 0.0887 | 0.0524 | 0.0052 | 0.0027 | 0.4964 | 0.5009 | -0.1991 | -0.2938 | -0.2917 | -0.0675 | -0.0606 | -1.0339 | 0.0278 | -8.0391 | 0.8882 | -6.3492 | 0.8254 | A- | A+ | A+ |
| ELA | 4 | 629444 | 1 | D | 1 | 14452 | 0.7961 | 0.7899 | 0.1152 | 0.0455 | 0.0416 | 0.0043 | 0.0035 | 0.4465 | 0.4465 | -0.2641 | -0.2306 | -0.2242 | -0.061 | -0.0132 | -1.2041 | 0.0491 | -2.7391 | 0.9299 | -2.8491 | 0.8529 | A+ | B+ | B+ |
| ELA | 4 | 662664 | 1 | D | 2 | 7226 | 0.7931 | 0.1043 | 0.7847 | 0.0393 | 0.0611 | 0.0092 | 0.0014 | 0.4565 | -0.3079 | 0.4601 | -0.2042 | -0.1949 | -0.0748 | -0.0404 | -1.3155 | 0.0699 | -2.8091 | 0.8987 | -2.0092 | 0.8443 | A+ | A+ | A- |
| ELA | 4 | 662733 | 1 | D | 2 | 7272 | 0.5784 | 0.1417 | 0.1441 | 0.1341 | 0.5759 | 0.0031 | 0.0011 | 0.4155 | -0.1661 | -0.2082 | -0.2105 | 0.4167 | -0.0472 | -0.0167 | 0.0954 | 0.0591 | 1.021 | 1.0253 | 1.6211 | 1.0636 | A- | A- | A- |
| ELA | 4 | 658489 | 2 | A-C | 2 | 7169 | 0.4928 | 0.4868 | 0.1977 | 0.1131 | 0.1902 | 0.0105 | 0.0017 | 0.2822 | 0.2875 | -0.1585 | -0.2493 | 0.0211 | -0.0741 | -0.0577 | 0.5123 | 0.0585 | 7.9212 | 1.1972 | 9.9014 | 1.4227 | A+ | A+ | A+ |
| ELA | 4 | 658490 | 2 | A-K | 2 | 7226 | 0.6366 | 0.1436 | 0.0813 | 0.137 | 0.6339 | 0.0033 | 0.001 | 0.5126 | -0.302 | -0.2564 | -0.1965 | 0.5133 | -0.0306 | -0.0641 | -0.1647 | 0.0603 | -3.1891 | 0.9181 | -2.5191 | 0.8913 | A+ | A+ | A+ |
| ELA | 4 | 658493 | 2 | A-K | 3 | 7088 | 0.321 | 0.2421 | 0.1957 | 0.2254 | 0.3135 | 0.0218 | 0.0015 | 0.2206 | -0.0557 | -0.1144 | -0.0533 | 0.2246 | -0.0737 | -0.0489 | 1.5585 | 0.0626 | 3.5311 | 1.1044 | 7.5914 | 1.4453 | A+ | A+ | A+ |
| ELA | 4 | 658494 | 2 | A-K | 2 | 7151 | 0.634 | 0.0699 | 0.1463 | 0.1444 | 0.6248 | 0.0116 | 0.003 | 0.4583 | -0.2564 | -0.2561 | -0.1647 | 0.4585 | -0.0576 | -0.0384 | -0.1752 | 0.0604 | -1.169 | 0.9692 | -1.4191 | 0.9372 | A+ | A- | A- |
| ELA | 4 | 658495 | 2 | A-K | 2 | 7203 | 0.6314 | 0.6267 | 0.1615 | 0.0879 | 0.1164 | 0.0055 | 0.0019 | 0.3811 | 0.3831 | -0.1556 | -0.2449 | -0.1659 | -0.0565 | -0.0297 | -0.0954 | 0.06 | 1.771 | 1.0462 | 2.4911 | 1.1101 | A- | A+ | A+ |
| ELA | 4 | 658496 | 2 | A-K | 3 | 7195 | 0.3356 | 0.2462 | 0.3328 | 0.2147 | 0.1977 | 0.0062 | 0.0023 | 0.1904 | -0.1261 | 0.1935 | -0.0221 | -0.0525 | -0.0556 | -0.0518 | 1.2163 | 0.0603 | 8.5512 | 1.2341 | 9.3415 | 1.4567 | A+ | A- | A+ |
| ELA | 4 | 658498 | 2 | A-V | 3 | 7179 | 0.32 | 0.2141 | 0.1579 | 0.3165 | 0.3007 | 0.0098 | 0.001 | 0.1634 | -0.0623 | -0.2677 | 0.1671 | 0.1164 | -0.0694 | -0.0337 | 1.4285 | 0.0616 | 8.3212 | 1.2444 | 9.9016 | 1.6088 | A+ | A+ | A- |
| ELA | 4 | 660480 | 2 | A-V | 2 | 7220 | 0.8047 | 0.0791 | 0.8006 | 0.0733 | 0.0419 | 0.0037 | 0.0014 | 0.4415 | -0.1726 | 0.4433 | -0.2933 | -0.2492 | -0.0464 | -0.0355 | -1.3208 | 0.0725 | -3.4191 | 0.867 | -3.1992 | 0.7528 | A+ | A+ | A+ |
| ELA | 4 | 629445 | 2 | D | 1 | 7214 | 0.5674 | 0.0661 | 0.564 | 0.2795 | 0.0845 | 0.0037 | 0.0022 | 0.3281 | -0.2675 | 0.3327 | -0.08 | -0.2006 | -0.0715 | -0.0528 | 0.0827 | 0.0592 | 7.0412 | 1.1849 | 6.6613 | 1.2869 | A+ | A+ | A+ |
| ELA | 4 | 662665 | 2 | D | 2 | 7156 | 0.7406 | 0.0754 | 0.7303 | 0.1021 | 0.0783 | 0.0125 | 0.0014 | 0.5221 | -0.2753 | 0.5233 | -0.2566 | -0.2649 | -0.0778 | -0.055 | -1.0232 | 0.0681 | -3.9691 | 0.8647 | -4.3593 | 0.72 | A+ | A+ | A+ |
| ELA | 4 | 662789 | 2 | D | 2 | 7206 | 0.7677 | 0.0562 | 0.0674 | 0.7623 | 0.1071 | 0.0061 | 0.001 | 0.4619 | -0.2561 | -0.2105 | 0.4641 | -0.2589 | -0.0514 | -0.0566 | -1.2304 | 0.071 | -0.229 | 0.9905 | -0.8291 | 0.9331 | A+ | A- | A- |
| ELA | 4 | 660255 | 3 | A-C | 3 | 7218 | 0.435 | 0.121 | 0.2342 | 0.4301 | 0.2034 | 0.0093 | 0.0019 | 0.2511 | -0.2448 | -0.0333 | 0.2558 | -0.0584 | -0.0703 | -0.056 | 0.8228 | 0.0588 | 7.1812 | 1.1826 | 7.9613 | 1.3129 | A- | A- | A+ |
| ELA | 4 | 660256 | 3 | A-K | 2 | 7238 | 0.4388 | 0.2799 | 0.197 | 0.0796 | 0.4351 | 0.0067 | 0.0018 | 0.3752 | -0.13 | -0.151 | -0.2261 | 0.3781 | -0.0647 | -0.0607 | 0.8952 | 0.0589 | 5.0111 | 1.1261 | 6.5813 | 1.2602 | A- | A- | A- |
| ELA | 4 | 660257 | 3 | A-K | 3 | 7237 | 0.6821 | 0.1282 | 0.6762 | 0.1256 | 0.0614 | 0.0066 | 0.0021 | 0.4688 | -0.2832 | 0.4736 | -0.1876 | -0.2336 | -0.0793 | -0.05 | -0.3058 | 0.0611 | -4.3391 | 0.8867 | -3.7892 | 0.8311 | A- | A- | A- |
| ELA | 4 | 660260 | 3 | A-K | 3 | 7147 | 0.5528 | 0.161 | 0.5412 | 0.1381 | 0.1388 | 0.0195 | 0.0015 | 0.3877 | -0.1365 | 0.3866 | -0.2094 | -0.1798 | -0.0456 | -0.0452 | 0.2125 | 0.0589 | 3.0811 | 1.0767 | 3.8611 | 1.1487 | A+ | A+ | A+ |
| ELA | 4 | 660261 | 3 | A-K | 2 | 7209 | 0.453 | 0.4474 | 0.0977 | 0.3656 | 0.0768 | 0.0099 | 0.0026 | 0.2868 | 0.2902 | -0.1932 | -0.01 | -0.2765 | -0.0729 | -0.0255 | 0.7899 | 0.0587 | 4.7011 | 1.1167 | 6.7113 | 1.2577 | A- | A- | A- |
| ELA | 4 | 660262 | 3 | A-K | 3 | 7260 | 0.5687 | 0.5656 | 0.1029 | 0.2786 | 0.0474 | 0.0045 | 0.001 | 0.2147 | 0.2187 | -0.2013 | -0.0059 | -0.186 | -0.0568 | -0.041 | 0.3438 | 0.0586 | 7.8912 | 1.2017 | 7.4313 | 1.2871 | A+ | A+ | A- |
| ELA | 4 | 660264 | 3 | A-V | 3 | 7256 | 0.497 | 0.494 | 0.356 | 0.0789 | 0.0651 | 0.0052 | 0.0008 | 0.267 | 0.2705 | 0.0147 | -0.232 | -0.3002 | -0.071 | -0.0201 | 0.512 | 0.0585 | 9.5412 | 1.2445 | 8.8813 | 1.3399 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H | |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|--------|-----|-----|----|
| ELA | 4 | 662026 | 3 | A-V | 2 | 7191 | 0.6671 | 0.1129 | 0.6571 | 0.1608 | 0.0542 | 0.0136 | 0.0014 | 0.4407 | -0.1966 | 0.4422 | -0.213 | -0.2666 | -0.0673 | -0.0332 | -0.3472 | 0.0614 | -0.459 | 0.9871 | 0.811 | 1.0389 | 1.1814 | A- | A+ | A+ |
| ELA | 4 | 629446 | 3 | D | 1 | 7255 | 0.6699 | 0.0611 | 0.0964 | 0.6658 | 0.1705 | 0.0036 | 0.0026 | 0.4758 | -0.2684 | -0.2612 | 0.4764 | -0.211 | -0.0436 | -0.0268 | -0.503 | 0.0626 | -1.369 | 0.9607 | -0.629 | 0.9662 | 1.1814 | A- | A- | A- |
| ELA | 4 | 662666 | 3 | D | 2 | 7214 | 0.7075 | 0.2193 | 0.6992 | 0.0363 | 0.0334 | 0.0107 | 0.0011 | 0.3823 | -0.1907 | 0.3879 | -0.2428 | -0.2424 | -0.0786 | -0.0582 | -0.6778 | 0.0641 | 1.7211 | 1.0532 | 2.9512 | 1.1814 | A+ | A- | A+ | |
| ELA | 4 | 662790 | 3 | D | 2 | 7256 | 0.5641 | 0.2449 | 0.1421 | 0.0463 | 0.5607 | 0.0055 | 0.0005 | 0.3666 | -0.1471 | -0.1966 | -0.2192 | 0.3695 | -0.072 | -0.0058 | 0.125 | 0.0591 | 3.9011 | 1.0992 | 3.5111 | 1.139 | A+ | A- | A- | |
| ELA | 4 | 661062 | 4 | A-C | 3 | 7184 | 0.7073 | 0.1179 | 0.6997 | 0.1086 | 0.0631 | 0.0095 | 0.0012 | 0.4176 | -0.2167 | 0.423 | -0.1975 | -0.2186 | -0.0901 | -0.0193 | -0.5753 | 0.0633 | -1.319 | 0.9604 | -1.7091 | 0.9103 | A- | A+ | A+ | |
| ELA | 4 | 661066 | 4 | A-K | 2 | 7215 | 0.6416 | 0.0991 | 0.1293 | 0.6374 | 0.1277 | 0.0051 | 0.0014 | 0.5307 | -0.337 | -0.2098 | 0.5329 | -0.2357 | -0.0773 | -0.0245 | -0.223 | 0.0607 | -3.9091 | 0.8976 | -3.5592 | 0.8497 | A+ | A- | A- | |
| ELA | 4 | 661070 | 4 | A-K | 2 | 7215 | 0.6894 | 0.0938 | 0.0567 | 0.6849 | 0.1581 | 0.0055 | 0.001 | 0.4219 | -0.2633 | -0.2472 | 0.4249 | -0.1586 | -0.073 | -0.0074 | -0.4892 | 0.0626 | 2.1511 | 1.0641 | 0.881 | 1.0448 | A+ | A- | A- | |
| ELA | 4 | 661074 | 4 | A-K | 2 | 7117 | 0.3969 | 0.1818 | 0.241 | 0.389 | 0.1683 | 0.0183 | 0.0017 | 0.232 | -0.2348 | 0.0112 | 0.2355 | -0.0494 | -0.0648 | -0.0457 | 1.0611 | 0.0595 | 5.4111 | 1.1369 | 9.9015 | 1.4731 | A+ | A+ | A+ | |
| ELA | 4 | 661078 | 4 | A-K | 3 | 7196 | 0.5743 | 0.0738 | 0.2451 | 0.5691 | 0.1029 | 0.0073 | 0.0018 | 0.3959 | -0.2844 | -0.0902 | 0.4004 | -0.2509 | -0.0809 | -0.0478 | 0.1386 | 0.0591 | 1.411 | 1.0351 | 1.3711 | 1.0526 | A+ | A+ | A+ | |
| ELA | 4 | 661079 | 4 | A-V | 2 | 7194 | 0.48 | 0.1581 | 0.179 | 0.1781 | 0.4755 | 0.0085 | 0.0008 | 0.2661 | -0.0359 | -0.1605 | -0.1371 | 0.2703 | -0.0796 | -0.0211 | 0.616 | 0.0585 | 8.2612 | 1.2062 | 7.9913 | 1.3211 | A- | A+ | A- | |
| ELA | 4 | 661081 | 4 | A-V | 2 | 7227 | 0.1692 | 0.2159 | 0.512 | 0.1684 | 0.0989 | 0.0036 | 0.0012 | 0.0575 | -0.1125 | 0.1934 | 0.0598 | -0.2242 | -0.073 | -0.0429 | 2.448 | 0.0742 | 4.9612 | 1.2293 | 9.9022 | 2.1693 | A- | A- | A- | |
| ELA | 4 | 663256 | 4 | A-V | 2 | 7217 | 0.746 | 0.1071 | 0.0982 | 0.7414 | 0.0471 | 0.0048 | 0.0014 | 0.5418 | -0.2876 | -0.3483 | 0.5476 | -0.1825 | -0.101 | -0.0419 | -0.8314 | 0.0658 | -4.5891 | 0.8548 | -4.1592 | 0.7615 | A- | B+ | A+ | |
| ELA | 4 | 662727 | 4 | D | 1 | 7215 | 0.935 | 0.9289 | 0.0201 | 0.0197 | 0.0248 | 0.0059 | 0.0006 | 0.2934 | 0.3045 | -0.1834 | -0.1722 | -0.1381 | -0.0822 | -0.0343 | -2.5809 | 0.1048 | -1.9991 | 0.8505 | -1.8993 | 0.7214 | A+ | A+ | A- | |
| ELA | 4 | 662791 | 4 | D | 2 | 7199 | 0.841 | 0.0547 | 0.0435 | 0.8337 | 0.0595 | 0.0076 | 0.0011 | 0.4891 | -0.2643 | -0.2357 | 0.4853 | -0.2867 | -0.0432 | -0.0302 | -1.5011 | 0.0756 | -3.3991 | 0.8564 | -3.6493 | 0.7022 | A+ | A- | A+ | |
| ELA | 4 | 661061 | 5 | A-C | 3 | 7167 | 0.2814 | 0.2358 | 0.1763 | 0.3001 | 0.2789 | 0.008 | 0.0008 | 0.1699 | -0.1149 | -0.1449 | 0.0716 | 0.1724 | -0.0611 | -0.023 | 1.6564 | 0.0634 | 7.8312 | 1.2452 | 9.9017 | 1.7315 | A+ | A+ | A+ | |
| ELA | 4 | 661065 | 5 | A-K | 3 | 7186 | 0.5775 | 0.1261 | 0.1925 | 0.5739 | 0.1012 | 0.0048 | 0.0014 | 0.3633 | -0.2363 | -0.0663 | 0.3667 | -0.2353 | -0.0705 | -0.0228 | 0.093 | 0.0596 | 3.8111 | 1.1013 | 4.5312 | 1.1898 | A- | A- | A+ | |
| ELA | 4 | 661067 | 5 | A-K | 3 | 7150 | 0.2835 | 0.2362 | 0.1841 | 0.2803 | 0.2882 | 0.0098 | 0.0014 | 0.187 | -0.1515 | -0.058 | 0.1914 | 0.0251 | -0.0988 | -0.0214 | 1.648 | 0.0634 | 6.2612 | 1.1926 | 9.9017 | 1.6864 | A+ | A+ | A+ | |
| ELA | 4 | 661071 | 5 | A-K | 2 | 7150 | 0.4007 | 0.1597 | 0.1762 | 0.2567 | 0.3962 | 0.0082 | 0.003 | 0.2784 | -0.1817 | -0.189 | 0.0217 | 0.2821 | -0.0737 | -0.0414 | 1.0014 | 0.0595 | 7.7312 | 1.2029 | 8.2914 | 1.3649 | A+ | A- | A- | |
| ELA | 4 | 661075 | 5 | A-K | 2 | 7154 | 0.7174 | 0.7097 | 0.0898 | 0.0938 | 0.0961 | 0.0068 | 0.0039 | 0.5227 | 0.5247 | -0.2983 | -0.2199 | -0.2715 | -0.0903 | -0.0217 | -0.6505 | 0.0641 | -4.2091 | 0.8755 | -3.4092 | 0.8124 | A+ | A+ | A+ | |
| ELA | 4 | 661077 | 5 | A-K | 2 | 7137 | 0.3909 | 0.1512 | 0.1353 | 0.3148 | 0.3858 | 0.0119 | 0.0011 | 0.215 | -0.2416 | -0.1918 | 0.1179 | 0.2196 | -0.0775 | -0.034 | 1.056 | 0.0597 | 9.8513 | 1.2649 | 9.3314 | 1.4268 | A+ | A+ | A+ | |
| ELA | 4 | 661073 | 5 | A-V | 2 | 7157 | 0.6965 | 0.16 | 0.6894 | 0.0839 | 0.0564 | 0.0087 | 0.0015 | 0.4763 | -0.2574 | 0.4813 | -0.2683 | -0.1902 | -0.0911 | -0.041 | -0.5314 | 0.0631 | -0.989 | 0.9705 | -0.489 | 0.9727 | A+ | A+ | A+ | |
| ELA | 4 | 663154 | 5 | A-V | 2 | 7204 | 0.3083 | 0.1065 | 0.3071 | 0.3334 | 0.2492 | 0.003 | 0.0007 | 0.1948 | -0.3108 | 0.1966 | -0.0565 | 0.0828 | -0.0535 | -0.04 | 1.4893 | 0.0621 | 8.1012 | 1.2388 | 9.9016 | 1.6384 | A+ | A- | A+ | |
| ELA | 4 | 629453 | 5 | D | 1 | 14440 | 0.5298 | 0.1525 | 0.1783 | 0.1362 | 0.5262 | 0.0039 | 0.0029 | 0.2809 | -0.1935 | -0.1009 | -0.0812 | 0.2845 | -0.0659 | -0.0345 | 0.3541 | 0.0417 | 9.9012 | 1.186 | 9.9013 | 1.2932 | A- | A- | A- | |
| ELA | 4 | 662728 | 5 | D | 2 | 7135 | 0.5846 | 0.0945 | 0.5768 | 0.1719 | 0.1435 | 0.0119 | 0.0014 | 0.4316 | -0.2101 | 0.4325 | -0.236 | -0.1578 | -0.0594 | -0.0373 | 0.078 | 0.0596 | 0.081 | 1.0018 | -0.089 | 0.9957 | 0.9957 | A- | B- | A- |
| ELA | 4 | 662792 | 5 | D | 2 | 14445 | 0.5665 | 0.1248 | 0.5628 | 0.1848 | 0.1211 | 0.0057 | 0.0008 | 0.3637 | -0.164 | 0.3653 | -0.1707 | -0.1729 | -0.0449 | -0.0334 | 0.1662 | 0.042 | 5.0911 | 1.0944 | 4.5711 | 1.1321 | A+ | A- | A- | |
| ELA | 4 | 622442 | 6 | A-K | 2 | 43454 | 0.6884 | 0.1216 | 0.684 | 0.1088 | 0.0792 | 0.0056 | 0.0007 | 0.497 | -0.2257 | 0.4976 | -0.2503 | -0.2777 | -0.05 | -0.0331 | -0.4556 | 0.0254 | -7.0091 | 0.9198 | -7.7492 | 0.8453 | A+ | A- | A+ | |
| ELA | 4 | 622443 | 6 | A-K | 2 | 43449 | 0.552 | 0.2043 | 0.0713 | 0.5484 | 0.1695 | 0.0041 | 0.0023 | 0.327 | -0.2237 | -0.2219 | 0.3302 | -0.0298 | -0.0598 | -0.0418 | 0.2662 | 0.0239 | 9.9011 | 1.1269 | 9.9012 | 1.1856 | A- | A- | A- | |
| ELA | 4 | 622445 | 6 | A-K | 2 | 43445 | 0.7927 | 0.133 | 0.0463 | 0.7876 | 0.0267 | 0.0048 | 0.0017 | 0.4791 | -0.3249 | -0.2356 | 0.4842 | -0.1911 | -0.0773 | -0.0509 | -1.109 | 0.0283 | -7.7191 | 0.887 | -8.5292 | 0.7603 | A+ | A- | A- | |
| ELA | 4 | 622448 | 6 | A-K | 2 | 43559 | 0.734 | 0.0604 | 0.0708 | 0.1337 | 0.7312 | 0.0033 | 0.0006 | 0.4277 | -0.2876 | -0.2315 | -0.1725 | 0.4312 | -0.065 | -0.0349 | -0.7356 | 0.0265 | -2.979 | 0.9616 | 0.321 | 1.0077 | A+ | A- | A- | |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 4 | 622441 | 6 | A-V | 2 | 43434 | 0.8113 | 0.0368 | 0.8059 | 0.069 | 0.0815 | 0.0046 | 0.0022 | 0.2881 | -0.2228 | 0.2973 | -0.1896 | -0.0733 | -0.0785 | -0.0478 | -1.2429 | 0.0291 | 1.791 | 1.0291 | 9.9014 | 1.3959 | A+ | A+ | A- |
| ELA | 4 | 622444 | 6 | A-V | 2 | 43527 | 0.6158 | 0.613 | 0.1643 | 0.1678 | 0.0504 | 0.0038 | 0.0008 | 0.234 | 0.2387 | -0.0814 | -0.1229 | -0.1589 | -0.0706 | -0.0385 | -0.0671 | 0.0244 | 9.9012 | 1.2137 | 9.9014 | 1.434 | A- | A+ | A+ |
| ELA | 4 | 663144 | 6 | B-C | 2 | 7153 | 0.4503 | 0.1222 | 0.4446 | 0.2972 | 0.1234 | 0.0117 | 0.001 | 0.2589 | -0.2634 | 0.2648 | 0.054 | -0.1779 | -0.0942 | -0.0437 | 0.7815 | 0.0587 | 7.2712 | 1.1817 | 7.3313 | 1.3027 | A+ | A- | A- |
| ELA | 4 | 663146 | 6 | B-C | 2 | 7210 | 0.705 | 0.1052 | 0.0792 | 0.1092 | 0.7016 | 0.0036 | 0.0012 | 0.6004 | -0.3074 | -0.285 | -0.3147 | 0.6029 | -0.0724 | -0.059 | -0.5768 | 0.0633 | -7.6792 | 0.7871 | -6.7293 | 0.6576 | A+ | A- | A+ |
| ELA | 4 | 663147 | 6 | B-C | 3 | 7163 | 0.1861 | 0.0751 | 0.0838 | 0.184 | 0.6458 | 0.0098 | 0.0015 | -0.0715 | -0.2803 | -0.2266 | -0.0659 | 0.3594 | -0.085 | -0.0333 | 2.3321 | 0.0722 | 8.2614 | 1.3759 | 9.9027 | 2.6953 | A+ | A+ | A+ |
| ELA | 4 | 663148 | 6 | B-K | 3 | 7225 | 0.6983 | 0.1008 | 0.1346 | 0.0656 | 0.6963 | 0.0018 | 0.001 | 0.5569 | -0.301 | -0.29 | -0.2587 | 0.5582 | -0.043 | -0.0403 | -0.546 | 0.063 | -5.6492 | 0.8417 | -4.6992 | 0.7546 | A+ | A+ | A+ |
| ELA | 4 | 663149 | 6 | B-K | 2 | 7165 | 0.4535 | 0.2482 | 0.1852 | 0.4484 | 0.1071 | 0.0088 | 0.0022 | 0.4168 | -0.1471 | -0.1579 | 0.4229 | -0.2277 | -0.1347 | -0.0509 | 0.7617 | 0.0587 | 1.971 | 1.047 | 3.0711 | 1.1193 | A- | B- | A- |
| ELA | 4 | 663152 | 6 | B-K | 3 | 7196 | 0.3777 | 0.191 | 0.2617 | 0.3752 | 0.1654 | 0.0055 | 0.0012 | 0.215 | -0.1197 | -0.0862 | 0.2193 | -0.0335 | -0.0982 | -0.0419 | 1.1429 | 0.0599 | 8.4012 | 1.2255 | 9.9015 | 1.4896 | A+ | A- | A- |
| ELA | 4 | 663153 | 6 | B-V | 2 | 7208 | 0.4918 | 0.0974 | 0.4893 | 0.2052 | 0.2029 | 0.0043 | 0.0008 | 0.4155 | -0.2291 | 0.4182 | -0.2546 | -0.0781 | -0.0877 | -0.0401 | 0.554 | 0.0585 | 0.121 | 1.0028 | 0.501 | 1.0183 | A- | A- | A- |
| ELA | 4 | 664245 | 6 | B-V | 2 | 7181 | 0.8148 | 0.0718 | 0.8076 | 0.0667 | 0.0451 | 0.0065 | 0.0023 | 0.5018 | -0.2633 | 0.5086 | -0.2937 | -0.2363 | -0.0915 | -0.0595 | -1.2802 | 0.072 | -4.0592 | 0.845 | -4.2293 | 0.68 | A- | A- | A+ |
| ELA | 4 | 629450 | 6 | D | 1 | 7192 | 0.6428 | 0.2565 | 0.0548 | 0.0433 | 0.6381 | 0.0043 | 0.003 | 0.3873 | -0.1815 | -0.2747 | -0.1907 | 0.3927 | -0.0921 | -0.0383 | -0.2177 | 0.0607 | 3.9811 | 1.1094 | 3.6712 | 1.1836 | A- | A- | A- |
| ELA | 4 | 662729 | 6 | D | 2 | 7133 | 0.9159 | 0.0286 | 0.9017 | 0.0261 | 0.0282 | 0.0148 | 0.0007 | 0.3692 | -0.2221 | 0.3835 | -0.2146 | -0.1657 | -0.1187 | -0.0471 | -2.1789 | 0.0921 | -3.0592 | 0.8167 | -2.5093 | 0.6969 | A+ | B- | C- |
| ELA | 4 | 662793 | 6 | D | 3 | 7194 | 0.6154 | 0.1638 | 0.1043 | 0.611 | 0.1137 | 0.0052 | 0.0018 | 0.4784 | -0.2977 | -0.2118 | 0.4804 | -0.1668 | -0.0521 | -0.06 | -0.0724 | 0.0599 | -1.189 | 0.9695 | -1.4291 | 0.9376 | A+ | A- | A- |
| ELA | 4 | 658449 | 7 | B-C | 2 | 7221 | 0.502 | 0.1758 | 0.1453 | 0.1732 | 0.4982 | 0.006 | 0.0015 | 0.4715 | -0.189 | -0.2347 | -0.1971 | 0.4744 | -0.0746 | -0.0575 | 0.5224 | 0.0587 | -1.699 | 0.9595 | -0.609 | 0.9775 | A+ | A- | A- |
| ELA | 4 | 658450 | 7 | B-C | 3 | 7248 | 0.5166 | 0.5146 | 0.1466 | 0.1223 | 0.2126 | 0.0027 | 0.0011 | 0.2274 | 0.2302 | -0.2084 | -0.105 | -0.0067 | -0.0471 | -0.0521 | 0.4394 | 0.0587 | 9.4912 | 1.2467 | 8.7614 | 1.3559 | A- | A- | A- |
| ELA | 4 | 658452 | 7 | B-C | 2 | 7200 | 0.5496 | 0.1123 | 0.0889 | 0.5438 | 0.2445 | 0.0082 | 0.0022 | 0.3645 | -0.2098 | -0.2658 | 0.3716 | -0.0718 | -0.112 | -0.0466 | 0.2906 | 0.0589 | 3.7011 | 1.0933 | 4.0512 | 1.1605 | A+ | A+ | A- |
| ELA | 4 | 658454 | 7 | B-K | 2 | 7182 | 0.2048 | 0.2022 | 0.0988 | 0.1082 | 0.5779 | 0.0118 | 0.0011 | 0.005 | 0.0107 | -0.2855 | -0.226 | 0.329 | -0.1009 | -0.0158 | 2.2121 | 0.07 | 8.4414 | 1.354 | 9.9024 | 2.3875 | A+ | A+ | A+ |
| ELA | 4 | 658456 | 7 | B-K | 2 | 7230 | 0.6084 | 0.1796 | 0.0998 | 0.6046 | 0.1097 | 0.0051 | 0.0012 | 0.5122 | -0.2257 | -0.2622 | 0.516 | -0.2517 | -0.0934 | -0.0497 | -0.0237 | 0.0599 | -2.9391 | 0.9255 | -2.5891 | 0.8933 | A- | A+ | A+ |
| ELA | 4 | 658457 | 7 | B-K | 2 | 6702 | 0.493 | 0.1163 | 0.4541 | 0.1281 | 0.2226 | 0.0124 | 0.0665 | 0.3916 | -0.2865 | 0.3547 | -0.2366 | -0.0389 | -0.0749 | 0.0752 | 0.7464 | 0.0588 | 4.3711 | 1.108 | 5.9712 | 1.2363 | A+ | A+ | A- |
| ELA | 4 | 658458 | 7 | B-V | 2 | 7233 | 0.3567 | 0.3278 | 0.3546 | 0.1083 | 0.2034 | 0.0041 | 0.0018 | 0.2543 | 0.0133 | 0.2568 | -0.2376 | -0.1234 | -0.061 | -0.0398 | 1.2678 | 0.0606 | 5.2911 | 1.1429 | 6.5213 | 1.3187 | A- | A+ | A+ |
| ELA | 4 | 660235 | 7 | B-V | 2 | 7212 | 0.5222 | 0.5176 | 0.2046 | 0.1357 | 0.1333 | 0.0074 | 0.0014 | 0.4113 | 0.4155 | -0.2174 | -0.1405 | -0.1834 | -0.099 | -0.0275 | 0.4241 | 0.0587 | 0.611 | 1.0146 | 1.4011 | 1.0518 | A+ | A+ | A- |
| ELA | 4 | 629448 | 7 | D | 2 | 14463 | 0.6207 | 0.0484 | 0.2528 | 0.0755 | 0.6165 | 0.0034 | 0.0034 | 0.426 | -0.1736 | -0.2263 | -0.2559 | 0.4268 | -0.0502 | -0.0231 | -0.0882 | 0.0426 | 0.871 | 1.0162 | 1.041 | 1.0316 | A+ | A- | A- |
| ELA | 4 | 662730 | 7 | D | 2 | 7201 | 0.567 | 0.1843 | 0.1223 | 0.1219 | 0.5612 | 0.0092 | 0.0011 | 0.4584 | -0.2193 | -0.1989 | -0.2124 | 0.4614 | -0.0874 | -0.0275 | 0.2019 | 0.0591 | -0.079 | 0.9977 | -0.259 | 0.9894 | A- | A- | A- |
| ELA | 4 | 662794 | 7 | D | 2 | 14457 | 0.6049 | 0.101 | 0.6006 | 0.2483 | 0.0431 | 0.0059 | 0.0012 | 0.3245 | -0.2862 | 0.3271 | -0.048 | -0.2366 | -0.0469 | -0.047 | -0.0043 | 0.0423 | 8.2612 | 1.1585 | 8.8413 | 1.2811 | A+ | A- | A+ |
| ELA | 4 | 659186 | 8 | B-C | 2 | 7166 | 0.6001 | 0.1796 | 0.5905 | 0.127 | 0.0869 | 0.0154 | 0.0005 | 0.4969 | -0.2444 | 0.4943 | -0.2123 | -0.2558 | -0.0478 | -0.027 | 0.069 | 0.0587 | -2.6991 | 0.9366 | -2.2191 | 0.9189 | A+ | A- | A+ |
| ELA | 4 | 659188 | 8 | B-C | 3 | 7222 | 0.3529 | 0.2109 | 0.0905 | 0.3403 | 0.35 | 0.006 | 0.0022 | 0.2145 | -0.2757 | -0.2362 | 0.1778 | 0.2183 | -0.0727 | -0.0528 | 1.2883 | 0.0602 | 7.6212 | 1.2073 | 9.3015 | 1.4523 | A+ | A- | A+ |
| ELA | 4 | 659189 | 8 | B-C | 3 | 7256 | 0.6085 | 0.6063 | 0.0829 | 0.0597 | 0.2475 | 0.0027 | 0.0008 | 0.0333 | 0.037 | -0.1685 | -0.1745 | 0.1688 | -0.0412 | -0.0328 | -0.0126 | 0.059 | 9.9015 | 1.4488 | 9.9018 | 1.7671 | A- | A+ | A+ |
| ELA | 4 | 659191 | 8 | B-K | 2 | 7186 | 0.6119 | 0.162 | 0.1284 | 0.6038 | 0.0926 | 0.0111 | 0.0021 | 0.3771 | -0.2043 | -0.119 | 0.3797 | -0.2155 | -0.0604 | -0.0402 | 0.0003 | 0.059 | 2.2111 | 1.0545 | 3.7412 | 1.1504 | A+ | A- | A- |
| ELA | 4 | 659192 | 8 | B-K | 3 | 7204 | 0.172 | 0.2244 | 0.3492 | 0.1701 | 0.2455 | 0.0081 | 0.0026 | -0.1273 | -0.0596 | 0.2028 | -0.1218 | -0.0395 | -0.0816 | -0.0333 | 2.4349 | 0.0741 | 9.7915 | 1.4915 | 9.9028 | 2.8477 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 4 | 659193 | 8 | B-K | 2 | 7215 | 0.2151 | 0.1235 | 0.1504 | 0.5038 | 0.2131 | 0.0071 | 0.0021 | -0.0346 | -0.2408 | -0.1856 | 0.3323 | -0.0298 | -0.0696 | -0.0549 | 2.1114 | 0.0687 | 9.1414 | 1.3767 | 9.9022 | 2.2115 | A- | A- | A- |
| ELA | 4 | 659194 | 8 | B-K | 2 | 7239 | 0.6167 | 0.1769 | 0.1255 | 0.0787 | 0.613 | 0.0043 | 0.0016 | 0.4862 | -0.2971 | -0.1427 | -0.2644 | 0.4889 | -0.0654 | -0.0496 | -0.0476 | 0.0592 | -1.939 | 0.9527 | -1.5191 | 0.9408 | A- | A- | A- |
| ELA | 4 | 659195 | 8 | B-V | 2 | 7255 | 0.8207 | 0.0516 | 0.8176 | 0.0628 | 0.0643 | 0.0033 | 0.0004 | 0.444 | -0.2379 | 0.4474 | -0.2899 | -0.1856 | -0.0691 | -0.0171 | -1.305 | 0.0723 | -2.0991 | 0.9154 | -2.3392 | 0.8209 | A+ | A- | A- |
| ELA | 4 | 629452 | 8 | D | 2 | 14544 | 0.691 | 0.1273 | 0.1075 | 0.687 | 0.0723 | 0.0043 | 0.0015 | 0.4551 | -0.1937 | -0.2498 | 0.4569 | -0.2519 | -0.051 | -0.0346 | -0.4631 | 0.0438 | -0.029 | 0.9993 | -1.6891 | 0.9406 | A+ | A- | A- |
| ELA | 4 | 662731 | 8 | D | 2 | 14522 | 0.6137 | 0.1403 | 0.1109 | 0.1323 | 0.6092 | 0.0064 | 0.0009 | 0.3916 | -0.1753 | -0.2 | -0.1862 | 0.3941 | -0.0568 | -0.0335 | -0.0406 | 0.042 | 3.5011 | 1.063 | 3.0811 | 1.0895 | A+ | A- | A- |
| ELA | 4 | 662795 | 8 | D | 3 | 14533 | 0.3791 | 0.292 | 0.1045 | 0.2204 | 0.3766 | 0.0051 | 0.0014 | 0.2811 | -0.0851 | -0.1907 | -0.0848 | 0.2829 | -0.0531 | -0.0289 | 1.137 | 0.0421 | 6.7911 | 1.1228 | 8.7913 | 1.2743 | A+ | A- | A- |
| ELA | 4 | 660265 | 9 | B-C | 2 | 7248 | 0.5464 | 0.2063 | 0.1237 | 0.1208 | 0.5429 | 0.0053 | 0.001 | 0.4028 | -0.1584 | -0.1795 | -0.2227 | 0.406 | -0.0725 | -0.0381 | 0.3018 | 0.0584 | 0.951 | 1.0222 | 1.121 | 1.0399 | A+ | A+ | A+ |
| ELA | 4 | 660267 | 9 | B-C | 3 | 7218 | 0.582 | 0.1105 | 0.1115 | 0.576 | 0.1917 | 0.0081 | 0.0023 | 0.3534 | -0.1174 | -0.1782 | 0.3585 | -0.1906 | -0.0843 | -0.0349 | 0.1333 | 0.0589 | 4.1011 | 1.1028 | 3.0711 | 1.1184 | A- | A- | A- |
| ELA | 4 | 660268 | 9 | B-K | 2 | 7194 | 0.2983 | 0.2639 | 0.1217 | 0.2942 | 0.3064 | 0.0118 | 0.0019 | 0.1457 | -0.1687 | -0.1167 | 0.1495 | 0.1152 | -0.068 | -0.0306 | 1.6029 | 0.0624 | 5.9312 | 1.1772 | 8.4515 | 1.5116 | A+ | A+ | A- |
| ELA | 4 | 660269 | 9 | B-K | 2 | 7250 | 0.5463 | 0.543 | 0.0668 | 0.1729 | 0.2113 | 0.0047 | 0.0014 | 0.184 | 0.1889 | -0.2579 | -0.1231 | 0.056 | -0.0631 | -0.0479 | 0.3011 | 0.0584 | 9.9013 | 1.2883 | 9.9015 | 1.5441 | A- | A- | A+ |
| ELA | 4 | 660270 | 9 | B-K | 3 | 7167 | 0.5195 | 0.5104 | 0.2338 | 0.1302 | 0.1082 | 0.0165 | 0.001 | 0.396 | 0.3953 | -0.0741 | -0.2241 | -0.2668 | -0.0572 | -0.0225 | 0.4657 | 0.0582 | 2.061 | 1.0477 | 2.4011 | 1.0847 | A- | A- | A- |
| ELA | 4 | 660272 | 9 | B-K | 2 | 7227 | 0.6032 | 0.0687 | 0.2375 | 0.0871 | 0.5976 | 0.007 | 0.0022 | 0.477 | -0.2411 | -0.1829 | -0.3108 | 0.4808 | -0.0834 | -0.0514 | 0.0211 | 0.0594 | -1.369 | 0.9659 | -1.6691 | 0.9355 | A+ | A- | A- |
| ELA | 4 | 660274 | 9 | B-V | 2 | 7247 | 0.6897 | 0.0742 | 0.1836 | 0.6852 | 0.0506 | 0.0058 | 0.0007 | 0.4108 | -0.192 | -0.2105 | 0.4164 | -0.2452 | -0.0865 | -0.0488 | -0.4557 | 0.0624 | 0.101 | 1.0028 | 0.481 | 1.0233 | B- | A- | A- |
| ELA | 4 | 662102 | 9 | B-V | 2 | 7272 | 0.853 | 0.0673 | 0.8504 | 0.0474 | 0.0318 | 0.0026 | 0.0004 | 0.4937 | -0.305 | 0.4948 | -0.256 | -0.2434 | -0.0421 | -0.0382 | -1.608 | 0.0787 | -4.1092 | 0.8133 | -3.9993 | 0.6547 | A- | A- | A+ |
| ELA | 4 | 629451 | 9 | D | 2 | 7259 | 0.854 | 0.0298 | 0.8499 | 0.1002 | 0.0154 | 0.0041 | 0.0007 | 0.3057 | -0.2059 | 0.314 | -0.1673 | -0.17 | -0.0767 | -0.0423 | -1.603 | 0.0786 | 0.161 | 1.0071 | 2.2612 | 1.2333 | A+ | A- | A- |
| ELA | 4 | 662732 | 9 | D | 2 | 7234 | 0.8672 | 0.0392 | 0.0437 | 0.86 | 0.0488 | 0.0075 | 0.0007 | 0.5056 | -0.2864 | -0.279 | 0.5068 | -0.2595 | -0.0759 | -0.0283 | -1.6975 | 0.0807 | -5.4293 | 0.749 | -5.6795 | 0.52 | A+ | A- | A- |
| ELA | 4 | 662796 | 9 | D | 3 | 7249 | 0.4678 | 0.1049 | 0.0997 | 0.4649 | 0.3244 | 0.0056 | 0.0005 | 0.2354 | -0.2099 | -0.1647 | 0.2391 | 0.0015 | -0.0731 | -0.038 | 0.6946 | 0.0582 | 7.3212 | 1.1746 | 8.0813 | 1.3083 | A- | A+ | A- |
| ELA | 4 | 623673 | 10 | A-C | 2 | 7256 | 0.6756 | 0.6708 | 0.0813 | 0.0735 | 0.1674 | 0.0066 | 0.0005 | 0.5005 | 0.5024 | -0.3018 | -0.2865 | -0.1953 | -0.0663 | -0.0247 | -0.3995 | 0.0626 | -2.9091 | 0.9167 | -2.0191 | 0.8972 | A+ | A- | A+ |
| ELA | 4 | 623669 | 10 | A-K | 3 | 7232 | 0.6007 | 0.0972 | 0.104 | 0.5944 | 0.194 | 0.0101 | 0.0003 | 0.3714 | -0.2028 | -0.2919 | 0.3742 | -0.07 | -0.0655 | -0.0206 | 0.0173 | 0.0601 | 3.8811 | 1.1051 | 3.7712 | 1.1687 | A+ | A+ | A+ |
| ELA | 4 | 623672 | 10 | A-K | 2 | 7227 | 0.7861 | 0.0608 | 0.7774 | 0.0644 | 0.0863 | 0.0103 | 0.0008 | 0.5078 | -0.2508 | 0.5081 | -0.2703 | -0.275 | -0.0688 | -0.0325 | -1.0646 | 0.0696 | -5.0092 | 0.8241 | -3.9593 | 0.7279 | A+ | A+ | A+ |
| ELA | 4 | 623674 | 10 | A-K | 2 | 7277 | 0.763 | 0.1065 | 0.079 | 0.0506 | 0.7597 | 0.0033 | 0.001 | 0.4913 | -0.2442 | -0.2764 | -0.2585 | 0.4937 | -0.0708 | -0.0121 | -0.944 | 0.0681 | -2.7591 | 0.9045 | -2.0591 | 0.8598 | A+ | A- | A- |
| ELA | 4 | 623766 | 10 | A-K | 2 | 7248 | 0.4771 | 0.3684 | 0.1067 | 0.4732 | 0.0435 | 0.0073 | 0.001 | 0.3681 | -0.1161 | -0.2176 | 0.3722 | -0.2636 | -0.094 | -0.0286 | 0.6414 | 0.0588 | 3.3711 | 1.0828 | 5.4912 | 1.2166 | A+ | A- | A- |
| ELA | 4 | 623668 | 10 | A-V | 2 | 7247 | 0.6205 | 0.1379 | 0.1628 | 0.0755 | 0.6154 | 0.006 | 0.0023 | 0.3348 | -0.1677 | -0.0913 | -0.2497 | 0.3399 | -0.0805 | -0.0334 | -0.0941 | 0.0607 | 5.4412 | 1.1538 | 6.5913 | 1.3254 | A- | A+ | A+ |
| ELA | 4 | 623671 | 10 | A-V | 2 | 7285 | 0.673 | 0.1363 | 0.6709 | 0.1478 | 0.0419 | 0.0027 | 0.0004 | 0.4912 | -0.3193 | 0.4923 | -0.2195 | -0.2046 | -0.0402 | -0.0379 | -0.4002 | 0.0626 | -2.6491 | 0.9239 | -1.9391 | 0.901 | A+ | A+ | A+ |
| ELA | 4 | 630495 | 10 | B-V | 2 | 7259 | 0.6136 | 0.6095 | 0.1596 | 0.0941 | 0.1301 | 0.0049 | 0.0018 | 0.3915 | 0.3952 | -0.1821 | -0.2686 | -0.1218 | -0.0755 | -0.0341 | -0.0626 | 0.0605 | 1.621 | 1.0438 | 2.3811 | 1.1082 | A+ | A+ | A+ |
| ELA | 4 | 662797 | 10 | D | 2 | 7206 | 0.3657 | 0.1174 | 0.425 | 0.3606 | 0.0831 | 0.0129 | 0.0011 | 0.3746 | -0.0495 | -0.2101 | 0.3773 | -0.1817 | -0.0889 | -0.0369 | 1.2302 | 0.0602 | 0.261 | 1.0063 | 2.0011 | 1.0898 | A- | A- | A- |
| ELA | 4 | 625473 | 11 | B-C | 2 | 7222 | 0.2945 | 0.249 | 0.2339 | 0.2165 | 0.292 | 0.0059 | 0.0027 | 0.1629 | -0.0634 | 0.0059 | -0.0997 | 0.1676 | -0.0779 | -0.0809 | 1.6085 | 0.0629 | 7.0512 | 1.2165 | 8.9516 | 1.5648 | A+ | A- | A- |
| ELA | 4 | 625474 | 11 | B-C | 2 | 7227 | 0.4276 | 0.4242 | 0.2281 | 0.1964 | 0.1433 | 0.0063 | 0.0016 | 0.3608 | 0.3635 | -0.0999 | -0.0966 | -0.2613 | -0.076 | -0.0435 | 0.8906 | 0.0591 | 1.071 | 1.0259 | 4.0112 | 1.159 | A- | A- | A+ |
| ELA | 4 | 625475 | 11 | B-C | 2 | 7264 | 0.3736 | 0.3725 | 0.2612 | 0.2467 | 0.1167 | 0.0022 | 0.0007 | 0.2786 | 0.2799 | -0.2857 | -0.0009 | -0.0189 | -0.0418 | -0.055 | 1.1595 | 0.06 | 4.9311 | 1.129 | 8.2514 | 1.3907 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 4 | 625469 | 11 | B-K | 2 | 7203 | 0.6476 | 0.1399 | 0.1201 | 0.6404 | 0.0884 | 0.0096 | 0.0016 | 0.4973 | -0.2298 | -0.2449 | 0.5007 | -0.2483 | -0.1026 | -0.0114 | -0.2172 | 0.061 | -2.0491 | 0.945 | -2.6191 | 0.8859 | A- | A- | A- |
| ELA | 4 | 625470 | 11 | B-K | 2 | 7204 | 0.4746 | 0.2133 | 0.1385 | 0.4693 | 0.1677 | 0.0097 | 0.0014 | 0.3049 | -0.0975 | -0.1907 | 0.3071 | -0.1074 | -0.0675 | -0.0183 | 0.6613 | 0.0587 | 6.6212 | 1.1665 | 6.8513 | 1.2654 | A- | A- | A- |
| ELA | 4 | 625476 | 11 | B-K | 2 | 7230 | 0.3176 | 0.2461 | 0.3152 | 0.168 | 0.2631 | 0.0052 | 0.0023 | 0.2069 | -0.1194 | 0.2096 | -0.1423 | 0.0327 | -0.0822 | -0.0254 | 1.4742 | 0.0619 | 5.7312 | 1.1652 | 8.2515 | 1.4712 | A- | A+ | A- |
| ELA | 4 | 625468 | 11 | B-V | 2 | 7244 | 0.3787 | 0.4464 | 0.0468 | 0.1246 | 0.3765 | 0.0033 | 0.0023 | 0.2511 | -0.0105 | -0.2406 | -0.1848 | 0.2535 | -0.0559 | -0.0529 | 1.1384 | 0.0599 | 8.3912 | 1.2251 | 9.9015 | 1.4741 | A- | A+ | A+ |
| ELA | 4 | 632714 | 11 | B-V | 2 | 7213 | 0.553 | 0.066 | 0.5476 | 0.0673 | 0.3093 | 0.0081 | 0.0018 | 0.2578 | -0.3122 | 0.2642 | -0.2987 | 0.066 | -0.0902 | -0.0371 | 0.2666 | 0.0591 | 6.6712 | 1.1732 | 7.5613 | 1.3043 | A- | A+ | A- |
| ELA | 4 | 662798 | 11 | D | 3 | 7214 | 0.7079 | 0.1244 | 0.0796 | 0.0852 | 0.701 | 0.0085 | 0.0012 | 0.4478 | -0.2139 | -0.2227 | -0.2369 | 0.4548 | -0.1047 | -0.0442 | -0.5581 | 0.0634 | -1.419 | 0.9573 | -2.5191 | 0.8678 | A- | A- | A+ |
| ELA | 4 | 621482 | 12 | B-C | 2 | 7316 | 0.4494 | 0.4475 | 0.1113 | 0.2337 | 0.2032 | 0.0031 | 0.0011 | 0.3427 | 0.3435 | -0.3141 | -0.0849 | -0.0814 | -0.0376 | -0.038 | 0.7633 | 0.0586 | 4.4211 | 1.1065 | 4.8912 | 1.188 | A- | A- | A- |
| ELA | 4 | 621479 | 12 | B-K | 2 | 7293 | 0.3976 | 0.1289 | 0.3947 | 0.1478 | 0.3212 | 0.0061 | 0.0012 | 0.1824 | -0.0596 | 0.1863 | -0.1957 | 0.0109 | -0.0652 | -0.0483 | 1.0324 | 0.0594 | 9.9013 | 1.3191 | 9.9016 | 1.6417 | A+ | A+ | A+ |
| ELA | 4 | 621481 | 12 | B-K | 2 | 7311 | 0.5481 | 0.1492 | 0.1644 | 0.5454 | 0.1361 | 0.0044 | 0.0005 | 0.4588 | -0.3142 | -0.0757 | 0.4597 | -0.2478 | -0.0448 | -0.0419 | 0.2731 | 0.0586 | -0.839 | 0.98 | 0.201 | 1.0067 | A+ | A+ | A- |
| ELA | 4 | 621485 | 12 | B-K | 3 | 7235 | 0.4386 | 0.4319 | 0.1169 | 0.2195 | 0.2164 | 0.0136 | 0.0016 | 0.1731 | 0.1816 | -0.2422 | -0.0373 | 0.0401 | -0.0978 | -0.0466 | 0.8423 | 0.0587 | 9.9013 | 1.2806 | 9.9015 | 1.4782 | A- | A+ | A- |
| ELA | 4 | 621487 | 12 | B-K | 2 | 7272 | 0.6727 | 0.1847 | 0.0553 | 0.084 | 0.6659 | 0.0097 | 0.0005 | 0.4523 | -0.1832 | -0.2393 | -0.2935 | 0.4527 | -0.0565 | -0.0363 | -0.3577 | 0.0612 | -2.4691 | 0.9332 | -2.4391 | 0.8859 | A+ | A+ | A+ |
| ELA | 4 | 621477 | 12 | B-V | 2 | 7290 | 0.6931 | 0.1224 | 0.1102 | 0.0719 | 0.6878 | 0.0064 | 0.0014 | 0.4962 | -0.2214 | -0.2991 | -0.2247 | 0.4982 | -0.0601 | -0.0496 | -0.4809 | 0.0621 | -3.2491 | 0.9091 | -2.8491 | 0.8588 | A+ | A+ | A- |
| ELA | 4 | 621490 | 12 | B-V | 2 | 7322 | 0.7475 | 0.1716 | 0.7449 | 0.035 | 0.0451 | 0.0024 | 0.001 | 0.3458 | -0.2371 | 0.3466 | -0.1599 | -0.1455 | -0.0126 | -0.0492 | -0.8242 | 0.0653 | 2.1911 | 1.0725 | 2.1611 | 1.1416 | A+ | A- | A- |
| ELA | 4 | 622653 | 12 | B-V | 2 | 7295 | 0.844 | 0.0486 | 0.0642 | 0.838 | 0.0421 | 0.0054 | 0.0016 | 0.4484 | -0.2635 | -0.2082 | 0.4517 | -0.2609 | -0.0564 | -0.0543 | -1.4998 | 0.0752 | -2.8591 | 0.8789 | -1.6892 | 0.8492 | A- | A- | A- |
| ELA | 5 | 566389 | 0 | A-K | 2 | 84926 | 0.5429 | 0.1673 | 0.1012 | 0.1853 | 0.5391 | 0.0061 | 0.0009 | 0.5174 | -0.267 | -0.2035 | -0.2315 | 0.5205 | -0.0991 | -0.0258 | 0.1986 | 0.0169 | -5.249 | 0.9639 | -1.159 | 0.9879 | A+ | A- | A- |
| ELA | 5 | 566391 | 0 | A-K | 3 | 84556 | 0.4833 | 0.2062 | 0.1617 | 0.1429 | 0.4778 | 0.0102 | 0.0012 | 0.4401 | -0.1323 | -0.229 | -0.2095 | 0.4431 | -0.0948 | -0.0198 | 0.6707 | 0.0168 | 5.911 | 1.0397 | 8.9411 | 1.0897 | A- | A+ | A+ |
| ELA | 5 | 566393 | 0 | A-K | 2 | 84914 | 0.5416 | 0.5377 | 0.0718 | 0.2608 | 0.1225 | 0.0064 | 0.0008 | 0.505 | 0.5078 | -0.2834 | -0.2017 | -0.2542 | -0.0909 | -0.0299 | 0.1083 | 0.017 | -0.769 | 0.9946 | -1.479 | 0.9841 | A- | A+ | A+ |
| ELA | 5 | 566394 | 0 | A-K | 2 | 84724 | 0.4561 | 0.3737 | 0.1226 | 0.4518 | 0.0425 | 0.0087 | 0.0008 | 0.3647 | -0.0781 | -0.275 | 0.3686 | -0.2282 | -0.0923 | -0.0308 | 0.8066 | 0.0168 | 9.9011 | 1.1261 | 9.9012 | 1.2149 | A- | A- | A- |
| ELA | 5 | 580582 | 0 | A-K | 2 | 84677 | 0.7081 | 0.7011 | 0.074 | 0.0509 | 0.1641 | 0.0091 | 0.0009 | 0.4073 | 0.4107 | -0.1881 | -0.2385 | -0.2133 | -0.0685 | -0.0283 | -0.8735 | 0.0192 | 9.9012 | 1.1637 | 9.9013 | 1.3444 | A- | A+ | A+ |
| ELA | 5 | 580586 | 0 | A-K | 2 | 85122 | 0.7454 | 0.1387 | 0.0581 | 0.7418 | 0.0566 | 0.0037 | 0.0011 | 0.5292 | -0.2959 | -0.266 | 0.5319 | -0.2728 | -0.0611 | -0.0477 | -0.5738 | 0.0183 | -9.8992 | 0.8103 | -9.8993 | 0.738 | A+ | A+ | A+ |
| ELA | 5 | 566395 | 0 | A-V | 1 | 84917 | 0.5458 | 0.5418 | 0.1749 | 0.0967 | 0.1794 | 0.0065 | 0.0007 | 0.4271 | 0.4304 | -0.1346 | -0.2389 | -0.2222 | -0.0828 | -0.0305 | 0.6593 | 0.0168 | 9.9011 | 1.0706 | 9.9011 | 1.1392 | A+ | A- | A- |
| ELA | 5 | 566396 | 0 | A-V | 2 | 84988 | 0.7534 | 0.0758 | 0.7486 | 0.1179 | 0.0514 | 0.0053 | 0.001 | 0.5419 | -0.3198 | 0.5463 | -0.2772 | -0.2498 | -0.0916 | -0.0357 | -0.8986 | 0.0193 | -9.8991 | 0.9024 | -9.8992 | 0.7928 | A- | A+ | A+ |
| ELA | 5 | 580581 | 0 | A-V | 2 | 84978 | 0.7008 | 0.1252 | 0.6963 | 0.107 | 0.065 | 0.0054 | 0.0011 | 0.4556 | -0.1689 | 0.4571 | -0.238 | -0.3086 | -0.0482 | -0.0347 | -0.5151 | 0.0181 | -1.529 | 0.987 | 4.4611 | 1.0686 | A+ | B+ | A+ |
| ELA | 5 | 580588 | 0 | A-V | 2 | 84772 | 0.52 | 0.0709 | 0.5154 | 0.1911 | 0.2138 | 0.0072 | 0.0017 | 0.2906 | -0.3204 | 0.2934 | -0.0283 | -0.1154 | -0.0583 | -0.0254 | 0.4861 | 0.0168 | 9.9012 | 1.2199 | 9.9013 | 1.3207 | A+ | A+ | A+ |
| ELA | 5 | 580589 | 0 | A-V | 2 | 85014 | 0.6593 | 0.6553 | 0.0715 | 0.1712 | 0.0959 | 0.0047 | 0.0013 | 0.5516 | 0.5529 | -0.3186 | -0.3658 | -0.1274 | -0.0599 | -0.0348 | -0.2811 | 0.0176 | -9.8991 | 0.8962 | -8.6191 | 0.8908 | A+ | A- | A- |
| ELA | 5 | 493356 | 0 | B-C | 3 | 84600 | 0.5563 | 0.5502 | 0.1592 | 0.111 | 0.1687 | 0.0099 | 0.001 | 0.4301 | 0.4348 | -0.2355 | -0.3026 | -0.0652 | -0.0955 | -0.0383 | 0.1477 | 0.017 | 9.9011 | 1.0804 | 9.9012 | 1.1987 | A+ | A+ | A+ |
| ELA | 5 | 580462 | 0 | B-C | 2 | 84743 | 0.4083 | 0.4046 | 0.1034 | 0.2534 | 0.2294 | 0.008 | 0.0012 | 0.3738 | 0.3757 | -0.2275 | -0.0895 | -0.1642 | -0.0726 | -0.0202 | 1.0227 | 0.017 | 9.9011 | 1.0931 | 9.9012 | 1.2235 | A- | A+ | A+ |
| ELA | 5 | 580493 | 0 | B-C | 2 | 84998 | 0.383 | 0.3806 | 0.1629 | 0.3107 | 0.1396 | 0.005 | 0.0012 | 0.3544 | 0.3568 | -0.1643 | -0.1467 | -0.1093 | -0.0779 | -0.0394 | 0.8515 | 0.0168 | 9.9011 | 1.0967 | 9.9012 | 1.1869 | A- | A+ | A+ |
| ELA | 5 | 493359 | 0 | B-K | 2 | 84744 | 0.5798 | 0.1988 | 0.141 | 0.5744 | 0.0766 | 0.0083 | 0.0009 | 0.4639 | -0.1615 | -0.2725 | 0.4678 | -0.2361 | -0.09 | -0.0353 | 0.1398 | 0.017 | 1.551 | 1.0109 | 3.601 | 1.0388 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 493361 | 0 | B-K | 2 | 84877 | 0.5841 | 0.5796 | 0.1165 | 0.1775 | 0.1187 | 0.0067 | 0.001 | 0.4182 | 0.4229 | -0.2743 | -0.1605 | -0.157 | -0.0952 | -0.0296 | -0.0258 | 0.0172 | 9.9011 | 1.1124 | 9.9012 | 1.1532 | A- | A- | A- |
| ELA | 5 | 580464 | 0 | B-K | 2 | 85043 | 0.6825 | 0.0684 | 0.6786 | 0.0799 | 0.1675 | 0.0044 | 0.0013 | 0.4683 | -0.2841 | 0.4711 | -0.2999 | -0.1642 | -0.0719 | -0.0268 | -0.3048 | 0.0177 | -5.269 | 0.9587 | -4.6591 | 0.9391 | A- | A- | A+ |
| ELA | 5 | 580465 | 0 | B-K | 2 | 85130 | 0.5949 | 0.2699 | 0.5921 | 0.093 | 0.0404 | 0.0039 | 0.0008 | 0.3901 | -0.1731 | 0.3938 | -0.2338 | -0.2178 | -0.0794 | -0.0351 | 0.1185 | 0.017 | 9.9011 | 1.1024 | 9.9012 | 1.1792 | A- | A+ | A+ |
| ELA | 5 | 580466 | 0 | B-K | 2 | 85103 | 0.5532 | 0.5504 | 0.087 | 0.2258 | 0.1318 | 0.004 | 0.001 | 0.3008 | 0.3043 | -0.1678 | -0.0756 | -0.1982 | -0.0717 | -0.0298 | 0.3528 | 0.0168 | 9.9012 | 1.2234 | 9.9014 | 1.3635 | A- | A+ | A+ |
| ELA | 5 | 493357 | 0 | B-V | 1 | 84823 | 0.8109 | 0.0577 | 0.0469 | 0.083 | 0.8042 | 0.0071 | 0.0012 | 0.4902 | -0.2474 | -0.2433 | -0.2848 | 0.4969 | -0.0983 | -0.0362 | -1.3838 | 0.0215 | -1.769 | 0.978 | -3.7391 | 0.9092 | A- | A+ | A- |
| ELA | 5 | 493363 | 0 | B-V | 2 | 84584 | 0.5204 | 0.2385 | 0.5146 | 0.1449 | 0.0909 | 0.0098 | 0.0012 | 0.4101 | -0.225 | 0.4142 | -0.1492 | -0.1681 | -0.0954 | -0.0256 | 0.5418 | 0.0168 | 9.9011 | 1.0748 | 9.9011 | 1.1141 | A- | A+ | A+ |
| ELA | 5 | 493364 | 0 | B-V | 2 | 84879 | 0.7205 | 0.0893 | 0.076 | 0.715 | 0.1121 | 0.0071 | 0.0005 | 0.5459 | -0.3068 | -0.2924 | 0.5501 | -0.2366 | -0.096 | -0.0294 | -0.7703 | 0.0189 | -5.8991 | 0.9453 | -6.1391 | 0.896 | A+ | A+ | A- |
| ELA | 5 | 580467 | 0 | B-V | 2 | 85066 | 0.6915 | 0.0746 | 0.0804 | 0.6878 | 0.1518 | 0.0042 | 0.0013 | 0.4718 | -0.26 | -0.3399 | 0.4753 | -0.1489 | -0.0763 | -0.0332 | -0.3772 | 0.0178 | -7.3091 | 0.9417 | -2.739 | 0.9623 | A- | A+ | A+ |
| ELA | 5 | 505536 | 0 | D | 3 | 85092 | 0.4847 | 0.4822 | 0.2508 | 0.1398 | 0.1221 | 0.0027 | 0.0025 | 0.3502 | 0.3525 | -0.166 | -0.1787 | -0.1143 | -0.0484 | -0.0456 | 0.5208 | 0.0168 | 9.9011 | 1.1461 | 9.9012 | 1.2124 | A+ | A+ | A+ |
| ELA | 5 | 505538 | 0 | D | 2 | 85134 | 0.4549 | 0.1795 | 0.4528 | 0.2372 | 0.1259 | 0.0022 | 0.0024 | 0.4279 | -0.3005 | 0.4293 | -0.1132 | -0.1387 | -0.0419 | -0.046 | 0.5047 | 0.0168 | 6.021 | 1.0407 | 6.7411 | 1.067 | A+ | A+ | A- |
| ELA | 5 | 505542 | 0 | D | 2 | 85149 | 0.4904 | 0.2156 | 0.1664 | 0.1254 | 0.4882 | 0.0026 | 0.0019 | 0.3156 | -0.0869 | -0.1602 | -0.1798 | 0.3175 | -0.0435 | -0.0352 | 0.9373 | 0.0169 | 9.9012 | 1.226 | 9.9014 | 1.3571 | A+ | A+ | A+ |
| ELA | 5 | 505543 | 0 | D | 2 | 84880 | 0.2676 | 0.2655 | 0.358 | 0.1705 | 0.1984 | 0.006 | 0.0016 | 0.266 | 0.268 | -0.0304 | -0.0867 | -0.1617 | -0.0645 | -0.0431 | 1.821 | 0.0186 | 9.9011 | 1.1371 | 9.9015 | 1.5028 | A- | A- | A- |
| ELA | 5 | 505544 | 0 | D | 2 | 85039 | 0.7395 | 0.0935 | 0.0668 | 0.7353 | 0.0987 | 0.0043 | 0.0014 | 0.5371 | -0.3234 | -0.2761 | 0.539 | -0.2335 | -0.0595 | -0.0308 | -0.6957 | 0.0186 | -9.8992 | 0.844 | -9.8992 | 0.7621 | A+ | B- | B- |
| ELA | 5 | 581215 | 0 | D | 2 | 84943 | 0.7366 | 0.0383 | 0.1065 | 0.1168 | 0.7315 | 0.0048 | 0.002 | 0.4899 | -0.2608 | -0.2917 | -0.2246 | 0.4929 | -0.0662 | -0.0365 | -0.654 | 0.0185 | -9.8991 | 0.897 | -9.7692 | 0.8483 | A+ | A- | A- |
| ELA | 5 | 581217 | 0 | D | 2 | 84935 | 0.3801 | 0.3775 | 0.2082 | 0.1445 | 0.2629 | 0.0054 | 0.0016 | 0.2504 | 0.2533 | -0.0695 | -0.1956 | -0.0448 | -0.0673 | -0.0305 | 1.1712 | 0.0172 | 9.9012 | 1.2294 | 9.9014 | 1.3851 | A- | A- | A- |
| ELA | 5 | 581220 | 0 | D | 2 | 84960 | 0.4393 | 0.1485 | 0.2904 | 0.1181 | 0.4363 | 0.0051 | 0.0016 | 0.4657 | -0.2875 | -0.1383 | -0.1891 | 0.4671 | -0.0641 | -0.027 | 0.8712 | 0.0169 | -0.679 | 0.9954 | 2.321 | 1.0237 | A- | A- | A- |
| ELA | 5 | 581223 | 0 | D | 2 | 85181 | 0.4231 | 0.1607 | 0.4214 | 0.3802 | 0.0337 | 0.0025 | 0.0016 | 0.3048 | -0.1603 | 0.3065 | -0.1207 | -0.167 | -0.0474 | -0.0359 | 1.1391 | 0.0171 | 9.9012 | 1.2069 | 9.9014 | 1.3514 | A- | A- | A- |
| ELA | 5 | 621496 | 1 | A-K | 2 | 42550 | 0.6014 | 0.5985 | 0.1211 | 0.1832 | 0.0924 | 0.0034 | 0.0014 | 0.398 | 0.401 | -0.2296 | -0.1287 | -0.2309 | -0.06 | -0.0408 | -0.0036 | 0.0242 | 4.9511 | 1.0515 | 4.2911 | 1.0704 | A- | A+ | A+ |
| ELA | 5 | 621503 | 1 | A-K | 2 | 42550 | 0.7604 | 0.0644 | 0.0717 | 0.1023 | 0.7568 | 0.0043 | 0.0005 | 0.5027 | -0.2714 | -0.2806 | -0.2415 | 0.5039 | -0.0521 | -0.0251 | -0.8695 | 0.0271 | -9.8791 | 0.8704 | -9.0792 | 0.7803 | A+ | A+ | A+ |
| ELA | 5 | 621597 | 1 | A-K | 2 | 42528 | 0.5829 | 0.5798 | 0.1707 | 0.0682 | 0.176 | 0.004 | 0.0013 | 0.3772 | 0.3792 | -0.1711 | -0.2693 | -0.1329 | -0.0529 | -0.0263 | 0.1156 | 0.0241 | 7.1311 | 1.0728 | 8.3011 | 1.1318 | A+ | A+ | A+ |
| ELA | 5 | 621600 | 1 | A-K | 2 | 42559 | 0.7447 | 0.0738 | 0.0866 | 0.0937 | 0.7413 | 0.0031 | 0.0015 | 0.4686 | -0.2368 | -0.1938 | -0.2931 | 0.4712 | -0.0581 | -0.0332 | -0.6295 | 0.026 | -8.2091 | 0.9011 | -6.8891 | 0.8512 | A+ | A+ | A+ |
| ELA | 5 | 621500 | 1 | A-V | 2 | 42667 | 0.6414 | 0.194 | 0.6401 | 0.0997 | 0.0641 | 0.0016 | 0.0004 | 0.3312 | -0.2149 | 0.3322 | -0.1671 | -0.0929 | -0.0279 | -0.025 | -0.3544 | 0.0251 | 9.9011 | 1.1161 | 9.9012 | 1.2055 | A+ | A+ | A+ |
| ELA | 5 | 621601 | 1 | A-V | 2 | 42631 | 0.681 | 0.1206 | 0.087 | 0.679 | 0.1104 | 0.0024 | 0.0005 | 0.4134 | -0.2258 | -0.2592 | 0.4154 | -0.1411 | -0.0555 | -0.0169 | -0.4432 | 0.0253 | 1.121 | 1.013 | 0.301 | 1.0059 | A+ | A+ | A+ |
| ELA | 5 | 653716 | 1 | B-C | 2 | 7044 | 0.4855 | 0.0839 | 0.2844 | 0.4775 | 0.1377 | 0.0119 | 0.0046 | 0.2782 | -0.2592 | 0.0668 | 0.2783 | -0.2679 | -0.0462 | 0.001 | 0.4571 | 0.0586 | 9.8313 | 1.255 | 9.9014 | 1.441 | A+ | A- | A+ |
| ELA | 5 | 653717 | 1 | B-C | 2 | 7112 | 0.4886 | 0.1532 | 0.1083 | 0.2463 | 0.4852 | 0.0049 | 0.0021 | 0.4453 | -0.2191 | -0.2185 | -0.1629 | 0.4473 | -0.0568 | -0.0562 | 0.6385 | 0.0587 | -0.819 | 0.9803 | 0.591 | 1.0211 | A+ | A- | A- |
| ELA | 5 | 653718 | 1 | B-C | 2 | 7102 | 0.6774 | 0.1252 | 0.6717 | 0.0827 | 0.112 | 0.0077 | 0.0007 | 0.5278 | -0.2589 | 0.5294 | -0.2532 | -0.2736 | -0.0768 | -0.0075 | -0.3725 | 0.0613 | -5.1191 | 0.8644 | -5.0692 | 0.7771 | A+ | A+ | A+ |
| ELA | 5 | 653720 | 1 | B-K | 3 | 7131 | 0.5539 | 0.1218 | 0.5515 | 0.197 | 0.1254 | 0.0034 | 0.001 | 0.3508 | -0.266 | 0.3538 | -0.0626 | -0.1779 | -0.0592 | -0.0565 | 0.0811 | 0.0592 | 3.2111 | 1.0826 | 3.8512 | 1.1546 | A- | A- | A- |
| ELA | 5 | 653723 | 1 | B-K | 2 | 7121 | 0.4224 | 0.0688 | 0.3897 | 0.1157 | 0.42 | 0.0049 | 0.0008 | 0.2996 | -0.2994 | -0.0253 | -0.1733 | 0.3023 | -0.0751 | -0.014 | 0.8657 | 0.0592 | 7.3212 | 1.1881 | 7.7713 | 1.3287 | A+ | A+ | A- |
| ELA | 5 | 653724 | 1 | B-V | 2 | 7139 | 0.4138 | 0.4125 | 0.1068 | 0.212 | 0.2656 | 0.0028 | 0.0004 | 0.1928 | 0.1943 | -0.2935 | -0.1888 | 0.1694 | -0.04 | -0.027 | 0.8362 | 0.0591 | 9.9014 | 1.3521 | 9.9016 | 1.5748 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 653725 | 1 | B-V | 3 | 7113 | 0.707 | 0.0866 | 0.1312 | 0.0732 | 0.7022 | 0.0053 | 0.0015 | 0.5257 | -0.256 | -0.2797 | -0.2646 | 0.5265 | -0.0632 | -0.0219 | -0.4556 | 0.0619 | -5.6292 | 0.8485 | -4.9292 | 0.7734 | A+ | A- | A+ |
| ELA | 5 | 654551 | 1 | B-V | 2 | 7117 | 0.5123 | 0.1273 | 0.2576 | 0.5091 | 0.0997 | 0.0049 | 0.0014 | 0.4129 | -0.1543 | -0.2423 | 0.4159 | -0.1469 | -0.067 | -0.0488 | 0.3271 | 0.0587 | 1.851 | 1.0454 | 1.271 | 1.0459 | A+ | A- | A+ |
| ELA | 5 | 629643 | 1 | D | 2 | 7118 | 0.7735 | 0.7688 | 0.0954 | 0.0607 | 0.069 | 0.004 | 0.0021 | 0.2837 | 0.289 | -0.0945 | -0.1711 | -0.1894 | -0.0477 | -0.0477 | -1.0677 | 0.0679 | 3.5611 | 1.1297 | 7.0516 | 1.5866 | A+ | A+ | A+ |
| ELA | 5 | 660715 | 1 | D | 2 | 7094 | 0.4961 | 0.0829 | 0.2851 | 0.1311 | 0.4913 | 0.0088 | 0.0007 | 0.3846 | -0.2292 | -0.105 | -0.2255 | 0.3864 | -0.061 | -0.0294 | 0.5332 | 0.0586 | 3.0911 | 1.0757 | 3.1511 | 1.1165 | A- | A- | A- |
| ELA | 5 | 661442 | 1 | D | 1 | 7116 | 0.6553 | 0.6511 | 0.1086 | 0.1275 | 0.1064 | 0.0043 | 0.0021 | 0.4656 | 0.4672 | -0.2207 | -0.2147 | -0.252 | -0.0451 | -0.038 | -0.3637 | 0.0613 | -1.079 | 0.9702 | -1.6191 | 0.9246 | A+ | A- | A+ |
| ELA | 5 | 660285 | 2 | B-C | 2 | 7060 | 0.2983 | 0.1092 | 0.1112 | 0.4743 | 0.2953 | 0.009 | 0.001 | 0.1695 | -0.2041 | -0.234 | 0.1295 | 0.1717 | -0.0635 | 0.0073 | 1.6505 | 0.063 | 6.7312 | 1.2128 | 9.9016 | 1.6369 | A+ | A- | A- |
| ELA | 5 | 660287 | 2 | B-C | 3 | 7086 | 0.5672 | 0.5636 | 0.1377 | 0.1127 | 0.1796 | 0.0049 | 0.0014 | 0.2721 | 0.2737 | -0.1566 | -0.1202 | -0.1047 | -0.0341 | -0.0305 | 0.1457 | 0.0581 | 6.8512 | 1.1658 | 8.1513 | 1.2998 | A- | A+ | A+ |
| ELA | 5 | 660288 | 2 | B-K | 3 | 7089 | 0.62 | 0.1036 | 0.0941 | 0.1801 | 0.6163 | 0.0045 | 0.0014 | 0.5118 | -0.3773 | -0.252 | -0.146 | 0.5133 | -0.0619 | -0.0211 | -0.0962 | 0.059 | -5.1391 | 0.8799 | -4.0691 | 0.8537 | A- | A+ | A+ |
| ELA | 5 | 660290 | 2 | B-K | 2 | 7063 | 0.6242 | 0.1139 | 0.0645 | 0.6183 | 0.1938 | 0.0073 | 0.0022 | 0.3894 | -0.2404 | -0.2507 | 0.3905 | -0.1182 | -0.0514 | -0.0137 | -0.0817 | 0.0589 | 0.521 | 1.0125 | 0.341 | 1.0124 | A- | A- | A- |
| ELA | 5 | 660291 | 2 | B-K | 3 | 6908 | 0.5022 | 0.1503 | 0.1854 | 0.1465 | 0.4865 | 0.0035 | 0.0278 | 0.3696 | -0.2047 | -0.1467 | -0.1293 | 0.3667 | -0.0638 | -0.022 | 0.6578 | 0.0576 | 1.931 | 1.0436 | 1.9411 | 1.0616 | A+ | A- | A+ |
| ELA | 5 | 660292 | 2 | B-K | 3 | 7078 | 0.382 | 0.3792 | 0.1039 | 0.3768 | 0.1327 | 0.0067 | 0.0007 | 0.1525 | 0.1545 | -0.1621 | 0.0219 | -0.0941 | -0.0418 | -0.0297 | 1.1158 | 0.0591 | 9.9013 | 1.3061 | 9.9015 | 1.5221 | A- | A- | A- |
| ELA | 5 | 660294 | 2 | B-V | 2 | 7117 | 0.6497 | 0.1216 | 0.6484 | 0.1219 | 0.1062 | 0.0018 | 0.0001 | 0.3372 | -0.2403 | 0.3381 | -0.1812 | -0.0718 | -0.0287 | -0.0222 | -0.3026 | 0.0602 | 5.1911 | 1.1403 | 4.5512 | 1.2052 | A- | A- | A- |
| ELA | 5 | 662270 | 2 | B-V | 2 | 7103 | 0.517 | 0.1143 | 0.5149 | 0.234 | 0.1328 | 0.0031 | 0.0008 | 0.191 | -0.1646 | 0.1933 | -0.0756 | -0.0265 | -0.0335 | -0.0474 | 0.3996 | 0.0576 | 8.8412 | 1.2105 | 8.2113 | 1.2796 | A- | A- | A- |
| ELA | 5 | 629634 | 2 | D | 1 | 7088 | 0.5944 | 0.1572 | 0.1761 | 0.5908 | 0.0698 | 0.0038 | 0.0022 | 0.4609 | -0.3375 | -0.1216 | 0.4634 | -0.2076 | -0.0517 | -0.0546 | -0.0764 | 0.0589 | -0.359 | 0.991 | -1.169 | 0.9564 | A+ | A- | A- |
| ELA | 5 | 660716 | 2 | D | 2 | 7093 | 0.4059 | 0.0813 | 0.1113 | 0.3983 | 0.4037 | 0.0038 | 0.0015 | 0.3661 | -0.2331 | -0.1784 | -0.1154 | 0.3673 | -0.0402 | -0.0361 | 1.0353 | 0.0587 | 1.541 | 1.0367 | 2.4911 | 1.0907 | A- | A- | A- |
| ELA | 5 | 661443 | 2 | D | 1 | 7089 | 0.2542 | 0.2211 | 0.2527 | 0.3444 | 0.1759 | 0.0046 | 0.0013 | 0.0786 | -0.0961 | 0.0802 | 0.0843 | -0.0834 | -0.0359 | -0.0239 | 1.9225 | 0.0661 | 9.5614 | 1.3579 | 9.902 | 1.974 | A- | A- | A- |
| ELA | 5 | 658540 | 3 | B-C | 3 | 7096 | 0.6395 | 0.1517 | 0.1529 | 0.6355 | 0.0536 | 0.0049 | 0.0014 | 0.467 | -0.2888 | -0.1794 | 0.4712 | -0.2257 | -0.0892 | -0.0419 | -0.1587 | 0.06 | -2.2191 | 0.943 | -2.1391 | 0.9112 | A+ | A+ | A+ |
| ELA | 5 | 658541 | 3 | B-C | 2 | 7100 | 0.1763 | 0.2369 | 0.1753 | 0.2811 | 0.3009 | 0.0039 | 0.0018 | 0.0135 | -0.1071 | 0.0163 | 0.1995 | -0.0961 | -0.069 | -0.0467 | 2.3086 | 0.0712 | 4.4112 | 1.1869 | 9.9022 | 2.1751 | A+ | A- | A+ |
| ELA | 5 | 658542 | 3 | B-C | 2 | 7110 | 0.6674 | 0.066 | 0.0851 | 0.1801 | 0.6645 | 0.0031 | 0.0013 | 0.3834 | -0.2446 | -0.2683 | -0.111 | 0.3861 | -0.0529 | -0.0316 | -0.2993 | 0.0609 | -0.169 | 0.9952 | 1.6911 | 1.0792 | A- | A- | A- |
| ELA | 5 | 658543 | 3 | B-K | 2 | 7045 | 0.4055 | 0.4001 | 0.2178 | 0.0724 | 0.2963 | 0.0113 | 0.0021 | 0.2539 | 0.2582 | -0.1093 | -0.2261 | -0.0292 | -0.0762 | -0.0314 | 1.12 | 0.0591 | 8.0312 | 1.2038 | 7.7113 | 1.3291 | A+ | A+ | A- |
| ELA | 5 | 658545 | 3 | B-K | 3 | 5610 | 0.4989 | 0.1573 | 0.1581 | 0.0783 | 0.392 | 0.0059 | 0.2085 | 0.4468 | -0.215 | -0.1706 | -0.1872 | 0.3586 | -0.0653 | 0.0509 | 0.692 | 0.0579 | 2.3111 | 1.0525 | 3.9211 | 1.138 | A- | A+ | A- |
| ELA | 5 | 658547 | 3 | B-K | 2 | 7062 | 0.5344 | 0.2179 | 0.5285 | 0.1531 | 0.0895 | 0.0101 | 0.001 | 0.3756 | -0.1065 | 0.3778 | -0.2429 | -0.1746 | -0.0657 | -0.0244 | 0.4071 | 0.058 | -0.269 | 0.9937 | -0.389 | 0.9864 | A- | A+ | A+ |
| ELA | 5 | 658548 | 3 | B-V | 2 | 7114 | 0.6015 | 0.5992 | 0.1141 | 0.1818 | 0.1011 | 0.0034 | 0.0004 | 0.4096 | 0.4098 | -0.2299 | -0.1888 | -0.1752 | -0.0248 | -0.0326 | 0.1253 | 0.0587 | 1.161 | 1.028 | 1.241 | 1.0461 | A+ | A- | A- |
| ELA | 5 | 659819 | 3 | B-V | 2 | 7097 | 0.8267 | 0.0794 | 0.8216 | 0.0462 | 0.0466 | 0.0045 | 0.0017 | 0.4353 | -0.1939 | 0.4407 | -0.2639 | -0.2572 | -0.0643 | -0.0576 | -1.4807 | 0.0761 | -0.289 | 0.986 | 0.5911 | 1.0507 | A- | A+ | A+ |
| ELA | 5 | 629644 | 3 | D | 2 | 7105 | 0.8518 | 0.8475 | 0.0403 | 0.0478 | 0.0594 | 0.0035 | 0.0015 | 0.4854 | 0.4877 | -0.2777 | -0.269 | -0.2476 | -0.0546 | -0.0405 | -1.6474 | 0.0796 | -3.0991 | 0.8531 | -3.9593 | 0.6564 | A+ | A- | A- |
| ELA | 5 | 660717 | 3 | D | 2 | 7083 | 0.8028 | 0.0899 | 0.0685 | 0.7962 | 0.0372 | 0.0071 | 0.001 | 0.4988 | -0.3027 | -0.2625 | 0.5023 | -0.2217 | -0.0784 | -0.0283 | -1.2451 | 0.0718 | -3.4191 | 0.8672 | -2.5592 | 0.8099 | A+ | A- | A- |
| ELA | 5 | 661444 | 3 | D | 1 | 7096 | 0.3884 | 0.2606 | 0.1778 | 0.1693 | 0.3859 | 0.0053 | 0.001 | 0.1554 | -0.0279 | -0.0828 | -0.0743 | 0.1585 | -0.0571 | -0.0387 | 1.2628 | 0.0598 | 8.7512 | 1.2334 | 9.9015 | 1.4968 | A+ | A- | A+ |
| ELA | 5 | 659197 | 4 | B-C | 2 | 7081 | 0.5693 | 0.1919 | 0.5659 | 0.1502 | 0.0861 | 0.0051 | 0.0008 | 0.4422 | -0.2244 | 0.4435 | -0.1562 | -0.2538 | -0.0532 | -0.0241 | 0.1851 | 0.059 | 0.421 | 1.0101 | 0.411 | 1.0151 | A- | A- | A- |
| ELA | 5 | 659202 | 4 | B-C | 2 | 7105 | 0.4988 | 0.4975 | 0.2127 | 0.1116 | 0.1756 | 0.0024 | 0.0001 | 0.3389 | 0.3396 | -0.2774 | -0.1041 | -0.0575 | -0.0299 | -0.0168 | 0.5319 | 0.0584 | 4.9211 | 1.1198 | 5.4312 | 1.2024 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 659285 | 4 | B-C | 2 | 7061 | 0.6622 | 0.6565 | 0.0508 | 0.2019 | 0.0821 | 0.008 | 0.0007 | 0.4145 | 0.4169 | -0.2239 | -0.162 | -0.283 | -0.0595 | -0.0287 | -0.2946 | 0.0614 | 1.051 | 1.0291 | 4.0612 | 1.2048 | A+ | A- | A- |
| ELA | 5 | 659203 | 4 | B-K | 3 | 7093 | 0.6633 | 0.0437 | 0.0668 | 0.2248 | 0.6605 | 0.0035 | 0.0007 | 0.3123 | -0.2619 | -0.2856 | -0.0485 | 0.3163 | -0.0634 | -0.0359 | -0.3171 | 0.0615 | 4.1711 | 1.1209 | 5.2113 | 1.2711 | A+ | A+ | A+ |
| ELA | 5 | 659286 | 4 | B-K | 2 | 7058 | 0.6118 | 0.2193 | 0.6062 | 0.0716 | 0.0938 | 0.0076 | 0.0015 | 0.4768 | -0.2353 | 0.4787 | -0.2551 | -0.2188 | -0.0648 | -0.0337 | -0.024 | 0.0598 | -0.869 | 0.9776 | -1.3191 | 0.9461 | A+ | A+ | A- |
| ELA | 5 | 659287 | 4 | B-K | 3 | 7081 | 0.7797 | 0.7751 | 0.1037 | 0.0594 | 0.0559 | 0.0055 | 0.0004 | 0.5307 | 0.5301 | -0.3178 | -0.255 | -0.2627 | -0.046 | -0.021 | -1.0169 | 0.0685 | -5.1192 | 0.8255 | -4.7593 | 0.6924 | A- | A+ | A+ |
| ELA | 5 | 659209 | 4 | B-V | 2 | 7081 | 0.6512 | 0.0772 | 0.6473 | 0.0639 | 0.2057 | 0.0045 | 0.0014 | 0.2815 | -0.1622 | 0.2862 | -0.231 | -0.0776 | -0.0558 | -0.0497 | -0.2444 | 0.061 | 4.4511 | 1.1266 | 4.5612 | 1.2253 | A- | A- | A- |
| ELA | 5 | 661010 | 4 | B-V | 2 | 7083 | 0.7399 | 0.1132 | 0.0957 | 0.7358 | 0.0497 | 0.0045 | 0.0011 | 0.4607 | -0.2303 | -0.2297 | 0.4635 | -0.2699 | -0.0541 | -0.047 | -0.7591 | 0.0654 | -2.2891 | 0.9268 | -0.8191 | 0.9487 | A- | B- | B- |
| ELA | 5 | 629640 | 4 | D | 2 | 7086 | 0.6071 | 0.0907 | 0.0679 | 0.604 | 0.2322 | 0.0032 | 0.002 | 0.3834 | -0.2644 | -0.2498 | 0.3843 | -0.1093 | -0.0378 | -0.0202 | -0.0123 | 0.0598 | 2.4411 | 1.0638 | 1.7611 | 1.0734 | A+ | A- | A- |
| ELA | 5 | 660718 | 4 | D | 2 | 7060 | 0.8656 | 0.0976 | 0.8579 | 0.0164 | 0.0192 | 0.0086 | 0.0003 | 0.3942 | -0.3049 | 0.3957 | -0.1325 | -0.1811 | -0.0632 | -0.0082 | -1.6746 | 0.08 | -1.9391 | 0.9068 | -1.8692 | 0.8139 | A+ | A- | A- |
| ELA | 5 | 661445 | 4 | D | 1 | 7086 | 0.6729 | 0.0785 | 0.6694 | 0.1426 | 0.1043 | 0.0048 | 0.0004 | 0.4465 | -0.2493 | 0.4464 | -0.1899 | -0.242 | -0.0303 | -0.023 | -0.3665 | 0.0619 | -1.189 | 0.9663 | -1.0291 | 0.9492 | A+ | A+ | A+ |
| ELA | 5 | 659198 | 5 | B-C | 3 | 7061 | 0.6002 | 0.1603 | 0.1626 | 0.5977 | 0.0752 | 0.0034 | 0.0008 | 0.4926 | -0.2574 | -0.2676 | 0.4926 | -0.1741 | -0.0326 | -0.0208 | 0.0313 | 0.0592 | -3.7691 | 0.9093 | -3.0791 | 0.8849 | A+ | A+ | A+ |
| ELA | 5 | 659201 | 5 | B-C | 2 | 7077 | 0.5158 | 0.5147 | 0.2584 | 0.0746 | 0.1503 | 0.002 | | 0.3012 | 0.3025 | -0.0276 | -0.2892 | -0.171 | -0.0442 | | 0.4511 | 0.0583 | 6.5012 | 1.1615 | 7.6113 | 1.2807 | A- | A- | A- |
| ELA | 5 | 659204 | 5 | B-K | 3 | 7065 | 0.6851 | 0.0659 | 0.1197 | 0.6826 | 0.1282 | 0.003 | 0.0007 | 0.4021 | -0.2265 | -0.22 | 0.4043 | -0.1709 | -0.0464 | -0.0356 | -0.4244 | 0.0617 | -1.629 | 0.9552 | 0.681 | 1.033 | A- | A+ | A+ |
| ELA | 5 | 659205 | 5 | B-K | 2 | 7035 | 0.5774 | 0.1199 | 0.5728 | 0.1434 | 0.156 | 0.0071 | 0.0008 | 0.4142 | -0.1873 | 0.4158 | -0.2118 | -0.1802 | -0.0544 | -0.0242 | 0.1584 | 0.0588 | 1.801 | 1.0442 | 1.5111 | 1.0558 | A- | A+ | A+ |
| ELA | 5 | 659206 | 5 | B-K | 2 | 7012 | 0.416 | 0.217 | 0.4114 | 0.0983 | 0.2622 | 0.0102 | 0.001 | 0.2893 | -0.0706 | 0.2915 | -0.2326 | -0.088 | -0.0499 | -0.0447 | 0.972 | 0.059 | 5.6711 | 1.1446 | 6.7713 | 1.269 | A+ | A+ | A+ |
| ELA | 5 | 659207 | 5 | B-K | 1 | 7057 | 0.6422 | 0.1213 | 0.1436 | 0.0912 | 0.6391 | 0.0034 | 0.0014 | 0.4762 | -0.2346 | -0.2013 | -0.2723 | 0.4779 | -0.051 | -0.0259 | -0.1863 | 0.0602 | -3.8391 | 0.9035 | -2.9791 | 0.8761 | A+ | A+ | A- |
| ELA | 5 | 659210 | 5 | B-V | 2 | 7040 | 0.5014 | 0.2187 | 0.4978 | 0.1068 | 0.1695 | 0.0056 | 0.0016 | 0.406 | -0.1628 | 0.4084 | -0.2406 | -0.1499 | -0.061 | -0.0457 | 0.5357 | 0.0583 | 1.421 | 1.0337 | 2.6711 | 1.0923 | A- | A- | A- |
| ELA | 5 | 661152 | 5 | B-V | 2 | 7041 | 0.7532 | 0.7478 | 0.0801 | 0.0915 | 0.0735 | 0.0044 | 0.0027 | 0.381 | 0.3846 | -0.1733 | -0.1775 | -0.2424 | -0.0386 | -0.0581 | -0.813 | 0.0653 | -0.039 | 0.9985 | 0.181 | 1.0103 | A+ | A+ | A- |
| ELA | 5 | 629635 | 5 | D | 2 | 14156 | 0.7115 | 0.1115 | 0.1003 | 0.7086 | 0.0755 | 0.0025 | 0.0015 | 0.4492 | -0.2263 | -0.2276 | 0.4515 | -0.2334 | -0.0436 | -0.0435 | -0.5723 | 0.0446 | -2.9291 | 0.9398 | -3.7191 | 0.8638 | A+ | A- | A- |
| ELA | 5 | 660719 | 5 | D | 2 | 7027 | 0.8006 | 0.0608 | 0.7934 | 0.0661 | 0.0707 | 0.0079 | 0.0011 | 0.475 | -0.2535 | 0.4761 | -0.2584 | -0.2401 | -0.0688 | -0.0111 | -1.1188 | 0.0693 | -3.1191 | 0.8893 | -3.8293 | 0.7392 | A+ | A- | A- |
| ELA | 5 | 661446 | 5 | D | 2 | 14142 | 0.7116 | 0.0754 | 0.0747 | 0.708 | 0.1368 | 0.0044 | 0.0006 | 0.4766 | -0.2308 | -0.2026 | 0.4771 | -0.2887 | -0.0414 | -0.0308 | -0.5685 | 0.0446 | -6.3791 | 0.8727 | -4.6692 | 0.8319 | A+ | A- | A- |
| ELA | 5 | 661093 | 6 | A-C | 2 | 7057 | 0.4155 | 0.1011 | 0.1503 | 0.4118 | 0.3279 | 0.0066 | 0.0022 | 0.1751 | -0.1806 | -0.0447 | 0.1822 | -0.0168 | -0.1064 | -0.0583 | 1.0038 | 0.0583 | 8.2712 | 1.2001 | 8.2613 | 1.3216 | A+ | A+ | A- |
| ELA | 5 | 661094 | 6 | A-C | 2 | 7024 | 0.5645 | 0.1375 | 0.1857 | 0.1065 | 0.5569 | 0.0111 | 0.0024 | 0.3985 | -0.2248 | -0.1169 | -0.2197 | 0.4004 | -0.0663 | -0.0274 | 0.2771 | 0.0585 | 1.481 | 1.0355 | 1.271 | 1.0451 | A+ | A- | A- |
| ELA | 5 | 661095 | 6 | A-K | 2 | 7067 | 0.478 | 0.1159 | 0.211 | 0.1913 | 0.4744 | 0.0066 | 0.0008 | 0.4179 | -0.2613 | -0.0547 | -0.2485 | 0.4202 | -0.068 | -0.0227 | 0.6889 | 0.0579 | 1.921 | 1.0435 | 2.9611 | 1.1007 | A- | A- | A- |
| ELA | 5 | 661097 | 6 | A-K | 3 | 7039 | 0.5239 | 0.2652 | 0.518 | 0.0965 | 0.109 | 0.0087 | 0.0027 | 0.358 | -0.051 | 0.3601 | -0.2746 | -0.2225 | -0.0555 | -0.0364 | 0.4721 | 0.0581 | 3.7311 | 1.0877 | 4.7112 | 1.1659 | A+ | A- | A- |
| ELA | 5 | 661099 | 6 | A-K | 2 | 7084 | 0.7133 | 0.7097 | 0.1112 | 0.0968 | 0.0772 | 0.0045 | 0.0006 | 0.4722 | 0.4759 | -0.2022 | -0.2635 | -0.2569 | -0.0721 | -0.047 | -0.5453 | 0.064 | -2.8391 | 0.9132 | -2.8491 | 0.8505 | A+ | A+ | A- |
| ELA | 5 | 661101 | 6 | A-V | 2 | 7102 | 0.8068 | 0.0535 | 0.8048 | 0.1018 | 0.0374 | 0.002 | 0.0006 | 0.4951 | -0.2756 | 0.4982 | -0.2813 | -0.246 | -0.0589 | -0.0475 | -1.1721 | 0.0725 | -3.4991 | 0.8611 | -4.1993 | 0.7005 | A+ | B- | C- |
| ELA | 5 | 661102 | 6 | A-V | 2 | 7034 | 0.4927 | 0.0692 | 0.1397 | 0.4868 | 0.2921 | 0.0114 | 0.0007 | 0.3607 | -0.2618 | -0.1216 | 0.3634 | -0.1415 | -0.0753 | -0.0255 | 0.6274 | 0.0579 | 4.7811 | 1.1114 | 5.2412 | 1.1828 | A- | A- | A- |
| ELA | 5 | 663357 | 6 | A-V | 2 | 7078 | 0.6214 | 0.1822 | 0.6177 | 0.0813 | 0.1129 | 0.0049 | 0.001 | 0.2529 | -0.076 | 0.2588 | -0.2847 | -0.0372 | -0.0769 | -0.0467 | -0.0354 | 0.06 | 8.1312 | 1.2262 | 9.8315 | 1.4568 | A- | A+ | A+ |
| ELA | 5 | 623758 | 6 | B-C | 2 | 42518 | 0.467 | 0.238 | 0.4641 | 0.0896 | 0.2023 | 0.0053 | 0.0007 | 0.3033 | -0.0828 | 0.3049 | -0.2243 | -0.1212 | -0.0428 | -0.0351 | 0.7226 | 0.0237 | 9.9011 | 1.1291 | 9.9012 | 1.2158 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 623760 | 6 | B-K | 2 | 42519 | 0.6336 | 0.0541 | 0.2306 | 0.0795 | 0.6298 | 0.0043 | 0.0017 | 0.3908 | -0.2243 | -0.1686 | -0.2338 | 0.3932 | -0.0553 | -0.0311 | -0.1142 | 0.0245 | 3.601 | 1.0388 | 3.6611 | 1.0634 | A+ | A- | A- |
| ELA | 5 | 623762 | 6 | B-K | 2 | 42612 | 0.4801 | 0.1257 | 0.2099 | 0.1823 | 0.4783 | 0.0032 | 0.0006 | 0.3462 | -0.1616 | -0.1283 | -0.1658 | 0.3481 | -0.0571 | -0.0332 | 0.6524 | 0.0237 | 8.5311 | 1.0817 | 9.9012 | 1.1592 | A+ | A- | A+ |
| ELA | 5 | 623763 | 6 | B-K | 2 | 42676 | 0.7574 | 0.7556 | 0.0902 | 0.0661 | 0.0858 | 0.0019 | 0.0004 | 0.4212 | 0.4236 | -0.2609 | -0.2108 | -0.1858 | -0.0516 | -0.0314 | -0.8411 | 0.0272 | -4.3891 | 0.94 | -0.919 | 0.976 | A+ | A+ | A- |
| ELA | 5 | 623764 | 6 | B-V | 1 | 42557 | 0.8203 | 0.0453 | 0.0449 | 0.8161 | 0.0886 | 0.0038 | 0.0013 | 0.4224 | -0.2205 | -0.1981 | 0.4256 | -0.2578 | -0.0563 | -0.0357 | -1.2673 | 0.0297 | -6.7991 | 0.8889 | -5.3692 | 0.8319 | A+ | A- | A- |
| ELA | 5 | 623784 | 6 | B-V | 2 | 42525 | 0.7026 | 0.6985 | 0.146 | 0.0407 | 0.1089 | 0.0038 | 0.0021 | 0.3708 | 0.3751 | -0.2364 | -0.2125 | -0.1311 | -0.0633 | -0.0423 | -0.4927 | 0.0257 | 3.531 | 1.0432 | 2.6411 | 1.0565 | A- | A- | A- |
| ELA | 5 | 629646 | 6 | D | 2 | 14134 | 0.7885 | 0.0592 | 0.7843 | 0.0757 | 0.0754 | 0.0035 | 0.0018 | 0.4889 | -0.2369 | 0.4911 | -0.265 | -0.2689 | -0.0574 | -0.0363 | -1.0224 | 0.0492 | -4.8791 | 0.8745 | -5.7793 | 0.7314 | A+ | A- | A- |
| ELA | 5 | 660720 | 6 | D | 1 | 7052 | 0.6594 | 0.0846 | 0.6531 | 0.1902 | 0.0626 | 0.0084 | 0.0011 | 0.3405 | -0.248 | 0.3453 | -0.0705 | -0.2479 | -0.0727 | -0.0294 | -0.2246 | 0.0612 | 4.3711 | 1.1259 | 4.2612 | 1.2054 | A+ | A- | A- |
| ELA | 5 | 662803 | 6 | D | 2 | 14082 | 0.772 | 0.0955 | 0.0771 | 0.765 | 0.0533 | 0.0079 | 0.0011 | 0.5236 | -0.3034 | -0.2629 | 0.523 | -0.2516 | -0.0537 | -0.0347 | -0.8908 | 0.0479 | -7.7992 | 0.8152 | -7.1493 | 0.6973 | A+ | B- | A- |
| ELA | 5 | 663163 | 7 | A-C | 2 | 7031 | 0.3196 | 0.2778 | 0.3148 | 0.2107 | 0.1817 | 0.012 | 0.0029 | 0.1264 | 0.0194 | 0.1268 | -0.0959 | -0.0665 | -0.0154 | -0.0215 | 1.4906 | 0.0617 | 9.9013 | 1.2996 | 9.9016 | 1.6321 | A- | A- | A- |
| ELA | 5 | 663164 | 7 | A-C | 3 | 7105 | 0.6298 | 0.1146 | 0.1073 | 0.6269 | 0.1465 | 0.0042 | 0.0004 | 0.456 | -0.1797 | -0.2926 | 0.4595 | -0.1938 | -0.0844 | -0.0187 | -0.1165 | 0.0598 | -0.549 | 0.9857 | -0.499 | 0.9796 | A+ | A+ | A- |
| ELA | 5 | 663165 | 7 | A-K | 2 | 7095 | 0.4571 | 0.2868 | 0.2132 | 0.0396 | 0.4543 | 0.0048 | 0.0013 | 0.245 | -0.0134 | -0.16 | -0.2377 | 0.2481 | -0.0672 | -0.0261 | 0.7579 | 0.0583 | 7.1312 | 1.1754 | 7.9313 | 1.2964 | A+ | A+ | A+ |
| ELA | 5 | 663168 | 7 | A-K | 2 | 7051 | 0.3211 | 0.3577 | 0.1112 | 0.2017 | 0.3172 | 0.0116 | 0.0006 | 0.3157 | -0.0283 | -0.2689 | -0.1062 | 0.3171 | -0.0603 | -0.0148 | 1.4772 | 0.0616 | 1.391 | 1.0383 | 4.7112 | 1.2437 | A+ | A+ | A+ |
| ELA | 5 | 663170 | 7 | A-K | 2 | 7092 | 0.6729 | 0.0778 | 0.6685 | 0.1527 | 0.0946 | 0.0053 | 0.0011 | 0.5098 | -0.2688 | 0.5121 | -0.2783 | -0.2154 | -0.062 | -0.0423 | -0.3415 | 0.0611 | -3.6891 | 0.9021 | -1.9491 | 0.9136 | A- | A+ | A+ |
| ELA | 5 | 663171 | 7 | A-V | 2 | 7107 | 0.7826 | 0.0485 | 0.1258 | 0.0422 | 0.7792 | 0.0034 | 0.001 | 0.5002 | -0.2754 | -0.2907 | -0.241 | 0.5027 | -0.0749 | -0.0063 | -1.0174 | 0.0678 | -3.4891 | 0.881 | -3.8392 | 0.7609 | A- | A- | C- |
| ELA | 5 | 663172 | 7 | A-V | 2 | 7124 | 0.8149 | 0.1087 | 0.0434 | 0.8133 | 0.0326 | 0.0017 | 0.0003 | 0.4473 | -0.2935 | -0.2397 | 0.4489 | -0.1837 | -0.0498 | -0.0026 | -1.2646 | 0.0714 | -3.0891 | 0.882 | -3.2992 | 0.7621 | A+ | A- | A- |
| ELA | 5 | 664799 | 7 | A-V | 2 | 7104 | 0.4949 | 0.4926 | 0.0859 | 0.3323 | 0.0845 | 0.0042 | 0.0006 | 0.383 | 0.3854 | -0.2741 | -0.0958 | -0.2353 | -0.0674 | -0.0392 | 0.5666 | 0.0581 | 1.731 | 1.0406 | 2.6111 | 1.0888 | A- | A- | A- |
| ELA | 5 | 629645 | 7 | D | 2 | 7088 | 0.64 | 0.1244 | 0.1243 | 0.1089 | 0.6355 | 0.0042 | 0.0028 | 0.471 | -0.2535 | -0.201 | -0.2324 | 0.4717 | -0.051 | -0.0258 | -0.1619 | 0.06 | -2.1491 | 0.945 | -2.0991 | 0.9158 | A+ | A- | A- |
| ELA | 5 | 661439 | 7 | D | 2 | 7074 | 0.7053 | 0.0773 | 0.6989 | 0.1587 | 0.056 | 0.0076 | 0.0014 | 0.3925 | -0.2782 | 0.3978 | -0.1307 | -0.228 | -0.0739 | -0.0416 | -0.5137 | 0.0624 | -0.819 | 0.9761 | -0.559 | 0.9713 | A+ | A+ | A- |
| ELA | 5 | 662804 | 7 | D | 2 | 7094 | 0.7745 | 0.7697 | 0.066 | 0.1126 | 0.0455 | 0.0052 | 0.001 | 0.4812 | 0.4814 | -0.2398 | -0.2879 | -0.2309 | -0.0435 | -0.0282 | -0.9526 | 0.067 | -5.5492 | 0.8205 | -5.3893 | 0.6876 | B+ | B- | A- |
| ELA | 5 | 660275 | 8 | A-C | 2 | 7107 | 0.4978 | 0.2075 | 0.4943 | 0.1377 | 0.1534 | 0.0056 | 0.0015 | 0.2282 | -0.1459 | 0.2327 | -0.1109 | -0.0334 | -0.0675 | -0.0483 | 0.5816 | 0.058 | 8.8612 | 1.2157 | 8.7513 | 1.3174 | A+ | A- | A+ |
| ELA | 5 | 660278 | 8 | A-K | 2 | 7084 | 0.3571 | 0.3535 | 0.2132 | 0.1577 | 0.2653 | 0.0096 | 0.0007 | 0.1021 | 0.1064 | -0.0721 | 0.0071 | -0.0377 | -0.0677 | -0.0241 | 1.2938 | 0.0598 | 9.9013 | 1.3238 | 9.9016 | 1.5686 | A+ | A+ | A- |
| ELA | 5 | 660279 | 8 | A-K | 2 | 7102 | 0.5375 | 0.1352 | 0.2307 | 0.5332 | 0.093 | 0.0066 | 0.0013 | 0.3739 | -0.2129 | -0.1771 | 0.377 | -0.1159 | -0.0746 | -0.0282 | 0.3889 | 0.0582 | 1.231 | 1.0287 | 1.8311 | 1.0625 | A+ | A+ | A+ |
| ELA | 5 | 660280 | 8 | A-K | 2 | 7063 | 0.3751 | 0.1204 | 0.3701 | 0.0868 | 0.4095 | 0.0126 | 0.0007 | 0.219 | -0.2249 | 0.2223 | -0.2246 | 0.0754 | -0.0645 | -0.0293 | 1.2063 | 0.0593 | 9.0612 | 1.235 | 9.2014 | 1.4128 | A+ | A- | A- |
| ELA | 5 | 660281 | 8 | A-K | 2 | 7114 | 0.5939 | 0.1231 | 0.1653 | 0.5902 | 0.1153 | 0.0049 | 0.0013 | 0.3866 | -0.2047 | -0.2134 | 0.3899 | -0.1224 | -0.0709 | -0.034 | 0.1031 | 0.059 | 0.741 | 1.0181 | 1.111 | 1.0413 | A+ | A- | A+ |
| ELA | 5 | 660283 | 8 | A-V | 2 | 7132 | 0.8791 | 0.0341 | 0.0288 | 0.0576 | 0.8759 | 0.0028 | 0.0008 | 0.4579 | -0.2529 | -0.2336 | -0.2693 | 0.4632 | -0.0874 | -0.0148 | -1.7798 | 0.0836 | -3.9092 | 0.8018 | -4.2894 | 0.6042 | A- | A- | A- |
| ELA | 5 | 660284 | 8 | A-V | 2 | 7102 | 0.6412 | 0.6362 | 0.1041 | 0.17 | 0.0819 | 0.0063 | 0.0015 | 0.3583 | 0.3648 | -0.2279 | -0.1051 | -0.2096 | -0.0932 | -0.0412 | -0.1353 | 0.0602 | 2.4211 | 1.065 | 2.6811 | 1.1153 | A- | A- | A- |
| ELA | 5 | 662559 | 8 | A-V | 2 | 7144 | 0.8198 | 0.0777 | 0.0546 | 0.8182 | 0.0475 | 0.0017 | 0.0003 | 0.4421 | -0.2761 | -0.2701 | 0.4451 | -0.1573 | -0.0657 | -0.0137 | -1.2665 | 0.0729 | -4.5892 | 0.8197 | -4.1693 | 0.6975 | A- | A- | A- |
| ELA | 5 | 629636 | 8 | D | 2 | 14185 | 0.6113 | 0.0195 | 0.2576 | 0.1094 | 0.6079 | 0.0027 | 0.0029 | 0.4441 | -0.1834 | -0.2782 | -0.2136 | 0.4441 | -0.038 | -0.0208 | 0.0067 | 0.0422 | -1.869 | 0.9664 | -1.789 | 0.9503 | A- | A- | A- |
| ELA | 5 | 661440 | 8 | D | 2 | 14078 | 0.752 | 0.0396 | 0.0629 | 0.1422 | 0.7422 | 0.0084 | 0.0047 | 0.4164 | -0.2437 | -0.2613 | -0.1801 | 0.4242 | -0.0754 | -0.0705 | -0.7491 | 0.0466 | -2.8091 | 0.9348 | -2.7791 | 0.884 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 662805 | 8 | D | 2 | 14177 | 0.8178 | 0.0787 | 0.8128 | 0.067 | 0.0354 | 0.005 | 0.0012 | 0.4853 | -0.2896 | 0.4849 | -0.2532 | -0.2378 | -0.0389 | -0.0357 | -1.2355 | 0.0515 | -6.8092 | 0.8128 | -6.8293 | 0.656 | A+ | A+ | A+ |
| ELA | 5 | 662354 | 9 | A-K | 2 | 7097 | 0.6954 | 0.1191 | 0.0807 | 0.6906 | 0.1027 | 0.0052 | 0.0017 | 0.5154 | -0.2263 | -0.2856 | 0.5179 | -0.2701 | -0.048 | -0.0696 | -0.4506 | 0.0624 | -5.7292 | 0.8415 | -3.0891 | 0.8511 | A+ | A- | A- |
| ELA | 5 | 662356 | 9 | A-K | 2 | 7120 | 0.6051 | 0.0676 | 0.6029 | 0.1448 | 0.1811 | 0.0025 | 0.0011 | 0.3893 | -0.2589 | 0.391 | -0.1545 | -0.179 | -0.0364 | -0.0362 | 0.0227 | 0.0593 | 2.5911 | 1.0661 | 2.3411 | 1.093 | A+ | A- | A- |
| ELA | 5 | 662357 | 9 | A-K | 3 | 7112 | 0.6229 | 0.0936 | 0.0684 | 0.2133 | 0.6199 | 0.0043 | 0.0004 | 0.3438 | -0.2651 | -0.2868 | -0.0339 | 0.3475 | -0.0747 | -0.013 | -0.0661 | 0.0597 | 0.691 | 1.0176 | 1.9011 | 1.0785 | A+ | A+ | A+ |
| ELA | 5 | 662358 | 9 | A-K | 3 | 7079 | 0.3029 | 0.2082 | 0.1147 | 0.3676 | 0.3 | 0.0088 | 0.0006 | 0.2009 | -0.177 | -0.1677 | 0.0786 | 0.2029 | -0.0552 | -0.0169 | 1.5789 | 0.0616 | 4.3411 | 1.1228 | 7.8714 | 1.4312 | A+ | A+ | A- |
| ELA | 5 | 662360 | 9 | A-K | 3 | 7050 | 0.6325 | 0.624 | 0.1097 | 0.1867 | 0.0662 | 0.0094 | 0.0041 | 0.4788 | 0.4764 | -0.2427 | -0.2025 | -0.2837 | -0.0513 | -0.0083 | -0.0873 | 0.0598 | -1.879 | 0.9521 | -1.7791 | 0.9284 | A- | A+ | A+ |
| ELA | 5 | 662362 | 9 | A-V | 2 | 7131 | 0.5647 | 0.5635 | 0.1205 | 0.0633 | 0.2506 | 0.0017 | 0.0004 | 0.188 | 0.1896 | -0.1919 | -0.2207 | 0.0556 | -0.0279 | -0.0378 | 0.2231 | 0.0585 | 9.9013 | 1.2928 | 9.9015 | 1.4839 | A+ | A+ | A- |
| ELA | 5 | 662363 | 9 | A-V | 2 | 7110 | 0.6759 | 0.233 | 0.0491 | 0.6725 | 0.0403 | 0.0038 | 0.0013 | 0.4209 | -0.2139 | -0.2441 | 0.423 | -0.2601 | -0.0526 | -0.0263 | -0.3491 | 0.0616 | 0.061 | 1.0014 | 0.801 | 1.0379 | A+ | A+ | A+ |
| ELA | 5 | 663638 | 9 | A-V | 3 | 7108 | 0.7597 | 0.7557 | 0.0616 | 0.0847 | 0.0928 | 0.0041 | 0.0013 | 0.5144 | 0.5155 | -0.2808 | -0.2239 | -0.3013 | -0.0414 | -0.0473 | -0.8438 | 0.0666 | -5.4992 | 0.8228 | -4.5493 | 0.7352 | A+ | A+ | A- |
| ELA | 5 | 629641 | 9 | D | 2 | 7102 | 0.6345 | 0.0936 | 0.0974 | 0.1723 | 0.6306 | 0.0042 | 0.002 | 0.4804 | -0.2539 | -0.2921 | -0.1794 | 0.4807 | -0.0457 | -0.017 | -0.122 | 0.06 | -3.3091 | 0.9159 | -3.3391 | 0.8663 | A+ | A- | A- |
| ELA | 5 | 661441 | 9 | D | 2 | 7092 | 0.5942 | 0.138 | 0.1026 | 0.5897 | 0.1622 | 0.0063 | 0.0013 | 0.4427 | -0.2398 | -0.2223 | 0.4433 | -0.171 | -0.0476 | -0.0314 | 0.0903 | 0.059 | 0.251 | 1.0059 | 0.271 | 1.0097 | A+ | A- | A- |
| ELA | 5 | 662806 | 9 | D | 2 | 7104 | 0.547 | 0.2351 | 0.096 | 0.1192 | 0.5438 | 0.0045 | 0.0014 | 0.4115 | -0.2014 | -0.2543 | -0.1286 | 0.4123 | -0.0331 | -0.03 | 0.3222 | 0.0582 | 2.6011 | 1.0619 | 2.6011 | 1.0917 | A+ | A- | A- |
| ELA | 5 | 622457 | 10 | A-C | 2 | 7065 | 0.626 | 0.1577 | 0.0679 | 0.1453 | 0.6209 | 0.0069 | 0.0013 | 0.437 | -0.1784 | -0.2531 | -0.2224 | 0.4379 | -0.0558 | -0.0205 | -0.0866 | 0.0598 | -2.1591 | 0.9454 | -0.019 | 0.9984 | A+ | A- | A+ |
| ELA | 5 | 622453 | 10 | A-K | 2 | 7101 | 0.535 | 0.1831 | 0.1033 | 0.1772 | 0.5333 | 0.002 | 0.0011 | 0.3268 | -0.2003 | -0.152 | -0.0993 | 0.3273 | -0.0196 | -0.0228 | 0.3602 | 0.0584 | 5.0811 | 1.1249 | 4.7712 | 1.1733 | A+ | A- | A- |
| ELA | 5 | 622454 | 10 | A-K | 2 | 7089 | 0.6988 | 0.0591 | 0.1183 | 0.6955 | 0.1223 | 0.0041 | 0.0007 | 0.4798 | -0.2499 | -0.2663 | 0.4815 | -0.2213 | -0.0558 | -0.0221 | -0.4943 | 0.0626 | -4.3291 | 0.8789 | -2.4191 | 0.879 | A+ | A- | A- |
| ELA | 5 | 622455 | 10 | A-K | 2 | 7033 | 0.6064 | 0.5988 | 0.0911 | 0.1699 | 0.1276 | 0.0118 | 0.0008 | 0.3918 | 0.396 | -0.2705 | -0.2135 | -0.0798 | -0.0806 | -0.0262 | 0.0288 | 0.0593 | 1.851 | 1.0467 | 1.5011 | 1.0587 | A- | A- | A- |
| ELA | 5 | 622456 | 10 | A-K | 2 | 7087 | 0.6762 | 0.1005 | 0.6728 | 0.0578 | 0.1638 | 0.0044 | 0.0007 | 0.4414 | -0.2977 | 0.4425 | -0.2354 | -0.1613 | -0.047 | -0.0142 | -0.3659 | 0.0616 | -3.1291 | 0.9151 | -1.8491 | 0.9131 | A+ | A+ | A- |
| ELA | 5 | 622460 | 10 | A-K | 2 | 7076 | 0.4943 | 0.2973 | 0.4911 | 0.1137 | 0.0913 | 0.0046 | 0.002 | 0.4356 | -0.1209 | 0.4379 | -0.2988 | -0.216 | -0.0714 | -0.0394 | 0.5708 | 0.0582 | -0.669 | 0.9844 | 1.221 | 1.0411 | A+ | A- | A- |
| ELA | 5 | 622458 | 10 | A-V | 2 | 7107 | 0.7038 | 0.7022 | 0.1793 | 0.0637 | 0.0525 | 0.0015 | 0.0007 | 0.4428 | 0.4442 | -0.214 | -0.2345 | -0.2752 | -0.0395 | -0.031 | -0.5333 | 0.063 | -3.0391 | 0.9127 | -0.659 | 0.9645 | B- | A- | A- |
| ELA | 5 | 625251 | 10 | A-V | 1 | 7085 | 0.7663 | 0.0957 | 0.0587 | 0.7622 | 0.0781 | 0.0045 | 0.0008 | 0.4797 | -0.2463 | -0.2625 | 0.4829 | -0.2459 | -0.066 | -0.0367 | -0.9021 | 0.0669 | -3.5091 | 0.884 | -3.9992 | 0.7584 | A+ | A- | A- |
| ELA | 5 | 662807 | 10 | D | 2 | 6803 | 0.6479 | 0.1776 | 0.1 | 0.6188 | 0.0587 | 0.0097 | 0.0352 | 0.3995 | -0.1775 | -0.1766 | 0.4088 | -0.2238 | -0.0518 | -0.1087 | -0.0755 | 0.0598 | 0.551 | 1.0139 | 0.631 | 1.0253 | A+ | A- | A- |
| ELA | 5 | 623039 | 11 | A-C | 2 | 7021 | 0.6881 | 0.1623 | 0.0821 | 0.0645 | 0.6814 | 0.008 | 0.0017 | 0.4501 | -0.2306 | -0.2612 | -0.1916 | 0.4534 | -0.0668 | -0.0369 | -0.3827 | 0.062 | -2.0091 | 0.9434 | -1.7991 | 0.913 | A+ | A- | A+ |
| ELA | 5 | 623034 | 11 | A-K | 2 | 7063 | 0.6567 | 0.6542 | 0.2016 | 0.063 | 0.0774 | 0.0031 | 0.0007 | 0.4082 | 0.4097 | -0.108 | -0.2977 | -0.2852 | -0.0437 | -0.0206 | -0.2324 | 0.0609 | 0.901 | 1.0244 | 1.9511 | 1.09 | A- | A+ | A- |
| ELA | 5 | 623035 | 11 | A-K | 2 | 7022 | 0.6044 | 0.1817 | 0.5986 | 0.1481 | 0.0621 | 0.0093 | 0.0003 | 0.3554 | -0.2351 | 0.3566 | -0.046 | -0.2593 | -0.0498 | -0.0296 | 0.0605 | 0.0592 | 3.8811 | 1.0988 | 3.7112 | 1.1502 | A- | A+ | A+ |
| ELA | 5 | 623036 | 11 | A-K | 2 | 7045 | 0.3916 | 0.0867 | 0.1577 | 0.3601 | 0.3891 | 0.0047 | 0.0017 | 0.2087 | -0.213 | -0.2064 | 0.0789 | 0.212 | -0.0578 | -0.0522 | 1.1109 | 0.059 | 9.4112 | 1.2414 | 9.9015 | 1.4649 | A- | A- | A+ |
| ELA | 5 | 623040 | 11 | A-K | 2 | 7044 | 0.6928 | 0.1364 | 0.1172 | 0.6883 | 0.0516 | 0.0048 | 0.0017 | 0.4378 | -0.2341 | -0.2255 | 0.4385 | -0.2087 | -0.0374 | -0.0356 | -0.4217 | 0.0623 | -2.0191 | 0.9425 | -2.0191 | 0.9005 | A+ | A- | A- |
| ELA | 5 | 623042 | 11 | A-K | 2 | 7069 | 0.6209 | 0.1346 | 0.1269 | 0.619 | 0.1165 | 0.0027 | 0.0003 | 0.381 | -0.2343 | -0.0965 | 0.3821 | -0.222 | -0.0374 | -0.0196 | -0.0455 | 0.0597 | 0.601 | 1.0151 | 2.5711 | 1.108 | A+ | A+ | A+ |
| ELA | 5 | 623041 | 11 | A-V | 1 | 7066 | 0.5568 | 0.036 | 0.5549 | 0.3577 | 0.0481 | 0.0027 | 0.0007 | 0.1488 | -0.2457 | 0.1524 | 0.0573 | -0.2502 | -0.06 | -0.0305 | 0.2823 | 0.0585 | 9.9013 | 1.3118 | 9.9015 | 1.4725 | A+ | A- | A- |
| ELA | 5 | 629586 | 11 | A-V | 2 | 7055 | 0.4458 | 0.4436 | 0.0865 | 0.0834 | 0.3817 | 0.0038 | 0.0011 | 0.3582 | 0.359 | -0.2429 | -0.2396 | -0.0837 | -0.0402 | -0.0219 | 0.8353 | 0.0582 | 1.271 | 1.0292 | 1.9711 | 1.0695 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 662808 | 11 | D | 2 | 7049 | 0.5198 | 0.0619 | 0.1362 | 0.2793 | 0.5168 | 0.0047 | 0.0011 | 0.4465 | -0.177 | -0.2034 | -0.2376 | 0.4481 | -0.0596 | -0.0239 | 0.472 | 0.0581 | -1.579 | 0.9641 | -1.049 | 0.9645 | A- | A+ | A- |
| ELA | 5 | 623677 | 12 | B-K | 2 | 7064 | 0.3964 | 0.3392 | 0.1666 | 0.394 | 0.0941 | 0.0055 | 0.0006 | 0.2063 | -0.0629 | -0.0819 | 0.2086 | -0.1269 | -0.0583 | -0.0101 | 1.0839 | 0.0589 | 9.1612 | 1.2318 | 9.0714 | 1.3825 | A- | A- | A- |
| ELA | 5 | 623679 | 12 | B-K | 2 | 7072 | 0.5855 | 0.1594 | 0.1742 | 0.5827 | 0.0788 | 0.003 | 0.002 | 0.3867 | -0.1944 | -0.1361 | 0.3893 | -0.2394 | -0.0445 | -0.052 | 0.1307 | 0.0593 | 0.411 | 1.0102 | 0.441 | 1.0165 | A- | A- | A- |
| ELA | 5 | 623682 | 12 | B-K | 2 | 7066 | 0.665 | 0.121 | 0.0651 | 0.1469 | 0.6612 | 0.0037 | 0.0021 | 0.4579 | -0.1313 | -0.2508 | -0.3031 | 0.4621 | -0.0765 | -0.0457 | -0.2847 | 0.0617 | -2.0891 | 0.9417 | -1.2591 | 0.9405 | A+ | A- | A- |
| ELA | 5 | 623684 | 12 | B-K | 2 | 7062 | 0.5455 | 0.0841 | 0.1401 | 0.2274 | 0.542 | 0.0056 | 0.0007 | 0.4603 | -0.2355 | -0.3384 | -0.1013 | 0.4603 | -0.0448 | -0.0241 | 0.337 | 0.0586 | -2.059 | 0.9515 | -1.7591 | 0.9383 | A- | A- | A- |
| ELA | 5 | 623685 | 12 | B-K | 2 | 7077 | 0.7194 | 0.0953 | 0.7163 | 0.0955 | 0.0886 | 0.0028 | 0.0014 | 0.4987 | -0.2675 | 0.5012 | -0.2426 | -0.2517 | -0.054 | -0.0448 | -0.6004 | 0.0645 | -5.1092 | 0.846 | -5.1293 | 0.7332 | A+ | A- | A+ |
| ELA | 5 | 623681 | 12 | B-V | 1 | 7073 | 0.345 | 0.3433 | 0.2191 | 0.241 | 0.1918 | 0.0031 | 0.0017 | 0.3086 | 0.3104 | -0.041 | -0.0876 | -0.2249 | -0.0496 | -0.0401 | 1.3528 | 0.06 | 2.6511 | 1.0679 | 5.7213 | 1.2658 | A- | A- | A+ |
| ELA | 5 | 623683 | 12 | B-V | 1 | 7079 | 0.7639 | 0.7609 | 0.0753 | 0.0789 | 0.0809 | 0.0024 | 0.0015 | 0.4822 | 0.4834 | -0.2342 | -0.2839 | -0.2375 | -0.0366 | -0.0328 | -0.8798 | 0.0678 | -4.7792 | 0.8385 | -3.6492 | 0.7721 | A+ | A- | A- |
| ELA | 5 | 630800 | 12 | B-V | 2 | 7091 | 0.7739 | 0.0644 | 0.7722 | 0.1114 | 0.0497 | 0.002 | 0.0003 | 0.4962 | -0.295 | 0.4975 | -0.2857 | -0.2027 | -0.0411 | -0.0278 | -0.955 | 0.0688 | -3.6091 | 0.8724 | -3.0092 | 0.8005 | A- | A- | A- |
| ELA | 6 | 495896 | 0 | A-C | 2 | 80747 | 0.3732 | 0.1724 | 0.1521 | 0.2962 | 0.3696 | 0.0082 | 0.0014 | 0.3235 | 0.0146 | -0.2072 | -0.1712 | 0.3276 | -0.1062 | -0.0393 | 1.5563 | 0.0171 | 9.9011 | 1.1165 | 9.9012 | 1.2438 | A+ | A+ | A+ |
| ELA | 6 | 495897 | 0 | A-C | 2 | 80902 | 0.6163 | 0.6115 | 0.1249 | 0.1057 | 0.1501 | 0.0067 | 0.0011 | 0.3735 | 0.3803 | -0.2138 | -0.2067 | -0.115 | -0.107 | -0.041 | 0.1115 | 0.0171 | 9.9011 | 1.0967 | 9.9012 | 1.1613 | A+ | A+ | A+ |
| ELA | 6 | 496307 | 0 | A-C | 2 | 81101 | 0.4489 | 0.0968 | 0.4465 | 0.078 | 0.3734 | 0.0046 | 0.0007 | 0.4021 | -0.2901 | 0.4046 | -0.2913 | -0.0631 | -0.0889 | -0.0278 | 1.1566 | 0.0166 | 6.961 | 1.0446 | 9.9011 | 1.133 | A- | A+ | A+ |
| ELA | 6 | 499798 | 0 | A-C | 2 | 80972 | 0.4748 | 0.1563 | 0.4716 | 0.2235 | 0.1417 | 0.006 | 0.0009 | 0.3409 | -0.0877 | 0.3456 | -0.1736 | -0.1696 | -0.1038 | -0.0393 | 0.6936 | 0.0165 | 9.9011 | 1.1306 | 9.9012 | 1.212 | A- | A+ | A- |
| ELA | 6 | 495898 | 0 | A-K | 3 | 80858 | 0.3906 | 0.3426 | 0.1443 | 0.1175 | 0.3873 | 0.0068 | 0.0015 | 0.499 | -0.1438 | -0.272 | -0.2188 | 0.5007 | -0.1039 | -0.0285 | 1.513 | 0.017 | -9.8991 | 0.9189 | -2.119 | 0.977 | A- | A- | A- |
| ELA | 6 | 495899 | 0 | A-K | 2 | 80627 | 0.3977 | 0.1977 | 0.1918 | 0.2061 | 0.3932 | 0.0101 | 0.0011 | 0.4717 | -0.203 | -0.2042 | -0.1461 | 0.4737 | -0.1001 | -0.0322 | 1.4487 | 0.0169 | -5.509 | 0.963 | 4.381 | 1.0467 | A+ | A- | A- |
| ELA | 6 | 496311 | 0 | A-K | 3 | 81011 | 0.6055 | 0.6016 | 0.0826 | 0.0784 | 0.231 | 0.0056 | 0.0009 | 0.3745 | 0.3791 | -0.1807 | -0.2633 | -0.1368 | -0.0871 | -0.0326 | 0.5212 | 0.0166 | 4.321 | 1.0278 | 7.9911 | 1.0765 | A- | A+ | A+ |
| ELA | 6 | 496315 | 0 | A-K | 2 | 80915 | 0.6608 | 0.1881 | 0.0969 | 0.0517 | 0.6558 | 0.0058 | 0.0018 | 0.4723 | -0.2062 | -0.2807 | -0.2488 | 0.475 | -0.0807 | -0.0201 | 0.1566 | 0.0171 | -7.3691 | 0.9488 | -5.2991 | 0.9419 | A+ | A- | A+ |
| ELA | 6 | 495895 | 0 | A-V | 1 | 80824 | 0.4703 | 0.4662 | 0.2017 | 0.1744 | 0.1491 | 0.0072 | 0.0015 | 0.4138 | 0.418 | -0.1581 | -0.1762 | -0.1895 | -0.1061 | -0.0452 | 0.8712 | 0.0165 | 6.041 | 1.0376 | 7.6611 | 1.0686 | A- | A+ | A+ |
| ELA | 6 | 495900 | 0 | A-V | 2 | 80860 | 0.6388 | 0.0958 | 0.6335 | 0.0769 | 0.1856 | 0.007 | 0.0013 | 0.3541 | -0.2232 | 0.3614 | -0.209 | -0.1098 | -0.1058 | -0.0356 | -0.1998 | 0.0178 | 9.9012 | 1.2252 | 9.9014 | 1.3828 | A- | A+ | A+ |
| ELA | 6 | 496308 | 0 | A-V | 2 | 81009 | 0.7968 | 0.0952 | 0.0567 | 0.0499 | 0.7917 | 0.0055 | 0.001 | 0.506 | -0.2577 | -0.2879 | -0.2645 | 0.5109 | -0.0934 | -0.0236 | -0.8191 | 0.0201 | -9.8991 | 0.8849 | -9.8992 | 0.7814 | A- | A- | A- |
| ELA | 6 | 496309 | 0 | A-V | 2 | 81016 | 0.714 | 0.0475 | 0.151 | 0.7094 | 0.0857 | 0.0055 | 0.0009 | 0.4446 | -0.291 | -0.2068 | 0.4492 | -0.2172 | -0.0851 | -0.0305 | -0.0612 | 0.0175 | -9.8991 | 0.9181 | -6.9391 | 0.9143 | A- | A- | A- |
| ELA | 6 | 496313 | 0 | A-V | 2 | 80879 | 0.5928 | 0.183 | 0.588 | 0.146 | 0.075 | 0.0069 | 0.0011 | 0.4013 | -0.2027 | 0.4062 | -0.1344 | -0.2478 | -0.0946 | -0.0308 | 0.818 | 0.0165 | 5.661 | 1.0353 | 6.3111 | 1.0563 | A- | A+ | A- |
| ELA | 6 | 495090 | 0 | B-C | 2 | 80689 | 0.4874 | 0.1067 | 0.4824 | 0.2874 | 0.1132 | 0.0095 | 0.0008 | 0.3811 | -0.1985 | 0.3856 | -0.083 | -0.2628 | -0.0991 | -0.0324 | 0.7636 | 0.0165 | 9.9011 | 1.0838 | 9.9012 | 1.1611 | A- | A+ | A+ |
| ELA | 6 | 576358 | 0 | B-C | 2 | 81009 | 0.578 | 0.0728 | 0.0902 | 0.2563 | 0.5743 | 0.0053 | 0.0011 | 0.323 | -0.217 | -0.2699 | -0.0504 | 0.3265 | -0.0606 | -0.0411 | 0.6055 | 0.0166 | 9.9011 | 1.1121 | 9.9012 | 1.1747 | A+ | A+ | A+ |
| ELA | 6 | 578140 | 0 | B-C | 2 | 81154 | 0.5945 | 0.1841 | 0.0848 | 0.1347 | 0.5917 | 0.0039 | 0.0007 | 0.442 | -0.1474 | -0.2569 | -0.2486 | 0.4441 | -0.063 | -0.0278 | 0.3353 | 0.0168 | 0.601 | 1.004 | 2.411 | 1.0246 | A+ | A+ | A+ |
| ELA | 6 | 495091 | 0 | B-K | 2 | 80940 | 0.3736 | 0.1144 | 0.1789 | 0.3284 | 0.3709 | 0.0064 | 0.0009 | 0.3079 | -0.2601 | -0.2162 | 0.0515 | 0.3116 | -0.101 | -0.0318 | 1.3994 | 0.0169 | 9.9011 | 1.1043 | 9.9012 | 1.1768 | A- | A+ | A+ |
| ELA | 6 | 495092 | 0 | B-K | 2 | 80804 | 0.5543 | 0.1508 | 0.1673 | 0.5493 | 0.1237 | 0.008 | 0.001 | 0.4807 | -0.2117 | -0.1991 | 0.4847 | -0.2458 | -0.1053 | -0.025 | 0.1801 | 0.017 | 8.3611 | 1.0597 | 5.4411 | 1.0611 | A- | A+ | A+ |
| ELA | 6 | 576364 | 0 | B-K | 2 | 80962 | 0.6047 | 0.0751 | 0.6004 | 0.1668 | 0.1507 | 0.006 | 0.001 | 0.4486 | -0.2557 | 0.4516 | -0.1886 | -0.215 | -0.0709 | -0.0358 | 0.3849 | 0.0167 | -1.389 | 0.9908 | 0.531 | 1.0052 | A- | A+ | A+ |
| ELA | 6 | 576365 | 0 | B-K | 2 | 81052 | 0.596 | 0.5925 | 0.0995 | 0.2181 | 0.084 | 0.005 | 0.0009 | 0.4625 | 0.4643 | -0.2725 | -0.1975 | -0.2159 | -0.0582 | -0.0336 | 0.4325 | 0.0167 | -4.309 | 0.9722 | -5.119 | 0.9513 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 6 | 576366 | 0 | B-K | 2 | 81057 | 0.6635 | 0.1453 | 0.1262 | 0.6596 | 0.0632 | 0.0049 | 0.0009 | 0.5597 | -0.2929 | -0.303 | 0.5615 | -0.232 | -0.0666 | -0.0376 | 0.083 | 0.0172 | -9.8991 | 0.8619 | -9.8992 | 0.7856 | A+ | A+ | A+ |
| ELA | 6 | 495094 | 0 | B-V | 2 | 81007 | 0.6166 | 0.2669 | 0.6126 | 0.0472 | 0.0668 | 0.0059 | 0.0006 | 0.3987 | -0.1716 | 0.4041 | -0.2766 | -0.2156 | -0.1014 | -0.028 | -0.0234 | 0.0174 | 9.9012 | 1.1518 | 9.9013 | 1.2804 | A- | A- | A- |
| ELA | 6 | 576367 | 0 | B-V | 2 | 81204 | 0.8006 | 0.1026 | 0.0575 | 0.7973 | 0.0386 | 0.0035 | 0.0006 | 0.4174 | -0.2637 | -0.2534 | 0.4208 | -0.1343 | -0.0599 | -0.0326 | -0.8009 | 0.02 | -5.9791 | 0.9356 | -4.6091 | 0.9107 | A+ | A+ | A+ |
| ELA | 6 | 341235 | 0 | D | 1 | 80940 | 0.6385 | 0.0442 | 0.2675 | 0.0471 | 0.6339 | 0.0051 | 0.0022 | 0.2588 | -0.1998 | -0.0885 | -0.1896 | 0.2649 | -0.0761 | -0.0387 | 0.1239 | 0.0171 | 9.9012 | 1.1656 | 9.9013 | 1.2621 | A+ | A- | A+ |
| ELA | 6 | 503913 | 0 | D | 2 | 80922 | 0.538 | 0.1493 | 0.5339 | 0.2011 | 0.1082 | 0.0065 | 0.001 | 0.4112 | -0.1448 | 0.4146 | -0.2321 | -0.1754 | -0.0822 | -0.0344 | 0.7047 | 0.0165 | 5.441 | 1.0341 | 5.001 | 1.045 | A- | A+ | A+ |
| ELA | 6 | 503920 | 0 | D | 2 | 81229 | 0.7387 | 0.7359 | 0.0915 | 0.1328 | 0.036 | 0.002 | 0.0018 | 0.4332 | 0.436 | -0.239 | -0.2144 | -0.2499 | -0.0525 | -0.0392 | -0.3134 | 0.0182 | -6.5291 | 0.9448 | -5.3491 | 0.9226 | A+ | A+ | A+ |
| ELA | 6 | 503922 | 0 | D | 2 | 80979 | 0.621 | 0.6168 | 0.182 | 0.1093 | 0.0851 | 0.0055 | 0.0013 | 0.286 | 0.2914 | -0.1568 | -0.092 | -0.163 | -0.0756 | -0.0382 | 0.4953 | 0.0166 | 9.9012 | 1.151 | 9.9012 | 1.208 | A- | A+ | A+ |
| ELA | 6 | 584194 | 0 | D | 2 | 80896 | 0.7966 | 0.0692 | 0.084 | 0.0486 | 0.7904 | 0.0057 | 0.0021 | 0.3333 | -0.1915 | -0.1583 | -0.1788 | 0.3415 | -0.0815 | -0.0412 | -0.4918 | 0.0187 | -5.299 | 0.951 | 0.081 | 1.0012 | A- | A+ | A+ |
| ELA | 6 | 584195 | 0 | D | 2 | 80966 | 0.5611 | 0.1844 | 0.5572 | 0.1676 | 0.0839 | 0.0058 | 0.0012 | 0.3248 | -0.0958 | 0.3296 | -0.1939 | -0.1679 | -0.0839 | -0.0353 | 0.3416 | 0.0168 | 9.9012 | 1.1546 | 9.9012 | 1.2333 | A+ | A- | A- |
| ELA | 6 | 584200 | 0 | D | 2 | 81193 | 0.7395 | 0.7364 | 0.0851 | 0.114 | 0.0604 | 0.0022 | 0.002 | 0.4251 | 0.4282 | -0.1882 | -0.2342 | -0.2407 | -0.0535 | -0.0427 | -0.4809 | 0.0187 | -1.309 | 0.9878 | 7.3411 | 1.1256 | A- | A- | A- |
| ELA | 6 | 584202 | 0 | D | 2 | 81261 | 0.712 | 0.0485 | 0.1564 | 0.7096 | 0.0821 | 0.002 | 0.0014 | 0.5434 | -0.229 | -0.3164 | 0.5451 | -0.2899 | -0.0486 | -0.043 | -0.2799 | 0.0181 | -9.8991 | 0.8788 | -9.8992 | 0.789 | A- | B- | A- |
| ELA | 6 | 584206 | 0 | D | 1 | 81234 | 0.677 | 0.0982 | 0.6745 | 0.0992 | 0.1245 | 0.002 | 0.0016 | 0.4975 | -0.273 | 0.5 | -0.247 | -0.2267 | -0.0566 | -0.0449 | 0.0269 | 0.0173 | -9.8991 | 0.9107 | -9.8991 | 0.8584 | A- | A- | A- |
| ELA | 6 | 621527 | 1 | A-C | 3 | 40706 | 0.274 | 0.2732 | 0.1477 | 0.394 | 0.1823 | 0.0021 | 0.0007 | 0.0897 | 0.0908 | -0.1657 | 0.0534 | -0.0139 | -0.0415 | -0.0196 | 1.9365 | 0.0255 | 9.9012 | 1.2434 | 9.9015 | 1.5477 | A- | A- | A- |
| ELA | 6 | 621533 | 1 | A-C | 3 | 40628 | 0.3416 | 0.1574 | 0.1216 | 0.3764 | 0.3399 | 0.0036 | 0.0011 | 0.1749 | -0.1323 | -0.2068 | 0.0745 | 0.1768 | -0.0514 | -0.0313 | 1.6454 | 0.0245 | 9.9012 | 1.182 | 9.9013 | 1.3415 | A+ | A- | A- |
| ELA | 6 | 621536 | 1 | A-C | 2 | 40684 | 0.5431 | 0.1198 | 0.5413 | 0.2839 | 0.0517 | 0.0027 | 0.0007 | 0.3734 | -0.2104 | 0.3754 | -0.1695 | -0.1738 | -0.0563 | -0.036 | 0.6624 | 0.0233 | 1.171 | 1.0102 | 1.661 | 1.0205 | A- | A- | A- |
| ELA | 6 | 621518 | 1 | A-K | 2 | 40626 | 0.4204 | 0.1705 | 0.1301 | 0.2762 | 0.4184 | 0.0043 | 0.0005 | 0.2952 | -0.2291 | -0.1445 | -0.0183 | 0.2962 | -0.0414 | -0.0213 | 1.1541 | 0.0235 | 9.3411 | 1.0854 | 9.9011 | 1.148 | A- | A+ | A- |
| ELA | 6 | 621519 | 1 | A-V | 2 | 40636 | 0.2302 | 0.5468 | 0.123 | 0.2292 | 0.0964 | 0.0027 | 0.0018 | 0.0778 | 0.099 | -0.066 | 0.0798 | -0.1921 | -0.0537 | -0.0387 | 2.1589 | 0.0265 | 9.9012 | 1.1888 | 9.9016 | 1.5543 | A+ | A- | A- |
| ELA | 6 | 623654 | 1 | A-V | 2 | 40739 | 0.5231 | 0.1727 | 0.2534 | 0.522 | 0.0498 | 0.0017 | 0.0003 | 0.4259 | -0.2186 | -0.2039 | 0.4267 | -0.1828 | -0.0393 | -0.0252 | 0.6819 | 0.0233 | -3.129 | 0.9729 | -2.679 | 0.9675 | C- | C- | B- |
| ELA | 6 | 659211 | 1 | B-C | 3 | 6802 | 0.4016 | 0.2979 | 0.3995 | 0.093 | 0.2043 | 0.0045 | 0.0009 | 0.19 | 0.126 | 0.1931 | -0.1597 | -0.2488 | -0.0687 | -0.0308 | 1.1087 | 0.0573 | 6.8512 | 1.1543 | 7.0112 | 1.233 | A+ | A- | A- |
| ELA | 6 | 659216 | 1 | B-C | 2 | 6798 | 0.4034 | 0.4009 | 0.16 | 0.2592 | 0.1739 | 0.0045 | 0.0015 | 0.216 | 0.2208 | -0.1798 | 0.0398 | -0.1351 | -0.0975 | -0.0516 | 1.1855 | 0.0576 | 5.7711 | 1.1315 | 5.9612 | 1.2025 | A- | A- | A- |
| ELA | 6 | 659220 | 1 | B-K | 2 | 6799 | 0.6261 | 0.1097 | 0.173 | 0.6225 | 0.089 | 0.0044 | 0.0015 | 0.4733 | -0.2842 | -0.178 | 0.4758 | -0.2412 | -0.0614 | -0.0465 | 0.2697 | 0.0578 | -3.4291 | 0.9242 | -3.4791 | 0.8871 | A- | A- | A- |
| ELA | 6 | 659222 | 1 | B-K | 3 | 6813 | 0.4515 | 0.1768 | 0.3267 | 0.4498 | 0.043 | 0.0025 | 0.0013 | 0.1708 | -0.1966 | 0.0718 | 0.1743 | -0.1984 | -0.0666 | -0.0513 | 0.8589 | 0.0568 | 8.1412 | 1.1792 | 8.4713 | 1.2672 | A- | A+ | A+ |
| ELA | 6 | 659224 | 1 | B-K | 3 | 6793 | 0.5567 | 0.1608 | 0.0888 | 0.1907 | 0.553 | 0.0039 | 0.0028 | 0.2964 | -0.1183 | -0.1575 | -0.1403 | 0.2996 | -0.0827 | -0.0073 | 0.5485 | 0.057 | 4.5811 | 1.1001 | 4.6511 | 1.1458 | A- | A+ | A+ |
| ELA | 6 | 659289 | 1 | B-K | 2 | 6782 | 0.6143 | 0.1714 | 0.6092 | 0.1312 | 0.08 | 0.0075 | 0.0009 | 0.4727 | -0.1829 | 0.4721 | -0.2379 | -0.2829 | -0.0438 | -0.0226 | 0.2833 | 0.0578 | -5.1291 | 0.8886 | -4.7091 | 0.8504 | B- | A- | A- |
| ELA | 6 | 659228 | 1 | B-V | 2 | 6821 | 0.2333 | 0.1361 | 0.1512 | 0.4774 | 0.2326 | 0.0025 | 0.0001 | 0.1071 | -0.0337 | -0.0862 | 0.0007 | 0.1088 | -0.0715 | -0.0294 | 2.0598 | 0.0644 | 3.3111 | 1.109 | 5.6313 | 1.3329 | A- | A- | A+ |
| ELA | 6 | 661275 | 1 | B-V | 2 | 6825 | 0.6561 | 0.1794 | 0.6548 | 0.111 | 0.0528 | 0.0018 | 0.0003 | 0.4079 | -0.1822 | 0.4093 | -0.2149 | -0.245 | -0.0429 | -0.0363 | -0.0312 | 0.0595 | 0.311 | 1.0077 | -0.369 | 0.9849 | A- | A- | A- |
| ELA | 6 | 629732 | 1 | D | 2 | 6811 | 0.698 | 0.1253 | 0.1063 | 0.0692 | 0.6951 | 0.0025 | 0.0016 | 0.3995 | -0.3159 | -0.0853 | -0.1976 | 0.4019 | -0.0487 | -0.0389 | -0.1289 | 0.0602 | -2.0991 | 0.9455 | -0.999 | 0.9575 | A+ | A- | A- |
| ELA | 6 | 663361 | 1 | D | 2 | 13502 | 0.6042 | 0.1136 | 0.098 | 0.5983 | 0.1803 | 0.0092 | 0.0007 | 0.3473 | -0.187 | -0.1773 | 0.3527 | -0.1351 | -0.0905 | -0.0122 | 0.3027 | 0.0408 | 1.251 | 1.0199 | 1.551 | 1.0367 | A+ | A- | A- |
| ELA | 6 | 663369 | 1 | D | 3 | 13580 | 0.6572 | 0.1229 | 0.6544 | 0.158 | 0.0604 | 0.0037 | 0.0006 | 0.2845 | -0.1237 | 0.2877 | -0.1352 | -0.1794 | -0.0597 | -0.0231 | -0.1206 | 0.0429 | 5.9311 | 1.1171 | 5.6312 | 1.1846 | A+ | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 6 | 662385 | 2 | B-C | 3 | 6711 | 0.489 | 0.1389 | 0.4829 | 0.2585 | 0.1071 | 0.0102 | 0.0025 | 0.2726 | -0.0936 | 0.274 | -0.076 | -0.2139 | -0.0578 | 0.0129 | 0.8791 | 0.0569 | 3.9011 | 1.0839 | 4.0111 | 1.1205 | A+ | A+ | A+ |
| ELA | 6 | 662387 | 2 | B-C | 3 | 6772 | 0.2292 | 0.2965 | 0.349 | 0.1226 | 0.2283 | 0.0024 | 0.0013 | 0.0626 | 0.0328 | 0.1167 | -0.2846 | 0.0647 | -0.0733 | -0.0236 | 2.0815 | 0.0643 | 6.1112 | 1.2062 | 8.5315 | 1.5308 | A+ | A- | A- |
| ELA | 6 | 662388 | 2 | B-C | 2 | 6717 | 0.3639 | 0.108 | 0.3119 | 0.3596 | 0.2088 | 0.011 | 0.0007 | 0.1992 | -0.282 | 0.1451 | 0.2039 | -0.1668 | -0.0879 | -0.0195 | 1.3471 | 0.0582 | 6.3112 | 1.1511 | 8.3013 | 1.3111 | A- | A+ | A+ |
| ELA | 6 | 662389 | 2 | B-C | 3 | 6755 | 0.4509 | 0.2392 | 0.1713 | 0.4481 | 0.1352 | 0.0041 | 0.0021 | 0.3754 | -0.2331 | -0.1244 | 0.3783 | -0.1017 | -0.0732 | -0.0512 | 1.1465 | 0.0574 | -0.409 | 0.9911 | 0.981 | 1.0304 | A- | A- | A- |
| ELA | 6 | 662390 | 2 | B-K | 2 | 6776 | 0.5643 | 0.1708 | 0.5626 | 0.1457 | 0.1178 | 0.0026 | 0.0004 | 0.308 | -0.159 | 0.3109 | -0.1956 | -0.0657 | -0.0698 | -0.0292 | 0.5011 | 0.0572 | 4.1611 | 1.0923 | 5.2912 | 1.1699 | A+ | A- | A+ |
| ELA | 6 | 662391 | 2 | B-K | 3 | 6741 | 0.3094 | 0.3069 | 0.4115 | 0.1015 | 0.1718 | 0.0074 | 0.0009 | 0.0636 | 0.0666 | 0.154 | -0.2018 | -0.1068 | -0.0585 | -0.0098 | 1.8082 | 0.0614 | 8.4913 | 1.2526 | 8.5214 | 1.4357 | A- | A- | A- |
| ELA | 6 | 662392 | 2 | B-K | 2 | 6766 | 0.5186 | 0.2147 | 0.1632 | 0.5163 | 0.1014 | 0.0043 | 0.0003 | 0.3777 | -0.1752 | -0.1492 | 0.3803 | -0.1917 | -0.0766 | -0.0065 | 1.0156 | 0.057 | 0.841 | 1.0178 | 1.551 | 1.0464 | A- | A- | A- |
| ELA | 6 | 662394 | 2 | B-V | 3 | 6780 | 0.4565 | 0.1829 | 0.1142 | 0.2451 | 0.4553 | 0.0021 | 0.0004 | 0.3027 | -0.1563 | -0.2621 | -0.0101 | 0.3046 | -0.0665 | -0.0249 | 0.9858 | 0.057 | 1.631 | 1.0347 | 2.3911 | 1.0719 | B- | A- | A+ |
| ELA | 6 | 629749 | 2 | D | 2 | 13500 | 0.6125 | 0.088 | 0.109 | 0.6098 | 0.1888 | 0.0026 | 0.0018 | 0.4316 | -0.2154 | -0.2346 | 0.4338 | -0.1875 | -0.0527 | -0.0333 | 0.1887 | 0.0414 | -1.949 | 0.9677 | -1.9691 | 0.9496 | A+ | A+ | A- |
| ELA | 6 | 663362 | 2 | D | 2 | 13482 | 0.5459 | 0.1228 | 0.2142 | 0.5413 | 0.1133 | 0.0072 | 0.0012 | 0.3513 | -0.15 | -0.1853 | 0.356 | -0.1381 | -0.0836 | -0.038 | 0.524 | 0.0406 | 2.861 | 1.0447 | 2.5511 | 1.0571 | A+ | A- | A- |
| ELA | 6 | 660305 | 3 | B-C | 2 | 6783 | 0.5204 | 0.1117 | 0.0508 | 0.3162 | 0.5194 | 0.0013 | 0.0006 | 0.308 | -0.3227 | -0.2279 | -0.0032 | 0.308 | -0.0013 | -0.0282 | 0.7046 | 0.0571 | 2.5311 | 1.0545 | 2.9411 | 1.0909 | A+ | A- | A- |
| ELA | 6 | 660306 | 3 | B-C | 2 | 6754 | 0.3901 | 0.0817 | 0.1096 | 0.3877 | 0.4148 | 0.004 | 0.0022 | 0.2944 | -0.2064 | -0.2542 | 0.2968 | -0.0051 | -0.0574 | -0.0538 | 1.2254 | 0.0574 | 1.491 | 1.0325 | 3.1211 | 1.1004 | A- | A+ | A- |
| ELA | 6 | 660307 | 3 | B-C | 2 | 6759 | 0.5927 | 0.1881 | 0.1558 | 0.5895 | 0.0612 | 0.004 | 0.0015 | 0.3823 | -0.1216 | -0.2081 | 0.3866 | -0.2525 | -0.0689 | -0.0609 | 0.4628 | 0.0577 | 0.781 | 1.0174 | 1.121 | 1.0371 | A- | A- | A+ |
| ELA | 6 | 660313 | 3 | B-C | 3 | 6741 | 0.3953 | 0.3921 | 0.3043 | 0.1211 | 0.1744 | 0.0062 | 0.0019 | 0.2285 | 0.2315 | 0.017 | -0.2434 | -0.0923 | -0.0523 | -0.0526 | 1.3767 | 0.0579 | 5.4711 | 1.1285 | 6.6112 | 1.2364 | A- | A+ | A+ |
| ELA | 6 | 660309 | 3 | B-K | 2 | 6729 | 0.6325 | 0.2245 | 0.0642 | 0.6263 | 0.0752 | 0.0091 | 0.0007 | 0.5116 | -0.2784 | -0.2639 | 0.5116 | -0.2296 | -0.0601 | -0.0149 | 0.1568 | 0.0592 | -4.7191 | 0.8884 | -3.6991 | 0.8624 | A- | A- | A- |
| ELA | 6 | 660310 | 3 | B-K | 2 | 6769 | 0.6782 | 0.1115 | 0.6755 | 0.0793 | 0.1296 | 0.0032 | 0.0007 | 0.4288 | -0.2438 | 0.4317 | -0.2345 | -0.1713 | -0.0596 | -0.0394 | -0.0921 | 0.0611 | -2.3191 | 0.9377 | -2.8091 | 0.8773 | A+ | A+ | A- |
| ELA | 6 | 660311 | 3 | B-K | 3 | 6748 | 0.4344 | 0.1711 | 0.1254 | 0.2652 | 0.4313 | 0.006 | 0.001 | 0.287 | -0.1848 | -0.2051 | 0.0025 | 0.2906 | -0.083 | -0.0343 | 1.1413 | 0.0572 | 3.2611 | 1.0713 | 3.6411 | 1.1146 | A+ | A+ | A+ |
| ELA | 6 | 662735 | 3 | B-V | 2 | 6771 | 0.4756 | 0.3668 | 0.1062 | 0.4738 | 0.0494 | 0.0028 | 0.0009 | 0.1643 | 0.0967 | -0.2395 | 0.1673 | -0.2405 | -0.0602 | -0.0342 | 0.9799 | 0.057 | 9.9012 | 1.2347 | 9.9013 | 1.323 | A- | A+ | A+ |
| ELA | 6 | 629748 | 3 | D | 2 | 6753 | 0.7337 | 0.0642 | 0.1161 | 0.0843 | 0.7291 | 0.0035 | 0.0028 | 0.4518 | -0.2269 | -0.2418 | -0.2276 | 0.4552 | -0.0742 | -0.0308 | -0.3525 | 0.0637 | -4.7591 | 0.8593 | -4.9092 | 0.7592 | A+ | A- | A- |
| ELA | 6 | 663341 | 3 | D | 2 | 13426 | 0.6944 | 0.0962 | 0.6876 | 0.1119 | 0.0945 | 0.0077 | 0.0021 | 0.4879 | -0.2517 | 0.4922 | -0.2584 | -0.2149 | -0.0871 | -0.0431 | -0.0919 | 0.043 | -4.9691 | 0.9085 | -5.4392 | 0.8362 | A+ | A- | A- |
| ELA | 6 | 663363 | 3 | D | 1 | 6766 | 0.7065 | 0.0823 | 0.7034 | 0.1258 | 0.0842 | 0.0034 | 0.001 | 0.4716 | -0.242 | 0.4743 | -0.2548 | -0.2201 | -0.0577 | -0.0371 | -0.3441 | 0.0636 | -3.4691 | 0.8963 | -3.6892 | 0.8154 | A+ | A- | A+ |
| ELA | 6 | 659215 | 4 | B-C | 3 | 6753 | 0.4277 | 0.1538 | 0.4253 | 0.3233 | 0.0922 | 0.0041 | 0.0013 | 0.3782 | -0.2582 | 0.3799 | -0.0655 | -0.2039 | -0.0457 | -0.0589 | 1.2017 | 0.0573 | 0.021 | 1.0003 | 1.9811 | 1.0625 | A- | A- | A- |
| ELA | 6 | 659217 | 4 | B-C | 2 | 6767 | 0.6948 | 0.0675 | 0.0842 | 0.1524 | 0.6925 | 0.0032 | 0.0001 | 0.5677 | -0.3032 | -0.2742 | -0.2975 | 0.5689 | -0.0559 | -0.0184 | -0.1236 | 0.0609 | -7.2692 | 0.8133 | -6.6493 | 0.7392 | B- | A- | B- |
| ELA | 6 | 659219 | 4 | B-C | 2 | 6739 | 0.2217 | 0.17 | 0.22 | 0.2867 | 0.3158 | 0.0059 | 0.0016 | 0.0862 | -0.1567 | 0.089 | -0.0333 | 0.0937 | -0.0619 | -0.0439 | 2.3293 | 0.0668 | 5.7612 | 1.215 | 9.902 | 1.9556 | A+ | A+ | A+ |
| ELA | 6 | 659221 | 4 | B-K | 3 | 6755 | 0.5218 | 0.2015 | 0.0622 | 0.2121 | 0.5191 | 0.0038 | 0.0013 | 0.4314 | -0.121 | -0.2765 | -0.2362 | 0.4332 | -0.0674 | -0.0128 | 0.7507 | 0.0569 | -2.4091 | 0.9497 | -1.7891 | 0.9493 | A- | A- | A- |
| ELA | 6 | 659225 | 4 | B-K | 2 | 6746 | 0.6525 | 0.0979 | 0.1203 | 0.127 | 0.6483 | 0.0053 | 0.0012 | 0.4806 | -0.2271 | -0.2445 | -0.2323 | 0.484 | -0.0802 | -0.0271 | 0.1127 | 0.0592 | -3.9491 | 0.9046 | -4.0291 | 0.8571 | A+ | A+ | A+ |
| ELA | 6 | 659226 | 4 | B-K | 2 | 6730 | 0.5716 | 0.1315 | 0.1489 | 0.5666 | 0.1442 | 0.0087 | 0.0001 | 0.3873 | -0.1271 | -0.2004 | 0.3904 | -0.2051 | -0.0762 | -0.0058 | 0.522 | 0.0573 | 1.271 | 1.0281 | 0.811 | 1.0245 | A- | A+ | A+ |
| ELA | 6 | 659229 | 4 | B-V | 2 | 6754 | 0.8592 | 0.8546 | 0.0582 | 0.0454 | 0.0365 | 0.0038 | 0.0015 | 0.4485 | 0.453 | -0.2317 | -0.2762 | -0.2258 | -0.0696 | -0.0342 | -1.2228 | 0.077 | -3.1491 | 0.8556 | -3.7093 | 0.7162 | A- | A+ | A+ |
| ELA | 6 | 661492 | 4 | B-V | 2 | 6779 | 0.861 | 0.0365 | 0.8596 | 0.0688 | 0.0334 | 0.0016 | | 0.3651 | -0.2206 | 0.368 | -0.2132 | -0.1688 | -0.0533 | | -1.2682 | 0.078 | -1.8991 | 0.9088 | -2.4292 | 0.8018 | B- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 6 | 629745 | 4 | D | 2 | 6750 | 0.5473 | 0.0822 | 0.2019 | 0.544 | 0.166 | 0.0041 | 0.0018 | 0.3715 | -0.1958 | -0.1889 | 0.3741 | -0.1385 | -0.0583 | -0.035 | 0.6311 | 0.0571 | -0.769 | 0.9835 | -0.259 | 0.9921 | A+ | A- | A- |
| ELA | 6 | 663364 | 4 | D | 1 | 6748 | 0.7371 | 0.07 | 0.1271 | 0.7325 | 0.0642 | 0.006 | 0.0001 | 0.4517 | -0.2021 | -0.2364 | 0.4522 | -0.269 | -0.0486 | -0.0133 | -0.3528 | 0.0632 | -3.2391 | 0.9042 | -3.5592 | 0.832 | A+ | A- | A- |
| ELA | 6 | 663371 | 4 | D | 3 | 6728 | 0.4789 | 0.0716 | 0.1816 | 0.4745 | 0.2632 | 0.0082 | 0.0009 | 0.2671 | -0.2235 | -0.0806 | 0.2707 | -0.09 | -0.069 | -0.0209 | 0.9643 | 0.0569 | 3.6311 | 1.0782 | 3.8511 | 1.1151 | A+ | A- | A- |
| ELA | 6 | 658510 | 5 | B-C | 3 | 6745 | 0.5232 | 0.5218 | 0.161 | 0.1255 | 0.189 | 0.0025 | 0.0001 | 0.2808 | 0.2816 | -0.0841 | -0.2386 | -0.0737 | -0.0337 | -0.0148 | 0.7443 | 0.0572 | 5.2811 | 1.1183 | 5.2312 | 1.169 | A- | A- | A- |
| ELA | 6 | 658513 | 5 | B-K | 3 | 6699 | 0.415 | 0.4111 | 0.0588 | 0.3367 | 0.1839 | 0.0083 | 0.0012 | 0.3689 | 0.372 | -0.2873 | -0.0785 | -0.1796 | -0.0916 | -0.0125 | 1.282 | 0.0582 | 3.0211 | 1.0713 | 4.3612 | 1.1554 | A- | A- | A- |
| ELA | 6 | 658514 | 5 | B-K | 2 | 6690 | 0.5936 | 0.2147 | 0.5872 | 0.0624 | 0.1249 | 0.0087 | 0.0021 | 0.3438 | -0.0872 | 0.3472 | -0.2551 | -0.1988 | -0.0801 | -0.0049 | 0.4258 | 0.0578 | 2.6011 | 1.0591 | 2.7711 | 1.0958 | A+ | A+ | A+ |
| ELA | 6 | 658515 | 5 | B-K | 2 | 6739 | 0.5354 | 0.1451 | 0.5335 | 0.2443 | 0.0736 | 0.0031 | 0.0004 | 0.4049 | -0.2611 | 0.4074 | -0.0878 | -0.2636 | -0.0752 | -0.0263 | 0.6879 | 0.0573 | 0.051 | 1.001 | -0.449 | 0.9859 | A+ | A- | A+ |
| ELA | 6 | 658516 | 5 | B-K | 2 | 6747 | 0.7048 | 0.0775 | 0.0587 | 0.7031 | 0.1584 | 0.0019 | 0.0004 | 0.3389 | -0.2697 | -0.209 | 0.3417 | -0.087 | -0.0554 | -0.0344 | -0.1802 | 0.0613 | 1.531 | 1.0421 | 4.3012 | 1.2158 | A- | A- | A+ |
| ELA | 6 | 658517 | 5 | B-V | 2 | 6736 | 0.723 | 0.7201 | 0.0615 | 0.0716 | 0.1428 | 0.0022 | 0.0018 | 0.4134 | 0.4153 | -0.2362 | -0.1675 | -0.2372 | -0.0598 | -0.017 | -0.2773 | 0.0621 | -0.079 | 0.9975 | 1.8911 | 1.0966 | A- | A+ | A+ |
| ELA | 6 | 658518 | 5 | B-V | 2 | 6731 | 0.4968 | 0.2052 | 0.0862 | 0.2094 | 0.4945 | 0.0038 | 0.0009 | 0.3363 | -0.1119 | -0.287 | -0.0961 | 0.338 | -0.0696 | 0.0049 | 0.8761 | 0.0573 | 4.6911 | 1.1048 | 3.8211 | 1.1209 | A+ | A- | A+ |
| ELA | 6 | 659428 | 5 | B-V | 2 | 6730 | 0.79 | 0.0685 | 0.7862 | 0.0676 | 0.0729 | 0.004 | 0.0009 | 0.4725 | -0.2623 | 0.4739 | -0.2697 | -0.2168 | -0.0467 | -0.0361 | -0.691 | 0.067 | -4.5292 | 0.8493 | -5.1293 | 0.7049 | A- | A+ | A- |
| ELA | 6 | 663365 | 5 | D | 3 | 6723 | 0.4455 | 0.4429 | 0.1572 | 0.181 | 0.2131 | 0.004 | 0.0019 | 0.2715 | 0.2735 | -0.0282 | -0.0903 | -0.2117 | -0.0371 | -0.0412 | 1.1258 | 0.0577 | 7.1212 | 1.1672 | 7.3213 | 1.2533 | A+ | A+ | A+ |
| ELA | 6 | 660295 | 6 | A-C | 3 | 6750 | 0.4911 | 0.1636 | 0.1477 | 0.4885 | 0.195 | 0.0041 | 0.0012 | 0.2981 | -0.0928 | -0.179 | 0.3022 | -0.1179 | -0.0721 | -0.0535 | 0.9103 | 0.0574 | 4.5611 | 1.1023 | 5.9112 | 1.1988 | A+ | A- | A- |
| ELA | 6 | 660296 | 6 | A-C | 2 | 6731 | 0.7761 | 0.0905 | 0.0704 | 0.7698 | 0.0612 | 0.0066 | 0.0015 | 0.4707 | -0.2601 | -0.2385 | 0.4751 | -0.2369 | -0.0703 | -0.0496 | -0.5924 | 0.0664 | -3.4191 | 0.8871 | -0.629 | 0.959 | A+ | A+ | A- |
| ELA | 6 | 660297 | 6 | A-C | 2 | 6771 | 0.678 | 0.136 | 0.6765 | 0.0911 | 0.0942 | 0.0021 | 0.0001 | 0.4023 | -0.1931 | 0.4044 | -0.1782 | -0.2365 | -0.0506 | -0.0275 | -0.0376 | 0.0606 | 0.691 | 1.0182 | 0.801 | 1.0362 | A- | A- | A- |
| ELA | 6 | 660299 | 6 | A-K | 3 | 6703 | 0.6249 | 0.1211 | 0.1182 | 0.1312 | 0.6173 | 0.0113 | 0.0009 | 0.529 | -0.2668 | -0.2675 | -0.2247 | 0.5293 | -0.0683 | -0.0269 | 0.2747 | 0.0587 | -5.2891 | 0.8791 | -4.8492 | 0.8249 | A- | A- | A- |
| ELA | 6 | 660301 | 6 | A-K | 2 | 6692 | 0.7377 | 0.1015 | 0.0847 | 0.7275 | 0.0724 | 0.0122 | 0.0016 | 0.465 | -0.1808 | -0.2693 | 0.4625 | -0.2714 | -0.0503 | -0.0111 | -0.3281 | 0.0632 | -3.9091 | 0.8865 | -2.7191 | 0.8581 | A- | A- | A- |
| ELA | 6 | 660302 | 6 | A-K | 2 | 6728 | 0.6301 | 0.1198 | 0.6247 | 0.1304 | 0.1166 | 0.008 | 0.0006 | 0.4448 | -0.1654 | 0.4465 | -0.2564 | -0.2185 | -0.0651 | -0.0098 | 0.2369 | 0.0589 | -1.499 | 0.9642 | -1.5191 | 0.9411 | A+ | A+ | A+ |
| ELA | 6 | 660303 | 6 | A-K | 2 | 6753 | 0.6077 | 0.0987 | 0.239 | 0.0526 | 0.6048 | 0.0041 | 0.0007 | 0.2119 | -0.1687 | 0.0119 | -0.2462 | 0.2178 | -0.0839 | -0.0325 | 0.3384 | 0.0584 | 5.2711 | 1.1283 | 5.8212 | 1.2316 | A- | A+ | A+ |
| ELA | 6 | 660304 | 6 | A-V | 2 | 6763 | 0.3967 | 0.2753 | 0.2118 | 0.3954 | 0.1142 | 0.0028 | 0.0006 | 0.3467 | -0.1348 | -0.1357 | 0.3485 | -0.1593 | -0.0633 | -0.0302 | 1.369 | 0.0585 | 2.2311 | 1.0528 | 5.2912 | 1.2004 | A- | B- | A- |
| ELA | 6 | 624733 | 6 | B-C | 2 | 40544 | 0.8061 | 0.061 | 0.0413 | 0.8027 | 0.0908 | 0.0037 | 0.0004 | 0.4803 | -0.2506 | -0.2573 | 0.4804 | -0.268 | -0.0405 | -0.0246 | -0.825 | 0.0286 | -9.8992 | 0.8479 | -7.7992 | 0.7881 | A+ | A+ | A- |
| ELA | 6 | 624735 | 6 | B-C | 3 | 40533 | 0.4785 | 0.1466 | 0.0791 | 0.4764 | 0.2935 | 0.0028 | 0.0016 | 0.3069 | -0.1688 | -0.1916 | 0.3094 | -0.0842 | -0.0542 | -0.0473 | 0.9564 | 0.0234 | 9.7711 | 1.0882 | 9.9011 | 1.1418 | A+ | A+ | A+ |
| ELA | 6 | 624736 | 6 | B-C | 2 | 40630 | 0.6864 | 0.685 | 0.156 | 0.0984 | 0.0586 | 0.0018 | 0.0003 | 0.1849 | 0.1879 | -0.0384 | -0.113 | -0.1578 | -0.0502 | -0.0302 | -0.0924 | 0.025 | 9.9012 | 1.1798 | 9.9014 | 1.3559 | A+ | A+ | A+ |
| ELA | 6 | 624730 | 6 | B-K | 2 | 40500 | 0.7849 | 0.0618 | 0.0887 | 0.0636 | 0.7807 | 0.0028 | 0.0025 | 0.4777 | -0.2529 | -0.2696 | -0.2303 | 0.4796 | -0.0626 | -0.0288 | -0.6714 | 0.0276 | -9.8991 | 0.8578 | -9.8993 | 0.7139 | A- | A+ | A+ |
| ELA | 6 | 624732 | 6 | B-K | 2 | 40532 | 0.7387 | 0.0546 | 0.7354 | 0.1298 | 0.0756 | 0.0035 | 0.001 | 0.3973 | -0.2203 | 0.4 | -0.1757 | -0.2388 | -0.054 | -0.0312 | -0.3827 | 0.0261 | -4.4691 | 0.9439 | -1.499 | 0.9665 | A- | A+ | A- |
| ELA | 6 | 624734 | 6 | B-V | 1 | 40616 | 0.4318 | 0.2822 | 0.1914 | 0.4307 | 0.0933 | 0.0019 | 0.0005 | 0.2341 | 0.0148 | -0.1551 | 0.2357 | -0.2043 | -0.0514 | -0.0307 | 1.1789 | 0.0235 | 9.9012 | 1.1619 | 9.9013 | 1.2766 | A- | A- | A- |
| ELA | 6 | 629733 | 6 | D | 2 | 13531 | 0.7651 | 0.7616 | 0.0288 | 0.028 | 0.1771 | 0.0024 | 0.0023 | 0.4066 | 0.409 | -0.2282 | -0.2351 | -0.2447 | -0.048 | -0.0353 | -0.5488 | 0.0465 | -1.359 | 0.9678 | -1.5391 | 0.9345 | A+ | A- | A- |
| ELA | 6 | 663344 | 6 | D | 2 | 13450 | 0.8452 | 0.0506 | 0.8363 | 0.0466 | 0.0559 | 0.0096 | 0.001 | 0.4139 | -0.2136 | 0.4196 | -0.1951 | -0.253 | -0.0837 | -0.0318 | -1.0897 | 0.0527 | -2.2791 | 0.9296 | -3.2192 | 0.8209 | A- | B- | A- |
| ELA | 6 | 663366 | 6 | D | 3 | 13515 | 0.4411 | 0.1322 | 0.4385 | 0.2041 | 0.2194 | 0.0035 | 0.0023 | 0.1796 | -0.1675 | 0.1826 | -0.0742 | 0.0021 | -0.0414 | -0.05 | 1.1458 | 0.0408 | 9.9013 | 1.2543 | 9.9014 | 1.4337 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 6 | 663173 | 7 | A-C | 3 | 6702 | 0.5661 | 0.0886 | 0.5592 | 0.0699 | 0.2702 | 0.0118 | 0.0004 | 0.3204 | -0.2415 | 0.321 | -0.2379 | -0.0564 | -0.0422 | -0.0246 | 0.5666 | 0.0575 | 1.681 | 1.0371 | 1.351 | 1.0442 | A+ | A- | A+ |
| ELA | 6 | 663174 | 7 | A-C | 3 | 6752 | 0.4536 | 0.1026 | 0.3105 | 0.4514 | 0.1306 | 0.0047 | 0.0001 | 0.1646 | -0.1987 | 0.0802 | 0.1687 | -0.1629 | -0.0806 | -0.0306 | 1.0846 | 0.0572 | 9.9012 | 1.2467 | 9.9014 | 1.3652 | A+ | A+ | A+ |
| ELA | 6 | 663175 | 7 | A-C | 2 | 6738 | 0.4838 | 0.4805 | 0.2271 | 0.154 | 0.1315 | 0.0059 | 0.001 | 0.078 | 0.0847 | 0.1195 | -0.0563 | -0.1904 | -0.0914 | -0.0227 | 0.9449 | 0.0571 | 9.9013 | 1.3462 | 9.9015 | 1.4966 | A+ | A+ | A+ |
| ELA | 6 | 663176 | 7 | A-K | 2 | 6711 | 0.674 | 0.6666 | 0.1303 | 0.0746 | 0.1176 | 0.009 | 0.0019 | 0.5504 | 0.5529 | -0.2539 | -0.279 | -0.2861 | -0.087 | -0.0339 | 0.0254 | 0.0604 | -6.6892 | 0.8336 | -6.4493 | 0.7464 | A- | A- | A- |
| ELA | 6 | 663178 | 7 | A-K | 3 | 6710 | 0.558 | 0.0806 | 0.2333 | 0.1232 | 0.5518 | 0.0103 | 0.0007 | 0.3991 | -0.2259 | -0.1969 | -0.1447 | 0.4012 | -0.0638 | -0.0262 | 0.6023 | 0.0574 | -0.459 | 0.9899 | 0.381 | 1.012 | A+ | A- | A- |
| ELA | 6 | 663179 | 7 | A-K | 2 | 6744 | 0.6317 | 0.6279 | 0.1446 | 0.1461 | 0.0755 | 0.0053 | 0.0007 | 0.4637 | 0.4673 | -0.2454 | -0.2146 | -0.2167 | -0.0772 | -0.0354 | 0.2266 | 0.059 | -2.5991 | 0.938 | -2.8691 | 0.8938 | A- | A+ | A+ |
| ELA | 6 | 663181 | 7 | A-V | 2 | 6764 | 0.6962 | 0.1444 | 0.0445 | 0.694 | 0.1139 | 0.0024 | 0.0007 | 0.3761 | -0.2442 | -0.2279 | 0.3789 | -0.1197 | -0.0606 | -0.0302 | -0.1231 | 0.0616 | -0.139 | 0.9959 | 0.011 | 1 | A- | A+ | A- |
| ELA | 6 | 664277 | 7 | A-V | 2 | 6765 | 0.8365 | 0.834 | 0.0697 | 0.0413 | 0.052 | 0.0027 | 0.0003 | 0.3956 | 0.4001 | -0.2578 | -0.2124 | -0.1663 | -0.0698 | -0.0259 | -1.0369 | 0.0745 | -1.6791 | 0.9257 | -2.7292 | 0.7909 | C- | A- | A- |
| ELA | 6 | 629738 | 7 | D | 2 | 13567 | 0.602 | 0.0913 | 0.1712 | 0.5996 | 0.1339 | 0.0026 | 0.0013 | 0.4511 | -0.2149 | -0.2368 | 0.4526 | -0.1963 | -0.0501 | -0.0346 | 0.3533 | 0.0412 | -2.099 | 0.9658 | -2.7291 | 0.9329 | A- | B- | A- |
| ELA | 6 | 663343 | 7 | D | 1 | 13501 | 0.6779 | 0.1085 | 0.1426 | 0.0681 | 0.672 | 0.0063 | 0.0025 | 0.3255 | -0.152 | -0.1607 | -0.1736 | 0.3329 | -0.08 | -0.0556 | -0.0197 | 0.0428 | 3.5811 | 1.0688 | 2.7311 | 1.0864 | A+ | A- | A+ |
| ELA | 6 | 663367 | 7 | D | 3 | 13495 | 0.5212 | 0.1161 | 0.2903 | 0.5164 | 0.068 | 0.0032 | 0.006 | 0.289 | -0.1686 | -0.0649 | 0.293 | -0.2225 | -0.0537 | -0.0508 | 0.759 | 0.0404 | 8.2611 | 1.1304 | 8.2112 | 1.1894 | A+ | A- | A+ |
| ELA | 6 | 662367 | 8 | A-C | 2 | 6666 | 0.4233 | 0.1254 | 0.4172 | 0.1082 | 0.3347 | 0.0136 | 0.0009 | 0.1485 | -0.0995 | 0.1524 | -0.1751 | 0.0409 | -0.0563 | -0.0206 | 1.2488 | 0.0579 | 9.9012 | 1.2476 | 9.9014 | 1.4149 | A- | A+ | A- |
| ELA | 6 | 662369 | 8 | A-C | 3 | 6719 | 0.477 | 0.2289 | 0.1268 | 0.1638 | 0.4738 | 0.0053 | 0.0013 | 0.2745 | 0.0146 | -0.2431 | -0.153 | 0.2795 | -0.0844 | -0.0547 | 0.9731 | 0.0573 | 5.1911 | 1.1154 | 5.3712 | 1.1765 | A+ | A+ | A+ |
| ELA | 6 | 662371 | 8 | A-C | 3 | 6753 | 0.5688 | 0.0958 | 0.1048 | 0.5679 | 0.2299 | 0.0016 | | 0.2838 | -0.3276 | -0.2199 | 0.285 | 0.0578 | -0.0427 | | 0.5179 | 0.0578 | 3.9611 | 1.0908 | 5.7012 | 1.2038 | A+ | A+ | A+ |
| ELA | 6 | 662373 | 8 | A-K | 2 | 6731 | 0.7736 | 0.0405 | 0.0825 | 0.7698 | 0.1023 | 0.0043 | 0.0006 | 0.4953 | -0.2604 | -0.2451 | 0.4968 | -0.2846 | -0.0603 | -0.0063 | -0.5901 | 0.0668 | -4.9092 | 0.8378 | -4.4893 | 0.7401 | B+ | A- | A- |
| ELA | 6 | 662376 | 8 | A-K | 2 | 6698 | 0.5488 | 0.0874 | 0.1699 | 0.1895 | 0.5435 | 0.0092 | 0.0006 | 0.3303 | -0.2711 | -0.1505 | -0.0653 | 0.3347 | -0.0774 | -0.0289 | 0.6369 | 0.0575 | 4.4011 | 1.099 | 4.7212 | 1.1598 | A+ | A+ | A+ |
| ELA | 6 | 662379 | 8 | A-K | 2 | 6723 | 0.3824 | 0.115 | 0.3764 | 0.1224 | 0.3801 | 0.0052 | 0.0009 | 0.3087 | -0.3141 | 0.0683 | -0.2342 | 0.312 | -0.0962 | -0.0221 | 1.434 | 0.0586 | 3.3711 | 1.0808 | 3.2211 | 1.1203 | A- | A- | A+ |
| ELA | 6 | 662383 | 8 | A-V | 3 | 6740 | 0.489 | 0.1326 | 0.4873 | 0.3137 | 0.0628 | 0.0027 | 0.0009 | 0.3294 | -0.1334 | 0.332 | -0.1478 | -0.1959 | -0.0685 | -0.0354 | 0.9082 | 0.0573 | 4.4111 | 1.0971 | 4.6112 | 1.1498 | A- | A- | A- |
| ELA | 6 | 663737 | 8 | A-V | 2 | 6725 | 0.8617 | 0.8567 | 0.0661 | 0.041 | 0.0305 | 0.004 | 0.0018 | 0.4918 | 0.4943 | -0.307 | -0.2745 | -0.2151 | -0.0738 | -0.0215 | -1.2526 | 0.0786 | -2.8991 | 0.8622 | -4.4794 | 0.638 | A+ | A- | A- |
| ELA | 6 | 629747 | 8 | D | 2 | 13462 | 0.6905 | 0.1017 | 0.1412 | 0.0649 | 0.6868 | 0.0027 | 0.0027 | 0.4834 | -0.2831 | -0.2027 | -0.2589 | 0.4865 | -0.0549 | -0.0545 | -0.114 | 0.0434 | -5.1391 | 0.9026 | -3.9491 | 0.8736 | A+ | A- | A- |
| ELA | 6 | 663360 | 8 | D | 2 | 13412 | 0.8847 | 0.8766 | 0.0372 | 0.028 | 0.0491 | 0.008 | 0.0012 | 0.4119 | 0.4158 | -0.2251 | -0.2166 | -0.2337 | -0.0737 | -0.0406 | -1.4655 | 0.0588 | -5.3892 | 0.8043 | -5.8794 | 0.6258 | A+ | A+ | A- |
| ELA | 6 | 663368 | 8 | D | 3 | 13458 | 0.4925 | 0.3142 | 0.135 | 0.4897 | 0.0553 | 0.0046 | 0.0012 | 0.2826 | -0.1112 | -0.1049 | 0.2858 | -0.218 | -0.0605 | -0.0431 | 0.8797 | 0.0405 | 7.7811 | 1.1228 | 7.4112 | 1.1727 | A- | A+ | A- |
| ELA | 6 | 658470 | 9 | A-C | 3 | 6764 | 0.2178 | 0.2166 | 0.342 | 0.2405 | 0.1958 | 0.0041 | 0.001 | 0.0751 | 0.078 | 0.1473 | -0.0992 | -0.134 | -0.0762 | -0.0483 | 2.3765 | 0.0673 | 4.9612 | 1.1873 | 8.6317 | 1.6522 | A+ | A+ | A+ |
| ELA | 6 | 658471 | 9 | A-C | 2 | 6780 | 0.5705 | 0.1806 | 0.1109 | 0.5689 | 0.1368 | 0.0025 | 0.0003 | 0.4687 | -0.206 | -0.2861 | 0.4699 | -0.1764 | -0.0495 | -0.0305 | 0.515 | 0.0576 | -3.2891 | 0.9284 | -3.0591 | 0.9047 | A+ | A+ | A+ |
| ELA | 6 | 658472 | 9 | A-C | 3 | 6686 | 0.3225 | 0.1483 | 0.2265 | 0.2915 | 0.3171 | 0.011 | 0.0056 | 0.2408 | -0.2064 | -0.12 | 0.0387 | 0.2422 | -0.0613 | -0.0043 | 1.7711 | 0.0606 | 3.7211 | 1.1013 | 6.2513 | 1.2976 | A- | A- | A- |
| ELA | 6 | 658475 | 9 | A-K | 2 | 6731 | 0.5625 | 0.1235 | 0.5568 | 0.0671 | 0.2425 | 0.009 | 0.001 | 0.3321 | -0.217 | 0.336 | -0.19 | -0.0939 | -0.0686 | -0.0402 | 0.5742 | 0.0575 | 3.9411 | 1.0891 | 3.4411 | 1.1118 | A- | A+ | A+ |
| ELA | 6 | 658476 | 9 | A-K | 2 | 6779 | 0.5082 | 0.1955 | 0.0993 | 0.5067 | 0.1956 | 0.0026 | 0.0003 | 0.3809 | -0.2271 | -0.2714 | 0.3826 | -0.0417 | -0.0613 | -0.0207 | 0.8181 | 0.0571 | 1.401 | 1.03 | 1.9011 | 1.0576 | A+ | A+ | A+ |
| ELA | 6 | 658477 | 9 | A-K | 3 | 6766 | 0.6552 | 0.652 | 0.0957 | 0.0844 | 0.163 | 0.0041 | 0.0007 | 0.4123 | 0.4147 | -0.2208 | -0.2638 | -0.1482 | -0.0579 | -0.0294 | 0.0931 | 0.0597 | 1.541 | 1.0392 | 2.3311 | 1.0949 | A+ | A- | A- |
| ELA | 6 | 658478 | 9 | A-K | 2 | 6760 | 0.5747 | 0.1618 | 0.5714 | 0.0605 | 0.2006 | 0.004 | 0.0018 | 0.2967 | -0.0909 | 0.3011 | -0.2268 | -0.1374 | -0.0743 | -0.042 | 0.5027 | 0.0577 | 5.0811 | 1.1176 | 4.6112 | 1.1556 | A+ | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 6 | 659891 | 9 | B-V | 2 | 6765 | 0.8253 | 0.8212 | 0.0959 | 0.0504 | 0.0275 | 0.0038 | 0.0012 | 0.3781 | 0.3831 | -0.1822 | -0.2571 | -0.1942 | -0.0624 | -0.0379 | -0.9562 | 0.0722 | -3.3591 | 0.8652 | -1.7191 | 0.8742 | A- | A+ | A+ |
| ELA | 6 | 629739 | 9 | D | 2 | 6768 | 0.6767 | 0.0681 | 0.1552 | 0.0985 | 0.6736 | 0.0031 | 0.0015 | 0.4791 | -0.2482 | -0.2602 | -0.2163 | 0.4806 | -0.0595 | -0.0216 | -0.0225 | 0.0605 | -4.0391 | 0.8963 | -4.8592 | 0.8061 | A+ | A- | A- |
| ELA | 6 | 623710 | 10 | A-C | 2 | 6778 | 0.5901 | 0.1108 | 0.0962 | 0.2011 | 0.5875 | 0.0029 | 0.0015 | 0.452 | -0.1895 | -0.2863 | -0.1838 | 0.456 | -0.0822 | -0.0646 | 0.4067 | 0.0581 | -3.1391 | 0.9296 | -2.6391 | 0.91 | A- | A- | A- |
| ELA | 6 | 623712 | 10 | A-C | 2 | 6711 | 0.6553 | 0.1262 | 0.1362 | 0.646 | 0.0774 | 0.0107 | 0.0035 | 0.4287 | -0.2071 | -0.202 | 0.4292 | -0.2254 | -0.0597 | -0.0148 | 0.1072 | 0.0596 | -2.1291 | 0.9472 | -1.9791 | 0.9211 | A- | A+ | A+ |
| ELA | 6 | 623713 | 10 | A-C | 2 | 6778 | 0.5291 | 0.5267 | 0.1088 | 0.1272 | 0.2328 | 0.0035 | 0.0009 | 0.3415 | 0.3454 | -0.146 | -0.251 | -0.087 | -0.091 | -0.0401 | 0.7067 | 0.0574 | 1.911 | 1.0422 | 2.0211 | 1.0662 | A- | A+ | A- |
| ELA | 6 | 623706 | 10 | A-K | 2 | 6755 | 0.73 | 0.0498 | 0.7243 | 0.1301 | 0.088 | 0.0065 | 0.0013 | 0.5125 | -0.2464 | 0.5163 | -0.2753 | -0.2694 | -0.0895 | -0.0277 | -0.3284 | 0.0632 | -5.6292 | 0.8395 | -5.4493 | 0.7387 | A- | A- | A- |
| ELA | 6 | 623711 | 10 | A-K | 2 | 6745 | 0.659 | 0.0657 | 0.1669 | 0.1053 | 0.6529 | 0.0088 | 0.0004 | 0.2425 | -0.2487 | -0.0647 | -0.0823 | 0.2488 | -0.0703 | -0.0409 | 0.0707 | 0.0598 | 4.9911 | 1.1321 | 4.7712 | 1.2109 | A+ | A- | A- |
| ELA | 6 | 623715 | 10 | A-K | 1 | 6772 | 0.676 | 0.1478 | 0.6724 | 0.0777 | 0.0968 | 0.0048 | 0.0004 | 0.4697 | -0.2936 | 0.4742 | -0.1866 | -0.2073 | -0.095 | -0.0254 | -0.0343 | 0.0606 | -4.2191 | 0.892 | -3.7892 | 0.8412 | B- | B- | A- |
| ELA | 6 | 623709 | 10 | A-V | 1 | 6774 | 0.6525 | 0.0326 | 0.0784 | 0.6492 | 0.2347 | 0.004 | 0.001 | 0.4035 | -0.2081 | -0.2483 | 0.4081 | -0.1991 | -0.0762 | -0.0576 | 0.0901 | 0.0597 | 0.451 | 1.0111 | -0.409 | 0.9827 | C- | A- | A- |
| ELA | 6 | 629677 | 10 | A-V | 2 | 6791 | 0.8545 | 0.8524 | 0.0439 | 0.0394 | 0.0618 | 0.0019 | 0.0006 | 0.3955 | 0.4001 | -0.2475 | -0.1964 | -0.2047 | -0.0589 | -0.0466 | -1.2389 | 0.0776 | -2.6591 | 0.8758 | -3.8993 | 0.6877 | A- | A- | A- |
| ELA | 6 | 625491 | 11 | B-C | 2 | 6814 | 0.5747 | 0.0709 | 0.1015 | 0.5728 | 0.2515 | 0.0025 | 0.0007 | 0.3632 | -0.3115 | -0.2095 | 0.3649 | -0.0784 | -0.0403 | -0.0461 | 0.4705 | 0.0578 | 1.411 | 1.032 | 0.581 | 1.0189 | A- | A- | A- |
| ELA | 6 | 625493 | 11 | B-C | 2 | 6792 | 0.5972 | 0.5933 | 0.154 | 0.1494 | 0.0968 | 0.0059 | 0.0006 | 0.3743 | 0.3759 | -0.1838 | -0.1845 | -0.1629 | -0.0498 | -0.0231 | 0.3692 | 0.0582 | 1.741 | 1.0406 | 0.571 | 1.0195 | A+ | A- | A+ |
| ELA | 6 | 625495 | 11 | B-C | 2 | 6776 | 0.7842 | 0.7774 | 0.047 | 0.0822 | 0.0847 | 0.0066 | 0.0022 | 0.5091 | 0.5143 | -0.2794 | -0.2624 | -0.2646 | -0.0876 | -0.043 | -0.6598 | 0.0671 | -5.3292 | 0.8231 | -5.8893 | 0.6672 | A- | A- | A- |
| ELA | 6 | 625488 | 11 | B-K | 2 | 6753 | 0.5294 | 0.153 | 0.2417 | 0.523 | 0.0702 | 0.0113 | 0.0009 | 0.3614 | -0.1276 | -0.1323 | 0.3662 | -0.2749 | -0.0835 | -0.0439 | 0.7136 | 0.0573 | 0.911 | 1.0197 | 1.341 | 1.0417 | A- | A- | A- |
| ELA | 6 | 625489 | 11 | B-K | 2 | 6802 | 0.6235 | 0.1804 | 0.6204 | 0.1138 | 0.0805 | 0.0038 | 0.0012 | 0.5365 | -0.3059 | 0.5379 | -0.2454 | -0.2233 | -0.0669 | -0.0193 | 0.2331 | 0.0588 | -7.0592 | 0.8395 | -5.9392 | 0.7942 | B- | A- | A- |
| ELA | 6 | 625492 | 11 | B-K | 2 | 6787 | 0.2219 | 0.3038 | 0.2386 | 0.2301 | 0.2203 | 0.0064 | 0.0007 | 0.1831 | -0.1772 | -0.026 | 0.0557 | 0.1859 | -0.0869 | -0.0355 | 2.3281 | 0.067 | 2.7411 | 1.0991 | 5.6814 | 1.395 | A- | A- | A- |
| ELA | 6 | 625496 | 11 | B-V | 1 | 6802 | 0.726 | 0.068 | 0.7224 | 0.0946 | 0.11 | 0.0034 | 0.0016 | 0.4722 | -0.2698 | 0.4757 | -0.2402 | -0.2219 | -0.0621 | -0.0442 | -0.318 | 0.063 | -5.7992 | 0.836 | -5.2392 | 0.7513 | B- | A- | A- |
| ELA | 6 | 633154 | 11 | B-V | 2 | 6814 | 0.345 | 0.3211 | 0.1991 | 0.3439 | 0.1327 | 0.0025 | 0.0007 | 0.2332 | 0.0494 | -0.1958 | 0.2342 | -0.1574 | -0.033 | -0.0411 | 1.6015 | 0.0597 | 4.7811 | 1.1243 | 6.3513 | 1.2748 | A- | A+ | A- |
| ELA | 6 | 623049 | 12 | A-C | 2 | 6753 | 0.2569 | 0.2562 | 0.4569 | 0.1567 | 0.1274 | 0.0021 | 0.0007 | 0.1521 | 0.1533 | 0.0322 | -0.099 | -0.1314 | -0.0582 | -0.0175 | 2.0873 | 0.0641 | 4.0911 | 1.1332 | 8.7716 | 1.5562 | A- | A- | A+ |
| ELA | 6 | 623050 | 12 | A-C | 2 | 6739 | 0.7885 | 0.109 | 0.0542 | 0.0473 | 0.7847 | 0.0031 | 0.0018 | 0.4903 | -0.2657 | -0.2795 | -0.2413 | 0.4937 | -0.0476 | -0.0714 | -0.7312 | 0.0683 | -4.5092 | 0.8424 | -4.3793 | 0.7291 | B+ | A+ | A+ |
| ELA | 6 | 623044 | 12 | A-K | 2 | 6730 | 0.6718 | 0.6676 | 0.0666 | 0.1041 | 0.1555 | 0.0043 | 0.0019 | 0.389 | 0.3935 | -0.2667 | -0.204 | -0.1375 | -0.0702 | -0.0491 | -0.029 | 0.0606 | -1.709 | 0.955 | -1.079 | 0.9521 | A+ | B+ | A+ |
| ELA | 6 | 623045 | 12 | A-K | 2 | 6724 | 0.3453 | 0.0564 | 0.5474 | 0.3429 | 0.0462 | 0.0062 | 0.0009 | 0.1746 | -0.2691 | 0.0666 | 0.1781 | -0.233 | -0.0776 | -0.0207 | 1.5961 | 0.0597 | 7.9412 | 1.2133 | 8.9314 | 1.4065 | A- | A- | A+ |
| ELA | 6 | 623047 | 12 | A-K | 2 | 6690 | 0.6578 | 0.1537 | 0.0727 | 0.1116 | 0.6499 | 0.0108 | 0.0013 | 0.3993 | -0.1763 | -0.1758 | -0.2401 | 0.4003 | -0.0535 | -0.0151 | 0.0654 | 0.0599 | -0.769 | 0.9802 | -0.519 | 0.9776 | A+ | A+ | A- |
| ELA | 6 | 623051 | 12 | A-K | 2 | 6743 | 0.6645 | 0.0898 | 0.6617 | 0.0918 | 0.1524 | 0.0037 | 0.0006 | 0.5057 | -0.2648 | 0.5085 | -0.2845 | -0.215 | -0.0794 | -0.0257 | 0.0027 | 0.0604 | -4.2891 | 0.8911 | -4.0692 | 0.8317 | A+ | A+ | A+ |
| ELA | 6 | 623046 | 12 | A-V | 1 | 6725 | 0.5735 | 0.0465 | 0.5696 | 0.07 | 0.307 | 0.0061 | 0.0009 | 0.2863 | -0.264 | 0.2903 | -0.1939 | -0.0706 | -0.0702 | -0.0232 | 0.4733 | 0.0579 | 5.7411 | 1.1348 | 5.3112 | 1.1926 | A+ | A+ | A+ |
| ELA | 6 | 625444 | 12 | A-V | 2 | 6759 | 0.9108 | 0.0357 | 0.0354 | 0.909 | 0.0179 | 0.0018 | 0.0001 | 0.3564 | -0.228 | -0.2214 | 0.3584 | -0.1344 | -0.0423 | -0.0179 | -1.8621 | 0.0939 | -2.3892 | 0.8461 | -2.7693 | 0.6829 | A- | A+ | A- |
| ELA | 7 | 495922 | 0 | A-C | 2 | 80864 | 0.603 | 0.2049 | 0.5994 | 0.1077 | 0.0821 | 0.0056 | 0.0004 | 0.4791 | -0.2451 | 0.4824 | -0.2018 | -0.2467 | -0.0909 | -0.0201 | 0.3797 | 0.0168 | -2.589 | 0.9828 | -1.819 | 0.9813 | A- | A- | A+ |
| ELA | 7 | 495924 | 0 | A-C | 2 | 80841 | 0.6165 | 0.0985 | 0.1265 | 0.6127 | 0.1561 | 0.0056 | 0.0006 | 0.4991 | -0.2937 | -0.2177 | 0.5023 | -0.2136 | -0.0879 | -0.0289 | 0.3092 | 0.0169 | -6.619 | 0.9557 | -4.209 | 0.9557 | A+ | A+ | A+ |
| ELA | 7 | 495926 | 0 | A-C | 3 | 80917 | 0.5759 | 0.1676 | 0.0728 | 0.1814 | 0.5728 | 0.0045 | 0.0008 | 0.4879 | -0.2152 | -0.2989 | -0.202 | 0.4911 | -0.0917 | -0.031 | 0.3977 | 0.0168 | -3.069 | 0.9797 | -2.869 | 0.9708 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 580604 | 0 | A-C | 2 | 80732 | 0.6104 | 0.6058 | 0.0707 | 0.1768 | 0.1391 | 0.0069 | 0.0007 | 0.4472 | 0.4497 | -0.2895 | -0.2233 | -0.1559 | -0.0684 | -0.0292 | 0.0898 | 0.0172 | 6.431 | 1.047 | 4.7111 | 1.0572 | A- | A+ | A- |
| ELA | 7 | 580590 | 0 | A-K | 3 | 80989 | 0.5705 | 0.568 | 0.1957 | 0.0678 | 0.1641 | 0.0035 | 0.0009 | 0.481 | 0.4826 | -0.2626 | -0.2973 | -0.1502 | -0.0606 | -0.0299 | 0.458 | 0.0168 | -3.809 | 0.9751 | -2.639 | 0.9737 | A- | A+ | A+ |
| ELA | 7 | 580603 | 0 | A-K | 3 | 80911 | 0.7537 | 0.047 | 0.7496 | 0.0987 | 0.0992 | 0.0049 | 0.0005 | 0.5368 | -0.2786 | 0.5381 | -0.2804 | -0.2871 | -0.0578 | -0.0296 | -0.4001 | 0.0183 | -9.8992 | 0.8262 | -9.8993 | 0.7261 | A+ | A+ | A+ |
| ELA | 7 | 495929 | 0 | A-V | 2 | 81045 | 0.8267 | 0.0395 | 0.0358 | 0.0974 | 0.8236 | 0.0033 | 0.0005 | 0.5152 | -0.2656 | -0.2707 | -0.3058 | 0.5196 | -0.0849 | -0.023 | -0.9082 | 0.0202 | -9.8992 | 0.7621 | -9.8994 | 0.6046 | A- | A+ | A+ |
| ELA | 7 | 495930 | 0 | A-V | 2 | 80994 | 0.5737 | 0.0938 | 0.5712 | 0.1347 | 0.1959 | 0.004 | 0.0003 | 0.3255 | -0.2891 | 0.3293 | -0.1514 | -0.0535 | -0.0837 | -0.0221 | 0.6315 | 0.0167 | 9.9012 | 1.1594 | 9.9013 | 1.2527 | A- | A+ | A+ |
| ELA | 7 | 495931 | 0 | A-V | 1 | 80897 | 0.5279 | 0.3617 | 0.0556 | 0.525 | 0.0522 | 0.0045 | 0.0011 | 0.1878 | 0.0357 | -0.2298 | 0.1939 | -0.2412 | -0.0953 | -0.0405 | 0.5525 | 0.0167 | 9.9013 | 1.327 | 9.9015 | 1.4915 | B- | A- | A+ |
| ELA | 7 | 580591 | 0 | A-V | 2 | 80804 | 0.659 | 0.1176 | 0.1763 | 0.0448 | 0.6546 | 0.0056 | 0.0011 | 0.4177 | -0.2461 | -0.1678 | -0.2475 | 0.4201 | -0.0667 | -0.0112 | 0.1254 | 0.0171 | 1.631 | 1.0116 | 1.581 | 1.0185 | A- | A+ | A+ |
| ELA | 7 | 580607 | 0 | A-V | 2 | 80896 | 0.7251 | 0.1115 | 0.0876 | 0.0743 | 0.721 | 0.0041 | 0.0015 | 0.5908 | -0.3179 | -0.2828 | -0.3051 | 0.5925 | -0.0709 | -0.0308 | -0.3745 | 0.0182 | -9.8992 | 0.8188 | -9.8993 | 0.705 | A- | A+ | A+ |
| ELA | 7 | 494379 | 0 | B-C | 2 | 81083 | 0.5385 | 0.1243 | 0.5368 | 0.1112 | 0.2245 | 0.0026 | 0.0006 | 0.3772 | -0.1299 | 0.3796 | -0.2685 | -0.138 | -0.0712 | -0.0302 | 0.3861 | 0.0168 | 9.9011 | 1.1265 | 9.9013 | 1.2666 | A- | A+ | A- |
| ELA | 7 | 494380 | 0 | B-C | 2 | 81077 | 0.5923 | 0.2077 | 0.1165 | 0.0821 | 0.5903 | 0.0027 | 0.0007 | 0.4438 | -0.1406 | -0.2453 | -0.2892 | 0.4459 | -0.0637 | -0.0323 | 0.3259 | 0.0169 | 3.951 | 1.0269 | 6.8311 | 1.074 | A+ | A+ | A+ |
| ELA | 7 | 497154 | 0 | B-C | 3 | 80707 | 0.422 | 0.4187 | 0.1542 | 0.2631 | 0.1561 | 0.0071 | 0.0008 | 0.2968 | 0.301 | -0.1737 | -0.0648 | -0.1331 | -0.096 | -0.0306 | 0.9268 | 0.0167 | 9.9012 | 1.1717 | 9.9013 | 1.2637 | A- | A+ | A+ |
| ELA | 7 | 497158 | 0 | B-C | 3 | 80796 | 0.4461 | 0.4431 | 0.1339 | 0.1822 | 0.2341 | 0.006 | 0.0008 | 0.3649 | 0.3681 | -0.2046 | -0.1223 | -0.1377 | -0.0913 | -0.0228 | 0.7021 | 0.0166 | 9.9011 | 1.1206 | 9.9012 | 1.1754 | A- | A+ | A+ |
| ELA | 7 | 502775 | 0 | B-C | 3 | 80809 | 0.4259 | 0.2533 | 0.0833 | 0.2337 | 0.423 | 0.0056 | 0.001 | 0.4018 | -0.055 | -0.2812 | -0.2141 | 0.4045 | -0.0886 | -0.0311 | 0.9762 | 0.0167 | 2.751 | 1.0179 | 5.9411 | 1.0575 | A- | A+ | A+ |
| ELA | 7 | 494382 | 0 | B-K | 2 | 80817 | 0.4614 | 0.2662 | 0.4583 | 0.2239 | 0.045 | 0.005 | 0.0015 | 0.3662 | -0.2174 | 0.3683 | -0.0728 | -0.2472 | -0.0695 | -0.023 | 0.9924 | 0.0167 | 9.9011 | 1.0957 | 9.9012 | 1.1845 | A+ | A+ | A+ |
| ELA | 7 | 494384 | 0 | B-K | 2 | 80879 | 0.4787 | 0.0956 | 0.2462 | 0.476 | 0.1764 | 0.0049 | 0.0008 | 0.4021 | -0.1688 | -0.1692 | 0.404 | -0.1932 | -0.0712 | -0.0202 | 0.7718 | 0.0166 | 9.6311 | 1.0629 | 9.9011 | 1.0981 | A- | A+ | A+ |
| ELA | 7 | 497159 | 0 | B-K | 3 | 80758 | 0.4276 | 0.254 | 0.1679 | 0.4245 | 0.1463 | 0.0066 | 0.0007 | 0.316 | 0.0273 | -0.2605 | 0.3199 | -0.1815 | -0.0982 | -0.021 | 1.1538 | 0.0168 | 9.9012 | 1.1594 | 9.9013 | 1.2775 | A+ | A+ | A+ |
| ELA | 7 | 497160 | 0 | B-K | 3 | 80578 | 0.5482 | 0.1434 | 0.543 | 0.1778 | 0.1264 | 0.0088 | 0.0007 | 0.4207 | -0.1958 | 0.4261 | -0.1868 | -0.1848 | -0.1089 | -0.0257 | 0.2944 | 0.0169 | 9.9011 | 1.086 | 9.9011 | 1.141 | A- | A+ | A+ |
| ELA | 7 | 494378 | 0 | B-V | 2 | 81065 | 0.7758 | 0.132 | 0.0682 | 0.7731 | 0.0232 | 0.003 | 0.0005 | 0.464 | -0.2715 | -0.2612 | 0.4681 | -0.2222 | -0.0744 | -0.0346 | -0.7504 | 0.0195 | -7.2491 | 0.9277 | -7.9691 | 0.8518 | A+ | A- | A- |
| ELA | 7 | 494385 | 0 | B-V | 2 | 81061 | 0.6498 | 0.6475 | 0.2028 | 0.0492 | 0.097 | 0.0028 | 0.0007 | 0.4357 | 0.4387 | -0.2178 | -0.2465 | -0.216 | -0.0767 | -0.0263 | -0.1118 | 0.0176 | 6.221 | 1.0488 | 2.901 | 1.0392 | A- | A- | A- |
| ELA | 7 | 497153 | 0 | B-V | 1 | 80980 | 0.6767 | 0.0672 | 0.1161 | 0.1386 | 0.6736 | 0.0041 | 0.0004 | 0.5258 | -0.2768 | -0.2566 | -0.2621 | 0.529 | -0.0863 | -0.0229 | -0.2724 | 0.0179 | -4.679 | 0.962 | -4.4791 | 0.9354 | B- | A- | A+ |
| ELA | 7 | 503916 | 0 | D | 2 | 80983 | 0.6093 | 0.1161 | 0.1479 | 0.6065 | 0.125 | 0.0037 | 0.0008 | 0.4617 | -0.2486 | -0.2148 | 0.4642 | -0.1992 | -0.0656 | -0.0358 | 0.3101 | 0.0169 | -3.009 | 0.9797 | -3.739 | 0.9606 | A+ | A- | A- |
| ELA | 7 | 503924 | 0 | D | 2 | 81187 | 0.5538 | 0.2424 | 0.0348 | 0.5527 | 0.168 | 0.0013 | 0.0007 | 0.4685 | -0.2597 | -0.2179 | 0.4694 | -0.2138 | -0.0362 | -0.0355 | 0.239 | 0.017 | 4.201 | 1.0292 | 3.401 | 1.0379 | A- | A- | A- |
| ELA | 7 | 503927 | 0 | D | 3 | 80925 | 0.3981 | 0.396 | 0.2278 | 0.1338 | 0.2371 | 0.0042 | 0.001 | 0.375 | 0.3769 | -0.1171 | -0.2721 | -0.0871 | -0.0671 | -0.0369 | 1.09 | 0.0168 | 9.2111 | 1.0617 | 9.9011 | 1.1353 | A- | A- | A- |
| ELA | 7 | 503931 | 0 | D | 2 | 80575 | 0.6479 | 0.2609 | 0.0511 | 0.0368 | 0.6417 | 0.0039 | 0.0056 | 0.2278 | -0.0532 | -0.183 | -0.2118 | 0.238 | -0.0617 | -0.0904 | 0.1606 | 0.0171 | 9.9012 | 1.2127 | 9.9014 | 1.3561 | A- | A+ | A+ |
| ELA | 7 | 584045 | 0 | D | 2 | 81190 | 0.8404 | 0.8387 | 0.1025 | 0.0364 | 0.0205 | 0.0011 | 0.0008 | 0.4025 | 0.405 | -0.2291 | -0.264 | -0.1951 | -0.0467 | -0.0294 | -1.0518 | 0.0208 | -9.8992 | 0.8481 | -5.5091 | 0.8768 | A+ | A+ | A+ |
| ELA | 7 | 584047 | 0 | D | 2 | 81163 | 0.4048 | 0.4039 | 0.2991 | 0.242 | 0.0527 | 0.0014 | 0.0009 | 0.3944 | 0.3954 | -0.1551 | -0.162 | -0.2272 | -0.0471 | -0.0374 | 0.985 | 0.0167 | 7.541 | 1.0496 | 9.9011 | 1.1123 | A- | A- | A- |
| ELA | 7 | 584048 | 0 | D | 2 | 81165 | 0.8541 | 0.0615 | 0.8522 | 0.0402 | 0.0439 | 0.0015 | 0.0008 | 0.4676 | -0.2658 | 0.4707 | -0.2519 | -0.2472 | -0.0534 | -0.0372 | -1.3025 | 0.0222 | -9.8992 | 0.826 | -9.8993 | 0.6613 | A+ | A+ | A+ |
| ELA | 7 | 584128 | 0 | D | 2 | 80948 | 0.7888 | 0.7849 | 0.0341 | 0.1 | 0.0761 | 0.0037 | 0.0013 | 0.4186 | 0.4233 | -0.228 | -0.2479 | -0.1986 | -0.0674 | -0.0402 | -0.8789 | 0.02 | -1.319 | 0.9856 | -0.829 | 0.9824 | A+ | A- | A- |
| ELA | 7 | 584129 | 0 | D | 2 | 80961 | 0.6941 | 0.6908 | 0.1325 | 0.1406 | 0.0314 | 0.0034 | 0.0013 | 0.5 | 0.5026 | -0.2773 | -0.2725 | -0.2209 | -0.0625 | -0.0384 | -0.3441 | 0.0181 | -4.699 | 0.9607 | -4.1991 | 0.9368 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 625515 | 1 | A-C | 2 | 40610 | 0.5358 | 0.2808 | 0.0467 | 0.5352 | 0.1363 | 0.0009 | 0.0002 | 0.2111 | -0.1458 | -0.2474 | 0.2119 | 0.0383 | -0.0288 | -0.0162 | 0.4199 | 0.0236 | 9.9012 | 1.2311 | 9.9014 | 1.3808 | A- | A- | A- |
| ELA | 7 | 625518 | 1 | A-C | 3 | 40506 | 0.678 | 0.6755 | 0.0632 | 0.1504 | 0.1072 | 0.0024 | 0.0012 | 0.4253 | 0.427 | -0.28 | -0.134 | -0.261 | -0.0418 | -0.0303 | -0.2035 | 0.0249 | -2.819 | 0.9692 | -2.449 | 0.9537 | A- | A+ | A- |
| ELA | 7 | 625511 | 1 | A-K | 3 | 40502 | 0.3648 | 0.3635 | 0.2816 | 0.1448 | 0.2064 | 0.0033 | 0.0004 | 0.1952 | 0.1962 | -0.0244 | -0.1171 | -0.0985 | -0.0324 | -0.0209 | 1.328 | 0.0241 | 9.9012 | 1.1953 | 9.9013 | 1.3448 | A- | A+ | A- |
| ELA | 7 | 625512 | 1 | A-K | 2 | 40552 | 0.3657 | 0.0543 | 0.3648 | 0.2505 | 0.3278 | 0.002 | 0.0005 | 0.005 | -0.1779 | 0.0063 | 0.1294 | -0.0365 | -0.0271 | -0.019 | 1.3657 | 0.0241 | 9.9014 | 1.4194 | 9.9017 | 1.6725 | A- | A- | A- |
| ELA | 7 | 625514 | 1 | A-V | 1 | 40506 | 0.2757 | 0.2639 | 0.2747 | 0.1836 | 0.2742 | 0.0025 | 0.0012 | 0.191 | -0.0491 | 0.192 | -0.154 | -0.0036 | -0.0385 | -0.0256 | 1.8942 | 0.0258 | 9.9011 | 1.1418 | 9.9014 | 1.3887 | A- | A- | A- |
| ELA | 7 | 625519 | 1 | A-V | 2 | 40509 | 0.2384 | 0.2291 | 0.2704 | 0.2594 | 0.2375 | 0.0027 | 0.0009 | 0.2085 | -0.0288 | -0.123 | -0.0438 | 0.2095 | -0.0451 | -0.0282 | 2.107 | 0.0268 | 4.6911 | 1.0652 | 9.9015 | 1.4664 | A- | A+ | A+ |
| ELA | 7 | 661927 | 1 | B-C | 2 | 6843 | 0.5107 | 0.2598 | 0.0965 | 0.131 | 0.5087 | 0.0031 | 0.0009 | 0.3727 | -0.1953 | -0.218 | -0.1007 | 0.3737 | -0.0464 | -0.0085 | 0.7284 | 0.0574 | 3.0711 | 1.0684 | 4.4511 | 1.1422 | A+ | A- | A- |
| ELA | 7 | 661928 | 1 | B-C | 2 | 6837 | 0.477 | 0.2943 | 0.4747 | 0.1095 | 0.1167 | 0.0035 | 0.0013 | 0.3484 | -0.1018 | 0.3505 | -0.1902 | -0.2023 | -0.0449 | -0.0447 | 0.6086 | 0.0574 | 2.9411 | 1.0653 | 3.0211 | 1.0954 | A+ | A+ | A+ |
| ELA | 7 | 661929 | 1 | B-C | 2 | 6854 | 0.5788 | 0.0981 | 0.2183 | 0.5774 | 0.1038 | 0.0022 | 0.0001 | 0.3657 | -0.2312 | -0.123 | 0.3672 | -0.1945 | -0.0473 | -0.0246 | 0.4444 | 0.0576 | 2.6111 | 1.0588 | 2.6911 | 1.0877 | A- | A- | A+ |
| ELA | 7 | 661931 | 1 | B-K | 2 | 6842 | 0.595 | 0.0997 | 0.1063 | 0.5926 | 0.1974 | 0.0028 | 0.0013 | 0.3982 | -0.2757 | -0.2273 | 0.3996 | -0.1011 | -0.0448 | -0.0303 | 0.1549 | 0.0584 | 1.631 | 1.0385 | 1.4111 | 1.0509 | A- | A- | A- |
| ELA | 7 | 661934 | 1 | B-K | 3 | 6767 | 0.4868 | 0.4795 | 0.1015 | 0.1477 | 0.2563 | 0.0068 | 0.0082 | 0.3013 | 0.3014 | -0.278 | -0.176 | -0.0002 | -0.0184 | -0.0289 | 0.6703 | 0.0574 | 5.9111 | 1.1343 | 6.9712 | 1.2287 | A- | A+ | A+ |
| ELA | 7 | 661935 | 1 | B-K | 2 | 6846 | 0.4944 | 0.4927 | 0.0914 | 0.3054 | 0.107 | 0.0023 | 0.0012 | 0.4153 | 0.4156 | -0.2667 | -0.1307 | -0.2215 | -0.0359 | -0.0165 | 0.6529 | 0.0574 | 0.831 | 1.0181 | 0.871 | 1.0267 | A- | A- | A+ |
| ELA | 7 | 661936 | 1 | B-V | 2 | 6860 | 0.7309 | 0.0949 | 0.7298 | 0.0741 | 0.0997 | 0.001 | 0.0004 | 0.501 | -0.2316 | 0.5018 | -0.2279 | -0.3129 | -0.0302 | -0.027 | -0.3584 | 0.0618 | -5.7292 | 0.8475 | -5.2792 | 0.7649 | A- | A- | A+ |
| ELA | 7 | 664166 | 1 | B-V | 2 | 6847 | 0.5919 | 0.0913 | 0.59 | 0.1581 | 0.1574 | 0.0026 | 0.0007 | 0.1458 | -0.2031 | 0.1472 | -0.0393 | 0.0061 | -0.0266 | -0.0148 | -0.0509 | 0.0595 | 9.9014 | 1.3674 | 9.9018 | 1.766 | A+ | A+ | A+ |
| ELA | 7 | 630226 | 1 | D | 1 | 6847 | 0.6838 | 0.0889 | 0.6815 | 0.1156 | 0.1106 | 0.0019 | 0.0015 | 0.4895 | -0.182 | 0.4903 | -0.2859 | -0.2626 | -0.0218 | -0.0498 | -0.2308 | 0.0607 | -3.2391 | 0.916 | -3.4991 | 0.8505 | A+ | A- | A- |
| ELA | 7 | 663479 | 1 | D | 2 | 13541 | 0.7586 | 0.0939 | 0.7549 | 0.0708 | 0.0755 | 0.0045 | 0.0004 | 0.515 | -0.2997 | 0.5167 | -0.2231 | -0.277 | -0.0572 | -0.0281 | -0.5795 | 0.046 | -8.1492 | 0.8247 | -8.1793 | 0.6906 | A- | A+ | A+ |
| ELA | 7 | 663533 | 1 | D | 2 | 6849 | 0.3199 | 0.3713 | 0.0774 | 0.2293 | 0.3189 | 0.0025 | 0.0006 | 0.0809 | 0.0765 | -0.1397 | -0.0844 | 0.0823 | -0.0349 | -0.0332 | 1.5411 | 0.0606 | 9.9013 | 1.2916 | 9.9015 | 1.5304 | A+ | A- | A- |
| ELA | 7 | 658519 | 2 | B-C | 3 | 6721 | 0.1396 | 0.512 | 0.1334 | 0.1389 | 0.211 | 0.0034 | 0.0012 | -0.124 | 0.2184 | -0.3033 | -0.1222 | 0.0971 | -0.0444 | -0.0229 | 2.9068 | 0.0794 | 6.0913 | 1.3395 | 9.9026 | 2.6283 | A- | A- | A- |
| ELA | 7 | 658520 | 2 | B-C | 2 | 6738 | 0.5278 | 0.1918 | 0.1397 | 0.5267 | 0.1398 | 0.0018 | 0.0003 | 0.405 | -0.1132 | -0.2232 | 0.4063 | -0.2263 | -0.0467 | -0.025 | 0.6106 | 0.0575 | 0.861 | 1.0189 | 2.9011 | 1.0918 | A+ | A- | A- |
| ELA | 7 | 658521 | 2 | B-C | 2 | 6741 | 0.4148 | 0.1324 | 0.4141 | 0.2741 | 0.1777 | 0.0015 | 0.0001 | 0.133 | -0.186 | 0.1344 | 0.1218 | -0.1451 | -0.0466 | -0.0165 | 1.0953 | 0.058 | 9.9012 | 1.246 | 9.2913 | 1.3321 | A- | A- | A- |
| ELA | 7 | 658523 | 2 | B-K | 3 | 6720 | 0.4923 | 0.1979 | 0.4899 | 0.2142 | 0.0933 | 0.0025 | 0.0022 | 0.2745 | -0.048 | 0.2759 | -0.1614 | -0.1707 | -0.052 | -0.0072 | 0.7489 | 0.0574 | 7.3912 | 1.171 | 7.3712 | 1.2409 | A+ | A+ | A+ |
| ELA | 7 | 658525 | 2 | B-K | 2 | 6703 | 0.4962 | 0.1293 | 0.4926 | 0.1561 | 0.2148 | 0.0065 | 0.0007 | 0.3112 | -0.1589 | 0.3122 | -0.1829 | -0.08 | -0.0397 | -0.0136 | 0.7842 | 0.0574 | 3.4611 | 1.0779 | 4.3111 | 1.1366 | A- | A- | A- |
| ELA | 7 | 658526 | 2 | B-K | 2 | 6664 | 0.5389 | 0.5318 | 0.1665 | 0.1798 | 0.1089 | 0.0126 | 0.0004 | 0.4511 | 0.4509 | -0.1749 | -0.2497 | -0.1859 | -0.0514 | -0.0142 | 0.6848 | 0.0574 | -3.4291 | 0.9264 | -2.9191 | 0.9131 | A- | A- | A- |
| ELA | 7 | 658527 | 2 | B-K | 2 | 6742 | 0.2136 | 0.4491 | 0.2105 | 0.1257 | 0.2133 | 0.0012 | 0.0003 | 0.0668 | 0.1714 | -0.0614 | -0.2619 | 0.0673 | -0.0168 | -0.0224 | 2.1796 | 0.0665 | 5.2812 | 1.1921 | 9.3217 | 1.6692 | A+ | A- | A+ |
| ELA | 7 | 658528 | 2 | B-V | 2 | 6722 | 0.4509 | 0.0567 | 0.0502 | 0.4489 | 0.4397 | 0.0031 | 0.0013 | 0.3598 | -0.1737 | -0.2111 | 0.3611 | -0.1811 | -0.0393 | -0.035 | 0.9711 | 0.0576 | 1.241 | 1.0277 | 2.1411 | 1.068 | A- | A- | A- |
| ELA | 7 | 630230 | 2 | D | 1 | 6740 | 0.5482 | 0.1363 | 0.08 | 0.5472 | 0.2347 | 0.0013 | 0.0004 | 0.3254 | -0.179 | -0.2039 | 0.3264 | -0.1038 | -0.0457 | -0.0028 | 0.2618 | 0.0583 | 4.2211 | 1.1015 | 3.5011 | 1.1265 | A+ | A- | A- |
| ELA | 7 | 663480 | 2 | D | 2 | 6715 | 0.7284 | 0.0564 | 0.7244 | 0.0855 | 0.1283 | 0.0052 | 0.0003 | 0.3018 | -0.2101 | 0.3051 | -0.1893 | -0.0914 | -0.0542 | -0.0285 | -0.4501 | 0.0633 | 1.311 | 1.0397 | 3.9412 | 1.2227 | A+ | A+ | A+ |
| ELA | 7 | 663526 | 2 | D | 2 | 6740 | 0.5702 | 0.0986 | 0.0994 | 0.5692 | 0.231 | 0.0015 | 0.0003 | 0.3988 | -0.116 | -0.2618 | 0.3987 | -0.1988 | -0.0188 | -0.0014 | 0.4042 | 0.0579 | 1.661 | 1.038 | 1.291 | 1.0425 | A+ | A- | A- |
| ELA | 7 | 662344 | 3 | B-C | 2 | 6723 | 0.573 | 0.1359 | 0.0736 | 0.5667 | 0.2129 | 0.0081 | 0.0028 | 0.3801 | -0.2322 | -0.2826 | 0.3827 | -0.0715 | -0.0732 | -0.0089 | 0.4964 | 0.0577 | 2.7911 | 1.0634 | 3.1811 | 1.1094 | A+ | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 662345 | 3 | B-C | 3 | 6779 | 0.4279 | 0.2881 | 0.4268 | 0.0958 | 0.1867 | 0.0021 | 0.0006 | 0.397 | -0.2089 | 0.3974 | -0.2727 | -0.0507 | -0.0305 | -0.0236 | 1.1031 | 0.0584 | 2.1511 | 1.0514 | 2.9911 | 1.1056 | A- | A- | A- |
| ELA | 7 | 662346 | 3 | B-C | 3 | 6764 | 0.4976 | 0.1326 | 0.1484 | 0.2189 | 0.4952 | 0.0037 | 0.0012 | 0.4726 | -0.2614 | -0.2308 | -0.1486 | 0.4745 | -0.0621 | -0.0373 | 0.7714 | 0.0577 | -1.359 | 0.9697 | -0.179 | 0.9938 | A- | A- | A- |
| ELA | 7 | 663918 | 3 | B-C | 2 | 6767 | 0.7222 | 0.719 | 0.0637 | 0.1099 | 0.103 | 0.0022 | 0.0022 | 0.5388 | 0.5416 | -0.2952 | -0.2635 | -0.2751 | -0.0619 | -0.0511 | -0.4687 | 0.0629 | -5.9192 | 0.8373 | -5.2193 | 0.7384 | A- | A- | A- |
| ELA | 7 | 662348 | 3 | B-K | 3 | 6777 | 0.454 | 0.4527 | 0.2013 | 0.0705 | 0.2726 | 0.0024 | 0.0006 | 0.2618 | 0.2632 | -0.2181 | -0.2167 | 0.0328 | -0.0476 | -0.0159 | 0.9846 | 0.0581 | 8.0212 | 1.1962 | 8.9213 | 1.3248 | A- | A+ | A- |
| ELA | 7 | 662349 | 3 | B-K | 3 | 6714 | 0.6151 | 0.6076 | 0.1402 | 0.1454 | 0.0946 | 0.0121 | 0.0001 | 0.4081 | 0.4119 | -0.1691 | -0.1462 | -0.28 | -0.0791 | -0.0262 | 0.0641 | 0.059 | -0.069 | 0.998 | 1.011 | 1.0407 | A- | A- | A- |
| ELA | 7 | 662351 | 3 | B-K | 2 | 6761 | 0.3983 | 0.3104 | 0.117 | 0.3962 | 0.1711 | 0.0044 | 0.0009 | 0.0665 | 0.0786 | -0.1776 | 0.0685 | -0.0264 | -0.0311 | -0.026 | 1.1916 | 0.0588 | 9.9014 | 1.3648 | 9.9015 | 1.5405 | B+ | A+ | A+ |
| ELA | 7 | 662352 | 3 | B-V | 2 | 6786 | 0.5722 | 0.1221 | 0.2701 | 0.0349 | 0.5713 | 0.0012 | 0.0004 | 0.4397 | -0.2459 | -0.2035 | -0.2451 | 0.4408 | -0.0407 | -0.0454 | 0.3567 | 0.058 | 1.001 | 1.0227 | 0.691 | 1.0239 | B- | B- | A- |
| ELA | 7 | 630219 | 3 | D | 2 | 6760 | 0.7568 | 0.7527 | 0.0834 | 0.0956 | 0.0628 | 0.0022 | 0.0032 | 0.4291 | 0.4336 | -0.2707 | -0.1985 | -0.1978 | -0.0616 | -0.0519 | -0.6732 | 0.0651 | -1.7991 | 0.9431 | -1.0091 | 0.9373 | A- | A+ | A- |
| ELA | 7 | 663481 | 3 | D | 2 | 6739 | 0.6347 | 0.1208 | 0.6292 | 0.0945 | 0.147 | 0.0075 | 0.001 | 0.515 | -0.2431 | 0.5181 | -0.2636 | -0.2413 | -0.0857 | -0.034 | -0.0844 | 0.0598 | -1.049 | 0.9738 | -0.789 | 0.9654 | A+ | A- | A- |
| ELA | 7 | 663527 | 3 | D | 2 | 6770 | 0.5496 | 0.1031 | 0.0937 | 0.2517 | 0.5474 | 0.0025 | 0.0015 | 0.4359 | -0.1669 | -0.1629 | -0.267 | 0.4373 | -0.0366 | -0.0454 | 0.5378 | 0.0577 | -0.339 | 0.9923 | 0.411 | 1.0132 | A+ | B- | A- |
| ELA | 7 | 659231 | 4 | B-C | 2 | 6702 | 0.4966 | 0.2952 | 0.4947 | 0.0761 | 0.1302 | 0.0031 | 0.0006 | 0.2144 | 0.0835 | 0.2183 | -0.2369 | -0.2345 | -0.0892 | -0.0196 | 0.7748 | 0.0571 | 9.7112 | 1.2209 | 9.9013 | 1.3312 | A+ | A+ | A+ |
| ELA | 7 | 659234 | 4 | B-C | 2 | 6699 | 0.11 | 0.3366 | 0.3997 | 0.1096 | 0.15 | 0.0037 | 0.0004 | -0.1203 | 0.0128 | 0.1046 | -0.1183 | -0.0455 | -0.0559 | -0.0325 | 3.1935 | 0.0862 | 2.5912 | 1.1607 | 9.9028 | 2.7656 | A- | A+ | A- |
| ELA | 7 | 659236 | 4 | B-C | 2 | 6715 | 0.6234 | 0.6223 | 0.0972 | 0.1974 | 0.0813 | 0.0018 | | 0.3691 | 0.3696 | -0.2214 | -0.1973 | -0.123 | -0.034 | | 0.1447 | 0.0589 | 0.021 | 1.0004 | 0.351 | 1.0125 | C- | A- | A- |
| ELA | 7 | 659887 | 4 | B-C | 2 | 6669 | 0.3134 | 0.2255 | 0.3107 | 0.2068 | 0.2484 | 0.0064 | 0.0022 | 0.0625 | -0.0887 | 0.0681 | -0.0464 | 0.0775 | -0.081 | -0.0562 | 1.7083 | 0.0608 | 9.9013 | 1.3079 | 9.9016 | 1.6199 | A- | A- | A+ |
| ELA | 7 | 659239 | 4 | B-K | 3 | 6701 | 0.4531 | 0.151 | 0.2982 | 0.4513 | 0.0956 | 0.0028 | 0.001 | 0.2775 | -0.3301 | 0.031 | 0.2792 | -0.1066 | -0.0462 | -0.0347 | 0.986 | 0.0573 | 7.7112 | 1.1738 | 7.8013 | 1.2628 | A- | A- | A- |
| ELA | 7 | 659243 | 4 | B-K | 2 | 6649 | 0.7114 | 0.1393 | 0.7031 | 0.0896 | 0.0563 | 0.0094 | 0.0022 | 0.4502 | -0.2387 | 0.4537 | -0.2009 | -0.2529 | -0.0838 | -0.0185 | -0.2899 | 0.0621 | -4.3691 | 0.8782 | -4.0092 | 0.8197 | A+ | A+ | A- |
| ELA | 7 | 659245 | 4 | B-K | 2 | 6675 | 0.5732 | 0.5688 | 0.1732 | 0.1912 | 0.0592 | 0.0067 | 0.001 | 0.4469 | 0.4489 | -0.2135 | -0.2 | -0.2396 | -0.0687 | -0.023 | 0.4135 | 0.0577 | -1.419 | 0.9684 | -0.929 | 0.9698 | A+ | A- | A+ |
| ELA | 7 | 659248 | 4 | B-V | 3 | 6710 | 0.723 | 0.0552 | 0.0981 | 0.1231 | 0.7211 | 0.0019 | 0.0006 | 0.4865 | -0.2459 | -0.2278 | -0.2803 | 0.4883 | -0.0588 | -0.0172 | -0.3939 | 0.0631 | -4.8591 | 0.8592 | -3.7192 | 0.8216 | A- | A- | A- |
| ELA | 7 | 630235 | 4 | D | 2 | 6693 | 0.8228 | 0.8186 | 0.0296 | 0.0697 | 0.077 | 0.0028 | 0.0022 | 0.483 | 0.4868 | -0.241 | -0.2884 | -0.2538 | -0.072 | -0.0386 | -1.0415 | 0.0721 | -3.7792 | 0.8496 | -4.3493 | 0.7051 | A+ | A- | A- |
| ELA | 7 | 663482 | 4 | D | 2 | 13407 | 0.5276 | 0.069 | 0.5245 | 0.3039 | 0.0966 | 0.0055 | 0.0005 | 0.377 | -0.2235 | 0.3793 | -0.1791 | -0.1514 | -0.0724 | -0.0141 | 0.6242 | 0.0407 | 3.4111 | 1.0539 | 3.7811 | 1.0923 | A- | A- | A- |
| ELA | 7 | 663528 | 4 | D | 2 | 6698 | 0.8871 | 0.0385 | 0.036 | 0.8833 | 0.0379 | 0.0037 | 0.0006 | 0.4426 | -0.2464 | -0.2494 | 0.4425 | -0.2355 | -0.0381 | -0.0376 | -1.6213 | 0.0848 | -2.2091 | 0.8785 | -3.8794 | 0.6444 | B+ | A+ | A+ |
| ELA | 7 | 659230 | 5 | B-C | 2 | 6716 | 0.6136 | 0.203 | 0.0781 | 0.1034 | 0.6107 | 0.0036 | 0.0012 | 0.4492 | -0.2443 | -0.2485 | -0.1669 | 0.4504 | -0.0609 | -0.0052 | 0.2079 | 0.0584 | -1.299 | 0.9699 | -1.8791 | 0.9327 | A- | A- | A+ |
| ELA | 7 | 659235 | 5 | B-C | 2 | 6737 | 0.3393 | 0.3388 | 0.1154 | 0.5021 | 0.0421 | 0.0013 | 0.0003 | -0.0271 | -0.026 | -0.1616 | 0.2287 | -0.2443 | -0.0263 | -0.023 | 1.5632 | 0.0602 | 9.9014 | 1.4454 | 9.9017 | 1.7162 | A- | A+ | A- |
| ELA | 7 | 659232 | 5 | B-K | 2 | 6699 | 0.6016 | 0.1326 | 0.5972 | 0.0983 | 0.1646 | 0.007 | 0.0003 | 0.3753 | -0.2111 | 0.3783 | -0.1746 | -0.1515 | -0.0653 | -0.0195 | 0.2759 | 0.0581 | 1.811 | 1.0417 | 0.691 | 1.0241 | A- | A+ | A+ |
| ELA | 7 | 659241 | 5 | B-K | 3 | 6732 | 0.1821 | 0.2417 | 0.4323 | 0.1817 | 0.142 | 0.0019 | 0.0004 | 0.0915 | 0.0095 | -0.0193 | 0.0925 | -0.0789 | -0.0546 | -0.0105 | 2.5474 | 0.0721 | 4.4712 | 1.1977 | 9.902 | 1.964 | A- | A- | A- |
| ELA | 7 | 659242 | 5 | B-K | 2 | 6703 | 0.708 | 0.0602 | 0.7033 | 0.0593 | 0.1706 | 0.0062 | 0.0004 | 0.4658 | -0.2659 | 0.467 | -0.2593 | -0.2232 | -0.0612 | -0.0048 | -0.2856 | 0.0616 | -3.7591 | 0.899 | -2.9491 | 0.8623 | A- | A- | A+ |
| ELA | 7 | 659246 | 5 | B-K | 2 | 6689 | 0.3868 | 0.3834 | 0.1572 | 0.2248 | 0.2258 | 0.0062 | 0.0025 | 0.2633 | 0.2662 | -0.2282 | -0.1306 | 0.035 | -0.0626 | -0.0311 | 1.3301 | 0.0588 | 6.7512 | 1.1708 | 7.2013 | 1.2799 | A- | A- | A+ |
| ELA | 7 | 659249 | 5 | B-V | 1 | 6726 | 0.6081 | 0.2242 | 0.0525 | 0.6061 | 0.114 | 0.0022 | 0.001 | 0.3524 | -0.1392 | -0.2396 | 0.3554 | -0.1819 | -0.064 | -0.043 | 0.2311 | 0.0583 | 2.6411 | 1.0619 | 2.6211 | 1.0968 | A- | A- | A- |
| ELA | 7 | 661654 | 5 | B-V | 2 | 6735 | 0.7608 | 0.0963 | 0.7593 | 0.0848 | 0.0576 | 0.0012 | 0.0007 | 0.4016 | -0.2808 | 0.4033 | -0.2115 | -0.1224 | -0.0386 | -0.0298 | -0.6211 | 0.0652 | -1.089 | 0.9645 | 2.4612 | 1.1535 | B- | A- | B- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 630221 | 5 | D | 2 | 13479 | 0.3923 | 0.2235 | 0.1584 | 0.391 | 0.2237 | 0.0024 | 0.001 | 0.2192 | 0.0459 | -0.2344 | 0.2208 | -0.0909 | -0.0427 | -0.0415 | 1.3064 | 0.0416 | 9.9012 | 1.2124 | 9.9014 | 1.4131 | A+ | A- | A- |
| ELA | 7 | 663483 | 5 | D | 2 | 13414 | 0.8044 | 0.0309 | 0.0834 | 0.7978 | 0.0797 | 0.007 | 0.0012 | 0.3987 | -0.2224 | -0.2277 | 0.4042 | -0.1967 | -0.0788 | -0.0295 | -0.8858 | 0.0489 | -0.979 | 0.9741 | -1.1891 | 0.9389 | A+ | A+ | A+ |
| ELA | 7 | 663529 | 5 | D | 2 | 6722 | 0.554 | 0.1669 | 0.5519 | 0.1878 | 0.0897 | 0.0033 | 0.0006 | 0.389 | -0.16 | 0.3903 | -0.1684 | -0.2289 | -0.0405 | -0.0405 | 0.5007 | 0.0575 | 1.431 | 1.0314 | 1.121 | 1.0358 | A- | A- | A- |
| ELA | 7 | 661103 | 6 | A-C | 2 | 6694 | 0.4329 | 0.1193 | 0.3077 | 0.4301 | 0.1364 | 0.004 | 0.0025 | 0.2612 | -0.05 | -0.0576 | 0.2652 | -0.2368 | -0.0598 | -0.0685 | 1.1136 | 0.0581 | 6.4512 | 1.1539 | 7.6313 | 1.2805 | A+ | A- | A- |
| ELA | 7 | 661105 | 6 | A-C | 2 | 6699 | 0.3826 | 0.1262 | 0.1443 | 0.3434 | 0.3804 | 0.0046 | 0.0012 | 0.1997 | -0.248 | -0.169 | 0.1004 | 0.2014 | -0.0431 | -0.0244 | 1.3673 | 0.0589 | 6.0612 | 1.1523 | 6.6013 | 1.2644 | A+ | A+ | A- |
| ELA | 7 | 663378 | 6 | A-C | 2 | 6726 | 0.6618 | 0.6606 | 0.2364 | 0.0567 | 0.0445 | 0.0018 | | 0.3987 | 0.4 | -0.1827 | -0.2471 | -0.256 | -0.0437 | | -0.0484 | 0.061 | -1.039 | 0.972 | -0.159 | 0.9916 | A+ | A+ | A- |
| ELA | 7 | 661107 | 6 | A-K | 2 | 6697 | 0.6627 | 0.0888 | 0.175 | 0.0715 | 0.6587 | 0.0039 | 0.0022 | 0.5357 | -0.3114 | -0.2465 | -0.2593 | 0.5379 | -0.0764 | -0.0269 | -0.038 | 0.0609 | -5.1991 | 0.8669 | -4.2592 | 0.8138 | A+ | A- | A- |
| ELA | 7 | 661108 | 6 | A-K | 3 | 6657 | 0.4618 | 0.1192 | 0.4562 | 0.2372 | 0.1754 | 0.011 | 0.001 | 0.2236 | -0.1547 | 0.2285 | -0.0518 | -0.0866 | -0.0708 | -0.0409 | 0.9832 | 0.0579 | 8.9712 | 1.2147 | 9.3813 | 1.3426 | A+ | A+ | A+ |
| ELA | 7 | 661109 | 6 | A-K | 3 | 6718 | 0.4738 | 0.1328 | 0.2697 | 0.4724 | 0.1221 | 0.0025 | 0.0004 | 0.3385 | -0.1794 | -0.0955 | 0.3403 | -0.1929 | -0.0574 | -0.0272 | 0.9031 | 0.0578 | 3.8211 | 1.0876 | 4.1511 | 1.1423 | A+ | A+ | A- |
| ELA | 7 | 661111 | 6 | A-K | 2 | 6669 | 0.5836 | 0.0683 | 0.5776 | 0.2572 | 0.0867 | 0.0095 | 0.0007 | 0.4757 | -0.2479 | 0.475 | -0.2331 | -0.2318 | -0.0519 | 0.0024 | 0.3818 | 0.0586 | -3.7591 | 0.9139 | -3.3791 | 0.8791 | A+ | A- | A+ |
| ELA | 7 | 661112 | 6 | A-V | 2 | 6732 | 0.608 | 0.2762 | 0.0942 | 0.6075 | 0.0212 | 0.0007 | 0.0001 | 0.141 | -0.0067 | -0.159 | 0.1417 | -0.1319 | -0.0159 | -0.0227 | 0.2305 | 0.0593 | 9.9013 | 1.349 | 9.9016 | 1.6236 | A- | A+ | A+ |
| ELA | 7 | 625558 | 6 | B-C | 2 | 40525 | 0.4533 | 0.2213 | 0.0729 | 0.2502 | 0.4514 | 0.0028 | 0.0014 | 0.2555 | -0.078 | -0.2212 | -0.0804 | 0.2571 | -0.0415 | -0.0288 | 1.0034 | 0.0237 | 9.9012 | 1.1797 | 9.9013 | 1.2722 | A- | A- | A- |
| ELA | 7 | 625565 | 6 | B-C | 2 | 40521 | 0.5094 | 0.1467 | 0.5072 | 0.1023 | 0.2395 | 0.0039 | 0.0003 | 0.2517 | -0.1358 | 0.2537 | -0.1572 | -0.0653 | -0.0471 | -0.0197 | 0.7272 | 0.0236 | 9.9012 | 1.1803 | 9.9012 | 1.2492 | A- | A- | A- |
| ELA | 7 | 625568 | 6 | B-K | 2 | 40623 | 0.5333 | 0.166 | 0.1373 | 0.5324 | 0.1626 | 0.0015 | 0.0003 | 0.3194 | -0.2425 | -0.2383 | 0.32 | 0.0376 | -0.0275 | -0.016 | 0.603 | 0.0237 | 9.9011 | 1.1182 | 9.9012 | 1.24 | A- | A- | A- |
| ELA | 7 | 625560 | 6 | B-V | 1 | 40610 | 0.8405 | 0.8388 | 0.1124 | 0.0292 | 0.0175 | 0.0016 | 0.0004 | 0.3425 | 0.3449 | -0.2101 | -0.2087 | -0.1763 | -0.0389 | -0.0292 | -1.2132 | 0.031 | -2.399 | 0.9558 | 5.1012 | 1.2022 | C- | A- | A- |
| ELA | 7 | 625567 | 6 | B-V | 1 | 40578 | 0.6964 | 0.1096 | 0.6944 | 0.1226 | 0.0705 | 0.0022 | 0.0007 | 0.4161 | -0.263 | 0.4186 | -0.1711 | -0.1997 | -0.0524 | -0.0362 | -0.2412 | 0.0255 | -1.269 | 0.985 | -1.549 | 0.9673 | A- | A- | A- |
| ELA | 7 | 632443 | 6 | B-V | 2 | 40539 | 0.813 | 0.8099 | 0.0354 | 0.0542 | 0.0966 | 0.0023 | 0.0015 | 0.5057 | 0.5081 | -0.2214 | -0.2581 | -0.3244 | -0.0541 | -0.0393 | -0.9842 | 0.0293 | -9.8992 | 0.8271 | -9.8993 | 0.6532 | A- | A+ | A- |
| ELA | 7 | 630225 | 6 | D | 2 | 13447 | 0.5047 | 0.5028 | 0.103 | 0.0843 | 0.3061 | 0.0024 | 0.0015 | 0.3479 | 0.3501 | -0.2006 | -0.2161 | -0.1078 | -0.0559 | -0.0433 | 0.7388 | 0.0409 | 4.0811 | 1.0658 | 3.6011 | 1.0897 | A+ | A- | A- |
| ELA | 7 | 663530 | 6 | D | 2 | 13455 | 0.5695 | 0.2119 | 0.1268 | 0.5677 | 0.0903 | 0.0024 | 0.0009 | 0.3259 | -0.1293 | -0.15 | 0.3275 | -0.1976 | -0.0374 | -0.0347 | 0.4179 | 0.0413 | 5.1011 | 1.0859 | 4.6311 | 1.1287 | A+ | A- | A- |
| ELA | 7 | 663213 | 7 | A-C | 2 | 6785 | 0.6336 | 0.6316 | 0.0799 | 0.1678 | 0.1175 | 0.0021 | 0.0012 | 0.4906 | 0.4911 | -0.3209 | -0.2464 | -0.1724 | -0.0304 | -0.0282 | 0.0938 | 0.0601 | -2.6391 | 0.9332 | -2.5791 | 0.8916 | A+ | A+ | A- |
| ELA | 7 | 663215 | 7 | A-C | 2 | 6765 | 0.6037 | 0.1637 | 0.0962 | 0.134 | 0.6 | 0.0054 | 0.0007 | 0.455 | -0.1644 | -0.2756 | -0.2255 | 0.4565 | -0.0587 | -0.0149 | 0.2581 | 0.0592 | -0.499 | 0.9874 | 0.441 | 1.0172 | A- | A- | A- |
| ELA | 7 | 663216 | 7 | A-K | 3 | 6791 | 0.4463 | 0.2543 | 0.2208 | 0.0773 | 0.4453 | 0.0022 | 0.0001 | 0.3802 | -0.1165 | -0.1819 | -0.2276 | 0.3813 | -0.0501 | -0.0163 | 1.0342 | 0.0582 | 2.7411 | 1.064 | 2.6511 | 1.0931 | A+ | A- | A- |
| ELA | 7 | 663217 | 7 | A-K | 2 | 6778 | 0.4684 | 0.4664 | 0.0536 | 0.0564 | 0.4193 | 0.0028 | 0.0015 | 0.0332 | 0.0364 | -0.2436 | -0.2217 | 0.1854 | -0.0524 | -0.0231 | 0.9281 | 0.058 | 9.9015 | 1.466 | 9.9017 | 1.711 | A+ | A+ | A- |
| ELA | 7 | 663218 | 7 | A-K | 2 | 6731 | 0.432 | 0.1942 | 0.4272 | 0.2477 | 0.1197 | 0.0072 | 0.004 | 0.3495 | -0.1925 | 0.3493 | -0.0723 | -0.1894 | -0.054 | 0.0097 | 1.1255 | 0.0584 | 2.2111 | 1.052 | 3.5311 | 1.128 | A+ | A- | A- |
| ELA | 7 | 663220 | 7 | A-K | 2 | 6801 | 0.3971 | 0.1692 | 0.3135 | 0.1196 | 0.3968 | 0.0009 | | 0.3312 | -0.1352 | -0.0777 | -0.2302 | 0.3316 | -0.0258 | | 1.2814 | 0.0588 | 2.6111 | 1.0631 | 3.6811 | 1.1414 | A+ | A+ | A+ |
| ELA | 7 | 663221 | 7 | A-V | 2 | 6794 | 0.5709 | 0.1316 | 0.5699 | 0.1313 | 0.1653 | 0.001 | 0.0009 | 0.3898 | -0.1989 | 0.3904 | -0.2127 | -0.1426 | -0.0208 | -0.0198 | 0.4115 | 0.0586 | 3.3311 | 1.0814 | 2.5411 | 1.0968 | A- | A- | A+ |
| ELA | 7 | 663222 | 7 | A-V | 2 | 6788 | 0.7303 | 0.7282 | 0.0926 | 0.0829 | 0.0936 | 0.0021 | 0.0007 | 0.5302 | 0.5313 | -0.2518 | -0.3 | -0.2679 | -0.0383 | -0.0337 | -0.448 | 0.0645 | -4.5491 | 0.8634 | -4.4192 | 0.7577 | A- | A- | A- |
| ELA | 7 | 630218 | 7 | D | 2 | 13562 | 0.8266 | 0.0378 | 0.8249 | 0.0495 | 0.0858 | 0.0012 | 0.0008 | 0.4273 | -0.2377 | 0.4298 | -0.2744 | -0.2 | -0.0424 | -0.0354 | -1.1009 | 0.0525 | -2.7191 | 0.9187 | -1.2491 | 0.9232 | A+ | A- | A- |
| ELA | 7 | 663485 | 7 | D | 2 | 13519 | 0.7363 | 0.0751 | 0.1368 | 0.7325 | 0.0504 | 0.0046 | 0.0006 | 0.4715 | -0.247 | -0.2563 | 0.4735 | -0.2371 | -0.0581 | -0.0255 | -0.4635 | 0.0459 | -3.5491 | 0.9215 | -3.7692 | 0.8443 | A+ | B- | B- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 663531 | 7 | D | 2 | 13567 | 0.5128 | 0.512 | 0.0915 | 0.1877 | 0.2072 | 0.0013 | 0.0003 | 0.3492 | 0.3502 | -0.1732 | -0.157 | -0.1525 | -0.0463 | -0.0189 | 0.7126 | 0.0411 | 5.7111 | 1.0953 | 5.8812 | 1.1515 | A+ | A+ | A+ |
| ELA | 7 | 662324 | 8 | A-C | 2 | 6711 | 0.6182 | 0.0698 | 0.1048 | 0.2026 | 0.6108 | 0.0112 | 0.0009 | 0.4124 | -0.2489 | -0.2429 | -0.1462 | 0.41 | -0.0307 | -0.0041 | 0.1935 | 0.0591 | -1.089 | 0.9732 | -1.109 | 0.9577 | A+ | A+ | A+ |
| ELA | 7 | 662326 | 8 | A-C | 2 | 6783 | 0.2015 | 0.1743 | 0.2245 | 0.3985 | 0.2012 | 0.0015 | | 0.0891 | -0.1935 | -0.1985 | 0.2484 | 0.0896 | -0.0342 | | 2.4006 | 0.0688 | 6.5913 | 1.2664 | 7.6116 | 1.6169 | A- | A- | A- |
| ELA | 7 | 662332 | 8 | A-K | 3 | 6766 | 0.6304 | 0.0979 | 0.1347 | 0.6279 | 0.1356 | 0.0034 | 0.0006 | 0.3173 | -0.2284 | -0.2254 | 0.3212 | -0.0161 | -0.07 | -0.035 | 0.1052 | 0.0596 | 3.2511 | 1.084 | 5.2312 | 1.2236 | A+ | A+ | A+ |
| ELA | 7 | 662336 | 8 | A-K | 3 | 6761 | 0.7114 | 0.1315 | 0.0816 | 0.0742 | 0.7081 | 0.0046 | 0.0001 | 0.4876 | -0.2127 | -0.2945 | -0.2518 | 0.4891 | -0.0546 | -0.0196 | -0.3335 | 0.0629 | -3.7691 | 0.8914 | -3.1092 | 0.8462 | A+ | A+ | A+ |
| ELA | 7 | 662338 | 8 | A-K | 2 | 6754 | 0.1066 | 0.1998 | 0.106 | 0.6302 | 0.0583 | 0.0053 | 0.0004 | -0.1804 | -0.1222 | -0.1777 | 0.3418 | -0.2396 | -0.0691 | -0.0149 | 3.2529 | 0.0866 | 4.1413 | 1.2638 | 9.9031 | 3.0855 | A- | A- | A- |
| ELA | 7 | 662334 | 8 | A-V | 2 | 6762 | 0.7149 | 0.7116 | 0.0848 | 0.1147 | 0.0844 | 0.0035 | 0.001 | 0.3813 | 0.3852 | -0.221 | -0.1192 | -0.2527 | -0.054 | -0.0469 | -0.354 | 0.0631 | -0.499 | 0.9848 | -0.359 | 0.9803 | B+ | A+ | A+ |
| ELA | 7 | 662340 | 8 | A-V | 3 | 6761 | 0.7032 | 0.6998 | 0.1404 | 0.0633 | 0.0917 | 0.0035 | 0.0012 | 0.4354 | 0.4371 | -0.1847 | -0.2991 | -0.2067 | -0.0394 | -0.0386 | -0.286 | 0.0625 | -2.1391 | 0.9383 | -0.619 | 0.9681 | A+ | A+ | A+ |
| ELA | 7 | 663845 | 8 | A-V | 2 | 6784 | 0.6787 | 0.0555 | 0.1999 | 0.0655 | 0.6778 | 0.0013 | | 0.4643 | -0.2601 | -0.2183 | -0.2787 | 0.4652 | -0.0442 | | -0.162 | 0.0614 | -0.209 | 0.9939 | -1.1491 | 0.9464 | B- | A+ | A- |
| ELA | 7 | 630222 | 8 | D | 2 | 6779 | 0.4946 | 0.4936 | 0.2506 | 0.1035 | 0.1503 | 0.001 | 0.001 | 0.4145 | 0.4152 | -0.0694 | -0.3104 | -0.2274 | -0.0274 | -0.0251 | 0.7768 | 0.0576 | 0.151 | 1.0031 | 2.1211 | 1.0685 | A+ | A- | A- |
| ELA | 7 | 663486 | 8 | D | 2 | 6725 | 0.2763 | 0.0711 | 0.5395 | 0.1058 | 0.2735 | 0.0057 | 0.0043 | 0.2387 | -0.2708 | 0.0756 | -0.2163 | 0.242 | -0.058 | -0.0772 | 1.9294 | 0.0629 | 2.6011 | 1.0785 | 5.5913 | 1.3165 | A+ | A- | A- |
| ELA | 7 | 663532 | 8 | D | 2 | 6774 | 0.4014 | 0.0614 | 0.2692 | 0.2663 | 0.4003 | 0.0019 | 0.0009 | 0.2189 | -0.256 | -0.0128 | -0.086 | 0.2206 | -0.0395 | -0.0411 | 1.2402 | 0.0583 | 8.3812 | 1.2045 | 8.2413 | 1.3184 | A- | A- | A- |
| ELA | 7 | 662327 | 9 | A-C | 2 | 6762 | 0.4898 | 0.0697 | 0.1936 | 0.2442 | 0.4873 | 0.0034 | 0.0018 | 0.24 | -0.2634 | -0.0956 | -0.0308 | 0.2409 | -0.0195 | -0.027 | 0.8115 | 0.0578 | 7.2812 | 1.1705 | 8.0813 | 1.2882 | A- | A+ | A+ |
| ELA | 7 | 662328 | 9 | A-C | 3 | 6784 | 0.3241 | 0.1879 | 0.281 | 0.2057 | 0.3235 | 0.0019 | | 0.0795 | -0.0683 | -0.0239 | 0.0034 | 0.0805 | -0.0366 | | 1.6416 | 0.0607 | 9.9014 | 1.3518 | 9.8415 | 1.493 | A+ | A+ | A+ |
| ELA | 7 | 662331 | 9 | A-K | 2 | 6759 | 0.4631 | 0.4605 | 0.1582 | 0.2229 | 0.1529 | 0.0044 | 0.0012 | 0.3368 | 0.3393 | -0.1456 | -0.157 | -0.1259 | -0.0648 | -0.031 | 0.9422 | 0.0578 | 2.131 | 1.0483 | 2.6411 | 1.089 | A+ | A+ | A+ |
| ELA | 7 | 662333 | 9 | A-K | 3 | 6733 | 0.4062 | 0.08 | 0.4024 | 0.2813 | 0.2269 | 0.0087 | 0.0007 | 0.2624 | -0.2283 | 0.2649 | -0.0659 | -0.0766 | -0.0664 | -0.0038 | 1.23 | 0.0585 | 5.5411 | 1.1355 | 7.0013 | 1.2695 | A- | A+ | A- |
| ELA | 7 | 662335 | 9 | A-K | 2 | 6720 | 0.3374 | 0.3997 | 0.1842 | 0.3335 | 0.0712 | 0.01 | 0.0013 | 0.0245 | 0.1975 | -0.1029 | 0.0299 | -0.2452 | -0.075 | -0.0105 | 1.5873 | 0.0604 | 9.9014 | 1.3736 | 9.9017 | 1.6854 | A+ | A- | A+ |
| ELA | 7 | 662339 | 9 | A-K | 3 | 6775 | 0.5467 | 0.1342 | 0.1354 | 0.1823 | 0.5449 | 0.0026 | 0.0006 | 0.4414 | -0.2117 | -0.2567 | -0.1487 | 0.4429 | -0.0511 | -0.0207 | 0.53 | 0.058 | -1.879 | 0.9579 | -1.149 | 0.9605 | A+ | A+ | A+ |
| ELA | 7 | 662341 | 9 | A-V | 2 | 6783 | 0.7202 | 0.0625 | 0.7187 | 0.107 | 0.1098 | 0.0015 | 0.0006 | 0.4954 | -0.2641 | 0.4972 | -0.2473 | -0.2581 | -0.0469 | -0.0299 | -0.3832 | 0.0635 | -3.4291 | 0.8994 | -3.1192 | 0.8353 | A+ | A+ | A+ |
| ELA | 7 | 663822 | 9 | A-V | 2 | 6749 | 0.5684 | 0.0691 | 0.5644 | 0.06 | 0.2994 | 0.0068 | 0.0003 | 0.2414 | -0.2107 | 0.2447 | -0.2314 | -0.0173 | -0.058 | -0.0125 | 0.4343 | 0.0583 | 8.5312 | 1.2085 | 9.3414 | 1.3703 | A+ | A- | A- |
| ELA | 7 | 630220 | 9 | D | 2 | 6775 | 0.6459 | 0.0324 | 0.1056 | 0.2149 | 0.6438 | 0.0022 | 0.001 | 0.297 | -0.2221 | -0.1983 | -0.0975 | 0.2994 | -0.0501 | -0.022 | 0.0309 | 0.0601 | 2.9511 | 1.0773 | 3.2811 | 1.1487 | A+ | A- | A- |
| ELA | 7 | 663487 | 9 | D | 2 | 6757 | 0.3875 | 0.2254 | 0.3852 | 0.2894 | 0.0942 | 0.0041 | 0.0018 | 0.4135 | -0.2049 | 0.4152 | -0.1416 | -0.1602 | -0.0547 | -0.0458 | 1.3172 | 0.0589 | -0.469 | 0.9886 | 0.791 | 1.029 | B- | A- | A- |
| ELA | 7 | 663534 | 9 | D | 2 | 6778 | 0.8097 | 0.0687 | 0.8074 | 0.0321 | 0.089 | 0.0021 | 0.0007 | 0.4015 | -0.2112 | 0.4038 | -0.2282 | -0.2203 | -0.0485 | -0.0247 | -0.9622 | 0.0712 | -2.1791 | 0.9146 | -1.5891 | 0.8786 | B+ | A+ | A+ |
| ELA | 7 | 625545 | 10 | A-C | 2 | 6764 | 0.6796 | 0.1049 | 0.1272 | 0.0876 | 0.6783 | 0.0016 | 0.0003 | 0.4731 | -0.2437 | -0.2394 | -0.2299 | 0.4745 | -0.0492 | -0.0126 | -0.1464 | 0.0613 | -1.079 | 0.9704 | 0.391 | 1.0186 | A+ | A- | A- |
| ELA | 7 | 625541 | 10 | A-K | 2 | 6722 | 0.7157 | 0.1535 | 0.7099 | 0.066 | 0.0626 | 0.0075 | 0.0006 | 0.4292 | -0.164 | 0.432 | -0.2619 | -0.2706 | -0.065 | -0.0319 | -0.3264 | 0.0628 | -1.199 | 0.9648 | -0.479 | 0.9733 | A+ | A+ | A- |
| ELA | 7 | 625546 | 10 | A-K | 3 | 6712 | 0.5349 | 0.1775 | 0.169 | 0.1142 | 0.5297 | 0.0089 | 0.0007 | 0.2074 | -0.0141 | -0.1023 | -0.1707 | 0.2133 | -0.0788 | -0.0386 | 0.6245 | 0.0581 | 9.9013 | 1.2666 | 9.9014 | 1.4123 | A+ | A+ | A+ |
| ELA | 7 | 625548 | 10 | A-K | 2 | 6749 | 0.6337 | 0.6311 | 0.0903 | 0.2097 | 0.0648 | 0.003 | 0.0012 | 0.5091 | 0.5099 | -0.2592 | -0.2918 | -0.2016 | -0.0569 | -0.0069 | 0.1088 | 0.0597 | -3.3591 | 0.9176 | -3.0991 | 0.8737 | A- | A+ | A+ |
| ELA | 7 | 625549 | 10 | A-K | 2 | 6745 | 0.6943 | 0.1179 | 0.1098 | 0.691 | 0.0766 | 0.0038 | 0.0009 | 0.3523 | -0.1205 | -0.2214 | 0.3569 | -0.1926 | -0.0758 | -0.0308 | -0.2177 | 0.0619 | 2.9211 | 1.0843 | 1.5211 | 1.0787 | A+ | A+ | A+ |
| ELA | 7 | 625547 | 10 | A-V | 1 | 6760 | 0.6941 | 0.1707 | 0.1033 | 0.6923 | 0.0311 | 0.0022 | 0.0003 | 0.3777 | -0.2335 | -0.1452 | 0.38 | -0.2326 | -0.0519 | -0.0282 | -0.2252 | 0.0619 | -0.449 | 0.987 | -0.049 | 0.9968 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 625550 | 10 | A-V | 1 | 6744 | 0.8258 | 0.8218 | 0.0661 | 0.0573 | 0.05 | 0.0037 | 0.0012 | 0.472 | 0.4759 | -0.2982 | -0.2162 | -0.2407 | -0.0728 | -0.0269 | -1.0732 | 0.0725 | -1.5091 | 0.9383 | -1.1591 | 0.9036 | B- | A- | B- |
| ELA | 7 | 632526 | 10 | A-V | 1 | 6758 | 0.71 | 0.1092 | 0.708 | 0.1034 | 0.0766 | 0.0025 | 0.0003 | 0.4403 | -0.1995 | 0.4431 | -0.2069 | -0.2731 | -0.0659 | -0.0187 | -0.3152 | 0.0627 | -1.219 | 0.9644 | -1.2891 | 0.9312 | A+ | A- | A- |
| ELA | 7 | 663535 | 10 | D | 2 | 6760 | 0.6038 | 0.1967 | 0.0803 | 0.1182 | 0.6023 | 0.0019 | 0.0006 | 0.2958 | -0.031 | -0.241 | -0.2035 | 0.297 | -0.028 | -0.027 | 0.2584 | 0.059 | 6.4212 | 1.1636 | 8.0414 | 1.3504 | A+ | A- | A- |
| ELA | 7 | 623054 | 11 | B-C | 2 | 6740 | 0.2871 | 0.2862 | 0.309 | 0.3063 | 0.0954 | 0.0028 | 0.0003 | 0.2215 | 0.223 | -0.1827 | 0.1165 | -0.2251 | -0.0697 | -0.0147 | 1.8535 | 0.0626 | 2.9611 | 1.0885 | 8.0215 | 1.4501 | A- | A- | A- |
| ELA | 7 | 623055 | 11 | B-C | 2 | 6719 | 0.4609 | 0.0973 | 0.1634 | 0.4581 | 0.275 | 0.0049 | 0.0013 | 0.2697 | -0.1723 | -0.2074 | 0.2713 | -0.0079 | -0.0485 | -0.0145 | 0.9446 | 0.0579 | 8.5112 | 1.2043 | 8.3213 | 1.3187 | A- | A- | A- |
| ELA | 7 | 623059 | 11 | B-C | 2 | 6735 | 0.7911 | 0.122 | 0.788 | 0.0442 | 0.0419 | 0.0034 | 0.0004 | 0.4737 | -0.2749 | 0.4771 | -0.2513 | -0.2427 | -0.0731 | -0.024 | -0.8396 | 0.0691 | -3.8991 | 0.8615 | -3.8793 | 0.733 | A+ | A+ | A+ |
| ELA | 7 | 623060 | 11 | B-C | 2 | 6752 | 0.8023 | 0.0685 | 0.071 | 0.058 | 0.8012 | 0.0012 | 0.0001 | 0.5292 | -0.2895 | -0.3043 | -0.2525 | 0.5286 | -0.0162 | -0.0086 | -0.9328 | 0.0706 | -5.4292 | 0.8022 | -5.6994 | 0.6109 | A+ | A- | A- |
| ELA | 7 | 623056 | 11 | B-K | 3 | 6637 | 0.6907 | 0.0708 | 0.1012 | 0.1316 | 0.678 | 0.0074 | 0.0109 | 0.4808 | -0.2557 | -0.2366 | -0.2361 | 0.4729 | -0.0535 | 0.0037 | -0.1686 | 0.0615 | -3.3291 | 0.9113 | -3.4492 | 0.8317 | A+ | A+ | A+ |
| ELA | 7 | 623061 | 11 | B-K | 2 | 6700 | 0.5631 | 0.162 | 0.5581 | 0.1884 | 0.0825 | 0.0083 | 0.0007 | 0.339 | -0.0917 | 0.3426 | -0.1906 | -0.1984 | -0.0708 | -0.0285 | 0.4521 | 0.0582 | 3.0611 | 1.0717 | 1.4111 | 1.0547 | A+ | A+ | A+ |
| ELA | 7 | 623062 | 11 | B-V | 1 | 6742 | 0.7342 | 0.0911 | 0.0813 | 0.7321 | 0.0926 | 0.0022 | 0.0006 | 0.3825 | -0.1467 | -0.2327 | 0.3853 | -0.2117 | -0.0529 | -0.0373 | -0.4794 | 0.0644 | 0.951 | 1.0295 | -0.179 | 0.9874 | A- | A- | A- |
| ELA | 7 | 623063 | 11 | B-V | 2 | 6713 | 0.6332 | 0.6288 | 0.2367 | 0.0624 | 0.0651 | 0.0067 | 0.0004 | 0.3703 | 0.3717 | -0.1474 | -0.1839 | -0.2762 | -0.0572 | 0.0153 | 0.0942 | 0.0597 | 2.4911 | 1.0632 | 2.2711 | 1.1044 | A+ | A- | A- |
| ELA | 7 | 623067 | 12 | A-C | 2 | 6745 | 0.7456 | 0.7415 | 0.0618 | 0.087 | 0.1042 | 0.0038 | 0.0016 | 0.499 | 0.5008 | -0.2214 | -0.2994 | -0.2509 | -0.0623 | -0.0265 | -0.5086 | 0.0657 | -4.0591 | 0.8709 | -2.7692 | 0.8313 | A+ | A+ | A+ |
| ELA | 7 | 623072 | 12 | A-C | 2 | 6765 | 0.5617 | 0.1249 | 0.1312 | 0.1811 | 0.5603 | 0.0019 | 0.0006 | 0.4361 | -0.276 | -0.1738 | -0.1674 | 0.4372 | -0.0497 | -0.0172 | 0.4827 | 0.0586 | -1.129 | 0.9732 | -0.549 | 0.9788 | A+ | A- | A- |
| ELA | 7 | 623064 | 12 | A-K | 2 | 6711 | 0.6802 | 0.0972 | 0.6731 | 0.101 | 0.1183 | 0.0094 | 0.001 | 0.3824 | -0.1558 | 0.3865 | -0.2132 | -0.1968 | -0.0673 | -0.0281 | -0.1079 | 0.0618 | 1.661 | 1.0475 | 2.4611 | 1.1299 | A+ | A+ | A- |
| ELA | 7 | 623065 | 12 | A-K | 2 | 6692 | 0.6859 | 0.0669 | 0.0633 | 0.6768 | 0.1797 | 0.013 | 0.0003 | 0.2973 | -0.2663 | -0.2902 | 0.2986 | 0.0079 | -0.0472 | -0.0078 | -0.1284 | 0.062 | 3.6911 | 1.1087 | 8.3615 | 1.4963 | A+ | A+ | A+ |
| ELA | 7 | 623071 | 12 | A-K | 2 | 6757 | 0.5824 | 0.5802 | 0.0709 | 0.2905 | 0.0547 | 0.0031 | 0.0006 | 0.4665 | 0.4685 | -0.3152 | -0.2142 | -0.2155 | -0.0582 | -0.0357 | 0.3821 | 0.059 | -0.829 | 0.9798 | -0.309 | 0.9873 | A+ | A- | A- |
| ELA | 7 | 623069 | 12 | A-V | 1 | 6770 | 0.4517 | 0.026 | 0.1895 | 0.4509 | 0.3319 | 0.0007 | 0.001 | 0.4175 | -0.2031 | -0.2803 | 0.4183 | -0.1362 | -0.0206 | -0.0393 | 1.0279 | 0.0582 | 1.301 | 1.0297 | 2.7011 | 1.0979 | A- | A- | B- |
| ELA | 7 | 623073 | 12 | A-V | 2 | 6760 | 0.3084 | 0.1104 | 0.4552 | 0.1237 | 0.3074 | 0.0024 | 0.0009 | 0.0395 | -0.2271 | 0.207 | -0.1431 | 0.0422 | -0.0582 | -0.0467 | 1.7835 | 0.0615 | 9.9014 | 1.3952 | 9.9017 | 1.6877 | A+ | A+ | A+ |
| ELA | 7 | 625814 | 12 | A-V | 2 | 6774 | 0.6946 | 0.1426 | 0.6937 | 0.0751 | 0.0874 | 0.0009 | 0.0003 | 0.44 | -0.2623 | 0.4407 | -0.1877 | -0.2147 | -0.0346 | -0.0156 | -0.224 | 0.0628 | -1.479 | 0.9568 | -2.1191 | 0.8876 | C- | A- | A- |
| ELA | 8 | 497064 | 0 | A-C | 3 | 81646 | 0.6963 | 0.6936 | 0.0904 | 0.0747 | 0.1374 | 0.0035 | 0.0005 | 0.4319 | 0.4356 | -0.2237 | -0.2924 | -0.1587 | -0.0787 | -0.0238 | -0.3455 | 0.0176 | -3.409 | 0.9737 | -1.279 | 0.9823 | A+ | A+ | A+ |
| ELA | 8 | 497065 | 0 | A-C | 2 | 81511 | 0.8246 | 0.0467 | 0.0505 | 0.82 | 0.0772 | 0.0049 | 0.0007 | 0.474 | -0.2785 | -0.2574 | 0.4793 | -0.2334 | -0.0853 | -0.0291 | -1.4908 | 0.022 | -0.239 | 0.9968 | -4.0491 | 0.8961 | A+ | A+ | A- |
| ELA | 8 | 578080 | 0 | A-C | 3 | 81646 | 0.468 | 0.2106 | 0.2391 | 0.0802 | 0.4661 | 0.0032 | 0.0007 | 0.2655 | -0.0753 | -0.0512 | -0.2854 | 0.2672 | -0.0435 | -0.0288 | 0.7625 | 0.0167 | 9.9012 | 1.2338 | 9.9014 | 1.3618 | A+ | A+ | A+ |
| ELA | 8 | 497069 | 0 | A-K | 2 | 81553 | 0.3428 | 0.4004 | 0.096 | 0.1575 | 0.341 | 0.0045 | 0.0006 | 0.2732 | 0.0126 | -0.2742 | -0.1376 | 0.2755 | -0.077 | -0.0283 | 0.8627 | 0.0168 | 9.9011 | 1.1446 | 9.9012 | 1.2487 | A+ | A+ | A+ |
| ELA | 8 | 578066 | 0 | A-K | 2 | 81783 | 0.8076 | 0.8057 | 0.0641 | 0.0605 | 0.0674 | 0.0018 | 0.0005 | 0.5262 | 0.5277 | -0.2712 | -0.2944 | -0.2777 | -0.045 | -0.0287 | -1.2042 | 0.0205 | -9.8991 | 0.8657 | -9.8993 | 0.7363 | A+ | A+ | A+ |
| ELA | 8 | 578069 | 0 | A-K | 2 | 81443 | 0.7461 | 0.0767 | 0.0871 | 0.7413 | 0.0884 | 0.0058 | 0.0006 | 0.5619 | -0.2517 | -0.3342 | 0.5628 | -0.2813 | -0.0608 | -0.0301 | -0.9203 | 0.0193 | -7.5491 | 0.9267 | -9.4692 | 0.8279 | A+ | A+ | A+ |
| ELA | 8 | 497068 | 0 | A-V | 2 | 81650 | 0.7 | 0.0643 | 0.6973 | 0.0483 | 0.1862 | 0.0034 | 0.0005 | 0.4733 | -0.219 | 0.4765 | -0.2395 | -0.2797 | -0.0755 | -0.0263 | -0.7889 | 0.0188 | 9.9011 | 1.0956 | 7.0611 | 1.1317 | A- | A- | A- |
| ELA | 8 | 497072 | 0 | A-V | 2 | 81503 | 0.5623 | 0.3072 | 0.0684 | 0.0597 | 0.5591 | 0.0051 | 0.0006 | 0.3583 | -0.0682 | -0.3112 | -0.2678 | 0.3618 | -0.077 | -0.0282 | 0.0088 | 0.017 | 9.9011 | 1.1443 | 9.9013 | 1.2632 | A+ | A- | A- |
| ELA | 8 | 578086 | 0 | A-V | 2 | 81729 | 0.762 | 0.1264 | 0.0569 | 0.7598 | 0.0541 | 0.0024 | 0.0005 | 0.4602 | -0.261 | -0.2548 | 0.4625 | -0.2149 | -0.0527 | -0.0298 | -0.9744 | 0.0195 | -1.999 | 0.9797 | -0.559 | 0.9887 | A+ | A- | A- |
| ELA | 8 | 578088 | 0 | A-V | 2 | 81539 | 0.6953 | 0.6917 | 0.1141 | 0.0573 | 0.1317 | 0.0037 | 0.0015 | 0.3574 | 0.3605 | -0.1542 | -0.2118 | -0.1885 | -0.0571 | -0.026 | -0.496 | 0.0179 | 8.5111 | 1.0718 | 9.9014 | 1.3758 | B+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 494397 | 0 | B-C | 2 | 81686 | 0.7742 | 0.7715 | 0.0787 | 0.1069 | 0.0394 | 0.0027 | 0.0007 | 0.4847 | 0.4882 | -0.2613 | -0.265 | -0.2471 | -0.0713 | -0.0341 | -0.6539 | 0.0184 | -9.8992 | 0.8436 | -9.8992 | 0.8204 | A- | A+ | A+ |
| ELA | 8 | 494399 | 0 | B-C | 3 | 81727 | 0.3971 | 0.3372 | 0.1486 | 0.1153 | 0.3959 | 0.0025 | 0.0005 | 0.3493 | -0.0868 | -0.1594 | -0.2198 | 0.3506 | -0.062 | -0.0208 | 1.0352 | 0.017 | 9.9011 | 1.0926 | 9.9012 | 1.1807 | A- | A+ | A+ |
| ELA | 8 | 495116 | 0 | B-C | 3 | 81288 | 0.47 | 0.4661 | 0.1282 | 0.1733 | 0.224 | 0.0078 | 0.0005 | 0.2976 | 0.3019 | -0.1839 | -0.095 | -0.1082 | -0.0828 | -0.033 | 0.482 | 0.0167 | 9.9012 | 1.1951 | 9.9014 | 1.3618 | A+ | A+ | A+ |
| ELA | 8 | 495118 | 0 | B-C | 3 | 81636 | 0.3919 | 0.1366 | 0.2462 | 0.2228 | 0.3903 | 0.0036 | 0.0005 | 0.3854 | -0.1773 | -0.1203 | -0.1712 | 0.387 | -0.0723 | -0.026 | 0.8146 | 0.0168 | 7.431 | 1.0493 | 9.9011 | 1.1065 | A- | A+ | A+ |
| ELA | 8 | 495119 | 0 | B-C | 3 | 81465 | 0.5607 | 0.0879 | 0.2238 | 0.5573 | 0.1249 | 0.0054 | 0.0007 | 0.475 | -0.2828 | -0.2677 | 0.4772 | -0.1188 | -0.0714 | -0.0334 | 0.1048 | 0.0169 | 0.181 | 1.0012 | -0.699 | 0.9924 | A+ | A+ | A+ |
| ELA | 8 | 494401 | 0 | B-K | 2 | 81520 | 0.5094 | 0.1831 | 0.172 | 0.5067 | 0.1327 | 0.0048 | 0.0007 | 0.5012 | -0.1837 | -0.2954 | 0.5024 | -0.1874 | -0.0643 | -0.0244 | 0.7905 | 0.0167 | -4.109 | 0.9735 | 0.741 | 1.0073 | A- | A- | A- |
| ELA | 8 | 494403 | 0 | B-K | 2 | 81639 | 0.8231 | 0.8198 | 0.0749 | 0.0556 | 0.0457 | 0.0036 | 0.0004 | 0.5453 | 0.5468 | -0.3335 | -0.2708 | -0.2694 | -0.061 | -0.0197 | -1.4303 | 0.0216 | -7.5891 | 0.9056 | -9.8993 | 0.7159 | A- | A+ | A+ |
| ELA | 8 | 495120 | 0 | B-K | 2 | 81551 | 0.5328 | 0.5301 | 0.1928 | 0.1802 | 0.0918 | 0.0043 | 0.0008 | 0.417 | 0.4192 | -0.1956 | -0.1584 | -0.2289 | -0.065 | -0.03 | 0.274 | 0.0168 | 9.8411 | 1.066 | 9.9011 | 1.1336 | A- | A+ | A+ |
| ELA | 8 | 494398 | 0 | B-V | 2 | 81587 | 0.641 | 0.0938 | 0.1231 | 0.1404 | 0.638 | 0.004 | 0.0006 | 0.5799 | -0.2787 | -0.3172 | -0.2554 | 0.5817 | -0.0707 | -0.0336 | 0.0837 | 0.0169 | -9.8992 | 0.8472 | -9.8992 | 0.7926 | B- | A- | A- |
| ELA | 8 | 494400 | 0 | B-V | 2 | 81734 | 0.6299 | 0.0853 | 0.6281 | 0.0661 | 0.2177 | 0.0023 | 0.0006 | 0.4457 | -0.2527 | 0.4478 | -0.2831 | -0.1739 | -0.0674 | -0.0221 | 0.132 | 0.0169 | -1.929 | 0.9871 | -0.949 | 0.9897 | B- | A- | A- |
| ELA | 8 | 494405 | 0 | B-V | 2 | 81675 | 0.5181 | 0.1946 | 0.5163 | 0.1431 | 0.1424 | 0.0031 | 0.0005 | 0.4762 | -0.2007 | 0.478 | -0.1818 | -0.2608 | -0.0725 | -0.0272 | 0.617 | 0.0167 | -5.069 | 0.9678 | -2.119 | 0.9796 | A- | A- | A- |
| ELA | 8 | 495117 | 0 | B-V | 2 | 81528 | 0.7407 | 0.0956 | 0.0672 | 0.0951 | 0.7367 | 0.0037 | 0.0016 | 0.4804 | -0.29 | -0.2962 | -0.1631 | 0.484 | -0.0784 | -0.0269 | -0.7549 | 0.0187 | -4.979 | 0.9548 | -4.3691 | 0.9251 | A+ | A+ | A+ |
| ELA | 8 | 495123 | 0 | B-V | 2 | 81689 | 0.4435 | 0.2353 | 0.442 | 0.1762 | 0.1431 | 0.0028 | 0.0006 | 0.4264 | -0.1393 | 0.4278 | -0.2263 | -0.1797 | -0.0661 | -0.0298 | 0.6795 | 0.0167 | 6.861 | 1.0448 | 9.9011 | 1.1108 | C- | A- | A- |
| ELA | 8 | 341018 | 0 | D | 2 | 81775 | 0.3573 | 0.3564 | 0.3435 | 0.0757 | 0.2221 | 0.0014 | 0.0009 | 0.4032 | 0.4039 | -0.1048 | -0.2238 | -0.1969 | -0.0412 | -0.0353 | 1.1888 | 0.0172 | 0.421 | 1.003 | 9.2611 | 1.1094 | A- | A- | A+ |
| ELA | 8 | 503804 | 0 | D | 2 | 81812 | 0.5026 | 0.1115 | 0.2164 | 0.5017 | 0.1686 | 0.0011 | 0.0008 | 0.3644 | -0.2428 | -0.0748 | 0.3655 | -0.1957 | -0.0351 | -0.039 | 0.6094 | 0.0167 | 9.9011 | 1.1024 | 9.9012 | 1.171 | A+ | A- | A- |
| ELA | 8 | 503806 | 0 | D | 3 | 81740 | 0.631 | 0.1513 | 0.1143 | 0.6293 | 0.1023 | 0.0025 | 0.0003 | 0.4736 | -0.2559 | -0.2633 | 0.4747 | -0.1685 | -0.0441 | -0.0271 | 0.0262 | 0.017 | -3.499 | 0.976 | -3.519 | 0.9606 | A+ | A- | A+ |
| ELA | 8 | 503808 | 0 | D | 3 | 81854 | 0.747 | 0.0987 | 0.746 | 0.094 | 0.0599 | 0.0009 | 0.0005 | 0.4801 | -0.2085 | 0.4814 | -0.3126 | -0.2289 | -0.0365 | -0.0323 | -0.8024 | 0.0188 | -8.1091 | 0.9255 | -5.6191 | 0.9019 | A- | A+ | A+ |
| ELA | 8 | 503810 | 0 | D | 2 | 81662 | 0.4898 | 0.4879 | 0.1556 | 0.2514 | 0.1013 | 0.0029 | 0.0008 | 0.3491 | 0.351 | -0.2357 | -0.0619 | -0.1967 | -0.0523 | -0.0334 | 0.5955 | 0.0167 | 9.9011 | 1.1304 | 9.9012 | 1.2038 | A- | A+ | A+ |
| ELA | 8 | 503814 | 0 | D | 2 | 81672 | 0.4545 | 0.2094 | 0.4529 | 0.1116 | 0.2226 | 0.0031 | 0.0006 | 0.3715 | -0.0831 | 0.3731 | -0.273 | -0.1495 | -0.0566 | -0.0264 | 0.5511 | 0.0167 | 9.9011 | 1.0954 | 9.9011 | 1.1364 | A+ | A+ | A+ |
| ELA | 8 | 584082 | 0 | D | 2 | 81790 | 0.4429 | 0.1031 | 0.3778 | 0.4419 | 0.0749 | 0.0013 | 0.0008 | 0.3095 | -0.25 | -0.0269 | 0.3108 | -0.2381 | -0.0377 | -0.0413 | 0.9927 | 0.0169 | 9.9012 | 1.1645 | 9.9013 | 1.2931 | A- | A+ | A+ |
| ELA | 8 | 584083 | 0 | D | 2 | 81685 | 0.549 | 0.1584 | 0.1516 | 0.1395 | 0.547 | 0.0028 | 0.0007 | 0.4318 | -0.1331 | -0.2849 | -0.1774 | 0.4332 | -0.0527 | -0.0218 | 0.1607 | 0.0168 | 7.8511 | 1.0535 | 8.5311 | 1.0938 | A- | A- | A- |
| ELA | 8 | 584101 | 0 | D | 1 | 81670 | 0.4633 | 0.2048 | 0.2021 | 0.4616 | 0.1279 | 0.0026 | 0.001 | 0.388 | -0.2536 | -0.094 | 0.3897 | -0.1502 | -0.0525 | -0.0408 | 0.7738 | 0.0167 | 9.9011 | 1.0855 | 9.9011 | 1.1422 | A- | A- | A- |
| ELA | 8 | 626313 | 1 | A-C | 2 | 40895 | 0.5677 | 0.5669 | 0.2261 | 0.1263 | 0.0793 | 0.0011 | 0.0003 | 0.3718 | 0.3725 | -0.1615 | -0.232 | -0.1427 | -0.029 | -0.0246 | 0.3157 | 0.0237 | 3.211 | 1.03 | 4.9811 | 1.072 | A+ | A- | A- |
| ELA | 8 | 623084 | 1 | A-K | 2 | 40831 | 0.4526 | 0.153 | 0.1228 | 0.27 | 0.4512 | 0.0024 | 0.0007 | 0.278 | -0.2444 | -0.1899 | 0.032 | 0.2797 | -0.0504 | -0.0252 | 0.7416 | 0.0237 | 9.9012 | 1.1664 | 9.9013 | 1.254 | A+ | A- | A+ |
| ELA | 8 | 623085 | 1 | A-K | 2 | 40832 | 0.6603 | 0.0834 | 0.6583 | 0.1336 | 0.1216 | 0.0023 | 0.0007 | 0.4285 | -0.1796 | 0.4303 | -0.2511 | -0.2017 | -0.0424 | -0.0393 | -0.2584 | 0.0246 | -3.379 | 0.9645 | -3.6291 | 0.9347 | A- | A+ | A+ |
| ELA | 8 | 623087 | 1 | A-K | 2 | 40866 | 0.8083 | 0.0863 | 0.0516 | 0.0533 | 0.8065 | 0.0015 | 0.0007 | 0.4546 | -0.1902 | -0.2898 | -0.2687 | 0.4562 | -0.0434 | -0.0232 | -1.1224 | 0.0284 | -8.9791 | 0.8676 | -6.8692 | 0.8052 | A+ | A+ | A- |
| ELA | 8 | 623092 | 1 | A-K | 3 | 40842 | 0.6426 | 0.1589 | 0.1415 | 0.6408 | 0.056 | 0.0023 | 0.0005 | 0.4436 | -0.2222 | -0.1972 | 0.4443 | -0.266 | -0.0335 | -0.0208 | -0.1727 | 0.0244 | -2.889 | 0.9703 | -1.769 | 0.9692 | A+ | A+ | A+ |
| ELA | 8 | 623086 | 1 | A-V | 2 | 40824 | 0.6633 | 0.1307 | 0.1459 | 0.6611 | 0.059 | 0.0025 | 0.0007 | 0.3694 | -0.212 | -0.1263 | 0.3716 | -0.2403 | -0.0478 | -0.0308 | -0.3462 | 0.0249 | 5.1511 | 1.0576 | 5.9111 | 1.1184 | A- | A- | A- |
| ELA | 8 | 662308 | 1 | B-C | 2 | 6899 | 0.3628 | 0.0825 | 0.3405 | 0.3614 | 0.2118 | 0.003 | 0.0007 | 0.1496 | -0.2227 | 0.0778 | 0.1516 | -0.11 | -0.0508 | -0.0266 | 1.0459 | 0.0589 | 9.9013 | 1.2765 | 9.9015 | 1.4688 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 662309 | 1 | B-C | 2 | 6902 | 0.4054 | 0.2595 | 0.404 | 0.2049 | 0.1282 | 0.003 | 0.0003 | 0.306 | -0.1761 | 0.3072 | 0.0033 | -0.2143 | -0.0528 | -0.0209 | 0.9789 | 0.0586 | 3.5711 | 1.0859 | 5.0712 | 1.1913 | A+ | A+ | A+ |
| ELA | 8 | 662310 | 1 | B-C | 2 | 6917 | 0.5417 | 0.2253 | 0.1765 | 0.056 | 0.5411 | 0.001 | 0.0001 | 0.4679 | -0.2733 | -0.1506 | -0.2637 | 0.4682 | -0.0249 | -0.0235 | 0.3333 | 0.0576 | -3.5591 | 0.9233 | -2.7991 | 0.9108 | A- | A- | A- |
| ELA | 8 | 662312 | 1 | B-C | 2 | 6910 | 0.4027 | 0.4019 | 0.2195 | 0.1264 | 0.2501 | 0.0022 | | 0.278 | 0.2788 | -0.1159 | -0.1773 | -0.0641 | -0.0437 | | 1.0935 | 0.0591 | 4.1011 | 1.1026 | 5.7512 | 1.2318 | A- | A- | A- |
| ELA | 8 | 662313 | 1 | B-K | 2 | 6901 | 0.1319 | 0.1314 | 0.1571 | 0.631 | 0.077 | 0.0027 | 0.0007 | -0.0556 | -0.0538 | -0.0901 | 0.2413 | -0.231 | -0.0514 | -0.0437 | 2.4811 | 0.0758 | 1.4211 | 1.0664 | 8.5319 | 1.9071 | A- | A- | A- |
| ELA | 8 | 662314 | 1 | B-K | 3 | 6861 | 0.6124 | 0.0682 | 0.6068 | 0.1675 | 0.1483 | 0.0087 | 0.0006 | 0.4653 | -0.2758 | 0.4669 | -0.199 | -0.218 | -0.0683 | -0.0198 | 0.0408 | 0.0583 | -2.3691 | 0.946 | -1.9091 | 0.9321 | A- | A+ | A- |
| ELA | 8 | 662315 | 1 | B-K | 2 | 6879 | 0.7453 | 0.077 | 0.1103 | 0.0657 | 0.7404 | 0.0055 | 0.0012 | 0.4583 | -0.2707 | -0.1867 | -0.2686 | 0.4584 | -0.0517 | 0.0007 | -0.736 | 0.0637 | -2.9491 | 0.9119 | -1.0791 | 0.939 | A+ | A- | A- |
| ELA | 8 | 664163 | 1 | B-V | 2 | 6911 | 0.638 | 0.1918 | 0.6367 | 0.0934 | 0.0761 | 0.0014 | 0.0006 | 0.4349 | -0.1758 | 0.4368 | -0.256 | -0.2394 | -0.0552 | -0.0325 | -0.3509 | 0.0604 | 0.471 | 1.0121 | -1.2391 | 0.9448 | A- | A+ | A- |
| ELA | 8 | 630371 | 1 | D | 1 | 6907 | 0.5534 | 0.2466 | 0.5519 | 0.1324 | 0.0664 | 0.0019 | 0.0007 | 0.1879 | -0.0562 | 0.1907 | -0.096 | -0.1394 | -0.051 | -0.0411 | -0.0092 | 0.0585 | 9.9013 | 1.3031 | 9.9015 | 1.4569 | A- | A- | A- |
| ELA | 8 | 663373 | 1 | D | 3 | 6885 | 0.4815 | 0.3474 | 0.4787 | 0.0637 | 0.1044 | 0.0051 | 0.0007 | 0.3001 | -0.1009 | 0.3025 | -0.2363 | -0.1327 | -0.0545 | -0.0339 | 0.4802 | 0.0576 | 6.6112 | 1.1518 | 6.4412 | 1.2207 | A- | A+ | A+ |
| ELA | 8 | 663468 | 1 | D | 2 | 6899 | 0.297 | 0.1921 | 0.1583 | 0.2959 | 0.35 | 0.003 | 0.0007 | 0.1673 | -0.1642 | -0.0187 | 0.1688 | -0.0044 | -0.0407 | -0.0448 | 1.4473 | 0.0615 | 6.3712 | 1.1874 | 8.4714 | 1.4398 | A+ | A- | A- |
| ELA | 8 | 661115 | 2 | B-C | 2 | 6847 | 0.293 | 0.2569 | 0.2923 | 0.1603 | 0.2883 | 0.0017 | 0.0004 | 0.0621 | -0.0942 | 0.0632 | -0.2222 | 0.2114 | -0.0272 | -0.0306 | 1.459 | 0.0609 | 9.9013 | 1.2871 | 9.9015 | 1.5177 | A- | A+ | A+ |
| ELA | 8 | 661117 | 2 | B-C | 2 | 6846 | 0.3804 | 0.2343 | 0.1725 | 0.3795 | 0.2113 | 0.0023 | | 0.2769 | -0.1832 | -0.1543 | 0.2782 | 0.0087 | -0.0553 | | 1.1165 | 0.0589 | 5.3711 | 1.1326 | 6.9413 | 1.2806 | A- | A- | A- |
| ELA | 8 | 661119 | 2 | B-C | 2 | 6796 | 0.2031 | 0.1161 | 0.3512 | 0.2011 | 0.3219 | 0.0089 | 0.0007 | -0.076 | -0.2265 | 0.0601 | -0.0717 | 0.171 | -0.0687 | -0.0309 | 2.0565 | 0.0672 | 8.1113 | 1.3123 | 9.902 | 2.0262 | A+ | A+ | A- |
| ELA | 8 | 661133 | 2 | B-C | 2 | 6847 | 0.7682 | 0.7665 | 0.0565 | 0.1156 | 0.0592 | 0.002 | 0.0001 | 0.5271 | 0.5284 | -0.2884 | -0.278 | -0.2787 | -0.0469 | -0.0134 | -0.945 | 0.0673 | -5.5292 | 0.8176 | -4.8893 | 0.7108 | A- | A- | A- |
| ELA | 8 | 661124 | 2 | B-K | 3 | 6817 | 0.4261 | 0.4233 | 0.0635 | 0.3582 | 0.1484 | 0.0057 | 0.0009 | 0.3098 | 0.3103 | -0.2718 | 0.0073 | -0.2453 | -0.0439 | -0.001 | 0.8627 | 0.058 | 4.4711 | 1.1041 | 5.0312 | 1.1779 | A- | A- | A+ |
| ELA | 8 | 661126 | 2 | B-K | 3 | 6839 | 0.1559 | 0.5 | 0.1553 | 0.2748 | 0.0665 | 0.0032 | 0.0001 | -0.1563 | 0.2668 | -0.1542 | -0.0175 | -0.2644 | -0.0633 | -0.024 | 2.4782 | 0.0741 | 4.8112 | 1.2257 | 9.9025 | 2.4805 | A+ | A- | A- |
| ELA | 8 | 661128 | 2 | B-K | 2 | 6832 | 0.5793 | 0.2077 | 0.136 | 0.0752 | 0.5768 | 0.0035 | 0.0009 | 0.529 | -0.2195 | -0.2748 | -0.2842 | 0.5298 | -0.0508 | -0.0202 | 0.1498 | 0.0584 | -4.2691 | 0.9024 | -3.9591 | 0.8667 | A- | A- | A- |
| ELA | 8 | 663382 | 2 | B-V | 2 | 6806 | 0.2493 | 0.1861 | 0.2473 | 0.1523 | 0.4061 | 0.0077 | 0.0004 | 0.2578 | -0.1585 | 0.2594 | -0.2239 | 0.0751 | -0.0688 | -0.0306 | 1.8765 | 0.0649 | 0.931 | 1.0298 | 3.4812 | 1.2142 | B- | A- | A- |
| ELA | 8 | 630372 | 2 | D | 2 | 6845 | 0.5392 | 0.1006 | 0.1377 | 0.2214 | 0.5379 | 0.001 | 0.0015 | 0.3507 | -0.1837 | -0.1532 | -0.1563 | 0.3521 | -0.0113 | -0.0594 | 0.386 | 0.0578 | 3.2611 | 1.0753 | 2.7611 | 1.0924 | A- | A- | A- |
| ELA | 8 | 663374 | 2 | D | 2 | 6833 | 0.8673 | 0.8636 | 0.0341 | 0.0481 | 0.05 | 0.0038 | 0.0004 | 0.4155 | 0.4181 | -0.2331 | -0.2185 | -0.2314 | -0.0604 | -0.015 | -1.5458 | 0.0775 | -3.6192 | 0.8368 | -4.3994 | 0.6441 | A+ | A+ | A+ |
| ELA | 8 | 663469 | 2 | D | 2 | 6849 | 0.6275 | 0.1277 | 0.1119 | 0.1322 | 0.6263 | 0.0013 | 0.0006 | 0.4457 | -0.2475 | -0.183 | -0.2191 | 0.4461 | -0.0149 | -0.032 | -0.1171 | 0.0596 | -1.899 | 0.9525 | -1.8291 | 0.9277 | A+ | A+ | A+ |
| ELA | 8 | 660325 | 3 | B-C | 2 | 6737 | 0.6237 | 0.2406 | 0.6183 | 0.0731 | 0.0593 | 0.0077 | 0.001 | 0.3877 | -0.1142 | 0.3897 | -0.2973 | -0.2421 | -0.0611 | -0.0205 | -0.1222 | 0.0595 | 0.231 | 1.0057 | 0.041 | 1.001 | A+ | A+ | A+ |
| ELA | 8 | 660326 | 3 | B-C | 2 | 6771 | 0.4634 | 0.225 | 0.4617 | 0.1551 | 0.1545 | 0.0029 | 0.0007 | 0.3616 | -0.0867 | 0.3625 | -0.2059 | -0.1853 | -0.0363 | -0.0382 | 0.7781 | 0.0581 | 2.6111 | 1.0603 | 4.4612 | 1.1569 | A- | A- | A+ |
| ELA | 8 | 660327 | 3 | B-C | 2 | 6764 | 0.509 | 0.0587 | 0.0786 | 0.3514 | 0.5066 | 0.0035 | 0.0012 | 0.3219 | -0.2627 | -0.2914 | -0.0366 | 0.3243 | -0.049 | -0.0454 | 0.509 | 0.0578 | 4.5211 | 1.104 | 4.7812 | 1.1643 | A- | A- | A+ |
| ELA | 8 | 660328 | 3 | B-C | 2 | 6785 | 0.5761 | 0.5752 | 0.1307 | 0.1494 | 0.1432 | 0.001 | 0.0006 | 0.2895 | 0.291 | -0.1828 | -0.1372 | -0.089 | -0.0425 | -0.0336 | 0.5164 | 0.0578 | 6.6712 | 1.1561 | 6.1412 | 1.2143 | A- | A+ | A+ |
| ELA | 8 | 660331 | 3 | B-K | 3 | 6766 | 0.5355 | 0.0834 | 0.1118 | 0.2672 | 0.5331 | 0.0025 | 0.0019 | 0.3219 | -0.262 | -0.2396 | -0.022 | 0.3238 | -0.0612 | -0.0194 | 0.4526 | 0.0578 | 5.1311 | 1.119 | 6.0312 | 1.2113 | A- | A- | A+ |
| ELA | 8 | 660332 | 3 | B-K | 2 | 6751 | 0.6476 | 0.1878 | 0.1026 | 0.6433 | 0.0597 | 0.0063 | 0.0003 | 0.336 | -0.0188 | -0.276 | 0.3402 | -0.2772 | -0.0687 | -0.0435 | -0.2464 | 0.0602 | 4.0511 | 1.1085 | 6.2213 | 1.2954 | A+ | A+ | A+ |
| ELA | 8 | 660334 | 3 | B-V | 2 | 6775 | 0.7686 | 0.7662 | 0.0831 | 0.0584 | 0.0892 | 0.0019 | 0.0012 | 0.3628 | 0.3654 | -0.2088 | -0.2307 | -0.1398 | -0.0484 | -0.0277 | -0.9638 | 0.0672 | 1.081 | 1.038 | 3.1412 | 1.2228 | A- | A+ | A+ |
| ELA | 8 | 662809 | 3 | B-V | 2 | 6783 | 0.6835 | 0.0621 | 0.6822 | 0.2148 | 0.039 | 0.0016 | 0.0003 | 0.3854 | -0.2672 | 0.3873 | -0.1727 | -0.219 | -0.0459 | -0.0418 | -0.3532 | 0.0609 | 2.5611 | 1.0704 | 2.3311 | 1.111 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 630369 | 3 | D | 2 | 6783 | 0.8039 | 0.0455 | 0.8024 | 0.1012 | 0.049 | 0.0015 | 0.0004 | 0.4601 | -0.2668 | 0.4618 | -0.2531 | -0.2299 | -0.042 | -0.0344 | -1.2401 | 0.0713 | 0.101 | 1.0035 | -2.0492 | 0.846 | B+ | A+ | A+ |
| ELA | 8 | 663375 | 3 | D | 2 | 6767 | 0.5808 | 0.1436 | 0.0873 | 0.1866 | 0.5783 | 0.0037 | 0.0006 | 0.4901 | -0.2612 | -0.2927 | -0.1669 | 0.4905 | -0.041 | -0.0205 | 0.1097 | 0.0585 | -3.7791 | 0.9139 | -3.9191 | 0.8639 | A+ | B- | A- |
| ELA | 8 | 663470 | 3 | D | 2 | 6786 | 0.7897 | 0.1093 | 0.7886 | 0.0592 | 0.0415 | 0.0013 | 0.0001 | 0.5107 | -0.2909 | 0.5105 | -0.2826 | -0.2504 | -0.0164 | -0.0361 | -1.2233 | 0.071 | -2.3591 | 0.9088 | -3.3192 | 0.762 | A+ | A+ | A+ |
| ELA | 8 | 661114 | 4 | B-C | 2 | 6746 | 0.5175 | 0.1584 | 0.0895 | 0.2304 | 0.5129 | 0.0081 | 0.0007 | 0.4265 | -0.1848 | -0.2057 | -0.1953 | 0.4267 | -0.0486 | -0.0189 | 0.4828 | 0.0579 | -3.0691 | 0.9326 | -2.3091 | 0.9216 | A- | A- | A- |
| ELA | 8 | 661116 | 4 | B-C | 2 | 6770 | 0.4437 | 0.4414 | 0.1737 | 0.2781 | 0.1015 | 0.0046 | 0.0007 | 0.2553 | 0.2573 | -0.0719 | -0.0994 | -0.1713 | -0.0512 | -0.0284 | 0.8363 | 0.0582 | 7.4112 | 1.1793 | 7.9213 | 1.3039 | A+ | A- | A- |
| ELA | 8 | 661118 | 4 | B-C | 3 | 6754 | 0.6571 | 0.0752 | 0.6521 | 0.0742 | 0.1909 | 0.0072 | 0.0004 | 0.493 | -0.2708 | 0.4925 | -0.2398 | -0.2442 | -0.0496 | -0.0085 | -0.2219 | 0.0602 | -2.8791 | 0.9276 | -3.1291 | 0.8617 | A- | A+ | A+ |
| ELA | 8 | 661120 | 4 | B-C | 3 | 6780 | 0.5124 | 0.145 | 0.113 | 0.5104 | 0.2277 | 0.0035 | 0.0003 | 0.335 | -0.2639 | -0.2412 | 0.3371 | 0.0116 | -0.0689 | -0.0011 | 0.4951 | 0.0579 | 3.8511 | 1.0885 | 5.0112 | 1.183 | A- | A+ | A- |
| ELA | 8 | 661122 | 4 | B-C | 3 | 6791 | 0.512 | 0.0862 | 0.5109 | 0.351 | 0.0497 | 0.0018 | 0.0004 | 0.2177 | -0.2927 | 0.2191 | 0.0484 | -0.2227 | -0.0337 | -0.0323 | 0.4929 | 0.0579 | 9.9012 | 1.2411 | 9.9014 | 1.4389 | A+ | A- | A- |
| ELA | 8 | 663415 | 4 | B-C | 2 | 6793 | 0.5838 | 0.5827 | 0.175 | 0.1575 | 0.0829 | 0.0019 | | 0.3699 | 0.37 | -0.1556 | -0.1733 | -0.2147 | -0.0227 | | 0.1364 | 0.0585 | 1.241 | 1.0291 | 1.6311 | 1.0635 | A- | A- | A- |
| ELA | 8 | 661127 | 4 | B-K | 2 | 6765 | 0.5969 | 0.2242 | 0.079 | 0.5933 | 0.0974 | 0.0041 | 0.0019 | 0.4516 | -0.1414 | -0.2845 | 0.4537 | -0.2754 | -0.0509 | -0.0518 | 0.0829 | 0.0587 | -2.3691 | 0.9449 | -2.6491 | 0.8985 | A+ | A+ | A- |
| ELA | 8 | 661132 | 4 | B-V | 2 | 6789 | 0.466 | 0.4649 | 0.3097 | 0.0676 | 0.1553 | 0.0018 | 0.0007 | 0.0875 | 0.0887 | 0.1023 | -0.2386 | -0.0829 | -0.0208 | -0.0268 | 0.7195 | 0.058 | 9.9014 | 1.4087 | 9.9016 | 1.5967 | A+ | A+ | A+ |
| ELA | 8 | 630375 | 4 | D | 2 | 6785 | 0.6707 | 0.0463 | 0.0523 | 0.6687 | 0.2297 | 0.0024 | 0.0007 | 0.4016 | -0.2626 | -0.2782 | 0.4021 | -0.1669 | -0.0253 | -0.0268 | -0.3113 | 0.0608 | 0.011 | 0.9999 | -0.079 | 0.9952 | A+ | A- | A- |
| ELA | 8 | 663376 | 4 | D | 2 | 6778 | 0.3482 | 0.3468 | 0.1346 | 0.2937 | 0.2208 | 0.0038 | 0.0003 | 0.3834 | 0.3848 | -0.0734 | -0.2976 | -0.0426 | -0.074 | -0.0153 | 1.3236 | 0.0604 | -2.8591 | 0.9272 | 0.561 | 1.0233 | A- | A- | A- |
| ELA | 8 | 663471 | 4 | D | 2 | 6782 | 0.7231 | 0.1416 | 0.7205 | 0.0552 | 0.079 | 0.0031 | 0.0004 | 0.4089 | -0.2334 | 0.4089 | -0.2416 | -0.1675 | -0.0277 | -0.0072 | -0.6048 | 0.0632 | -1.219 | 0.9638 | -1.7391 | 0.9017 | A+ | A- | A+ |
| ELA | 8 | 662462 | 5 | B-C | 2 | 6764 | 0.6813 | 0.0737 | 0.0905 | 0.6792 | 0.1536 | 0.0022 | 0.0007 | 0.4397 | -0.2313 | -0.254 | 0.4401 | -0.194 | -0.0144 | -0.0543 | -0.3791 | 0.0611 | -1.079 | 0.971 | 0.151 | 1.0065 | A- | A- | A+ |
| ELA | 8 | 662463 | 5 | B-C | 2 | 6715 | 0.6241 | 0.0817 | 0.0935 | 0.1969 | 0.6178 | 0.0094 | 0.0007 | 0.4195 | -0.2592 | -0.2625 | -0.1243 | 0.4236 | -0.0763 | -0.0607 | -0.0518 | 0.0591 | -1.089 | 0.9736 | -0.469 | 0.9802 | A- | A- | A- |
| ELA | 8 | 662467 | 5 | B-C | 3 | 6710 | 0.5297 | 0.5239 | 0.1114 | 0.1781 | 0.1757 | 0.0068 | 0.0041 | 0.3337 | 0.3345 | -0.2644 | -0.1816 | -0.025 | -0.0582 | -0.0007 | 0.4192 | 0.0578 | 3.4911 | 1.0802 | 4.3312 | 1.1572 | A- | A+ | A+ |
| ELA | 8 | 663990 | 5 | B-C | 2 | 6767 | 0.5172 | 0.5159 | 0.1626 | 0.1456 | 0.1733 | 0.0019 | 0.0006 | 0.3275 | 0.3289 | -0.231 | -0.2463 | 0.0275 | -0.0361 | -0.0439 | 0.4584 | 0.0578 | 4.3411 | 1.1002 | 5.2312 | 1.1904 | A- | A- | A- |
| ELA | 8 | 662468 | 5 | B-K | 2 | 6746 | 0.3893 | 0.3458 | 0.3871 | 0.0961 | 0.1654 | 0.0037 | 0.0019 | 0.2176 | -0.0547 | 0.219 | -0.2273 | -0.0269 | -0.0364 | -0.0335 | 1.1006 | 0.0591 | 6.8512 | 1.1758 | 7.7813 | 1.3263 | A- | A- | A+ |
| ELA | 8 | 662470 | 5 | B-K | 2 | 6756 | 0.6609 | 0.1369 | 0.1238 | 0.0769 | 0.6582 | 0.0031 | 0.001 | 0.5297 | -0.2712 | -0.2673 | -0.2479 | 0.5322 | -0.0676 | -0.0415 | -0.2642 | 0.0603 | -6.0891 | 0.8505 | -5.5092 | 0.7674 | A- | A- | A+ |
| ELA | 8 | 662471 | 5 | B-K | 2 | 6758 | 0.5411 | 0.5391 | 0.1275 | 0.2378 | 0.0918 | 0.0031 | 0.0007 | 0.4347 | 0.4362 | -0.2375 | -0.1348 | -0.2663 | -0.0491 | -0.0442 | 0.3443 | 0.0579 | -0.269 | 0.9938 | -0.339 | 0.9877 | A- | A+ | A- |
| ELA | 8 | 663991 | 5 | B-V | 2 | 6758 | 0.7226 | 0.073 | 0.7198 | 0.1368 | 0.0666 | 0.0027 | 0.0012 | 0.4945 | -0.2308 | 0.4968 | -0.2974 | -0.2264 | -0.0447 | -0.0625 | -0.6103 | 0.0631 | -3.2991 | 0.9052 | -3.5492 | 0.8146 | A+ | A- | A- |
| ELA | 8 | 630378 | 5 | D | 2 | 13579 | 0.7144 | 0.0834 | 0.1311 | 0.0701 | 0.712 | 0.0016 | 0.0018 | 0.4538 | -0.2225 | -0.216 | -0.2702 | 0.4545 | -0.0246 | -0.0333 | -0.5648 | 0.0446 | -3.0791 | 0.9366 | -2.6191 | 0.8998 | A+ | A- | A+ |
| ELA | 8 | 663377 | 5 | D | 2 | 13571 | 0.5299 | 0.5278 | 0.1693 | 0.1534 | 0.1455 | 0.0035 | 0.0004 | 0.4144 | 0.416 | -0.1883 | -0.1938 | -0.1799 | -0.0534 | -0.028 | 0.4066 | 0.041 | 2.541 | 1.041 | 3.6711 | 1.0942 | A+ | A- | A- |
| ELA | 8 | 663472 | 5 | D | 2 | 6643 | 0.286 | 0.3433 | 0.0696 | 0.2801 | 0.2863 | 0.0032 | 0.0175 | 0.1085 | -0.0871 | -0.2551 | 0.1142 | 0.1476 | -0.0404 | -0.0717 | 1.6872 | 0.0634 | 5.5912 | 1.1781 | 9.7316 | 1.5978 | A+ | A- | A+ |
| ELA | 8 | 663193 | 6 | A-C | 3 | 6767 | 0.5296 | 0.1456 | 0.5271 | 0.1004 | 0.2221 | 0.0037 | 0.0012 | 0.3968 | -0.1186 | 0.3985 | -0.3321 | -0.127 | -0.0521 | -0.0401 | 0.3933 | 0.0579 | 0.811 | 1.0184 | 2.3411 | 1.0822 | A- | A- | A- |
| ELA | 8 | 663198 | 6 | A-C | 2 | 6789 | 0.5472 | 0.5463 | 0.1212 | 0.2534 | 0.0775 | 0.0013 | 0.0003 | 0.2415 | 0.243 | -0.1866 | 0.0231 | -0.2551 | -0.0366 | -0.0337 | 0.2987 | 0.0581 | 6.2011 | 1.1488 | 7.5113 | 1.2893 | A+ | A- | A- |
| ELA | 8 | 663211 | 6 | A-C | 2 | 6774 | 0.771 | 0.7681 | 0.076 | 0.0981 | 0.054 | 0.0028 | 0.001 | 0.4841 | 0.4861 | -0.2805 | -0.2364 | -0.251 | -0.048 | -0.0392 | -0.9153 | 0.0671 | -5.9792 | 0.8054 | -4.2493 | 0.738 | A+ | A+ | A+ |
| ELA | 8 | 663203 | 6 | A-K | 2 | 6767 | 0.3584 | 0.0781 | 0.0921 | 0.3566 | 0.4684 | 0.004 | 0.0009 | 0.0475 | -0.2718 | -0.2841 | 0.0504 | 0.2707 | -0.0534 | -0.0283 | 1.2425 | 0.0596 | 9.9014 | 1.3971 | 9.9016 | 1.631 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 663204 | 6 | A-K | 3 | 6778 | 0.213 | 0.2124 | 0.5784 | 0.1525 | 0.0535 | 0.0028 | 0.0004 | 0.1179 | 0.1192 | 0.1315 | -0.1564 | -0.2405 | -0.0518 | -0.0268 | 2.096 | 0.0677 | 3.5411 | 1.1316 | 7.9716 | 1.618 | A- | A+ | A+ |
| ELA | 8 | 663205 | 6 | A-K | 2 | 6766 | 0.6224 | 0.6193 | 0.2021 | 0.0925 | 0.0812 | 0.0028 | 0.0022 | 0.4273 | 0.4287 | -0.176 | -0.2486 | -0.2255 | -0.0371 | -0.041 | -0.0671 | 0.0594 | -0.899 | 0.9775 | 0.381 | 1.0155 | A+ | A+ | A+ |
| ELA | 8 | 663208 | 6 | A-K | 2 | 6777 | 0.7869 | 0.0656 | 0.7843 | 0.0901 | 0.0566 | 0.0021 | 0.0013 | 0.4852 | -0.2619 | 0.4881 | -0.2587 | -0.2506 | -0.0494 | -0.0457 | -1.0238 | 0.0686 | -5.2692 | 0.8183 | -3.8493 | 0.7463 | B+ | A+ | A+ |
| ELA | 8 | 663210 | 6 | A-K | 3 | 6792 | 0.308 | 0.1535 | 0.4651 | 0.0725 | 0.3076 | 0.0012 | | 0.1087 | -0.2512 | 0.1804 | -0.189 | 0.109 | -0.022 | | 1.5077 | 0.0613 | 8.9913 | 1.2643 | 9.9016 | 1.5668 | A- | B- | A- |
| ELA | 8 | 622484 | 6 | B-C | 2 | 40903 | 0.7701 | 0.0739 | 0.768 | 0.0691 | 0.0863 | 0.0021 | 0.0005 | 0.496 | -0.2497 | 0.4981 | -0.28 | -0.2521 | -0.0532 | -0.029 | -0.9115 | 0.0273 | -9.8991 | 0.8659 | -9.8993 | 0.7322 | A- | A+ | A- |
| ELA | 8 | 622486 | 6 | B-C | 2 | 40922 | 0.4971 | 0.0881 | 0.0711 | 0.3426 | 0.496 | 0.0016 | 0.0006 | 0.3822 | -0.2211 | -0.2884 | -0.1108 | 0.3831 | -0.0396 | -0.0233 | 0.5553 | 0.0236 | 5.141 | 1.0472 | 5.2011 | 1.0733 | A- | A- | A- |
| ELA | 8 | 622482 | 6 | B-K | 3 | 40870 | 0.4301 | 0.1228 | 0.4286 | 0.1954 | 0.2497 | 0.0031 | 0.0004 | 0.1797 | -0.2122 | 0.1816 | -0.0943 | 0.0469 | -0.045 | -0.0325 | 0.8882 | 0.0238 | 9.9013 | 1.266 | 9.9014 | 1.4183 | A+ | A+ | A- |
| ELA | 8 | 622487 | 6 | B-K | 2 | 40867 | 0.8283 | 0.0496 | 0.0569 | 0.0645 | 0.8254 | 0.0023 | 0.0013 | 0.4865 | -0.2346 | -0.258 | -0.2897 | 0.4888 | -0.053 | -0.0322 | -1.3242 | 0.0299 | -9.8992 | 0.8319 | -9.8993 | 0.6537 | A+ | A- | A- |
| ELA | 8 | 622490 | 6 | B-K | 2 | 40897 | 0.6716 | 0.6697 | 0.189 | 0.0782 | 0.0603 | 0.002 | 0.0009 | 0.4536 | 0.4554 | -0.2466 | -0.2322 | -0.2193 | -0.0438 | -0.0398 | -0.3273 | 0.0248 | -3.829 | 0.9585 | -3.7391 | 0.9284 | A- | A- | A- |
| ELA | 8 | 622485 | 6 | B-V | 3 | 40945 | 0.5443 | 0.1865 | 0.1925 | 0.5434 | 0.0759 | 0.0014 | 0.0002 | 0.3095 | -0.1793 | -0.1899 | 0.3108 | -0.0307 | -0.0408 | -0.0296 | 0.3218 | 0.0237 | 9.9011 | 1.1365 | 9.9012 | 1.1866 | A- | A+ | A+ |
| ELA | 8 | 630377 | 6 | D | 2 | 13576 | 0.7331 | 0.1377 | 0.0799 | 0.7311 | 0.0486 | 0.0016 | 0.0011 | 0.3943 | -0.2203 | -0.2057 | 0.3969 | -0.1919 | -0.0492 | -0.0322 | -0.6727 | 0.0453 | -0.659 | 0.9855 | -1.049 | 0.9565 | A+ | A+ | A+ |
| ELA | 8 | 663464 | 6 | D | 2 | 13516 | 0.246 | 0.2443 | 0.2393 | 0.2921 | 0.2171 | 0.0067 | 0.0004 | 0.071 | 0.074 | 0.1121 | -0.0914 | -0.0772 | -0.0724 | -0.0175 | 1.9049 | 0.0463 | 9.9013 | 1.257 | 9.9018 | 1.8256 | A- | A- | A- |
| ELA | 8 | 663473 | 6 | D | 2 | 13569 | 0.4924 | 0.1942 | 0.4908 | 0.0804 | 0.2315 | 0.0024 | 0.0008 | 0.4281 | -0.0735 | 0.4295 | -0.2358 | -0.2801 | -0.0443 | -0.0433 | 0.5847 | 0.0408 | -0.809 | 0.9872 | 0.201 | 1.0046 | A- | A- | A- |
| ELA | 8 | 659251 | 7 | A-C | 2 | 6840 | 0.5025 | 0.0863 | 0.5012 | 0.1566 | 0.2533 | 0.0019 | 0.0007 | 0.3788 | -0.2376 | 0.38 | -0.2092 | -0.1023 | -0.0384 | -0.0403 | 0.5134 | 0.0577 | 2.5011 | 1.0565 | 4.0011 | 1.1371 | A+ | A+ | A+ |
| ELA | 8 | 659304 | 7 | A-C | 2 | 6840 | 0.2161 | 0.1913 | 0.4405 | 0.2155 | 0.15 | 0.002 | 0.0006 | -0.0095 | -0.1017 | 0.1804 | -0.0082 | -0.1228 | -0.0323 | -0.0347 | 2.0856 | 0.0682 | 9.5314 | 1.3892 | 9.9022 | 2.2109 | A- | A- | A- |
| ELA | 8 | 659252 | 7 | A-K | 2 | 6829 | 0.21 | 0.1821 | 0.2091 | 0.4146 | 0.19 | 0.0029 | 0.0013 | -0.1361 | -0.1764 | -0.1333 | 0.3671 | -0.1385 | -0.0511 | -0.0404 | 2.1307 | 0.0689 | 9.9015 | 1.4555 | 9.9024 | 2.3687 | A- | A+ | A+ |
| ELA | 8 | 659254 | 7 | A-K | 3 | 6814 | 0.3722 | 0.3384 | 0.3698 | 0.185 | 0.1003 | 0.0057 | 0.0007 | 0.2577 | -0.0425 | 0.2591 | -0.167 | -0.1211 | -0.0448 | -0.0139 | 1.1735 | 0.0594 | 5.8912 | 1.1515 | 7.1713 | 1.3076 | B- | A+ | A+ |
| ELA | 8 | 659255 | 7 | A-K | 2 | 6828 | 0.5088 | 0.277 | 0.0878 | 0.1242 | 0.5066 | 0.0032 | 0.0012 | 0.4893 | -0.1925 | -0.2575 | -0.2479 | 0.4909 | -0.0564 | -0.0421 | 0.4869 | 0.0577 | -3.5691 | 0.9223 | -1.9691 | 0.9361 | A- | A+ | A- |
| ELA | 8 | 659305 | 7 | A-K | 3 | 6803 | 0.5267 | 0.5225 | 0.1113 | 0.108 | 0.2502 | 0.0069 | 0.0012 | 0.2712 | 0.276 | -0.2539 | -0.2597 | 0.069 | -0.0828 | -0.0125 | 0.4087 | 0.0577 | 5.0311 | 1.1169 | 5.5812 | 1.1974 | A+ | A+ | A+ |
| ELA | 8 | 659257 | 7 | A-V | 2 | 6843 | 0.546 | 0.1951 | 0.161 | 0.5448 | 0.097 | 0.0017 | 0.0004 | 0.2978 | -0.0727 | -0.1874 | 0.299 | -0.1661 | -0.037 | -0.0274 | 0.2985 | 0.0579 | 4.3911 | 1.1028 | 5.4112 | 1.1962 | A- | A- | A- |
| ELA | 8 | 661716 | 7 | A-V | 2 | 6850 | 0.5307 | 0.1473 | 0.53 | 0.1603 | 0.1613 | 0.0012 | | 0.3359 | -0.201 | 0.3364 | -0.097 | -0.1635 | -0.0273 | | 0.3713 | 0.0578 | 3.6611 | 1.0845 | 2.8411 | 1.098 | A- | A+ | A+ |
| ELA | 8 | 630367 | 7 | D | 2 | 13578 | 0.5228 | 0.5204 | 0.1302 | 0.2059 | 0.1388 | 0.0022 | 0.0024 | 0.3043 | 0.3068 | -0.1531 | -0.1704 | -0.0824 | -0.0406 | -0.0506 | 0.4324 | 0.0409 | 8.3711 | 1.1392 | 7.7812 | 1.2006 | A+ | A- | A- |
| ELA | 8 | 663465 | 7 | D | 2 | 13565 | 0.6271 | 0.6236 | 0.1155 | 0.1427 | 0.1127 | 0.0055 | 0.0001 | 0.3359 | 0.3371 | -0.1623 | -0.1459 | -0.181 | -0.0428 | -0.0033 | -0.0884 | 0.042 | 4.0711 | 1.0733 | 4.5511 | 1.1399 | A+ | A- | A- |
| ELA | 8 | 663474 | 7 | D | 1 | 13604 | 0.8259 | 0.0589 | 0.058 | 0.8236 | 0.0568 | 0.0023 | 0.0004 | 0.4327 | -0.2626 | -0.2329 | 0.4337 | -0.2025 | -0.0385 | -0.0163 | -1.32 | 0.0515 | -5.3391 | 0.8502 | -5.0793 | 0.728 | B+ | A- | A- |
| ELA | 8 | 660318 | 8 | A-C | 2 | 6805 | 0.3533 | 0.2513 | 0.3524 | 0.1811 | 0.2129 | 0.0021 | 0.0003 | 0.251 | -0.1776 | 0.2516 | -0.0594 | -0.0451 | -0.0334 | -0.0193 | 1.2904 | 0.0603 | 4.4211 | 1.119 | 4.8712 | 1.2209 | A+ | A+ | A+ |
| ELA | 8 | 662846 | 8 | A-C | 2 | 6801 | 0.6783 | 0.1164 | 0.1256 | 0.0787 | 0.6763 | 0.0023 | 0.0006 | 0.4713 | -0.2459 | -0.2347 | -0.2284 | 0.4725 | -0.0472 | -0.0262 | -0.3545 | 0.061 | -3.8591 | 0.8998 | -1.6491 | 0.9158 | A+ | A- | A- |
| ELA | 8 | 660319 | 8 | A-K | 2 | 6769 | 0.5283 | 0.117 | 0.089 | 0.2621 | 0.5243 | 0.007 | 0.0006 | 0.3264 | -0.196 | -0.0896 | -0.157 | 0.3305 | -0.0807 | -0.032 | 0.425 | 0.058 | 2.6411 | 1.0603 | 2.4811 | 1.0949 | A+ | A+ | A- |
| ELA | 8 | 660320 | 8 | A-K | 2 | 6797 | 0.4995 | 0.0827 | 0.286 | 0.13 | 0.4977 | 0.0029 | 0.0006 | 0.3784 | -0.2374 | -0.1466 | -0.1638 | 0.3796 | -0.0453 | -0.0268 | 0.5556 | 0.0579 | 0.831 | 1.0186 | 2.7711 | 1.1041 | A+ | A- | A- |
| ELA | 8 | 660321 | 8 | A-K | 2 | 6784 | 0.3417 | 0.1954 | 0.3398 | 0.1988 | 0.2605 | 0.0041 | 0.0013 | 0.2455 | -0.16 | 0.2464 | -0.109 | -0.0139 | -0.0524 | -0.0085 | 1.3582 | 0.0608 | 5.5712 | 1.1556 | 7.9714 | 1.3918 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 660322 | 8 | A-K | 3 | 6811 | 0.3842 | 0.3837 | 0.4319 | 0.107 | 0.0759 | 0.0013 | 0.0001 | 0.2685 | 0.2686 | -0.0808 | -0.1413 | -0.1741 | -0.0237 | 0.0068 | 1.1264 | 0.0594 | 3.2611 | 1.0822 | 5.3812 | 1.2283 | A- | A- | A- |
| ELA | 8 | 660316 | 8 | A-V | 3 | 6813 | 0.6926 | 0.1852 | 0.6918 | 0.0809 | 0.0409 | 0.0007 | 0.0004 | 0.4592 | -0.2433 | 0.4597 | -0.2875 | -0.193 | -0.023 | -0.0247 | -0.4408 | 0.0617 | -1.199 | 0.967 | -1.8491 | 0.9016 | A+ | A+ | A+ |
| ELA | 8 | 660324 | 8 | A-V | 2 | 6774 | 0.6916 | 0.6868 | 0.1319 | 0.0507 | 0.1236 | 0.0065 | 0.0004 | 0.4237 | 0.4259 | -0.2776 | -0.207 | -0.1606 | -0.0602 | -0.02 | -0.4129 | 0.0615 | -1.589 | 0.9568 | -0.119 | 0.9926 | A+ | A- | A- |
| ELA | 8 | 630380 | 8 | D | 2 | 6803 | 0.5123 | 0.5109 | 0.0437 | 0.3585 | 0.0843 | 0.0021 | 0.0006 | 0.3858 | 0.3869 | -0.2385 | -0.1896 | -0.1844 | -0.0412 | -0.0262 | 0.4906 | 0.0579 | 0.411 | 1.009 | 0.811 | 1.0297 | A+ | A- | A- |
| ELA | 8 | 663466 | 8 | D | 2 | 6800 | 0.4175 | 0.1819 | 0.4162 | 0.1509 | 0.2479 | 0.0028 | 0.0003 | 0.1486 | -0.114 | 0.1507 | -0.1162 | 0.0333 | -0.0531 | -0.0177 | 0.9602 | 0.0587 | 9.9013 | 1.3155 | 9.9016 | 1.5693 | A+ | A+ | A- |
| ELA | 8 | 663475 | 8 | D | 2 | 6800 | 0.5619 | 0.1327 | 0.5602 | 0.1528 | 0.1513 | 0.0021 | 0.001 | 0.3346 | -0.185 | 0.3363 | -0.163 | -0.1191 | -0.0262 | -0.0519 | 0.2473 | 0.0582 | 2.7611 | 1.0642 | 2.9011 | 1.1186 | A+ | A- | A+ |
| ELA | 8 | 663194 | 9 | A-C | 2 | 6872 | 0.5489 | 0.216 | 0.5483 | 0.0955 | 0.1391 | 0.0009 | 0.0003 | 0.2007 | 0.0033 | 0.2024 | -0.2791 | -0.0524 | -0.0502 | -0.0265 | 0.2846 | 0.0576 | 9.9012 | 1.2483 | 9.9015 | 1.4626 | A+ | A+ | A+ |
| ELA | 8 | 663196 | 9 | A-C | 2 | 6858 | 0.508 | 0.1019 | 0.2837 | 0.1048 | 0.5064 | 0.0025 | 0.0007 | 0.1256 | -0.162 | 0.0572 | -0.1228 | 0.1284 | -0.0427 | -0.0456 | 0.489 | 0.0573 | 9.9013 | 1.3192 | 9.9015 | 1.4787 | A+ | A- | A- |
| ELA | 8 | 663197 | 9 | A-C | 3 | 6817 | 0.2274 | 0.1551 | 0.2253 | 0.2376 | 0.3728 | 0.0049 | 0.0042 | 0.0108 | -0.1956 | 0.0125 | -0.0854 | 0.2177 | -0.047 | -0.0012 | 1.9959 | 0.0667 | 7.6713 | 1.2913 | 9.9019 | 1.8955 | A- | A+ | A+ |
| ELA | 8 | 663201 | 9 | A-C | 2 | 6805 | 0.517 | 0.1135 | 0.2938 | 0.0705 | 0.5113 | 0.0097 | 0.0012 | 0.362 | -0.3183 | -0.0148 | -0.2588 | 0.3659 | -0.0807 | -0.0286 | 0.465 | 0.0573 | 3.4211 | 1.0753 | 6.6912 | 1.2243 | A+ | A+ | A- |
| ELA | 8 | 663206 | 9 | A-K | 2 | 6865 | 0.5142 | 0.5131 | 0.1746 | 0.1378 | 0.1724 | 0.0013 | 0.0009 | 0.4136 | 0.4151 | -0.2146 | -0.2549 | -0.0933 | -0.0399 | -0.0493 | 0.4564 | 0.0573 | 0.731 | 1.0157 | 1.121 | 1.0353 | A+ | A+ | A+ |
| ELA | 8 | 700009 | 9 | A-K | 2 | 6827 | 0.6178 | 0.1429 | 0.0629 | 0.1734 | 0.6131 | 0.0073 | 0.0004 | 0.4539 | -0.2349 | -0.244 | -0.196 | 0.4567 | -0.07 | -0.0379 | -0.0389 | 0.0587 | -3.0491 | 0.929 | -2.3991 | 0.912 | A+ | A+ | A- |
| ELA | 8 | 663212 | 9 | A-V | 2 | 6859 | 0.3511 | 0.0836 | 0.06 | 0.35 | 0.5033 | 0.002 | 0.001 | 0.2418 | -0.2279 | -0.251 | 0.2432 | 0.0196 | -0.0502 | -0.0266 | 1.2686 | 0.0595 | 4.1811 | 1.1067 | 6.4613 | 1.2756 | A- | A- | A+ |
| ELA | 8 | 664456 | 9 | A-V | 2 | 6874 | 0.7595 | 0.0599 | 0.7589 | 0.0693 | 0.111 | 0.0007 | 0.0001 | 0.4783 | -0.2694 | 0.4786 | -0.285 | -0.2151 | -0.0189 | -0.0258 | -0.8581 | 0.0658 | -3.1191 | 0.8981 | -2.9192 | 0.8299 | A+ | A- | A- |
| ELA | 8 | 630373 | 9 | D | 2 | 6852 | 0.6093 | 0.1526 | 0.1259 | 0.1106 | 0.6068 | 0.0023 | 0.0017 | 0.447 | -0.2306 | -0.1765 | -0.2376 | 0.4474 | -0.0214 | -0.0366 | -0.0071 | 0.0585 | -0.389 | 0.9907 | -0.359 | 0.9862 | A+ | A- | A- |
| ELA | 8 | 663467 | 9 | D | 2 | 6804 | 0.4809 | 0.3177 | 0.4756 | 0.1754 | 0.0202 | 0.0041 | 0.007 | 0.1389 | -0.0972 | 0.1418 | -0.0035 | -0.1383 | -0.0644 | -0.0084 | 0.6389 | 0.0573 | 9.9013 | 1.3221 | 9.9015 | 1.5084 | A+ | A+ | A+ |
| ELA | 8 | 663477 | 9 | D | 2 | 6853 | 0.3051 | 0.3039 | 0.2073 | 0.2009 | 0.284 | 0.0028 | 0.0012 | 0.1406 | 0.142 | -0.0188 | -0.1642 | 0.0242 | -0.0331 | -0.0315 | 1.5186 | 0.0614 | 6.8912 | 1.2013 | 8.3414 | 1.4288 | A- | A- | A- |
| ELA | 8 | 624738 | 10 | A-C | 2 | 6819 | 0.7359 | 0.0668 | 0.7335 | 0.1359 | 0.0605 | 0.0016 | 0.0016 | 0.4932 | -0.2517 | 0.495 | -0.2614 | -0.2641 | -0.0279 | -0.0583 | -0.6948 | 0.0647 | -4.7491 | 0.8551 | -4.1392 | 0.7647 | A+ | A+ | A- |
| ELA | 8 | 624743 | 10 | A-C | 2 | 6832 | 0.7247 | 0.7237 | 0.0871 | 0.1402 | 0.0477 | 0.0009 | 0.0004 | 0.4725 | 0.4737 | -0.247 | -0.2524 | -0.2481 | -0.0302 | -0.0376 | -0.635 | 0.0641 | -2.7191 | 0.917 | -1.4991 | 0.9121 | A- | A- | A- |
| ELA | 8 | 624741 | 10 | A-K | 2 | 6833 | 0.262 | 0.2044 | 0.3615 | 0.2617 | 0.1713 | 0.0007 | 0.0004 | 0.1895 | -0.282 | 0.0962 | 0.1896 | -0.0407 | 0.0101 | -0.0376 | 1.8237 | 0.0646 | 6.8712 | 1.2331 | 8.3316 | 1.56 | A+ | A+ | A+ |
| ELA | 8 | 624742 | 10 | A-K | 3 | 6808 | 0.4417 | 0.0784 | 0.0614 | 0.4159 | 0.4396 | 0.0042 | 0.0006 | 0.1743 | -0.2278 | -0.2795 | 0.0895 | 0.1761 | -0.0333 | -0.042 | 0.8532 | 0.0584 | 9.9013 | 1.302 | 9.9014 | 1.4407 | A- | A+ | A- |
| ELA | 8 | 624745 | 10 | A-K | 3 | 6807 | 0.7366 | 0.0507 | 0.7329 | 0.1437 | 0.0677 | 0.0044 | 0.0006 | 0.489 | -0.2593 | 0.4907 | -0.2607 | -0.2558 | -0.0508 | -0.0473 | -0.6912 | 0.0647 | -3.8391 | 0.8818 | -3.7092 | 0.7877 | A+ | A- | A- |
| ELA | 8 | 624739 | 10 | A-V | 2 | 6802 | 0.9015 | 0.8964 | 0.0424 | 0.03 | 0.0256 | 0.0028 | 0.0029 | 0.4204 | 0.4182 | -0.2582 | -0.22 | -0.2178 | -0.0515 | -0.0156 | -2.0186 | 0.0894 | -3.8292 | 0.7836 | -4.6195 | 0.5215 | A+ | A+ | A+ |
| ELA | 8 | 624746 | 10 | A-V | 2 | 6819 | 0.8151 | 0.0649 | 0.0488 | 0.0706 | 0.8125 | 0.0026 | 0.0006 | 0.5602 | -0.3007 | -0.2906 | -0.3087 | 0.5617 | -0.0498 | -0.0385 | -1.2329 | 0.0721 | -5.6692 | 0.7854 | -6.3094 | 0.5558 | A+ | A- | A- |
| ELA | 8 | 631614 | 10 | A-V | 2 | 6773 | 0.6256 | 0.6194 | 0.1234 | 0.1536 | 0.0937 | 0.0095 | 0.0004 | 0.2645 | 0.2698 | -0.1603 | -0.0734 | -0.1523 | -0.0675 | -0.0423 | -0.0525 | 0.0597 | 8.2512 | 1.2224 | 6.7613 | 1.318 | A- | A- | A- |
| ELA | 8 | 663488 | 10 | D | 2 | 6823 | 0.4161 | 0.415 | 0.1854 | 0.2611 | 0.1359 | 0.002 | 0.0006 | 0.2606 | 0.2607 | -0.1311 | -0.0795 | -0.1218 | -0.0038 | -0.0268 | 0.9774 | 0.0587 | 5.7211 | 1.1391 | 6.5613 | 1.265 | A+ | A- | A- |
| ELA | 8 | 625571 | 11 | A-C | 2 | 6779 | 0.6578 | 0.0856 | 0.1029 | 0.6545 | 0.1521 | 0.0047 | 0.0003 | 0.5419 | -0.3049 | -0.287 | 0.5435 | -0.226 | -0.0648 | -0.0223 | -0.2277 | 0.0601 | -5.8191 | 0.858 | -5.7392 | 0.763 | A- | A- | A- |
| ELA | 8 | 625577 | 11 | A-C | 2 | 6800 | 0.4556 | 0.4547 | 0.0528 | 0.4317 | 0.0589 | 0.0012 | 0.0007 | 0.3395 | 0.3406 | -0.2184 | -0.1821 | -0.1206 | -0.0417 | -0.0257 | 0.7769 | 0.0579 | 3.7711 | 1.0869 | 5.0012 | 1.1781 | A+ | A+ | A+ |
| ELA | 8 | 625579 | 11 | A-C | 2 | 6744 | 0.4196 | 0.2511 | 0.4154 | 0.1342 | 0.1892 | 0.0094 | 0.0007 | 0.1961 | 0.0287 | 0.2004 | -0.1015 | -0.1757 | -0.073 | -0.0279 | 0.9733 | 0.0584 | 8.3712 | 1.2071 | 9.7514 | 1.3892 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 625570 | 11 | A-K | 2 | 6784 | 0.5016 | 0.3084 | 0.033 | 0.1549 | 0.4995 | 0.0032 | 0.001 | 0.3038 | -0.0524 | -0.1741 | -0.2584 | 0.3062 | -0.0643 | -0.0206 | 0.5562 | 0.0577 | 5.3811 | 1.1235 | 7.4613 | 1.2692 | A+ | A+ | A+ |
| ELA | 8 | 625575 | 11 | A-K | 2 | 6789 | 0.4714 | 0.2156 | 0.098 | 0.2131 | 0.4697 | 0.0028 | 0.0007 | 0.3286 | 0.0723 | -0.2869 | -0.2578 | 0.3302 | -0.0495 | -0.038 | 0.7029 | 0.0578 | 1.721 | 1.0386 | 1.5411 | 1.0521 | A- | A- | A+ |
| ELA | 8 | 625578 | 11 | A-K | 3 | 6760 | 0.595 | 0.5903 | 0.124 | 0.1303 | 0.1475 | 0.0059 | 0.0019 | 0.4169 | 0.4183 | -0.2132 | -0.2303 | -0.1489 | -0.0548 | -0.0202 | 0.1053 | 0.0584 | -1.149 | 0.9733 | -0.369 | 0.9856 | A+ | A+ | A+ |
| ELA | 8 | 625574 | 11 | A-V | 2 | 6805 | 0.6483 | 0.2133 | 0.0859 | 0.6476 | 0.0521 | 0.001 | 0.0001 | 0.4457 | -0.2584 | -0.2312 | 0.4464 | -0.1867 | -0.0269 | -0.0253 | -0.1909 | 0.0599 | -2.2591 | 0.9437 | -2.9991 | 0.8734 | A- | A- | B- |
| ELA | 8 | 633094 | 11 | A-V | 2 | 6782 | 0.8773 | 0.0317 | 0.8733 | 0.0672 | 0.0232 | 0.0035 | 0.001 | 0.4279 | -0.2506 | 0.4322 | -0.2562 | -0.2042 | -0.0634 | -0.0377 | -1.7331 | 0.0818 | -2.2291 | 0.8855 | -3.6393 | 0.6612 | A+ | A+ | A- |
| ELA | 8 | 622493 | 12 | B-C | 2 | 6761 | 0.6425 | 0.0545 | 0.0969 | 0.6404 | 0.2049 | 0.0027 | 0.0006 | 0.3772 | -0.277 | -0.2634 | 0.3784 | -0.0943 | -0.0426 | -0.0216 | -0.1668 | 0.06 | 1.711 | 1.0446 | 2.3611 | 1.1092 | A- | A- | A+ |
| ELA | 8 | 622494 | 12 | B-C | 2 | 6763 | 0.6632 | 0.0852 | 0.6612 | 0.1032 | 0.1474 | 0.0027 | 0.0003 | 0.3985 | -0.188 | 0.4004 | -0.2091 | -0.1984 | -0.0532 | -0.0186 | -0.2789 | 0.0607 | 0.561 | 1.0148 | 2.5011 | 1.1238 | A+ | A+ | A+ |
| ELA | 8 | 622496 | 12 | B-C | 3 | 6775 | 0.6136 | 0.6129 | 0.1206 | 0.1692 | 0.0961 | 0.0009 | 0.0003 | 0.368 | 0.3671 | -0.1731 | -0.1717 | -0.1976 | 0.0074 | -0.0019 | -0.0217 | 0.0593 | 1.151 | 1.0286 | 2.0011 | 1.0851 | A+ | A+ | A- |
| ELA | 8 | 622492 | 12 | B-K | 2 | 6763 | 0.5471 | 0.5455 | 0.2338 | 0.1271 | 0.0907 | 0.0027 | 0.0003 | 0.3927 | 0.3951 | -0.2027 | -0.164 | -0.1819 | -0.0717 | -0.0254 | 0.3211 | 0.0582 | 2.4511 | 1.0573 | 4.1212 | 1.1566 | A+ | A- | A+ |
| ELA | 8 | 622497 | 12 | B-K | 2 | 6743 | 0.7899 | 0.0576 | 0.0991 | 0.0522 | 0.7852 | 0.0057 | 0.0001 | 0.532 | -0.2762 | -0.3046 | -0.2645 | 0.5309 | -0.0528 | 0.0129 | -1.0321 | 0.0685 | -6.1192 | 0.7922 | -4.8493 | 0.6855 | A+ | A+ | A+ |
| ELA | 8 | 622499 | 12 | B-K | 3 | 6734 | 0.7054 | 0.0817 | 0.0898 | 0.121 | 0.7003 | 0.0066 | 0.0006 | 0.4893 | -0.2698 | -0.277 | -0.2012 | 0.4925 | -0.0814 | -0.0121 | -0.4979 | 0.0624 | -2.5091 | 0.9284 | -0.379 | 0.9783 | A+ | A+ | A+ |
| ELA | 8 | 622495 | 12 | B-V | 2 | 6767 | 0.7247 | 0.129 | 0.0575 | 0.723 | 0.0882 | 0.0018 | 0.0006 | 0.4207 | -0.207 | -0.1575 | 0.4224 | -0.2838 | -0.0447 | -0.0276 | -0.6315 | 0.0637 | -0.909 | 0.9721 | 1.6011 | 1.0956 | B- | A- | A+ |
| ELA | 8 | 622498 | 12 | B-V | 2 | 6776 | 0.7255 | 0.1113 | 0.7248 | 0.1003 | 0.0627 | 0.0009 | 0.0001 | 0.4087 | -0.1785 | 0.4087 | -0.2648 | -0.1909 | -0.011 | -0.0203 | -0.6421 | 0.0638 | -2.1991 | 0.9335 | 4.3913 | 1.281 | A- | A+ | A- |
| MATH | 3 | 313276 | 0 | A-F | 2 | 87708 | 0.3621 | 0.355 | 0.1266 | 0.3064 | 0.1923 | 0.0189 | 0.0007 | 0.4078 | 0.4097 | -0.1427 | -0.175 | -0.142 | -0.0816 | -0.0287 | 1.2598 | 0.0239 | 3.041 | 1.0331 | 9.2212 | 1.1711 | A- | A+ | A+ |
| MATH | 3 | 313468 | 0 | A-F | 1 | 88135 | 0.689 | 0.056 | 0.6787 | 0.2139 | 0.0364 | 0.0143 | 0.0006 | 0.4908 | -0.1586 | 0.4944 | -0.3761 | -0.1543 | -0.0897 | -0.0259 | -0.4834 | 0.024 | -7.1391 | 0.9264 | -4.4991 | 0.9076 | A+ | A+ | A- |
| MATH | 3 | 313750 | 0 | A-F | 2 | 86945 | 0.4624 | 0.4493 | 0.1873 | 0.1785 | 0.1566 | 0.0192 | 0.009 | 0.3567 | 0.3664 | -0.1703 | -0.1797 | -0.0649 | -0.0952 | -0.1092 | 0.9164 | 0.0232 | 9.9011 | 1.1345 | 9.9012 | 1.2109 | A+ | A+ | A+ |
| MATH | 3 | 314241 | 0 | A-F | 1 | 87753 | 0.5667 | 0.2824 | 0.5558 | 0.0522 | 0.0904 | 0.0188 | 0.0004 | 0.5544 | -0.3573 | 0.5564 | -0.1976 | -0.2011 | -0.1002 | -0.0193 | 0.2639 | 0.0229 | -9.8991 | 0.8955 | -9.2391 | 0.8687 | A+ | A- | A- |
| MATH | 3 | 408673 | 0 | A-F | 1 | 88290 | 0.6056 | 0.5976 | 0.1895 | 0.0868 | 0.1128 | 0.0127 | 0.0004 | 0.419 | 0.4237 | -0.1372 | -0.1956 | -0.2798 | -0.0876 | -0.0267 | 0.1239 | 0.023 | 5.8011 | 1.0554 | 4.1611 | 1.0661 | A+ | A+ | A+ |
| MATH | 3 | 408674 | 0 | A-F | 1 | 87554 | 0.4877 | 0.0869 | 0.4773 | 0.1439 | 0.2706 | 0.0194 | 0.002 | 0.5529 | -0.255 | 0.5551 | -0.2627 | -0.2182 | -0.0988 | -0.0607 | 0.6468 | 0.0229 | -9.4691 | 0.9128 | -7.5991 | 0.8949 | A- | A- | A+ |
| MATH | 3 | 408844 | 0 | A-F | 1 | 87783 | 0.3354 | 0.329 | 0.1714 | 0.1983 | 0.2825 | 0.0184 | 0.0004 | 0.4475 | 0.4491 | -0.0616 | -0.1322 | -0.2714 | -0.0917 | -0.0269 | 1.4367 | 0.0244 | 3.091 | 1.0357 | 7.6512 | 1.1553 | A- | A- | A- |
| MATH | 3 | 479164 | 0 | A-F | 1 | 79602 | 0.537 | 0.4778 | 0.1621 | 0.1086 | 0.1413 | 0.0188 | 0.0915 | 0.3698 | 0.2993 | -0.2274 | -0.2159 | -0.0796 | -0.092 | 0.1446 | 0.5115 | 0.0229 | 9.9012 | 1.2421 | 9.9014 | 1.3588 | A- | A+ | A+ |
| MATH | 3 | 394377 | 0 | A-T | 1 | 87669 | 0.7158 | 0.0712 | 0.0647 | 0.1425 | 0.7014 | 0.0197 | 0.0004 | 0.5403 | -0.2195 | -0.2951 | -0.302 | 0.5394 | -0.0844 | -0.0255 | -0.8751 | 0.0254 | -3.089 | 0.9627 | -5.1491 | 0.8698 | A- | A- | A- |
| MATH | 3 | 408664 | 0 | A-T | 2 | 87472 | 0.4794 | 0.0825 | 0.1945 | 0.232 | 0.4687 | 0.0211 | 0.0012 | 0.4298 | -0.2324 | -0.291 | -0.0553 | 0.4324 | -0.0916 | -0.0034 | 0.8374 | 0.0231 | 8.0011 | 1.0801 | 8.4011 | 1.1298 | A- | A+ | A+ |
| MATH | 3 | 493222 | 0 | A-T | 1 | 88350 | 0.8496 | 0.8389 | 0.0585 | 0.0418 | 0.0483 | 0.0117 | 0.0008 | 0.4534 | 0.4568 | -0.2608 | -0.2454 | -0.2231 | -0.0815 | -0.0366 | -1.4428 | 0.0286 | -9.8992 | 0.8117 | -9.6393 | 0.6899 | A+ | A- | A+ |
| MATH | 3 | 493230 | 0 | A-T | 1 | 88438 | 0.7563 | 0.0676 | 0.0765 | 0.0968 | 0.7476 | 0.0112 | 0.0003 | 0.4958 | -0.2825 | -0.2768 | -0.2135 | 0.4994 | -0.0842 | -0.0252 | -0.7961 | 0.0251 | -9.8991 | 0.8704 | -6.8292 | 0.8367 | A+ | A- | A- |
| MATH | 3 | 313562 | 0 | B-O | 2 | 87647 | 0.5444 | 0.1462 | 0.1223 | 0.5333 | 0.1779 | 0.0197 | 0.0006 | 0.4468 | -0.2429 | -0.2264 | 0.4473 | -0.139 | -0.0675 | -0.0254 | 0.2416 | 0.0229 | 5.5911 | 1.0531 | 4.0211 | 1.0613 | A+ | A+ | A+ |
| MATH | 3 | 314248 | 0 | B-O | 2 | 88013 | 0.736 | 0.0389 | 0.1684 | 0.724 | 0.0524 | 0.016 | 0.0002 | 0.6127 | -0.2318 | -0.4537 | 0.6125 | -0.2107 | -0.0951 | -0.0189 | -1.1457 | 0.0267 | -5.8891 | 0.9206 | -8.9493 | 0.749 | A- | A+ | A- |
| MATH | 3 | 314411 | 0 | B-O | 1 | 88249 | 0.7421 | 0.1697 | 0.0514 | 0.0333 | 0.732 | 0.0122 | 0.0014 | 0.6033 | -0.4517 | -0.2285 | -0.2079 | 0.6027 | -0.0722 | -0.0462 | -0.9863 | 0.0259 | -9.8992 | 0.8425 | -9.8993 | 0.6951 | A- | A+ | A+ |
| MATH | 3 | 314720 | 0 | B-O | 2 | 87769 | 0.601 | 0.0799 | 0.072 | 0.5896 | 0.2396 | 0.0187 | 0.0003 | 0.602 | -0.2604 | -0.0994 | 0.6004 | -0.4398 | -0.0813 | -0.0184 | 0.0265 | 0.023 | -9.8992 | 0.8299 | -9.8992 | 0.7778 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 3 | 314970 | 0 | B-O | 1 | 86663 | 0.597 | 0.1048 | 0.0529 | 0.5782 | 0.2327 | 0.0308 | 0.0006 | 0.3559 | -0.3166 | -0.218 | 0.361 | -0.0386 | -0.091 | -0.0195 | 0.0581 | 0.023 | 9.9011 | 1.1435 | 9.4512 | 1.1588 | A- | A- | A+ |
| MATH | 3 | 408681 | 0 | B-O | 2 | 87533 | 0.6018 | 0.5888 | 0.1431 | 0.0961 | 0.1503 | 0.0213 | 0.0003 | 0.4998 | 0.5022 | -0.194 | -0.1875 | -0.3078 | -0.0943 | -0.0173 | -0.1113 | 0.0232 | -2.519 | 0.9758 | -1.989 | 0.9659 | A- | A+ | A+ |
| MATH | 3 | 408686 | 0 | B-O | 2 | 87861 | 0.602 | 0.0985 | 0.5912 | 0.1667 | 0.1256 | 0.0172 | 0.0008 | 0.5467 | -0.282 | 0.5482 | -0.2004 | -0.2973 | -0.0889 | -0.0252 | 0.0058 | 0.0231 | -9.8991 | 0.8869 | -9.5791 | 0.8512 | A- | A+ | A+ |
| MATH | 3 | 408704 | 0 | B-O | 2 | 87904 | 0.542 | 0.1213 | 0.2098 | 0.5325 | 0.1189 | 0.0167 | 0.0008 | 0.4714 | -0.2946 | -0.1042 | 0.4744 | -0.2656 | -0.09 | -0.0217 | 0.0322 | 0.023 | 5.3011 | 1.051 | 5.6811 | 1.0946 | A+ | A+ | A+ |
| MATH | 3 | 495210 | 0 | B-O | 1 | 87581 | 0.7637 | 0.7476 | 0.113 | 0.078 | 0.0403 | 0.0207 | 0.0004 | 0.5185 | 0.5185 | -0.2646 | -0.2975 | -0.245 | -0.0921 | -0.0193 | -1.049 | 0.0262 | -5.7991 | 0.9253 | -7.0592 | 0.8078 | A+ | A+ | A+ |
| MATH | 3 | 495214 | 0 | B-O | 2 | 87725 | 0.433 | 0.4245 | 0.2059 | 0.234 | 0.116 | 0.0188 | 0.0006 | 0.2829 | 0.2889 | -0.136 | -0.1183 | -0.0764 | -0.0948 | -0.016 | 0.7198 | 0.023 | 9.9012 | 1.2064 | 9.9013 | 1.2856 | A- | A+ | A+ |
| MATH | 3 | 497737 | 0 | B-O | 2 | 86810 | 0.5181 | 0.5027 | 0.28 | 0.1154 | 0.0722 | 0.0288 | 0.0009 | 0.3549 | 0.3642 | -0.0829 | -0.2136 | -0.2162 | -0.1183 | -0.0294 | 0.8657 | 0.0231 | 9.9012 | 1.1948 | 9.9013 | 1.2946 | A- | A+ | A+ |
| MATH | 3 | 497739 | 0 | B-O | 2 | 88239 | 0.5796 | 0.0876 | 0.1787 | 0.5716 | 0.1483 | 0.0135 | 0.0003 | 0.5666 | -0.2566 | -0.3071 | 0.5683 | -0.2261 | -0.0896 | -0.0227 | 0.0301 | 0.023 | -9.7191 | 0.9107 | -8.0791 | 0.8748 | A- | A+ | A+ |
| MATH | 3 | 497744 | 0 | B-O | 2 | 87648 | 0.6057 | 0.1153 | 0.1028 | 0.1682 | 0.5933 | 0.0198 | 0.0006 | 0.582 | -0.2832 | -0.2878 | -0.2486 | 0.585 | -0.1146 | -0.023 | 0.1884 | 0.0229 | -9.8992 | 0.8431 | -9.8992 | 0.7978 | A- | A- | A- |
| MATH | 3 | 579642 | 0 | B-O | 1 | 86824 | 0.5408 | 0.1487 | 0.5248 | 0.0978 | 0.1991 | 0.0291 | 0.0004 | 0.3101 | -0.191 | 0.318 | -0.1049 | -0.106 | -0.1006 | -0.0226 | 0.5083 | 0.0229 | 9.9012 | 1.1936 | 9.9013 | 1.2604 | A- | A- | A+ |
| MATH | 3 | 312912 | 0 | C-G | 1 | 86662 | 0.3582 | 0.1346 | 0.2216 | 0.3469 | 0.2655 | 0.0305 | 0.0009 | 0.3745 | -0.1138 | -0.2471 | 0.3803 | -0.039 | -0.1258 | -0.0231 | 1.5774 | 0.0249 | 9.9012 | 1.1698 | 9.9015 | 1.4969 | A+ | A- | A- |
| MATH | 3 | 313475 | 0 | C-G | 1 | 87497 | 0.539 | 0.1105 | 0.5271 | 0.245 | 0.0954 | 0.0122 | 0.0099 | 0.5244 | -0.1502 | 0.5274 | -0.2491 | -0.3205 | -0.086 | -0.0561 | 0.1188 | 0.023 | -5.299 | 0.951 | -5.2691 | 0.9199 | A+ | A- | A+ |
| MATH | 3 | 313560 | 0 | C-G | 2 | 87859 | 0.6743 | 0.6622 | 0.0617 | 0.1968 | 0.0614 | 0.0159 | 0.0021 | 0.4799 | 0.4852 | -0.2202 | -0.2672 | -0.2339 | -0.0939 | -0.0527 | -0.6741 | 0.0246 | 3.281 | 1.0374 | 1.551 | 1.0368 | A+ | A- | A- |
| MATH | 3 | 565996 | 0 | C-G | 2 | 88289 | 0.4266 | 0.3459 | 0.421 | 0.1497 | 0.0703 | 0.013 | 0.0002 | 0.4284 | -0.2261 | 0.4308 | -0.1135 | -0.2149 | -0.084 | -0.0176 | 0.9143 | 0.0232 | 5.8211 | 1.0587 | 6.2711 | 1.0981 | A+ | A- | A+ |
| MATH | 3 | 314244 | 0 | D-M | 1 | 88178 | 0.4095 | 0.209 | 0.4036 | 0.3158 | 0.0572 | 0.0141 | 0.0003 | 0.4857 | -0.4245 | 0.4871 | -0.0812 | -0.0795 | -0.0835 | -0.017 | 0.9827 | 0.0233 | -2.759 | 0.9725 | -1.279 | 0.9802 | A+ | A+ | A- |
| MATH | 3 | 314728 | 0 | D-M | 1 | 88746 | 0.8008 | 0.0794 | 0.0442 | 0.7943 | 0.074 | 0.0079 | 0.0002 | 0.4189 | -0.1835 | -0.2314 | 0.4232 | -0.2563 | -0.0736 | -0.0184 | -1.3254 | 0.0278 | -1.919 | 0.9711 | 2.4311 | 1.0844 | A+ | A- | A- |
| MATH | 3 | 316238 | 0 | D-M | 1 | 88392 | 0.5575 | 0.2305 | 0.5508 | 0.1039 | 0.1028 | 0.0115 | 0.0005 | 0.4212 | -0.1929 | 0.4251 | -0.2278 | -0.1687 | -0.0827 | -0.0286 | -0.1877 | 0.0234 | 9.9011 | 1.137 | 7.6711 | 1.1442 | A- | A- | A- |
| MATH | 3 | 408723 | 0 | D-M | 1 | 88270 | 0.4682 | 0.2317 | 0.4619 | 0.1737 | 0.1193 | 0.012 | 0.0014 | 0.4512 | -0.1637 | 0.4538 | -0.2672 | -0.1417 | -0.0777 | -0.0417 | 0.6511 | 0.0229 | 2.241 | 1.0214 | 4.2611 | 1.0623 | A- | A+ | A+ |
| MATH | 3 | 408729 | 0 | D-M | 1 | 88371 | 0.45 | 0.4445 | 0.1151 | 0.1673 | 0.2609 | 0.0106 | 0.0017 | 0.4594 | 0.4614 | -0.178 | -0.1643 | -0.2321 | -0.0735 | -0.042 | 0.3127 | 0.0229 | 5.5911 | 1.0529 | 3.5111 | 1.0525 | A- | A+ | A+ |
| MATH | 3 | 493223 | 0 | D-M | 1 | 87348 | 0.5853 | 0.0857 | 0.1649 | 0.1543 | 0.5714 | 0.0232 | 0.0005 | 0.3987 | -0.1891 | -0.1667 | -0.1881 | 0.4087 | -0.1259 | -0.0233 | 0.2689 | 0.0229 | 8.2511 | 1.0788 | 7.7411 | 1.1195 | A+ | A- | A- |
| MATH | 3 | 493236 | 0 | D-M | 2 | 88504 | 0.4743 | 0.2077 | 0.189 | 0.1233 | 0.4692 | 0.0086 | 0.0022 | 0.4508 | -0.2228 | -0.2377 | -0.1049 | 0.4526 | -0.0693 | -0.0325 | 0.4662 | 0.0228 | 2.941 | 1.0277 | 3.8711 | 1.0565 | A- | A- | A- |
| MATH | 3 | 493241 | 0 | D-M | 1 | 87754 | 0.7787 | 0.0494 | 0.1179 | 0.7638 | 0.0498 | 0.0188 | 0.0003 | 0.3358 | -0.1953 | -0.168 | 0.3433 | -0.1708 | -0.0864 | -0.0237 | -0.8826 | 0.0254 | 2.481 | 1.0306 | 3.4011 | 1.0927 | A+ | A+ | A+ |
| MATH | 3 | 579661 | 0 | D-M | 2 | 88477 | 0.7725 | 0.0489 | 0.764 | 0.0456 | 0.1304 | 0.009 | 0.0021 | 0.5942 | -0.2134 | 0.5972 | -0.2167 | -0.4508 | -0.0827 | -0.06 | -0.9407 | 0.0257 | -9.8993 | 0.7263 | -9.8994 | 0.5841 | A- | A- | A- |
| MATH | 3 | 579663 | 0 | D-M | 2 | 88177 | 0.5452 | 0.1269 | 0.5373 | 0.0952 | 0.2262 | 0.0121 | 0.0023 | 0.4143 | -0.2632 | 0.4196 | -0.2107 | -0.1144 | -0.0805 | -0.0642 | 0.2854 | 0.0229 | 7.5011 | 1.0714 | 6.9911 | 1.107 | A+ | A- | A+ |
| MATH | 3 | 617236 | 1 | A-F | 2 | 10266 | 0.4348 | 0.2524 | 0.4284 | 0.1611 | 0.1434 | 0.0132 | 0.0014 | 0.3529 | -0.2441 | 0.3581 | -0.1581 | -0.0018 | -0.0929 | -0.0471 | 0.7127 | 0.0686 | 3.5411 | 1.102 | 3.8912 | 1.1767 | A+ | A- | A+ |
| MATH | 3 | 657723 | 1 | A-T | 2 | 10254 | 0.3559 | 0.2496 | 0.2275 | 0.3502 | 0.1568 | 0.0155 | 0.0004 | 0.0275 | 0.1875 | -0.0978 | 0.0341 | -0.1292 | -0.076 | -0.0042 | 0.9622 | 0.0697 | 9.9015 | 1.4552 | 9.9016 | 1.6177 | A- | A- | A- |
| MATH | 3 | 565994 | 1 | B-O | 1 | 10188 | 0.4106 | 0.0878 | 0.4015 | 0.3994 | 0.0892 | 0.0219 | 0.0003 | 0.2575 | -0.2862 | 0.2604 | 0.0233 | -0.1704 | -0.0625 | -0.0206 | 0.7695 | 0.0688 | 5.4112 | 1.1603 | 4.5812 | 1.2127 | A+ | A- | A+ |
| MATH | 3 | 659904 | 1 | B-O | 1 | 10151 | 0.5164 | 0.1256 | 0.1901 | 0.1554 | 0.5031 | 0.0251 | 0.0007 | 0.5674 | -0.3532 | -0.2213 | -0.1759 | 0.5682 | -0.1019 | -0.0212 | 0.3602 | 0.0681 | -6.1092 | 0.8428 | -4.8592 | 0.8027 | A- | A+ | A+ |
| MATH | 3 | 659911 | 1 | B-O | 1 | 10236 | 0.6895 | 0.6774 | 0.0853 | 0.1368 | 0.0829 | 0.0165 | 0.0011 | 0.3891 | 0.391 | -0.2786 | -0.1916 | -0.1075 | -0.0719 | -0.0102 | -0.5843 | 0.0724 | -0.029 | 0.9986 | 0.101 | 1.0051 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 3 | 622969 | 1 | C-G | 1 | 10176 | 0.4003 | 0.0531 | 0.2073 | 0.3909 | 0.3254 | 0.023 | 0.0003 | 0.4556 | -0.1334 | 0.0145 | 0.4582 | -0.3919 | -0.1031 | -0.0299 | 0.7948 | 0.0689 | -1.729 | 0.9515 | -1.1991 | 0.9475 | A+ | A- | A- |
| MATH | 3 | 662415 | 1 | D-M | 2 | 10270 | 0.5421 | 0.2017 | 0.5343 | 0.1207 | 0.129 | 0.0137 | 0.0006 | 0.4712 | -0.2208 | 0.4742 | -0.2276 | -0.19 | -0.0805 | -0.0302 | 0.2194 | 0.0682 | -2.0691 | 0.9444 | -1.9291 | 0.9148 | A- | A- | A- |
| MATH | 3 | 662422 | 1 | D-M | 2 | 10168 | 0.7018 | 0.6849 | 0.1164 | 0.0695 | 0.1051 | 0.0239 | 0.0002 | 0.2542 | 0.2676 | -0.1237 | -0.1282 | -0.1181 | -0.102 | -0.0177 | -0.6622 | 0.0732 | 4.2911 | 1.1492 | 4.0313 | 1.3039 | A+ | A- | A- |
| MATH | 3 | 657711 | 2 | A-F | 2 | 9712 | 0.3174 | 0.1859 | 0.2732 | 0.2126 | 0.3124 | 0.0153 | 0.0006 | 0.3694 | -0.197 | -0.0215 | -0.1812 | 0.3726 | -0.0955 | -0.0238 | 1.4886 | 0.0738 | 1.5911 | 1.0565 | 3.0712 | 1.1895 | A+ | A+ | A+ |
| MATH | 3 | 617237 | 2 | A-T | 1 | 9720 | 0.547 | 0.2684 | 0.1071 | 0.5388 | 0.0706 | 0.0148 | 0.0003 | 0.6304 | -0.4556 | -0.1923 | 0.6267 | -0.1697 | -0.0601 | -0.0201 | 0.2163 | 0.0683 | -8.4292 | 0.7844 | -7.2393 | 0.7283 | B- | A+ | A+ |
| MATH | 3 | 659909 | 2 | B-O | 2 | 9745 | 0.6475 | 0.1147 | 0.6394 | 0.1123 | 0.1211 | 0.012 | 0.0006 | 0.5062 | -0.2081 | 0.5076 | -0.2671 | -0.2584 | -0.0744 | -0.0285 | -0.2812 | 0.0702 | -3.2591 | 0.9069 | -3.5892 | 0.8247 | A+ | A- | A+ |
| MATH | 3 | 659916 | 2 | B-O | 2 | 9653 | 0.21 | 0.3758 | 0.2054 | 0.2993 | 0.0976 | 0.0215 | 0.0004 | -0.0407 | -0.1425 | -0.0327 | 0.2598 | -0.0765 | -0.094 | -0.0212 | 2.1479 | 0.0829 | 6.3713 | 1.3206 | 9.9021 | 2.1227 | A+ | A+ | A- |
| MATH | 3 | 617228 | 2 | C-G | 1 | 9714 | 0.5083 | 0.1483 | 0.1449 | 0.5004 | 0.1907 | 0.0148 | 0.0009 | 0.4026 | -0.2448 | -0.166 | 0.4065 | -0.1189 | -0.0882 | -0.015 | 0.4923 | 0.0683 | 1.431 | 1.04 | 0.771 | 1.0304 | A+ | A- | A- |
| MATH | 3 | 659922 | 2 | C-G | 1 | 9695 | 0.6983 | 0.686 | 0.1457 | 0.0918 | 0.0589 | 0.0171 | 0.0005 | 0.211 | 0.2198 | -0.1277 | -0.0886 | -0.0903 | -0.0726 | -0.0298 | -0.392 | 0.0709 | 7.8613 | 1.2569 | 7.2415 | 1.4536 | A+ | A- | A+ |
| MATH | 3 | 622961 | 2 | D-M | 1 | 9679 | 0.3532 | 0.1999 | 0.2133 | 0.3464 | 0.2211 | 0.0187 | 0.0005 | 0.3759 | -0.1285 | -0.0134 | 0.3789 | -0.2669 | -0.0909 | -0.0137 | 1.2492 | 0.0716 | 3.1811 | 1.1062 | 5.0413 | 1.2793 | A- | A- | A- |
| MATH | 3 | 662426 | 2 | D-M | 2 | 9675 | 0.224 | 0.2463 | 0.2428 | 0.2196 | 0.2717 | 0.0188 | 0.0008 | -0.0097 | -0.0475 | -0.1099 | -0.0031 | 0.1816 | -0.0795 | -0.038 | 1.9349 | 0.0794 | 8.3214 | 1.3882 | 9.902 | 2.0184 | A+ | A- | A- |
| MATH | 3 | 657716 | 3 | A-F | 2 | 9688 | 0.5214 | 0.2079 | 0.5108 | 0.1725 | 0.0885 | 0.0186 | 0.0016 | 0.4156 | -0.1677 | 0.4196 | -0.1668 | -0.2297 | -0.0894 | -0.033 | 0.3863 | 0.069 | 1.8211 | 1.0527 | 1.2911 | 1.059 | A- | A- | A+ |
| MATH | 3 | 621398 | 3 | A-T | 2 | 9739 | 0.5312 | 0.5232 | 0.1371 | 0.2068 | 0.1178 | 0.0149 | 0.0002 | 0.4365 | 0.4369 | -0.1408 | -0.2158 | -0.2308 | -0.0643 | -0.0138 | 0.3386 | 0.069 | 0.271 | 1.0074 | -0.079 | 0.9958 | A+ | A- | A+ |
| MATH | 3 | 657718 | 3 | A-T | 3 | 9683 | 0.391 | 0.1146 | 0.3235 | 0.1583 | 0.3829 | 0.0192 | 0.0015 | 0.1829 | -0.2346 | 0.1016 | -0.1416 | 0.1904 | -0.0997 | 0 | 1.1418 | 0.0709 | 8.5413 | 1.2914 | 8.3215 | 1.4822 | A- | A+ | A+ |
| MATH | 3 | 624787 | 3 | B-O | 1 | 9615 | 0.4966 | 0.1397 | 0.178 | 0.1718 | 0.4829 | 0.0271 | 0.0005 | 0.3588 | -0.1895 | -0.0994 | -0.1634 | 0.3651 | -0.1012 | -0.0298 | 0.5307 | 0.0689 | 3.7511 | 1.111 | 2.9011 | 1.1347 | A- | A- | A+ |
| MATH | 3 | 659906 | 3 | B-O | 2 | 9669 | 0.7653 | 0.104 | 0.7484 | 0.0747 | 0.0508 | 0.022 | 0.0001 | 0.5017 | -0.2534 | 0.5009 | -0.2825 | -0.2411 | -0.0872 | -0.0024 | -0.9964 | 0.0789 | -2.1291 | 0.9175 | -0.6191 | 0.9429 | A+ | A+ | A- |
| MATH | 3 | 659919 | 3 | C-G | 1 | 9615 | 0.7381 | 0.1291 | 0.0618 | 0.7177 | 0.0637 | 0.0215 | 0.0061 | 0.392 | -0.2092 | -0.1791 | 0.397 | -0.2026 | -0.0701 | -0.0743 | -0.7318 | 0.0754 | -0.339 | 0.9876 | 0.7411 | 1.0562 | A+ | A- | A- |
| MATH | 3 | 579660 | 3 | D-M | 1 | 9757 | 0.6697 | 0.0805 | 0.6608 | 0.159 | 0.0865 | 0.012 | 0.0012 | 0.5529 | -0.2104 | 0.5537 | -0.2617 | -0.3558 | -0.0721 | -0.0376 | -0.3943 | 0.0722 | -3.9091 | 0.8799 | -2.8392 | 0.8282 | A- | B- | A- |
| MATH | 3 | 662425 | 3 | D-M | 2 | 9693 | 0.4501 | 0.2191 | 0.1726 | 0.1474 | 0.4412 | 0.0183 | 0.0014 | 0.4669 | -0.1839 | -0.1721 | -0.2277 | 0.4666 | -0.0798 | 0.0229 | 0.7786 | 0.0693 | -0.339 | 0.9898 | 0.861 | 1.0385 | A- | A- | A- |
| MATH | 3 | 653746 | 4 | A-F | 2 | 9769 | 0.2464 | 0.1633 | 0.0443 | 0.536 | 0.2432 | 0.0123 | 0.0008 | 0.486 | -0.0854 | -0.1275 | -0.2828 | 0.4864 | -0.0816 | -0.0278 | 1.8844 | 0.0782 | -4.1892 | 0.8396 | -0.289 | 0.9772 | B- | A- | A- |
| MATH | 3 | 617235 | 4 | A-T | 2 | 9647 | 0.3959 | 0.2427 | 0.1582 | 0.3858 | 0.1879 | 0.0249 | 0.0006 | 0.3697 | -0.1609 | -0.1222 | 0.368 | -0.1477 | -0.0495 | -0.0063 | 1.0283 | 0.0701 | 3.3511 | 1.1048 | 5.0312 | 1.249 | A+ | A+ | A- |
| MATH | 3 | 617234 | 4 | B-O | 2 | 9577 | 0.4468 | 0.4323 | 0.2001 | 0.1902 | 0.1449 | 0.0322 | 0.0003 | 0.1232 | 0.1336 | -0.0164 | -0.0519 | -0.0669 | -0.087 | -0.0186 | 0.7799 | 0.0691 | 9.9014 | 1.3838 | 9.9015 | 1.5087 | A+ | A+ | A+ |
| MATH | 3 | 659903 | 4 | B-O | 2 | 9731 | 0.5313 | 0.1333 | 0.5223 | 0.1439 | 0.1836 | 0.0165 | 0.0005 | 0.5192 | -0.1894 | 0.5204 | -0.2375 | -0.2623 | -0.0823 | -0.0074 | 0.3136 | 0.0686 | -1.9191 | 0.947 | -1.6691 | 0.9294 | A- | A+ | A- |
| MATH | 3 | 659914 | 4 | B-O | 1 | 9650 | 0.1883 | 0.4916 | 0.1032 | 0.1836 | 0.1965 | 0.025 | 0.0002 | 0.018 | 0.3919 | -0.2068 | 0.023 | -0.3298 | -0.0677 | -0.0212 | 2.3289 | 0.0855 | 6.6214 | 1.3599 | 9.9024 | 2.4394 | A+ | A- | A+ |
| MATH | 3 | 659921 | 4 | C-G | 1 | 9771 | 0.8472 | 0.0394 | 0.8362 | 0.0531 | 0.0583 | 0.0112 | 0.0017 | 0.4614 | -0.218 | 0.4678 | -0.2432 | -0.2752 | -0.0896 | -0.0538 | -1.5726 | 0.0889 | -4.1392 | 0.7977 | -4.2894 | 0.5747 | A+ | A- | A- |
| MATH | 3 | 579658 | 4 | D-M | 2 | 9743 | 0.5157 | 0.2591 | 0.5075 | 0.1647 | 0.0529 | 0.0155 | 0.0003 | 0.2804 | -0.1975 | 0.2866 | -0.0255 | -0.1619 | -0.0866 | -0.0206 | 0.3895 | 0.0686 | 5.6612 | 1.1669 | 4.4512 | 1.1987 | A- | A- | A- |
| MATH | 3 | 662421 | 4 | D-M | 2 | 9742 | 0.2765 | 0.335 | 0.2674 | 0.1096 | 0.2721 | 0.0156 | 0.0003 | 0.4049 | -0.2105 | -0.0611 | -0.1366 | 0.4069 | -0.0935 | -0.0247 | 1.6927 | 0.0757 | -1.8691 | 0.9313 | -0.009 | 0.9977 | A- | A- | A- |
| MATH | 3 | 621404 | 5 | A-F | 1 | 9758 | 0.359 | 0.1135 | 0.148 | 0.354 | 0.3707 | 0.0136 | 0.0002 | 0.2442 | -0.2961 | -0.2504 | 0.2465 | 0.1487 | -0.0577 | -0.0101 | 1.21 | 0.0722 | 6.7212 | 1.2422 | 6.3514 | 1.3658 | A+ | A+ | A+ |
| MATH | 3 | 621395 | 5 | A-T | 1 | 9617 | 0.7038 | 0.1156 | 0.684 | 0.0809 | 0.0914 | 0.0275 | 0.0006 | 0.4724 | -0.172 | 0.4737 | -0.2474 | -0.2827 | -0.0944 | -0.0357 | -0.5473 | 0.0718 | -5.0391 | 0.8524 | -4.2793 | 0.744 | A- | A- | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 3 | 657719 | 5 | A-T | 2 | 9738 | 0.537 | 0.5284 | 0.1701 | 0.1256 | 0.16 | 0.0158 | 0.0001 | 0.4905 | 0.4936 | -0.1299 | -0.2523 | -0.2783 | -0.0945 | -0.019 | 0.2846 | 0.0685 | -1.669 | 0.9543 | -1.4791 | 0.9355 | A- | A- | A- |
| MATH | 3 | 653750 | 5 | B-O | 2 | 9655 | 0.4908 | 0.1469 | 0.4789 | 0.1875 | 0.1624 | 0.0239 | 0.0004 | 0.1756 | -0.1935 | 0.1872 | -0.0425 | 0.0229 | -0.109 | -0.013 | 0.5403 | 0.0688 | 9.9013 | 1.3153 | 8.8714 | 1.4291 | A+ | A- | A+ |
| MATH | 3 | 659910 | 5 | B-O | 2 | 9635 | 0.556 | 0.1145 | 0.1541 | 0.1637 | 0.5414 | 0.0257 | 0.0006 | 0.5029 | -0.2732 | -0.2174 | -0.1974 | 0.5006 | -0.0664 | -0.0164 | 0.2179 | 0.0685 | -1.9991 | 0.9456 | -0.979 | 0.9556 | A+ | A+ | A+ |
| MATH | 3 | 579647 | 5 | C-G | 2 | 9798 | 0.6259 | 0.6198 | 0.2615 | 0.0643 | 0.0446 | 0.0096 | 0.0002 | 0.3229 | 0.3291 | -0.1204 | -0.2149 | -0.2214 | -0.0836 | -0.0225 | -0.1932 | 0.0696 | 4.5011 | 1.1323 | 3.9112 | 1.2246 | A- | A- | A- |
| MATH | 3 | 579665 | 5 | D-M | 2 | 9753 | 0.4791 | 0.1623 | 0.4723 | 0.16 | 0.1911 | 0.0135 | 0.0008 | 0.4652 | -0.141 | 0.4676 | -0.2157 | -0.2329 | -0.0862 | -0.031 | 0.5749 | 0.0689 | -1.129 | 0.9679 | -0.229 | 0.9895 | A- | A+ | A+ |
| MATH | 3 | 653753 | 5 | D-M | 2 | 9722 | 0.4255 | 0.143 | 0.2169 | 0.2045 | 0.4181 | 0.0152 | 0.0023 | 0.3762 | -0.2903 | -0.1271 | -0.0516 | 0.3806 | -0.0812 | -0.0627 | 0.8593 | 0.0699 | 3.0211 | 1.094 | 3.6112 | 1.1706 | A- | A- | A- |
| MATH | 3 | 657712 | 6 | A-F | 1 | 9734 | 0.6016 | 0.5945 | 0.1887 | 0.049 | 0.1559 | 0.0111 | 0.0008 | 0.4352 | 0.4399 | -0.1909 | -0.2047 | -0.2397 | -0.0887 | -0.0298 | -0.0114 | 0.0703 | 1.191 | 1.0359 | 1.5211 | 1.0817 | A+ | A- | A- |
| MATH | 3 | 657720 | 6 | A-T | 2 | 9669 | 0.3848 | 0.4288 | 0.3777 | 0.0718 | 0.1032 | 0.0182 | 0.0003 | 0.398 | -0.109 | 0.4013 | -0.1993 | -0.2473 | -0.1014 | -0.0215 | 1.1262 | 0.0707 | 1.061 | 1.0328 | 2.1411 | 1.1086 | A- | A- | A+ |
| MATH | 3 | 579680 | 6 | B-O | 2 | 9730 | 0.2669 | 0.2276 | 0.242 | 0.2636 | 0.2545 | 0.0115 | 0.0008 | 0.0274 | -0.0049 | 0.0358 | 0.0314 | -0.0461 | -0.0588 | -0.0264 | 1.8034 | 0.0762 | 9.9015 | 1.5027 | 9.9022 | 2.2466 | A+ | A- | A+ |
| MATH | 3 | 624788 | 6 | B-O | 2 | 9687 | 0.4937 | 0.1385 | 0.126 | 0.4854 | 0.2335 | 0.0161 | 0.0005 | 0.4581 | -0.2635 | -0.2333 | 0.4604 | -0.12 | -0.0833 | -0.0187 | 0.555 | 0.0691 | -0.449 | 0.9867 | 0.661 | 1.0288 | A+ | A+ | A+ |
| MATH | 3 | 622957 | 6 | C-G | 1 | 9654 | 0.7807 | 0.05 | 0.1176 | 0.0473 | 0.7651 | 0.0153 | 0.0047 | 0.4692 | -0.248 | -0.2804 | -0.197 | 0.4747 | -0.0925 | -0.0535 | -1.0002 | 0.0796 | -3.5791 | 0.8621 | -1.9492 | 0.8296 | B+ | A- | A- |
| MATH | 3 | 659918 | 6 | C-G | 2 | 9310 | 0.5772 | 0.0693 | 0.5455 | 0.1462 | 0.184 | 0.0539 | 0.001 | 0.3703 | -0.2038 | 0.3599 | -0.2247 | -0.0947 | -0.0498 | -0.0027 | 0.2442 | 0.0694 | 2.6311 | 1.079 | 1.5411 | 1.074 | A- | A- | A+ |
| MATH | 3 | 579651 | 6 | D-M | 2 | 9495 | 0.3562 | 0.2976 | 0.3433 | 0.1658 | 0.1571 | 0.0358 | 0.0003 | 0.2961 | -0.1135 | 0.2976 | -0.1399 | -0.0644 | -0.0747 | -0.0047 | 1.3191 | 0.0718 | 3.9011 | 1.1307 | 4.5313 | 1.2635 | A- | A+ | A- |
| MATH | 3 | 579662 | 6 | D-M | 2 | 9752 | 0.6789 | 0.0919 | 0.0753 | 0.1506 | 0.6721 | 0.0098 | 0.0002 | 0.5563 | -0.2885 | -0.3349 | -0.2297 | 0.5584 | -0.0806 | -0.0219 | -0.434 | 0.073 | -5.0492 | 0.8432 | -3.7592 | 0.7701 | A+ | A- | A- |
| MATH | 3 | 617239 | 7 | A-F | 2 | 9689 | 0.5244 | 0.1178 | 0.2062 | 0.1433 | 0.5153 | 0.0161 | 0.0012 | 0.4776 | -0.2925 | -0.1815 | -0.1725 | 0.4794 | -0.0826 | -0.0284 | 0.3746 | 0.0682 | -2.0891 | 0.943 | -1.6891 | 0.9285 | A+ | A- | A+ |
| MATH | 3 | 657715 | 7 | A-F | 1 | 9485 | 0.3646 | 0.3553 | 0.1576 | 0.3507 | 0.0984 | 0.0198 | 0.0183 | 0.2779 | -0.037 | -0.2091 | 0.2705 | -0.1101 | -0.0916 | 0.0773 | 1.2423 | 0.0716 | 5.8412 | 1.1994 | 5.3213 | 1.3088 | A+ | A- | A- |
| MATH | 3 | 653839 | 7 | A-T | 1 | 9677 | 0.6126 | 0.169 | 0.6012 | 0.1109 | 0.1004 | 0.0183 | 0.0003 | 0.5298 | -0.3172 | 0.5328 | -0.1554 | -0.2632 | -0.1017 | -0.0292 | -0.0694 | 0.0691 | -3.4891 | 0.9038 | -2.8591 | 0.8637 | A- | A- | A- |
| MATH | 3 | 624783 | 7 | B-O | 2 | 9594 | 0.3007 | 0.2926 | 0.1941 | 0.298 | 0.1883 | 0.0265 | 0.0005 | 0.1573 | 0.1646 | -0.0592 | 0.1277 | -0.2395 | -0.0989 | -0.0166 | 1.5812 | 0.0748 | 6.6913 | 1.2624 | 7.8516 | 1.5898 | A- | A- | A+ |
| MATH | 3 | 659917 | 7 | B-O | 2 | 9704 | 0.3565 | 0.2724 | 0.2186 | 0.3508 | 0.1424 | 0.0156 | 0.0002 | 0.2881 | -0.0963 | -0.1648 | 0.292 | -0.0482 | -0.0889 | -0.0321 | 1.2417 | 0.0716 | 5.4512 | 1.1851 | 5.8213 | 1.3408 | A+ | A+ | A- |
| MATH | 3 | 622966 | 7 | C-G | 1 | 9606 | 0.5022 | 0.4892 | 0.3318 | 0.129 | 0.0241 | 0.0182 | 0.0076 | 0.2481 | 0.2557 | -0.1972 | 0.0077 | -0.1515 | -0.0859 | -0.0324 | 0.5081 | 0.0683 | 7.7812 | 1.232 | 6.6113 | 1.3084 | A+ | A+ | A+ |
| MATH | 3 | 579649 | 7 | D-M | 2 | 9635 | 0.4609 | 0.1461 | 0.1839 | 0.4504 | 0.1968 | 0.0224 | 0.0004 | 0.4657 | -0.2185 | -0.1723 | 0.4644 | -0.1929 | -0.0674 | -0.0225 | 0.7083 | 0.0687 | -1.159 | 0.967 | -0.519 | 0.977 | A- | A- | A- |
| MATH | 3 | 579657 | 7 | D-M | 1 | 9660 | 0.414 | 0.1033 | 0.4056 | 0.2257 | 0.2451 | 0.0197 | 0.0006 | 0.1914 | -0.1736 | 0.201 | -0.0709 | 0.0008 | -0.1152 | -0.0219 | 0.9434 | 0.0697 | 9.8013 | 1.3194 | 8.9615 | 1.4748 | A- | A- | A+ |
| MATH | 3 | 657713 | 8 | A-F | 1 | 9672 | 0.6213 | 0.6091 | 0.1834 | 0.0912 | 0.0967 | 0.0191 | 0.0006 | 0.5051 | 0.5068 | -0.2401 | -0.2419 | -0.2447 | -0.0859 | -0.0284 | -0.1298 | 0.0698 | -2.9091 | 0.9181 | -3.1492 | 0.8398 | A- | A- | A- |
| MATH | 3 | 657721 | 8 | A-T | 1 | 9685 | 0.6142 | 0.1154 | 0.2139 | 0.603 | 0.0494 | 0.0179 | 0.0004 | 0.5869 | -0.1835 | -0.4181 | 0.5853 | -0.2127 | -0.0728 | -0.0298 | -0.0972 | 0.0697 | -5.6492 | 0.846 | -4.6592 | 0.7729 | B- | A- | A- |
| MATH | 3 | 579672 | 8 | B-O | 2 | 9699 | 0.1705 | 0.3519 | 0.329 | 0.1345 | 0.1676 | 0.0163 | 0.0006 | 0.1971 | -0.1904 | 0.1071 | -0.0683 | 0.1993 | -0.0782 | -0.0262 | 2.4886 | 0.0896 | 2.6011 | 1.1443 | 7.292 | 1.9717 | A- | A- | A- |
| MATH | 3 | 624782 | 8 | B-O | 1 | 9684 | 0.8525 | 0.8368 | 0.0501 | 0.0564 | 0.0383 | 0.0183 | 0.0001 | 0.4398 | 0.4366 | -0.2506 | -0.2797 | -0.1683 | -0.0721 | -0.019 | -1.5846 | 0.0885 | -0.059 | 0.9962 | -0.7791 | 0.9053 | A+ | A+ | A+ |
| MATH | 3 | 653751 | 8 | C-G | 2 | 9663 | 0.5179 | 0.111 | 0.5072 | 0.1164 | 0.2449 | 0.02 | 0.0006 | 0.3055 | -0.1633 | 0.3138 | -0.1939 | -0.0651 | -0.1071 | -0.0169 | 0.405 | 0.0687 | 5.1912 | 1.1532 | 4.2412 | 1.2002 | A- | A- | A- |
| MATH | 3 | 622956 | 8 | D-M | 1 | 9759 | 0.7059 | 0.0948 | 0.1141 | 0.082 | 0.6983 | 0.0104 | 0.0004 | 0.5555 | -0.3764 | -0.195 | -0.2721 | 0.5575 | -0.0816 | -0.035 | -0.6291 | 0.0733 | -6.1492 | 0.8111 | -4.3893 | 0.7206 | B- | A- | A- |
| MATH | 3 | 622963 | 8 | D-M | 1 | 9747 | 0.5203 | 0.093 | 0.514 | 0.2364 | 0.1445 | 0.0117 | 0.0004 | 0.3197 | -0.2074 | 0.3241 | -0.0083 | -0.255 | -0.0792 | -0.0008 | 0.3697 | 0.0687 | 6.0912 | 1.1808 | 5.1312 | 1.247 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 3 | 624775 | 8 | D-M | 2 | 9724 | 0.2049 | 0.0693 | 0.2019 | 0.4489 | 0.2655 | 0.0139 | 0.0005 | 0.1538 | -0.1469 | 0.1571 | 0.0799 | -0.1258 | -0.0776 | -0.0371 | 2.2075 | 0.084 | 3.7612 | 1.1872 | 6.4717 | 1.6977 | A- | A- | A- |
| MATH | 3 | 657714 | 9 | A-F | 2 | 9711 | 0.5175 | 0.3181 | 0.5065 | 0.0917 | 0.0625 | 0.0195 | 0.0018 | 0.3431 | -0.1504 | 0.346 | -0.2271 | -0.1103 | -0.0745 | -0.0092 | 0.4254 | 0.0682 | 4.8411 | 1.1383 | 3.9812 | 1.1793 | A- | A- | A- |
| MATH | 3 | 657722 | 9 | A-T | 1 | 9756 | 0.7623 | 0.0792 | 0.7495 | 0.0615 | 0.093 | 0.0161 | 0.0006 | 0.4828 | -0.2773 | 0.4882 | -0.2689 | -0.201 | -0.1023 | -0.0298 | -0.9146 | 0.0771 | -3.4191 | 0.8742 | -3.2292 | 0.7631 | A- | A- | A- |
| MATH | 3 | 624774 | 9 | B-O | 2 | 9785 | 0.386 | 0.2196 | 0.1321 | 0.3807 | 0.2538 | 0.0126 | 0.0012 | 0.0841 | 0.0439 | -0.1773 | 0.0917 | 0.0195 | -0.0908 | -0.0292 | 1.0832 | 0.0701 | 9.9013 | 1.3423 | 9.9016 | 1.5919 | A+ | A- | A- |
| MATH | 3 | 659913 | 9 | B-O | 2 | 9758 | 0.3893 | 0.1636 | 0.2179 | 0.2191 | 0.3829 | 0.0158 | 0.0007 | 0.4369 | -0.2877 | -0.1731 | -0.0577 | 0.4387 | -0.0868 | -0.0256 | 1.0712 | 0.07 | -0.659 | 0.9802 | -0.199 | 0.9898 | A- | A+ | A+ |
| MATH | 3 | 659920 | 9 | C-G | 2 | 9831 | 0.251 | 0.3912 | 0.1737 | 0.1773 | 0.2487 | 0.009 | 0.0002 | 0.1811 | 0.0818 | -0.1519 | -0.1404 | 0.1841 | -0.0872 | -0.0079 | 1.8672 | 0.0778 | 3.0411 | 1.1253 | 6.8816 | 1.6065 | A- | A- | A+ |
| MATH | 3 | 579664 | 9 | D-M | 2 | 9802 | 0.7649 | 0.1077 | 0.7557 | 0.0753 | 0.0492 | 0.0095 | 0.0026 | 0.5242 | -0.3168 | 0.5327 | -0.2684 | -0.2124 | -0.1044 | -0.0743 | -0.9544 | 0.0776 | -4.8792 | 0.821 | -4.4093 | 0.6817 | A+ | B- | A- |
| MATH | 3 | 621405 | 9 | D-M | 2 | 9776 | 0.2627 | 0.0987 | 0.3175 | 0.2588 | 0.3103 | 0.0144 | 0.0003 | 0.0467 | -0.185 | -0.1976 | 0.0523 | 0.291 | -0.0851 | -0.0145 | 1.8006 | 0.0768 | 9.0414 | 1.3912 | 9.9019 | 1.9283 | A- | A- | A- |
| MATH | 3 | 662412 | 9 | D-M | 2 | 9679 | 0.5846 | 0.5702 | 0.204 | 0.0943 | 0.1069 | 0.0237 | 0.0008 | 0.4833 | 0.4876 | -0.21 | -0.1601 | -0.3001 | -0.1088 | -0.0233 | 0.0969 | 0.0688 | -1.439 | 0.9599 | -1.4191 | 0.9347 | A- | A- | A- |
| MATH | 4 | 313261 | 0 | A-F | 1 | 87250 | 0.6478 | 0.229 | 0.0802 | 0.6448 | 0.0414 | 0.0036 | 0.001 | 0.3413 | -0.1347 | -0.2522 | 0.3441 | -0.1785 | -0.0495 | -0.0329 | -0.6279 | 0.0232 | 7.9811 | 1.0777 | 6.7011 | 1.1221 | A+ | A+ | A+ |
| MATH | 4 | 314656 | 0 | A-F | 2 | 86841 | 0.5571 | 0.1376 | 0.1847 | 0.1165 | 0.552 | 0.0072 | 0.0021 | 0.6006 | -0.2835 | -0.2742 | -0.2695 | 0.6031 | -0.0893 | -0.0409 | -0.2593 | 0.0228 | -9.8992 | 0.83 | -9.8992 | 0.7732 | A- | A- | A- |
| MATH | 4 | 408553 | 0 | A-F | 1 | 87003 | 0.4981 | 0.0894 | 0.1418 | 0.2669 | 0.4944 | 0.0055 | 0.0019 | 0.5058 | -0.1661 | -0.2895 | -0.2227 | 0.5078 | -0.0686 | -0.0436 | -0.0019 | 0.0227 | -6.8091 | 0.9389 | -6.4991 | 0.912 | A- | A- | A- |
| MATH | 4 | 408560 | 0 | A-F | 2 | 87028 | 0.6684 | 0.6636 | 0.0898 | 0.1016 | 0.1378 | 0.0043 | 0.0028 | 0.3653 | 0.3707 | -0.1513 | -0.1854 | -0.1993 | -0.0709 | -0.0481 | -0.836 | 0.0236 | 6.0411 | 1.0616 | 2.9611 | 1.0591 | A- | A+ | A+ |
| MATH | 4 | 408563 | 0 | A-F | 1 | 86804 | 0.5176 | 0.5126 | 0.1734 | 0.2019 | 0.1024 | 0.0077 | 0.002 | 0.5656 | 0.5676 | -0.2642 | -0.3487 | -0.1148 | -0.0816 | -0.0389 | -0.4292 | 0.0229 | -9.3691 | 0.9162 | -8.0591 | 0.8772 | A- | A+ | A- |
| MATH | 4 | 408635 | 0 | A-F | 1 | 87010 | 0.7776 | 0.107 | 0.7719 | 0.0617 | 0.0521 | 0.0056 | 0.0017 | 0.4115 | -0.2358 | 0.417 | -0.2235 | -0.1855 | -0.0706 | -0.0441 | -1.4363 | 0.0258 | -6.9491 | 0.9138 | -4.7991 | 0.8732 | A+ | A+ | A+ |
| MATH | 4 | 408639 | 0 | A-F | 2 | 87123 | 0.485 | 0.0799 | 0.3618 | 0.4821 | 0.0702 | 0.0045 | 0.0016 | 0.4431 | -0.2424 | -0.2014 | 0.4451 | -0.2125 | -0.0565 | -0.0463 | 0.2995 | 0.0229 | 6.7011 | 1.0651 | 6.4511 | 1.0935 | A- | A+ | A+ |
| MATH | 4 | 408641 | 0 | A-F | 2 | 87053 | 0.3909 | 0.3276 | 0.3882 | 0.1031 | 0.1743 | 0.0051 | 0.0018 | 0.3069 | -0.0293 | 0.31 | -0.2212 | -0.1668 | -0.0707 | -0.0417 | 0.4639 | 0.0231 | 9.9012 | 1.1746 | 9.9013 | 1.2671 | A- | A+ | A+ |
| MATH | 4 | 479188 | 0 | A-F | 1 | 86861 | 0.4699 | 0.1094 | 0.2568 | 0.4657 | 0.1591 | 0.0073 | 0.0017 | 0.4898 | -0.23 | -0.2384 | 0.4925 | -0.1667 | -0.0812 | -0.0442 | 0.2783 | 0.0229 | -1.889 | 0.9821 | 0.531 | 1.0074 | A- | A+ | A+ |
| MATH | 4 | 493258 | 0 | A-F | 1 | 87289 | 0.6596 | 0.0957 | 0.6568 | 0.1119 | 0.1314 | 0.0033 | 0.0009 | 0.4927 | -0.1957 | 0.4941 | -0.1632 | -0.3609 | -0.0477 | -0.0316 | -0.8909 | 0.0238 | -6.4591 | 0.9356 | -5.6691 | 0.8897 | A+ | A- | A- |
| MATH | 4 | 575742 | 0 | A-F | 2 | 87012 | 0.5649 | 0.138 | 0.1791 | 0.1148 | 0.5608 | 0.0056 | 0.0017 | 0.3982 | -0.1988 | -0.1174 | -0.247 | 0.4023 | -0.0757 | -0.0402 | 0.1251 | 0.0228 | 9.9011 | 1.1167 | 9.6011 | 1.1387 | A+ | A+ | A+ |
| MATH | 4 | 313455 | 0 | A-T | 2 | 86783 | 0.4316 | 0.2389 | 0.1726 | 0.1513 | 0.4273 | 0.0078 | 0.0022 | 0.5049 | -0.1733 | -0.212 | -0.2441 | 0.5073 | -0.0896 | -0.0352 | 0.6761 | 0.0235 | 1.671 | 1.0174 | 4.0911 | 1.0667 | A- | A- | A- |
| MATH | 4 | 313456 | 0 | A-T | 2 | 87033 | 0.4713 | 0.176 | 0.4679 | 0.1594 | 0.1896 | 0.0055 | 0.0016 | 0.457 | -0.1904 | 0.4593 | -0.2239 | -0.1734 | -0.0694 | -0.0404 | 0.0271 | 0.0227 | 1.501 | 1.0138 | 1.481 | 1.0206 | A- | A+ | A+ |
| MATH | 4 | 314196 | 0 | A-T | 1 | 86928 | 0.8179 | 0.0697 | 0.0604 | 0.0505 | 0.8111 | 0.0043 | 0.004 | 0.4822 | -0.266 | -0.2568 | -0.246 | 0.4865 | -0.0712 | -0.0477 | -1.8771 | 0.0284 | -8.7691 | 0.8648 | -9.8993 | 0.6808 | A- | A- | A- |
| MATH | 4 | 408574 | 0 | A-T | 1 | 87166 | 0.7487 | 0.0669 | 0.1032 | 0.0798 | 0.7445 | 0.0036 | 0.002 | 0.4977 | -0.287 | -0.2497 | -0.241 | 0.5002 | -0.055 | -0.0415 | -1.0442 | 0.0242 | -9.8992 | 0.7975 | -9.8993 | 0.7403 | A- | A+ | A+ |
| MATH | 4 | 479174 | 0 | A-T | 2 | 86817 | 0.3508 | 0.154 | 0.3474 | 0.1725 | 0.3165 | 0.0075 | 0.0021 | 0.2599 | -0.181 | 0.264 | -0.1416 | 0.0048 | -0.0816 | -0.0453 | 0.6899 | 0.0236 | 9.9012 | 1.2162 | 9.9013 | 1.3313 | A- | A+ | A+ |
| MATH | 4 | 495206 | 0 | A-T | 1 | 87219 | 0.5519 | 0.0924 | 0.1651 | 0.1884 | 0.5491 | 0.004 | 0.001 | 0.4198 | -0.1877 | -0.1782 | -0.2178 | 0.4215 | -0.0526 | -0.0241 | -0.4642 | 0.023 | 8.0011 | 1.0757 | 8.7111 | 1.1473 | A+ | A+ | A+ |
| MATH | 4 | 313459 | 0 | B-O | 2 | 87048 | 0.6884 | 0.0951 | 0.0703 | 0.6836 | 0.1441 | 0.0047 | 0.0022 | 0.5247 | -0.3019 | -0.2838 | 0.5283 | -0.2204 | -0.0725 | -0.0468 | -0.655 | 0.0233 | -9.8992 | 0.8296 | -9.8992 | 0.7561 | A- | A+ | A+ |
| MATH | 4 | 313738 | 0 | B-O | 2 | 87138 | 0.692 | 0.688 | 0.1475 | 0.0756 | 0.0831 | 0.0047 | 0.0012 | 0.5503 | 0.5531 | -0.3094 | -0.259 | -0.2608 | -0.0719 | -0.0356 | -0.8337 | 0.0236 | -9.8992 | 0.8203 | -9.8993 | 0.7197 | A+ | A+ | A+ |
| MATH | 4 | 314189 | 0 | B-O | 2 | 87063 | 0.527 | 0.5234 | 0.0875 | 0.2089 | 0.1734 | 0.0048 | 0.002 | 0.5531 | 0.5543 | -0.2127 | -0.2103 | -0.3317 | -0.0564 | -0.0402 | -0.2784 | 0.0228 | -9.8991 | 0.8991 | -8.5491 | 0.8776 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 4 | 314193 | 0 | B-O | 2 | 86890 | 0.6363 | 0.1862 | 0.0655 | 0.1088 | 0.6308 | 0.0062 | 0.0025 | 0.5015 | -0.1792 | -0.2594 | -0.3257 | 0.5058 | -0.0796 | -0.0506 | -0.7331 | 0.0234 | -6.9691 | 0.9337 | -6.1091 | 0.8908 | A+ | A+ | A+ |
| MATH | 4 | 314216 | 0 | B-O | 2 | 87255 | 0.6857 | 0.0959 | 0.0682 | 0.6826 | 0.1488 | 0.0031 | 0.0014 | 0.4353 | -0.2765 | -0.2473 | 0.4378 | -0.1569 | -0.0476 | -0.0413 | -0.8996 | 0.0238 | -3.679 | 0.9628 | -0.749 | 0.9848 | A- | A+ | A+ |
| MATH | 4 | 314659 | 0 | B-O | 2 | 87025 | 0.6202 | 0.0991 | 0.1396 | 0.6157 | 0.1384 | 0.0058 | 0.0014 | 0.4839 | -0.1526 | -0.2357 | 0.487 | -0.2977 | -0.0714 | -0.0374 | -0.4402 | 0.0229 | -6.8191 | 0.9384 | -7.1491 | 0.8901 | A+ | A+ | A+ |
| MATH | 4 | 408742 | 0 | B-O | 2 | 86768 | 0.416 | 0.4118 | 0.2923 | 0.1872 | 0.0986 | 0.008 | 0.0021 | 0.412 | 0.4155 | -0.2275 | -0.1426 | -0.119 | -0.0899 | -0.0416 | 0.3284 | 0.0229 | 5.9411 | 1.058 | 6.9211 | 1.1011 | A- | A+ | A+ |
| MATH | 4 | 493280 | 0 | B-O | 1 | 86572 | 0.4637 | 0.2265 | 0.1586 | 0.4579 | 0.1446 | 0.0057 | 0.0067 | 0.3587 | -0.1864 | -0.1336 | 0.3626 | -0.127 | -0.0668 | -0.0515 | 0.4229 | 0.0231 | 9.9012 | 1.1615 | 9.9013 | 1.258 | A+ | A+ | A+ |
| MATH | 4 | 495235 | 0 | B-O | 2 | 87058 | 0.7518 | 0.0808 | 0.7467 | 0.0861 | 0.0796 | 0.005 | 0.0018 | 0.4678 | -0.2045 | 0.4728 | -0.2806 | -0.2362 | -0.0731 | -0.0496 | -1.1722 | 0.0247 | -9.8992 | 0.8388 | -9.8992 | 0.7518 | A- | A+ | A+ |
| MATH | 4 | 313075 | 0 | C-G | 2 | 86647 | 0.7291 | 0.7207 | 0.142 | 0.0571 | 0.0687 | 0.0078 | 0.0037 | 0.4254 | 0.433 | -0.2108 | -0.23 | -0.2232 | -0.0937 | -0.043 | -1.7024 | 0.0273 | 9.9012 | 1.1876 | 7.5113 | 1.2595 | A+ | A- | A- |
| MATH | 4 | 314148 | 0 | C-G | 2 | 86964 | 0.4475 | 0.1404 | 0.1663 | 0.2414 | 0.444 | 0.0057 | 0.0021 | 0.3402 | -0.1406 | -0.1595 | -0.1292 | 0.3434 | -0.0703 | -0.0388 | 0.4059 | 0.023 | 9.9012 | 1.1757 | 9.9012 | 1.231 | A+ | A+ | A+ |
| MATH | 4 | 314171 | 0 | C-G | 1 | 86804 | 0.3526 | 0.25 | 0.2674 | 0.1238 | 0.3491 | 0.0075 | 0.0022 | 0.4628 | -0.1976 | -0.1697 | -0.1573 | 0.4647 | -0.0813 | -0.0434 | 0.3154 | 0.0229 | -5.9791 | 0.9439 | -3.559 | 0.9505 | A- | A- | A- |
| MATH | 4 | 314175 | 0 | C-G | 1 | 86985 | 0.604 | 0.5994 | 0.1498 | 0.1496 | 0.0936 | 0.0054 | 0.0022 | 0.4556 | 0.4588 | -0.2542 | -0.1793 | -0.2171 | -0.0661 | -0.0433 | -0.4546 | 0.0229 | 0.351 | 1.0032 | 0.941 | 1.0151 | A+ | A- | A+ |
| MATH | 4 | 314534 | 0 | C-G | 2 | 86966 | 0.5793 | 0.2155 | 0.5747 | 0.1253 | 0.0766 | 0.0041 | 0.0037 | 0.4458 | -0.2848 | 0.4492 | -0.1167 | -0.2226 | -0.0595 | -0.0548 | -0.73 | 0.0234 | 5.8511 | 1.058 | 3.2911 | 1.062 | A- | A- | A+ |
| MATH | 4 | 315522 | 0 | C-G | 1 | 87024 | 0.6415 | 0.6369 | 0.089 | 0.1318 | 0.1351 | 0.0056 | 0.0016 | 0.4933 | 0.4968 | -0.2598 | -0.2787 | -0.1858 | -0.0796 | -0.0308 | -0.8573 | 0.0237 | -3.469 | 0.9654 | -4.2091 | 0.9188 | A+ | A- | A- |
| MATH | 4 | 497759 | 0 | C-G | 1 | 86776 | 0.7147 | 0.1096 | 0.0699 | 0.7075 | 0.103 | 0.0076 | 0.0024 | 0.4746 | -0.2736 | -0.2444 | 0.48 | -0.2008 | -0.0831 | -0.0473 | -1.3221 | 0.0253 | -0.729 | 0.9912 | 0.341 | 1.0087 | A+ | A- | A- |
| MATH | 4 | 315530 | 0 | D-M | 2 | 87059 | 0.4977 | 0.4943 | 0.208 | 0.2027 | 0.0882 | 0.0052 | 0.0016 | 0.5277 | 0.5299 | -0.2078 | -0.2752 | -0.222 | -0.074 | -0.0429 | 0.0292 | 0.0227 | -7.6091 | 0.9318 | -6.6591 | 0.9103 | A+ | A- | A- |
| MATH | 4 | 408781 | 0 | D-M | 2 | 86802 | 0.4112 | 0.2421 | 0.2102 | 0.4072 | 0.1308 | 0.0065 | 0.0032 | 0.4263 | -0.1855 | -0.1717 | 0.4288 | -0.1569 | -0.0792 | -0.0342 | 0.368 | 0.023 | 4.061 | 1.0397 | 5.4711 | 1.0802 | A+ | A+ | A+ |
| MATH | 4 | 408789 | 0 | D-M | 2 | 87148 | 0.8217 | 0.0594 | 0.817 | 0.0596 | 0.0582 | 0.0042 | 0.0016 | 0.4624 | -0.217 | 0.4653 | -0.2882 | -0.2359 | -0.0531 | -0.0433 | -2.29 | 0.0319 | 6.3111 | 1.1348 | 2.3511 | 1.1057 | A- | A- | A- |
| MATH | 4 | 495220 | 0 | D-M | 1 | 87041 | 0.4561 | 0.2029 | 0.1469 | 0.4529 | 0.1903 | 0.0055 | 0.0014 | 0.3794 | -0.1278 | -0.2412 | 0.3826 | -0.1185 | -0.0772 | -0.0364 | 0.1813 | 0.0228 | 9.8311 | 1.0946 | 9.4111 | 1.1362 | A- | A+ | A+ |
| MATH | 4 | 495229 | 0 | D-M | 2 | 87088 | 0.3979 | 0.2333 | 0.1721 | 0.1929 | 0.3953 | 0.0043 | 0.0022 | 0.4297 | -0.2469 | -0.1823 | -0.0812 | 0.4312 | -0.0571 | -0.0388 | 0.5167 | 0.0232 | 4.151 | 1.042 | 5.8511 | 1.09 | A+ | A+ | A- |
| MATH | 4 | 497740 | 0 | D-M | 1 | 86762 | 0.6643 | 0.1434 | 0.6576 | 0.1061 | 0.0827 | 0.0086 | 0.0015 | 0.4387 | -0.196 | 0.4443 | -0.2707 | -0.1786 | -0.0848 | -0.0434 | -0.7796 | 0.0235 | -2.309 | 0.9774 | -2.9491 | 0.9448 | A- | A- | A+ |
| MATH | 4 | 575723 | 0 | D-M | 2 | 87054 | 0.3918 | 0.4061 | 0.0657 | 0.3891 | 0.1322 | 0.0052 | 0.0016 | 0.5439 | -0.2533 | -0.2156 | 0.545 | -0.2393 | -0.0738 | -0.0369 | 0.4513 | 0.0231 | -9.8991 | 0.9007 | -6.8591 | 0.9029 | A- | A- | A- |
| MATH | 4 | 575739 | 1 | A-F | 2 | 10229 | 0.3828 | 0.3014 | 0.2331 | 0.3784 | 0.0756 | 0.0093 | 0.0023 | 0.4615 | -0.1192 | -0.2585 | 0.4637 | -0.1936 | -0.0734 | -0.0562 | 0.535 | 0.0706 | -1.6691 | 0.9477 | -0.109 | 0.9942 | A- | A+ | A+ |
| MATH | 4 | 621385 | 1 | A-T | 1 | 10277 | 0.5976 | 0.1314 | 0.1546 | 0.1135 | 0.5935 | 0.0046 | 0.0023 | 0.4935 | -0.2944 | -0.2368 | -0.1655 | 0.496 | -0.0574 | -0.0441 | -0.5762 | 0.0696 | -2.4191 | 0.9319 | -1.8291 | 0.9076 | A+ | A- | A- |
| MATH | 4 | 662438 | 1 | A-T | 1 | 10202 | 0.6183 | 0.6095 | 0.098 | 0.0717 | 0.2066 | 0.0086 | 0.0056 | 0.373 | 0.3809 | -0.2357 | -0.2392 | -0.1025 | -0.0912 | -0.0555 | -0.7369 | 0.0704 | 0.781 | 1.0226 | 1.9211 | 1.1105 | A- | A- | A- |
| MATH | 4 | 657726 | 1 | B-O | 2 | 10202 | 0.5324 | 0.1675 | 0.0842 | 0.2093 | 0.5249 | 0.0115 | 0.0027 | 0.5159 | -0.2622 | -0.257 | -0.1914 | 0.5195 | -0.0998 | -0.0322 | -0.2676 | 0.0689 | -5.3591 | 0.8548 | -4.6292 | 0.8034 | A- | A+ | A- |
| MATH | 4 | 657738 | 1 | B-O | 1 | 10040 | 0.4364 | 0.4233 | 0.218 | 0.1745 | 0.1543 | 0.029 | 0.0009 | 0.4024 | 0.4004 | -0.1507 | -0.1193 | -0.2223 | -0.0578 | -0.0106 | 0.2648 | 0.0694 | 1.591 | 1.0483 | 1.2811 | 1.0562 | A- | A- | A- |
| MATH | 4 | 621362 | 1 | C-G | 1 | 10043 | 0.4006 | 0.0833 | 0.1303 | 0.3682 | 0.3887 | 0.0257 | 0.0039 | 0.3 | -0.2469 | -0.248 | 0.0361 | 0.3035 | -0.0771 | -0.0234 | 0.4862 | 0.0704 | 5.7112 | 1.1896 | 6.4113 | 1.327 | A- | A- | A- |
| MATH | 4 | 575722 | 1 | D-M | 2 | 10209 | 0.1842 | 0.5412 | 0.1817 | 0.141 | 0.1226 | 0.0122 | 0.0014 | -0.1534 | 0.3904 | -0.1474 | -0.2128 | -0.1661 | -0.0714 | -0.0355 | 1.6903 | 0.0834 | 9.0815 | 1.4757 | 9.9024 | 2.3877 | A- | A+ | A+ |
| MATH | 4 | 659934 | 1 | D-M | 2 | 10194 | 0.3568 | 0.1967 | 0.2916 | 0.3514 | 0.1452 | 0.0117 | 0.0033 | 0.4059 | -0.0759 | -0.2976 | 0.4093 | -0.0497 | -0.0916 | -0.0458 | 0.7289 | 0.0719 | 0.811 | 1.0267 | 2.2511 | 1.1196 | A- | A- | A- |
| MATH | 4 | 617226 | 2 | A-F | 1 | 9573 | 0.6888 | 0.0704 | 0.199 | 0.6853 | 0.0402 | 0.0042 | 0.0009 | 0.3352 | -0.2546 | -0.1204 | 0.3389 | -0.2005 | -0.0596 | -0.0321 | -0.9309 | 0.0717 | 0.501 | 1.0152 | 1.6511 | 1.1057 | A+ | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 4 | 662435 | 2 | A-F | 2 | 9519 | 0.5938 | 0.5874 | 0.1673 | 0.1594 | 0.0751 | 0.0088 | 0.0019 | 0.4379 | 0.4435 | -0.2148 | -0.1918 | -0.2183 | -0.0939 | -0.0372 | -0.5305 | 0.069 | -1.229 | 0.9661 | -1.7691 | 0.9114 | A+ | A- | A- |
| MATH | 4 | 621390 | 2 | A-T | 2 | 9513 | 0.3648 | 0.2573 | 0.1443 | 0.3606 | 0.2265 | 0.009 | 0.0023 | 0.2197 | 0.1157 | -0.1657 | 0.2236 | -0.2185 | -0.0835 | -0.0076 | 0.6566 | 0.0701 | 6.3812 | 1.2075 | 6.1713 | 1.3175 | A- | A- | A+ |
| MATH | 4 | 653740 | 2 | B-O | 2 | 9433 | 0.3453 | 0.1907 | 0.3385 | 0.1755 | 0.2756 | 0.0193 | 0.0003 | 0.1743 | -0.1345 | 0.1789 | -0.113 | 0.0478 | -0.0724 | -0.0116 | 0.8092 | 0.0712 | 8.2013 | 1.2861 | 8.7615 | 1.5086 | A- | A- | A+ |
| MATH | 4 | 657739 | 2 | B-O | 2 | 9519 | 0.3966 | 0.1642 | 0.1879 | 0.3923 | 0.2449 | 0.0083 | 0.0024 | 0.2725 | -0.2382 | -0.1119 | 0.2767 | 0.0136 | -0.0831 | -0.0292 | 0.4731 | 0.0691 | 5.8312 | 1.1792 | 5.1612 | 1.2426 | A+ | A+ | A- |
| MATH | 4 | 653742 | 2 | C-G | 2 | 9529 | 0.2799 | 0.2772 | 0.1453 | 0.4529 | 0.1149 | 0.0072 | 0.0025 | 0.2732 | 0.2758 | -0.0809 | -0.0534 | -0.1888 | -0.0745 | -0.037 | 1.2585 | 0.0757 | 4.3912 | 1.1748 | 7.9916 | 1.6088 | A+ | A+ | A+ |
| MATH | 4 | 653743 | 2 | C-G | 2 | 9390 | 0.3115 | 0.1516 | 0.283 | 0.304 | 0.2373 | 0.0236 | 0.0005 | 0.1281 | -0.1329 | 0.0227 | 0.1339 | -0.0282 | -0.0763 | -0.0252 | 1.1244 | 0.0741 | 7.0813 | 1.2756 | 7.1615 | 1.4904 | A+ | A- | A- |
| MATH | 4 | 621372 | 2 | D-M | 2 | 9506 | 0.3178 | 0.1356 | 0.373 | 0.1654 | 0.314 | 0.0107 | 0.0014 | 0.4444 | -0.2545 | -0.1218 | -0.1372 | 0.4458 | -0.0911 | -0.0153 | 0.9556 | 0.0724 | -1.5691 | 0.9477 | -0.289 | 0.9835 | A- | A- | A- |
| MATH | 4 | 622938 | 3 | A-F | 2 | 9331 | 0.3399 | 0.1588 | 0.2252 | 0.3291 | 0.2549 | 0.0294 | 0.0026 | 0.3472 | -0.0909 | -0.1434 | 0.3499 | -0.1272 | -0.09 | -0.0131 | 0.8734 | 0.0715 | 1.121 | 1.0362 | 3.7212 | 1.2035 | A- | A+ | A+ |
| MATH | 4 | 622944 | 3 | A-F | 1 | 9578 | 0.6231 | 0.0659 | 0.2543 | 0.0544 | 0.6192 | 0.0038 | 0.0025 | 0.3817 | -0.2337 | -0.1643 | -0.2327 | 0.3822 | -0.047 | -0.0084 | -0.5883 | 0.0695 | 2.6511 | 1.0768 | 2.2611 | 1.1261 | A+ | A+ | A- |
| MATH | 4 | 653738 | 3 | A-T | 2 | 9517 | 0.3642 | 0.298 | 0.1403 | 0.3596 | 0.1895 | 0.0104 | 0.0023 | 0.3353 | -0.1522 | -0.1257 | 0.3392 | -0.0983 | -0.0885 | -0.0422 | 0.6927 | 0.0701 | 3.8111 | 1.1209 | 4.4012 | 1.2223 | A- | A- | A- |
| MATH | 4 | 574165 | 3 | B-O | 2 | 9363 | 0.7314 | 0.7104 | 0.0886 | 0.0768 | 0.0955 | 0.0281 | 0.0005 | 0.4697 | 0.4571 | -0.2658 | -0.2517 | -0.1938 | -0.0466 | -0.0036 | -1.2222 | 0.0752 | -2.5691 | 0.9104 | -2.3892 | 0.8327 | A- | A- | A- |
| MATH | 4 | 657725 | 3 | B-O | 1 | 9507 | 0.6551 | 0.0638 | 0.0806 | 0.1958 | 0.6461 | 0.012 | 0.0017 | 0.477 | -0.2349 | -0.2431 | -0.2423 | 0.4795 | -0.0839 | -0.0095 | -0.7574 | 0.0706 | -2.4691 | 0.9282 | -1.5891 | 0.9088 | A+ | A+ | A- |
| MATH | 4 | 659929 | 3 | C-G | 2 | 9522 | 0.4908 | 0.094 | 0.4848 | 0.1289 | 0.2802 | 0.0099 | 0.0023 | 0.2628 | -0.2241 | 0.2689 | -0.248 | 0.0541 | -0.0825 | -0.043 | 0.0135 | 0.0679 | 7.2712 | 1.2077 | 6.0513 | 1.2798 | A+ | A- | A- |
| MATH | 4 | 575724 | 3 | D-M | 2 | 9487 | 0.2658 | 0.2616 | 0.2473 | 0.2544 | 0.2209 | 0.0131 | 0.0027 | 0.1901 | 0.1951 | -0.0039 | -0.0105 | -0.1605 | -0.0963 | -0.0374 | 1.3358 | 0.0763 | 4.1212 | 1.1669 | 6.1415 | 1.4668 | A- | A+ | A+ |
| MATH | 4 | 659937 | 3 | D-M | 1 | 9485 | 0.4516 | 0.1874 | 0.1714 | 0.4443 | 0.1809 | 0.0141 | 0.0019 | 0.344 | -0.0841 | -0.1971 | 0.3506 | -0.1382 | -0.1052 | -0.0348 | 0.2742 | 0.0683 | 3.7211 | 1.1062 | 3.3111 | 1.1456 | A+ | A- | A- |
| MATH | 4 | 575735 | 4 | A-F | 2 | 9438 | 0.3569 | 0.1806 | 0.3474 | 0.2391 | 0.2064 | 0.0262 | 0.0004 | 0.2051 | 0.0404 | 0.2097 | -0.1943 | -0.0492 | -0.0782 | -0.0056 | 0.7496 | 0.0707 | 8.8113 | 1.303 | 9.1215 | 1.4976 | A+ | A- | A- |
| MATH | 4 | 622949 | 4 | A-F | 1 | 9638 | 0.4653 | 0.217 | 0.2548 | 0.0596 | 0.4626 | 0.004 | 0.002 | 0.5513 | -0.3835 | -0.1978 | -0.1136 | 0.5512 | -0.0425 | -0.0217 | 0.1464 | 0.068 | -5.8892 | 0.847 | -4.8392 | 0.8189 | A- | A- | A- |
| MATH | 4 | 662439 | 4 | A-T | 2 | 9587 | 0.2969 | 0.1875 | 0.2935 | 0.3481 | 0.1597 | 0.0101 | 0.0011 | 0.2289 | -0.2259 | 0.2331 | 0.053 | -0.0889 | -0.0974 | -0.0264 | 1.0585 | 0.0734 | 4.0111 | 1.1462 | 6.0114 | 1.3761 | A+ | A+ | A+ |
| MATH | 4 | 624796 | 4 | B-O | 2 | 9579 | 0.2467 | 0.3315 | 0.2361 | 0.2437 | 0.1767 | 0.0107 | 0.0013 | 0.1419 | 0.14 | -0.2275 | 0.1466 | -0.0558 | -0.0941 | -0.0339 | 1.3724 | 0.0772 | 5.3312 | 1.2256 | 7.4716 | 1.5939 | A- | A+ | A- |
| MATH | 4 | 657733 | 4 | B-O | 2 | 9582 | 0.2564 | 0.2779 | 0.3022 | 0.2534 | 0.1547 | 0.0104 | 0.0013 | -0.0305 | -0.0382 | 0.209 | -0.0238 | -0.1594 | -0.101 | -0.0175 | 1.3086 | 0.0764 | 9.9015 | 1.4572 | 9.9019 | 1.9064 | A+ | A+ | A+ |
| MATH | 4 | 621401 | 4 | C-G | 2 | 9459 | 0.4947 | 0.4826 | 0.1583 | 0.2075 | 0.1272 | 0.0238 | 0.0006 | 0.3273 | 0.333 | -0.1587 | -0.093 | -0.1694 | -0.0887 | -0.0321 | 0.0458 | 0.0679 | 3.7211 | 1.1039 | 3.0011 | 1.1243 | A+ | A- | A- |
| MATH | 4 | 659926 | 4 | C-G | 2 | 9573 | 0.2816 | 0.1948 | 0.1854 | 0.329 | 0.2781 | 0.0105 | 0.0022 | 0.0965 | -0.0819 | -0.1155 | 0.0916 | 0.1027 | -0.0957 | -0.0426 | 1.1525 | 0.0744 | 6.4012 | 1.2494 | 7.7815 | 1.5352 | A- | A+ | A+ |
| MATH | 4 | 659933 | 4 | D-M | 2 | 9580 | 0.4186 | 0.1598 | 0.2132 | 0.2015 | 0.4136 | 0.0107 | 0.0012 | 0.4034 | -0.1505 | -0.1426 | -0.19 | 0.4076 | -0.1016 | -0.0148 | 0.3965 | 0.0687 | 0.321 | 1.009 | 1.021 | 1.0419 | A+ | A- | A- |
| MATH | 4 | 622943 | 5 | A-F | 2 | 9442 | 0.5918 | 0.1092 | 0.1355 | 0.1541 | 0.5782 | 0.0221 | 0.0009 | 0.4901 | -0.2311 | -0.316 | -0.1375 | 0.4901 | -0.0779 | -0.0238 | -0.4516 | 0.0684 | -3.2391 | 0.9142 | -2.9991 | 0.8698 | A- | A- | A- |
| MATH | 4 | 621396 | 5 | A-T | 1 | 9609 | 0.6184 | 0.6148 | 0.0987 | 0.1949 | 0.0858 | 0.0041 | 0.0017 | 0.4436 | 0.4452 | -0.2328 | -0.1907 | -0.2405 | -0.0444 | -0.0358 | -0.6395 | 0.0692 | -2.1991 | 0.9396 | -1.1191 | 0.9443 | A+ | A- | A- |
| MATH | 4 | 624804 | 5 | A-T | 1 | 9563 | 0.2724 | 0.1926 | 0.2695 | 0.1256 | 0.4018 | 0.0088 | 0.0018 | 0.3252 | 0.0366 | 0.3277 | -0.1469 | -0.2079 | -0.0839 | -0.0332 | 1.1926 | 0.0756 | 1.031 | 1.039 | 3.1012 | 1.2063 | A- | A- | A+ |
| MATH | 4 | 624803 | 5 | B-O | 1 | 9569 | 0.2107 | 0.2086 | 0.5142 | 0.1829 | 0.0843 | 0.0076 | 0.0024 | -0.1731 | -0.1667 | 0.3938 | -0.2036 | -0.1482 | -0.0755 | -0.0551 | 1.6051 | 0.0817 | 9.9015 | 1.5294 | 9.9024 | 2.4025 | A+ | A+ | A+ |
| MATH | 4 | 657736 | 5 | B-O | 2 | 9393 | 0.2602 | 0.2214 | 0.2529 | 0.2114 | 0.2862 | 0.0274 | 0.0007 | 0.2013 | -0.1317 | 0.2042 | -0.0739 | 0.0169 | -0.0668 | -0.0239 | 1.2992 | 0.077 | 4.1712 | 1.1728 | 6.3215 | 1.4839 | A- | A+ | A- |
| MATH | 4 | 659925 | 5 | C-G | 2 | 9539 | 0.2905 | 0.2013 | 0.2462 | 0.2527 | 0.2867 | 0.0114 | 0.0017 | 0.1428 | 0.0104 | 0.0813 | -0.221 | 0.1476 | -0.083 | -0.0271 | 1.0865 | 0.0744 | 7.2013 | 1.284 | 5.9914 | 1.3952 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 4 | 617224 | 5 | D-M | 2 | 9561 | 0.458 | 0.3338 | 0.1078 | 0.4531 | 0.0946 | 0.0091 | 0.0017 | 0.4137 | -0.2239 | -0.1895 | 0.4166 | -0.1175 | -0.0765 | -0.0344 | 0.1785 | 0.0683 | 0.221 | 1.0059 | 0.331 | 1.0127 | A- | A+ | A+ |
| MATH | 4 | 621380 | 5 | D-M | 2 | 9548 | 0.3045 | 0.1948 | 0.2777 | 0.3008 | 0.2146 | 0.0105 | 0.0017 | 0.1861 | -0.1286 | -0.0965 | 0.1906 | 0.0405 | -0.0846 | -0.0316 | 1.002 | 0.0735 | 4.5712 | 1.1689 | 5.8714 | 1.3654 | A+ | A- | A+ |
| MATH | 4 | 621397 | 6 | A-F | 2 | 9583 | 0.3887 | 0.1696 | 0.2651 | 0.3848 | 0.1705 | 0.0079 | 0.0022 | 0.3154 | -0.091 | -0.2232 | 0.3199 | -0.0353 | -0.086 | -0.0451 | 0.5371 | 0.0701 | 5.9212 | 1.1913 | 6.5213 | 1.3309 | A- | A- | A- |
| MATH | 4 | 622939 | 6 | A-F | 1 | 9627 | 0.7158 | 0.1003 | 0.7119 | 0.0442 | 0.1381 | 0.0033 | 0.0022 | 0.4682 | -0.2872 | 0.4714 | -0.1709 | -0.2515 | -0.0445 | -0.059 | -1.1913 | 0.0739 | -2.8591 | 0.9064 | -3.0192 | 0.799 | A- | A- | A- |
| MATH | 4 | 662437 | 6 | A-T | 1 | 9450 | 0.7005 | 0.1029 | 0.6839 | 0.0901 | 0.0994 | 0.0236 | 0.0002 | 0.5067 | -0.2944 | 0.5008 | -0.2356 | -0.2207 | -0.063 | -0.0261 | -1.03 | 0.0723 | -5.3292 | 0.84 | -3.7092 | 0.7778 | A- | A+ | A+ |
| MATH | 4 | 566157 | 6 | B-O | 2 | 9560 | 0.5246 | 0.1692 | 0.5181 | 0.1362 | 0.1642 | 0.0104 | 0.002 | 0.3717 | -0.1684 | 0.3775 | -0.1909 | -0.1326 | -0.0946 | -0.0297 | -0.1561 | 0.0683 | 2.4211 | 1.0677 | 1.8911 | 1.0823 | A+ | A+ | A+ |
| MATH | 4 | 624799 | 6 | B-O | 2 | 9562 | 0.3103 | 0.2544 | 0.3065 | 0.1543 | 0.2725 | 0.0092 | 0.003 | 0.2331 | -0.0496 | 0.2377 | -0.0263 | -0.1518 | -0.0872 | -0.0469 | 0.9811 | 0.0736 | 4.4412 | 1.1634 | 5.8614 | 1.3762 | A+ | A- | A- |
| MATH | 4 | 657727 | 6 | B-O | 1 | 9560 | 0.1902 | 0.0932 | 0.6319 | 0.0747 | 0.1878 | 0.0111 | 0.0013 | 0.208 | -0.2969 | 0.1648 | -0.2504 | 0.2106 | -0.0771 | -0.0424 | 1.7926 | 0.0852 | 2.2211 | 1.1115 | 6.5417 | 1.73 | A- | A+ | A+ |
| MATH | 4 | 565998 | 6 | C-G | 2 | 9449 | 0.5419 | 0.5289 | 0.1492 | 0.1291 | 0.1689 | 0.0233 | 0.0005 | 0.3942 | 0.3977 | -0.1858 | -0.2299 | -0.1127 | -0.0825 | -0.0227 | -0.2113 | 0.0683 | 2.1011 | 1.0586 | 2.5511 | 1.1144 | A+ | A- | A+ |
| MATH | 4 | 659932 | 6 | D-M | 2 | 9564 | 0.3857 | 0.2014 | 0.1784 | 0.3811 | 0.2271 | 0.0097 | 0.0023 | 0.3675 | -0.1646 | -0.1866 | 0.3711 | -0.0783 | -0.0854 | -0.0329 | 0.5573 | 0.0702 | 2.6111 | 1.0818 | 2.2011 | 1.1049 | A- | A+ | A- |
| MATH | 4 | 622942 | 7 | A-F | 1 | 9570 | 0.8124 | 0.0244 | 0.026 | 0.136 | 0.8075 | 0.0043 | 0.0019 | 0.4561 | -0.1958 | -0.1604 | -0.3498 | 0.459 | -0.0456 | -0.0547 | -1.7556 | 0.0832 | -2.4091 | 0.8937 | -2.8193 | 0.7349 | A+ | A- | A- |
| MATH | 4 | 662430 | 7 | A-F | 2 | 9424 | 0.4496 | 0.1383 | 0.2424 | 0.158 | 0.44 | 0.0199 | 0.0014 | 0.4715 | -0.2524 | -0.1325 | -0.2107 | 0.4743 | -0.0952 | -0.0367 | 0.3105 | 0.0692 | -1.8091 | 0.9478 | -1.119 | 0.9512 | A+ | A- | A- |
| MATH | 4 | 575716 | 7 | A-T | 2 | 9518 | 0.2932 | 0.2538 | 0.2995 | 0.2899 | 0.1453 | 0.0096 | 0.002 | 0.19 | -0.1116 | -0.0164 | 0.1948 | -0.0615 | -0.0868 | -0.0485 | 1.1493 | 0.075 | 7.8213 | 1.316 | 8.5016 | 1.6399 | A- | A- | A- |
| MATH | 4 | 624798 | 7 | A-T | 1 | 9408 | 0.4817 | 0.1105 | 0.1615 | 0.2344 | 0.4707 | 0.0221 | 0.0008 | 0.3826 | -0.212 | -0.1621 | -0.124 | 0.3875 | -0.0923 | -0.0417 | 0.1519 | 0.0688 | 1.381 | 1.0394 | 1.9511 | 1.0855 | A- | A+ | A+ |
| MATH | 4 | 574164 | 7 | B-O | 2 | 9497 | 0.3934 | 0.2627 | 0.1497 | 0.1859 | 0.388 | 0.0106 | 0.0031 | 0.2416 | -0.0754 | -0.1123 | -0.0889 | 0.2487 | -0.1009 | -0.0543 | 0.5862 | 0.0704 | 6.8812 | 1.2285 | 7.3414 | 1.3909 | A- | A- | A- |
| MATH | 4 | 657730 | 7 | B-O | 1 | 9507 | 0.7305 | 0.7213 | 0.0639 | 0.1034 | 0.0988 | 0.01 | 0.0027 | 0.3427 | 0.3534 | -0.1735 | -0.2151 | -0.1288 | -0.0989 | -0.0441 | -1.1841 | 0.0746 | 1.011 | 1.0348 | 1.7711 | 1.1348 | A- | A- | A- |
| MATH | 4 | 659930 | 7 | C-G | 2 | 9487 | 0.2695 | 0.1412 | 0.3112 | 0.2672 | 0.2656 | 0.0113 | 0.0034 | 0.4143 | -0.1879 | -0.0034 | -0.235 | 0.417 | -0.0982 | -0.0467 | 1.3028 | 0.0768 | 0.371 | 1.014 | 2.8712 | 1.2104 | A- | A- | A- |
| MATH | 4 | 622945 | 7 | D-M | 2 | 9502 | 0.3012 | 0.1856 | 0.2972 | 0.3261 | 0.1779 | 0.0101 | 0.0031 | 0.1686 | -0.0968 | 0.1745 | 0.1266 | -0.2332 | -0.0951 | -0.0499 | 1.1041 | 0.0745 | 8.6413 | 1.3468 | 9.2817 | 1.689 | A- | A- | A+ |
| MATH | 4 | 622948 | 8 | A-F | 2 | 9562 | 0.3723 | 0.1907 | 0.3666 | 0.1685 | 0.2589 | 0.0128 | 0.0027 | 0.1152 | -0.1057 | 0.1236 | -0.0896 | 0.0659 | -0.1075 | -0.0251 | 0.6598 | 0.0701 | 9.1813 | 1.3056 | 8.5915 | 1.4618 | A+ | A+ | A+ |
| MATH | 4 | 566155 | 8 | A-T | 2 | 9581 | 0.3786 | 0.1227 | 0.2765 | 0.2139 | 0.3735 | 0.011 | 0.0025 | 0.2735 | -0.175 | -0.0376 | -0.1181 | 0.2793 | -0.0935 | -0.0539 | 0.6218 | 0.0699 | 5.3012 | 1.1677 | 5.4713 | 1.2746 | A+ | A- | A+ |
| MATH | 4 | 617231 | 8 | A-T | 1 | 9654 | 0.5491 | 0.1113 | 0.1432 | 0.1937 | 0.5458 | 0.0042 | 0.0018 | 0.4856 | -0.2184 | -0.2564 | -0.198 | 0.4884 | -0.0658 | -0.0521 | -0.2763 | 0.0682 | -2.6591 | 0.9293 | -2.6291 | 0.8904 | A+ | A- | A- |
| MATH | 4 | 617221 | 8 | B-O | 2 | 9426 | 0.3776 | 0.1246 | 0.3665 | 0.1329 | 0.3466 | 0.0268 | 0.0027 | 0.1321 | -0.2391 | 0.1407 | -0.1379 | 0.1539 | -0.0881 | -0.0202 | 0.6604 | 0.0701 | 9.9014 | 1.396 | 9.7515 | 1.5333 | A- | A- | A- |
| MATH | 4 | 657728 | 8 | B-O | 1 | 9571 | 0.4889 | 0.4818 | 0.0798 | 0.1025 | 0.3215 | 0.0125 | 0.0021 | 0.5341 | 0.5355 | -0.255 | -0.3299 | -0.1872 | -0.0802 | -0.0458 | 0.0511 | 0.068 | -3.7291 | 0.9021 | -2.3591 | 0.9074 | A- | A- | A- |
| MATH | 4 | 659924 | 8 | C-G | 1 | 9480 | 0.5934 | 0.5792 | 0.1559 | 0.1142 | 0.1269 | 0.0221 | 0.0018 | 0.4497 | 0.4534 | -0.1874 | -0.2454 | -0.1884 | -0.0924 | -0.0366 | -0.4477 | 0.0688 | -1.459 | 0.9599 | -1.5591 | 0.9289 | A+ | A- | A- |
| MATH | 4 | 574172 | 8 | D-M | 2 | 9614 | 0.3102 | 0.4153 | 0.147 | 0.307 | 0.1206 | 0.0081 | 0.002 | 0.3535 | -0.1541 | -0.1623 | 0.3557 | -0.067 | -0.0787 | -0.0395 | 1.0015 | 0.0729 | 0.871 | 1.0296 | 3.5812 | 1.2154 | A- | A+ | A- |
| MATH | 4 | 575728 | 8 | D-M | 2 | 9602 | 0.6694 | 0.1857 | 0.069 | 0.6619 | 0.0721 | 0.0086 | 0.0027 | 0.4973 | -0.2728 | -0.235 | 0.5038 | -0.2345 | -0.0972 | -0.0591 | -0.8866 | 0.0714 | -4.8491 | 0.8569 | -4.1692 | 0.7751 | A+ | A- | A- |
| MATH | 4 | 575719 | 9 | A-F | 1 | 9553 | 0.5759 | 0.1569 | 0.1644 | 0.5694 | 0.098 | 0.0094 | 0.0019 | 0.4972 | -0.2163 | -0.2649 | 0.5018 | -0.2047 | -0.089 | -0.05 | -0.366 | 0.0687 | -2.7591 | 0.9258 | -2.1291 | 0.9006 | A+ | A+ | A+ |
| MATH | 4 | 622946 | 9 | A-F | 1 | 9611 | 0.8598 | 0.0451 | 0.8553 | 0.0569 | 0.0374 | 0.0043 | 0.0009 | 0.3771 | -0.2304 | 0.379 | -0.1876 | -0.2015 | -0.0462 | -0.0262 | -2.157 | 0.0923 | -1.1391 | 0.9352 | -1.4492 | 0.8259 | A+ | A- | A- |
| MATH | 4 | 617238 | 9 | A-T | 2 | 9556 | 0.3442 | 0.1702 | 0.3404 | 0.2255 | 0.2529 | 0.009 | 0.002 | 0.1317 | -0.0826 | 0.1373 | -0.0928 | 0.0336 | -0.0818 | -0.0484 | 0.8315 | 0.0717 | 9.9014 | 1.3906 | 9.9017 | 1.7008 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 4 | 662444 | 9 | A-T | 2 | 9420 | 0.3099 | 0.3021 | 0.3385 | 0.2078 | 0.1265 | 0.0245 | 0.0005 | 0.3724 | 0.3688 | -0.0164 | -0.1636 | -0.2703 | -0.0306 | -0.0256 | 1.0543 | 0.0737 | 1.321 | 1.0467 | 3.6712 | 1.228 | A+ | A- | A+ |
| MATH | 4 | 575717 | 9 | B-O | 2 | 9531 | 0.2444 | 0.359 | 0.2544 | 0.241 | 0.132 | 0.0116 | 0.002 | 0.2121 | -0.0558 | -0.1542 | 0.2144 | 0.031 | -0.0627 | -0.0354 | 1.4427 | 0.0784 | 2.9111 | 1.1233 | 6.7016 | 1.5699 | A- | A+ | A- |
| MATH | 4 | 657737 | 9 | B-O | 2 | 9528 | 0.6181 | 0.1373 | 0.1157 | 0.1236 | 0.6095 | 0.0114 | 0.0025 | 0.4036 | -0.1725 | -0.1497 | -0.2499 | 0.4064 | -0.0669 | -0.0335 | -0.5737 | 0.0695 | -0.119 | 0.9962 | 0.161 | 1.0075 | A+ | A- | A- |
| MATH | 4 | 617230 | 9 | C-G | 2 | 9562 | 0.326 | 0.1443 | 0.2275 | 0.2953 | 0.3226 | 0.0081 | 0.0023 | 0.148 | -0.1272 | -0.0108 | -0.0282 | 0.1531 | -0.0789 | -0.0512 | 0.9335 | 0.0725 | 8.1513 | 1.301 | 7.7215 | 1.4819 | A+ | A- | A+ |
| MATH | 4 | 617233 | 9 | D-M | 1 | 9382 | 0.4791 | 0.4652 | 0.2564 | 0.1513 | 0.0981 | 0.028 | 0.0009 | 0.3355 | 0.3333 | -0.1824 | -0.1242 | -0.1149 | -0.0453 | -0.0148 | 0.1654 | 0.0684 | 3.4511 | 1.0989 | 3.3111 | 1.1464 | A+ | A- | A- |
| MATH | 5 | 313760 | 0 | A-F | 1 | 85447 | 0.4821 | 0.2572 | 0.1276 | 0.1311 | 0.4803 | 0.0029 | 0.0008 | 0.617 | -0.3756 | -0.233 | -0.1884 | 0.6175 | -0.0434 | -0.0235 | -0.1171 | 0.0224 | -9.8992 | 0.811 | -9.8992 | 0.7627 | A+ | A- | A- |
| MATH | 5 | 313917 | 0 | A-F | 2 | 85211 | 0.4729 | 0.1296 | 0.4698 | 0.2972 | 0.0969 | 0.0052 | 0.0013 | 0.5435 | -0.1965 | 0.545 | -0.3037 | -0.208 | -0.0633 | -0.0319 | 0.411 | 0.0228 | -9.8991 | 0.9051 | -8.5991 | 0.8885 | A- | A+ | A+ |
| MATH | 5 | 314501 | 0 | A-F | 2 | 85380 | 0.4833 | 0.2701 | 0.1477 | 0.0967 | 0.4811 | 0.003 | 0.0014 | 0.4028 | -0.1154 | -0.1925 | -0.2663 | 0.4046 | -0.0504 | -0.0302 | 0.1344 | 0.0225 | 4.801 | 1.0426 | 2.191 | 1.0297 | A+ | A+ | A+ |
| MATH | 5 | 314766 | 0 | A-F | 2 | 85229 | 0.4772 | 0.148 | 0.4742 | 0.1399 | 0.2317 | 0.0047 | 0.0016 | 0.3913 | -0.0892 | 0.3941 | -0.2801 | -0.1477 | -0.0638 | -0.0326 | 0.1526 | 0.0225 | 6.6711 | 1.0597 | 5.2411 | 1.0719 | A- | A- | A- |
| MATH | 5 | 408587 | 0 | A-F | 2 | 85302 | 0.3663 | 0.1764 | 0.1969 | 0.2569 | 0.3643 | 0.0039 | 0.0015 | 0.4136 | -0.234 | -0.1947 | -0.0652 | 0.4151 | -0.0561 | -0.0294 | 0.7841 | 0.0235 | 3.901 | 1.0422 | 5.3411 | 1.0829 | A+ | A+ | A+ |
| MATH | 5 | 408589 | 0 | A-F | 2 | 85170 | 0.4816 | 0.4782 | 0.2338 | 0.1461 | 0.135 | 0.0057 | 0.0012 | 0.5597 | 0.5612 | -0.2971 | -0.2204 | -0.2075 | -0.0645 | -0.0277 | 0.0475 | 0.0224 | -9.8991 | 0.8817 | -9.8992 | 0.8439 | A- | A- | A+ |
| MATH | 5 | 408591 | 0 | A-F | 1 | 85439 | 0.4286 | 0.2862 | 0.1821 | 0.4269 | 0.1009 | 0.0025 | 0.0013 | 0.4642 | -0.2653 | -0.1136 | 0.4652 | -0.2099 | -0.0397 | -0.0323 | 0.4392 | 0.0228 | -1.139 | 0.9892 | -0.479 | 0.9935 | A+ | A+ | A+ |
| MATH | 5 | 408592 | 0 | A-F | 1 | 85389 | 0.3592 | 0.3576 | 0.1814 | 0.3677 | 0.0889 | 0.0035 | 0.0008 | 0.3758 | 0.3769 | -0.2018 | -0.1655 | -0.069 | -0.0479 | -0.0218 | 0.841 | 0.0237 | 8.2411 | 1.0926 | 7.5611 | 1.1221 | A- | A- | A- |
| MATH | 5 | 495242 | 0 | A-F | 2 | 85235 | 0.4447 | 0.442 | 0.2001 | 0.1253 | 0.2264 | 0.0044 | 0.0017 | 0.2369 | 0.2399 | -0.1523 | -0.1087 | -0.041 | -0.057 | -0.03 | 0.4284 | 0.0228 | 9.9013 | 1.26 | 9.9013 | 1.3317 | A- | A+ | A+ |
| MATH | 5 | 495255 | 0 | A-F | 2 | 85361 | 0.5081 | 0.1245 | 0.5057 | 0.2265 | 0.1387 | 0.0036 | 0.0011 | 0.4267 | -0.173 | 0.4285 | -0.2895 | -0.0922 | -0.0517 | -0.0302 | 0.2998 | 0.0226 | 6.5711 | 1.061 | 4.7711 | 1.0649 | A+ | A+ | A+ |
| MATH | 5 | 313319 | 0 | A-T | 2 | 85116 | 0.6804 | 0.1324 | 0.108 | 0.0768 | 0.6752 | 0.0056 | 0.002 | 0.5373 | -0.2847 | -0.2774 | -0.2399 | 0.5399 | -0.064 | -0.0353 | -0.8762 | 0.0236 | -9.8992 | 0.8431 | -9.8993 | 0.7212 | A- | A- | A- |
| MATH | 5 | 313905 | 0 | A-T | 1 | 85438 | 0.6587 | 0.1137 | 0.6562 | 0.1226 | 0.1038 | 0.0031 | 0.0007 | 0.4948 | -0.2458 | 0.4964 | -0.2348 | -0.2541 | -0.0453 | -0.0277 | -0.8442 | 0.0235 | -9.6891 | 0.9105 | -6.5891 | 0.8676 | A+ | A- | A- |
| MATH | 5 | 314394 | 0 | A-T | 2 | 85152 | 0.3354 | 0.1695 | 0.1286 | 0.333 | 0.3617 | 0.0054 | 0.0017 | 0.2869 | -0.0615 | -0.1463 | 0.2897 | -0.1209 | -0.0659 | -0.037 | 0.9382 | 0.024 | 9.9012 | 1.2011 | 9.9013 | 1.3199 | A- | A+ | A+ |
| MATH | 5 | 314761 | 0 | A-T | 1 | 85251 | 0.6757 | 0.0764 | 0.1301 | 0.1159 | 0.6716 | 0.0041 | 0.0019 | 0.4919 | -0.2406 | -0.2694 | -0.227 | 0.4937 | -0.0584 | -0.0213 | -1.2009 | 0.0248 | 1.041 | 1.0119 | -2.6191 | 0.9342 | A- | A+ | A+ |
| MATH | 5 | 408602 | 0 | A-T | 1 | 85265 | 0.4274 | 0.1632 | 0.4249 | 0.2075 | 0.1986 | 0.0045 | 0.0013 | 0.376 | -0.1543 | 0.3779 | -0.1849 | -0.1257 | -0.0537 | -0.0291 | 0.5253 | 0.023 | 9.0711 | 1.0911 | 8.9211 | 1.128 | A+ | A+ | A+ |
| MATH | 5 | 408605 | 0 | A-T | 2 | 85306 | 0.4732 | 0.1219 | 0.2456 | 0.4707 | 0.1565 | 0.0043 | 0.001 | 0.417 | -0.1871 | -0.1808 | 0.4186 | -0.1809 | -0.051 | -0.0272 | 0.3568 | 0.0227 | 5.5211 | 1.0519 | 4.8911 | 1.0668 | A+ | A+ | A+ |
| MATH | 5 | 408608 | 0 | A-T | 1 | 85186 | 0.3441 | 0.2174 | 0.1896 | 0.3418 | 0.2444 | 0.0057 | 0.0011 | 0.3958 | -0.1041 | -0.1629 | 0.397 | -0.1792 | -0.0459 | -0.032 | 1.287 | 0.0253 | 9.9012 | 1.1876 | 9.9014 | 1.3665 | A- | A+ | A+ |
| MATH | 5 | 408630 | 0 | A-T | 1 | 85274 | 0.6173 | 0.6137 | 0.1027 | 0.0809 | 0.197 | 0.0039 | 0.0019 | 0.5646 | 0.5662 | -0.2554 | -0.2074 | -0.3438 | -0.0544 | -0.0346 | -0.7129 | 0.0232 | -9.8991 | 0.8618 | -9.8992 | 0.7939 | A- | A- | A- |
| MATH | 5 | 408647 | 0 | A-T | 1 | 85353 | 0.4762 | 0.1574 | 0.4739 | 0.3176 | 0.0462 | 0.0035 | 0.0013 | 0.506 | -0.2127 | 0.5076 | -0.2897 | -0.1741 | -0.0587 | -0.0291 | 0.1289 | 0.0225 | -6.7791 | 0.9419 | -4.3991 | 0.9418 | A- | A+ | A+ |
| MATH | 5 | 408648 | 0 | A-T | 1 | 85492 | 0.592 | 0.1475 | 0.0915 | 0.1677 | 0.5901 | 0.0022 | 0.001 | 0.4468 | -0.221 | -0.2321 | -0.194 | 0.4481 | -0.0394 | -0.0254 | -0.367 | 0.0226 | -3.729 | 0.9689 | -3.9391 | 0.9378 | A+ | A+ | A+ |
| MATH | 5 | 493287 | 0 | A-T | 1 | 85493 | 0.5913 | 0.5894 | 0.0832 | 0.2652 | 0.059 | 0.0023 | 0.0008 | 0.4982 | 0.4994 | -0.2199 | -0.2892 | -0.2316 | -0.0412 | -0.025 | -0.5541 | 0.0229 | -7.8391 | 0.9335 | -5.1091 | 0.9117 | A+ | A- | A- |
| MATH | 5 | 566348 | 0 | A-T | 1 | 85307 | 0.3067 | 0.2074 | 0.3294 | 0.1528 | 0.305 | 0.0036 | 0.0017 | 0.3689 | -0.1023 | -0.1986 | -0.0875 | 0.37 | -0.0504 | -0.0257 | 1.1279 | 0.0246 | 7.1511 | 1.0898 | 9.9012 | 1.2241 | A- | A+ | A+ |
| MATH | 5 | 574137 | 0 | A-T | 2 | 85406 | 0.3963 | 0.3947 | 0.2211 | 0.181 | 0.199 | 0.003 | 0.0012 | 0.3348 | 0.336 | -0.075 | -0.1726 | -0.1595 | -0.0404 | -0.0234 | 0.9816 | 0.0241 | 9.9012 | 1.2448 | 9.9014 | 1.3727 | A+ | A+ | A+ |
| MATH | 5 | 313325 | 0 | B-O | 2 | 85362 | 0.4387 | 0.2065 | 0.4366 | 0.1238 | 0.2284 | 0.0031 | 0.0016 | 0.4041 | -0.2143 | 0.406 | -0.2295 | -0.0825 | -0.0506 | -0.0388 | 0.5793 | 0.0231 | 9.3411 | 1.0957 | 8.0611 | 1.1171 | B- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 5 | 313924 | 0 | B-O | 2 | 85330 | 0.4164 | 0.1809 | 0.1669 | 0.4142 | 0.2328 | 0.0037 | 0.0013 | 0.4152 | -0.2529 | -0.2713 | 0.4168 | -0.006 | -0.0524 | -0.0295 | 0.3953 | 0.0227 | 3.331 | 1.0315 | 3.021 | 1.0411 | A+ | A+ | A+ |
| MATH | 5 | 314020 | 0 | B-O | 2 | 85345 | 0.4635 | 0.1967 | 0.116 | 0.2211 | 0.4612 | 0.0039 | 0.001 | 0.4911 | -0.2119 | -0.1512 | -0.2616 | 0.4925 | -0.0591 | -0.02 | 0.1508 | 0.0225 | -7.3291 | 0.937 | -6.6591 | 0.9131 | A- | A- | A- |
| MATH | 5 | 408790 | 0 | B-O | 2 | 85344 | 0.3504 | 0.3487 | 0.3481 | 0.1706 | 0.1277 | 0.0035 | 0.0014 | 0.3985 | 0.3998 | -0.1185 | -0.16 | -0.2095 | -0.0512 | -0.0257 | 0.9615 | 0.0241 | 7.7911 | 1.0916 | 9.1112 | 1.1581 | A+ | A+ | A- |
| MATH | 5 | 313768 | 0 | C-G | 2 | 85177 | 0.5021 | 0.0841 | 0.2525 | 0.1578 | 0.4987 | 0.0051 | 0.0017 | 0.5035 | -0.2097 | -0.2277 | -0.246 | 0.5057 | -0.0639 | -0.0355 | -0.2047 | 0.0225 | -4.269 | 0.9646 | -2.209 | 0.9674 | A+ | A- | A- |
| MATH | 5 | 314909 | 0 | C-G | 1 | 85308 | 0.6281 | 0.6247 | 0.1877 | 0.1212 | 0.061 | 0.0039 | 0.0015 | 0.4356 | 0.4387 | -0.2457 | -0.1939 | -0.2015 | -0.0578 | -0.036 | -0.5123 | 0.0228 | -4.739 | 0.9598 | -4.1991 | 0.9287 | A+ | A- | A- |
| MATH | 5 | 408805 | 0 | C-G | 2 | 85345 | 0.4561 | 0.2094 | 0.4539 | 0.1517 | 0.1801 | 0.0032 | 0.0017 | 0.3006 | -0.0599 | 0.3026 | -0.2256 | -0.1083 | -0.0412 | -0.0344 | 0.4408 | 0.0228 | 9.9012 | 1.2132 | 9.9013 | 1.2776 | A+ | A+ | A+ |
| MATH | 5 | 408806 | 0 | C-G | 2 | 85218 | 0.4125 | 0.2538 | 0.1715 | 0.1585 | 0.4099 | 0.0047 | 0.0017 | 0.3896 | -0.0899 | -0.1874 | -0.212 | 0.3918 | -0.063 | -0.0289 | 0.3986 | 0.0228 | 3.671 | 1.0347 | 3.7711 | 1.0514 | A- | A- | A- |
| MATH | 5 | 408811 | 0 | C-G | 1 | 85089 | 0.5342 | 0.1661 | 0.1297 | 0.53 | 0.1664 | 0.0048 | 0.0031 | 0.4407 | -0.1599 | -0.1702 | 0.4429 | -0.2646 | -0.0637 | -0.0258 | 0.0438 | 0.0224 | -0.889 | 0.9923 | -0.859 | 0.9882 | A- | A+ | A- |
| MATH | 5 | 408812 | 0 | C-G | 1 | 85307 | 0.6499 | 0.0995 | 0.1002 | 0.1486 | 0.6464 | 0.0032 | 0.0022 | 0.3864 | -0.2346 | -0.1315 | -0.2022 | 0.3896 | -0.0506 | -0.039 | -0.6793 | 0.0231 | 0.281 | 1.0025 | 4.6211 | 1.0908 | A+ | A- | A- |
| MATH | 5 | 495261 | 0 | C-G | 2 | 85128 | 0.3761 | 0.1978 | 0.1936 | 0.3733 | 0.2279 | 0.0046 | 0.0028 | 0.3578 | -0.1481 | -0.1946 | 0.3589 | -0.0795 | -0.057 | -0.0099 | 0.8597 | 0.0237 | 9.9011 | 1.1478 | 9.9013 | 1.253 | A- | A+ | A+ |
| MATH | 5 | 495265 | 0 | C-G | 2 | 85470 | 0.4755 | 0.1979 | 0.1806 | 0.4738 | 0.1441 | 0.0023 | 0.0012 | 0.5119 | -0.2617 | -0.2702 | 0.5129 | -0.1278 | -0.0405 | -0.0303 | 0.2172 | 0.0225 | -6.8991 | 0.9397 | -5.5491 | 0.9277 | A- | A+ | A+ |
| MATH | 5 | 314024 | 0 | D-M | 2 | 85386 | 0.4001 | 0.3142 | 0.3983 | 0.1758 | 0.1073 | 0.0031 | 0.0014 | 0.5385 | -0.4107 | 0.5392 | -0.095 | -0.1084 | -0.0458 | -0.0294 | 0.6757 | 0.0233 | -9.0991 | 0.9094 | -7.1891 | 0.8995 | A- | A- | A- |
| MATH | 5 | 408854 | 0 | D-M | 2 | 85243 | 0.3524 | 0.2301 | 0.3502 | 0.1916 | 0.222 | 0.0047 | 0.0014 | 0.4495 | -0.1479 | 0.4508 | -0.1849 | -0.1808 | -0.0535 | -0.0326 | 0.9154 | 0.0239 | 2.281 | 1.0258 | 5.8211 | 1.0967 | A- | A+ | A+ |
| MATH | 5 | 497774 | 0 | D-M | 2 | 85258 | 0.2862 | 0.3048 | 0.2921 | 0.2845 | 0.1127 | 0.0045 | 0.0014 | 0.2818 | -0.045 | -0.1274 | 0.2836 | -0.1403 | -0.0578 | -0.0288 | 1.1843 | 0.0248 | 9.9012 | 1.1513 | 9.9014 | 1.3647 | A- | A+ | A+ |
| MATH | 5 | 574151 | 0 | D-M | 2 | 85401 | 0.3788 | 0.145 | 0.1631 | 0.3104 | 0.3772 | 0.003 | 0.0013 | 0.4469 | -0.2051 | -0.2276 | -0.1243 | 0.4477 | -0.0427 | -0.0237 | 0.5915 | 0.0231 | -0.329 | 0.9967 | -0.279 | 0.996 | A- | A+ | A+ |
| MATH | 5 | 575709 | 0 | D-M | 2 | 85347 | 0.3914 | 0.0651 | 0.2068 | 0.3895 | 0.3337 | 0.0035 | 0.0014 | 0.3853 | -0.1034 | -0.2141 | 0.387 | -0.1531 | -0.0547 | -0.0279 | 0.731 | 0.0234 | 9.9011 | 1.1276 | 9.9012 | 1.1814 | A- | A+ | A- |
| MATH | 5 | 622928 | 1 | A-F | 1 | 9978 | 0.5429 | 0.1113 | 0.2365 | 0.54 | 0.107 | 0.0045 | 0.0008 | 0.4292 | -0.186 | -0.2861 | 0.4315 | -0.0988 | -0.0575 | -0.0227 | -0.2393 | 0.0674 | -1.489 | 0.9623 | -1.6191 | 0.9297 | A- | A- | A+ |
| MATH | 5 | 642399 | 1 | A-F | 2 | 9885 | 0.4675 | 0.4607 | 0.2275 | 0.1662 | 0.1311 | 0.0141 | 0.0005 | 0.5009 | 0.5017 | -0.1899 | -0.2489 | -0.2081 | -0.0624 | -0.0109 | 0.0527 | 0.0676 | -4.1791 | 0.8921 | -3.4291 | 0.8663 | A- | A- | A- |
| MATH | 5 | 662457 | 1 | A-F | 2 | 9959 | 0.2153 | 0.2837 | 0.3598 | 0.1356 | 0.2137 | 0.0063 | 0.0009 | 0.4346 | -0.0848 | -0.1724 | -0.1518 | 0.4354 | -0.0577 | -0.0323 | 1.5715 | 0.0817 | 0.091 | 1.0035 | 0.8611 | 1.0638 | B- | A- | A- |
| MATH | 5 | 659939 | 1 | A-T | 1 | 9900 | 0.5114 | 0.1573 | 0.5047 | 0.1952 | 0.1297 | 0.0127 | 0.0004 | 0.4933 | -0.2582 | 0.494 | -0.1529 | -0.2543 | -0.0604 | -0.0084 | -0.1344 | 0.0674 | -3.8191 | 0.9043 | -3.2691 | 0.8671 | A- | A- | A- |
| MATH | 5 | 657741 | 1 | B-O | 1 | 9955 | 0.7103 | 0.1147 | 0.108 | 0.7049 | 0.0648 | 0.0057 | 0.0019 | 0.4235 | -0.2223 | -0.2145 | 0.427 | -0.2092 | -0.0568 | -0.0361 | -1.1066 | 0.072 | -3.9691 | 0.8837 | -3.1492 | 0.7967 | A+ | A- | A+ |
| MATH | 5 | 657747 | 1 | C-G | 2 | 9955 | 0.3249 | 0.3505 | 0.1707 | 0.1488 | 0.3224 | 0.0059 | 0.0017 | 0.2481 | 0.0191 | -0.1542 | -0.1755 | 0.2506 | -0.063 | -0.0228 | 0.7608 | 0.0714 | 3.0411 | 1.1039 | 3.0111 | 1.1487 | A+ | A+ | A+ |
| MATH | 5 | 575711 | 1 | D-M | 2 | 9957 | 0.3892 | 0.3477 | 0.3863 | 0.1249 | 0.1337 | 0.006 | 0.0014 | 0.2644 | -0.0121 | 0.267 | -0.2482 | -0.1081 | -0.0553 | -0.03 | 0.4566 | 0.0692 | 4.2611 | 1.1325 | 3.8512 | 1.1701 | A- | A- | A- |
| MATH | 5 | 624808 | 1 | D-M | 2 | 9935 | 0.2723 | 0.3444 | 0.2697 | 0.214 | 0.1623 | 0.0082 | 0.0014 | 0.2758 | 0.0132 | 0.2779 | -0.1704 | -0.1444 | -0.0644 | -0.0178 | 0.9739 | 0.0734 | 1.9511 | 1.0713 | 3.6112 | 1.2022 | A- | A- | A+ |
| MATH | 5 | 617245 | 2 | A-F | 1 | 9446 | 0.4166 | 0.415 | 0.3183 | 0.1431 | 0.1198 | 0.0027 | 0.0011 | 0.3608 | 0.3625 | -0.2037 | -0.1473 | -0.0881 | -0.0496 | -0.0296 | 0.4619 | 0.0681 | -0.039 | 0.9986 | 0.971 | 1.0387 | A+ | A- | A- |
| MATH | 5 | 662460 | 2 | A-F | 2 | 9407 | 0.3021 | 0.2997 | 0.1598 | 0.2197 | 0.3129 | 0.0064 | 0.0015 | 0.2688 | 0.2715 | -0.2126 | -0.0043 | -0.0825 | -0.0673 | -0.0283 | 1.0531 | 0.0728 | 1.7811 | 1.064 | 3.5112 | 1.1869 | A- | A- | A+ |
| MATH | 5 | 622929 | 2 | A-T | 2 | 9398 | 0.2603 | 0.15 | 0.4109 | 0.258 | 0.1723 | 0.0073 | 0.0016 | 0.1085 | -0.1398 | 0.0475 | 0.1113 | -0.0432 | -0.0522 | -0.0344 | 1.328 | 0.0761 | 7.5113 | 1.3301 | 8.8716 | 1.6197 | A- | A+ | A+ |
| MATH | 5 | 659945 | 2 | A-T | 1 | 9405 | 0.4738 | 0.1408 | 0.3046 | 0.4699 | 0.0766 | 0.0072 | 0.0009 | 0.4953 | -0.1439 | -0.3652 | 0.496 | -0.0921 | -0.047 | -0.0314 | 0.1344 | 0.067 | -4.4391 | 0.892 | -3.6691 | 0.8598 | A- | A- | A- |
| MATH | 5 | 657746 | 2 | B-O | 2 | 9339 | 0.3859 | 0.245 | 0.3801 | 0.2226 | 0.1372 | 0.0143 | 0.0007 | 0.1977 | -0.0251 | 0.2013 | -0.0786 | -0.1366 | -0.0549 | -0.0249 | 0.4722 | 0.0682 | 8.6613 | 1.2624 | 8.3814 | 1.373 | A+ | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 5 | 617242 | 2 | C-G | 2 | 9320 | 0.4285 | 0.2147 | 0.2007 | 0.1463 | 0.4212 | 0.0156 | 0.0015 | 0.2212 | -0.0104 | -0.0869 | -0.1847 | 0.2235 | -0.0423 | -0.0197 | 0.4703 | 0.0682 | 6.3312 | 1.1876 | 5.9113 | 1.2546 | A+ | A- | A- |
| MATH | 5 | 657754 | 2 | D-M | 2 | 9405 | 0.2753 | 0.1061 | 0.273 | 0.2989 | 0.3139 | 0.0063 | 0.0018 | 0.3336 | -0.2118 | 0.3354 | -0.0762 | -0.0935 | -0.0584 | -0.03 | 1.2041 | 0.0745 | 1.7211 | 1.066 | 3.8512 | 1.2254 | A- | A- | A+ |
| MATH | 5 | 657758 | 2 | D-M | 1 | 9415 | 0.67 | 0.1561 | 0.057 | 0.6653 | 0.1146 | 0.0055 | 0.0016 | 0.529 | -0.3776 | -0.2039 | 0.531 | -0.1909 | -0.0548 | -0.0353 | -0.8616 | 0.0705 | -7.7992 | 0.7935 | -4.9493 | 0.7129 | A- | A- | A- |
| MATH | 5 | 621363 | 3 | A-F | 2 | 9386 | 0.6093 | 0.6033 | 0.1441 | 0.1378 | 0.105 | 0.0086 | 0.0013 | 0.4058 | 0.4095 | -0.2339 | -0.1863 | -0.1517 | -0.0756 | -0.0137 | -0.4944 | 0.0678 | -0.409 | 0.9894 | -0.719 | 0.9617 | A+ | A+ | A+ |
| MATH | 5 | 662456 | 3 | A-F | 2 | 9395 | 0.3456 | 0.3425 | 0.1622 | 0.2181 | 0.2681 | 0.0073 | 0.0017 | 0.3623 | 0.3649 | -0.2028 | -0.108 | -0.1042 | -0.0773 | -0.026 | 0.9098 | 0.0715 | 0.111 | 1.0032 | 1.3011 | 1.0643 | A- | A- | A- |
| MATH | 5 | 622925 | 3 | A-T | 1 | 9422 | 0.6616 | 0.6576 | 0.128 | 0.0849 | 0.1234 | 0.0039 | 0.0022 | 0.4833 | 0.4856 | -0.25 | -0.2136 | -0.2499 | -0.053 | -0.0397 | -0.7433 | 0.0693 | -5.7391 | 0.8521 | -4.0892 | 0.7703 | A+ | A- | A- |
| MATH | 5 | 653728 | 3 | A-T | 2 | 9346 | 0.2919 | 0.2617 | 0.1947 | 0.2878 | 0.2417 | 0.0136 | 0.0005 | 0.0337 | 0.0159 | -0.1145 | 0.038 | 0.0659 | -0.0607 | -0.0013 | 1.2053 | 0.0748 | 8.8814 | 1.3741 | 8.7516 | 1.5895 | A- | A+ | A- |
| MATH | 5 | 659950 | 3 | A-T | 2 | 9301 | 0.5549 | 0.109 | 0.1476 | 0.5444 | 0.1802 | 0.0185 | 0.0004 | 0.4763 | -0.2101 | -0.2362 | 0.4736 | -0.2083 | -0.0469 | -0.0116 | -0.2734 | 0.0671 | -2.2091 | 0.9465 | -0.969 | 0.954 | A+ | A- | A- |
| MATH | 5 | 621368 | 3 | B-O | 2 | 9390 | 0.4562 | 0.1369 | 0.2454 | 0.1563 | 0.4519 | 0.0077 | 0.0018 | 0.5279 | -0.2698 | -0.2419 | -0.1622 | 0.53 | -0.0733 | -0.038 | 0.2021 | 0.0672 | -4.9291 | 0.8773 | -4.2792 | 0.8343 | A+ | A- | A- |
| MATH | 5 | 657749 | 3 | C-G | 2 | 9372 | 0.3785 | 0.1456 | 0.212 | 0.2569 | 0.3742 | 0.0082 | 0.0032 | 0.2235 | -0.0961 | -0.1029 | -0.0575 | 0.2288 | -0.0831 | -0.038 | 0.6818 | 0.0696 | 5.9212 | 1.1905 | 5.7113 | 1.2736 | A- | A- | A+ |
| MATH | 5 | 657757 | 3 | D-M | 2 | 9400 | 0.3545 | 0.2323 | 0.3515 | 0.1699 | 0.2379 | 0.007 | 0.0015 | 0.1998 | -0.1282 | 0.2038 | -0.0499 | -0.0399 | -0.0743 | -0.0336 | 0.8296 | 0.0708 | 8.1313 | 1.285 | 7.4714 | 1.3933 | A+ | A- | A- |
| MATH | 5 | 575691 | 4 | A-F | 2 | 9376 | 0.2293 | 0.2262 | 0.2016 | 0.2164 | 0.3423 | 0.0129 | 0.0005 | 0.1475 | 0.1514 | -0.0884 | -0.0522 | 0.0074 | -0.0823 | -0.0269 | 1.5874 | 0.0794 | 4.7512 | 1.2173 | 7.2116 | 1.6022 | A- | A+ | A+ |
| MATH | 5 | 662447 | 4 | A-F | 3 | 9369 | 0.3353 | 0.2373 | 0.2353 | 0.1828 | 0.3305 | 0.0139 | 0.0003 | 0.2571 | -0.0185 | -0.1848 | -0.0735 | 0.2593 | -0.0611 | -0.0088 | 0.9359 | 0.0717 | 6.2312 | 1.2224 | 6.2613 | 1.3387 | A- | A- | A- |
| MATH | 5 | 622922 | 4 | A-T | 1 | 9475 | 0.6533 | 0.114 | 0.1043 | 0.6513 | 0.1274 | 0.0021 | 0.0009 | 0.4161 | -0.1535 | -0.2152 | 0.4183 | -0.245 | -0.0451 | -0.0339 | -0.7005 | 0.0701 | -1.8991 | 0.9472 | -1.5291 | 0.9103 | A+ | A- | A- |
| MATH | 5 | 659949 | 4 | A-T | 1 | 9429 | 0.8018 | 0.0642 | 0.0657 | 0.7955 | 0.0668 | 0.007 | 0.0008 | 0.4191 | -0.2201 | -0.2128 | 0.4208 | -0.2324 | -0.0527 | -0.0221 | -1.5485 | 0.0808 | -4.7192 | 0.8106 | -4.0493 | 0.6568 | A+ | A- | A- |
| MATH | 5 | 574143 | 4 | B-O | 1 | 9444 | 0.7819 | 0.1308 | 0.7769 | 0.0498 | 0.0362 | 0.0055 | 0.0008 | 0.2525 | -0.0948 | 0.2572 | -0.1714 | -0.1784 | -0.0556 | -0.014 | -1.4239 | 0.0786 | 0.821 | 1.0325 | 3.1013 | 1.3018 | A+ | A- | A+ |
| MATH | 5 | 624820 | 4 | C-G | 2 | 9418 | 0.5464 | 0.5415 | 0.1613 | 0.1591 | 0.1291 | 0.0072 | 0.0019 | 0.4901 | 0.4929 | -0.1742 | -0.2726 | -0.2203 | -0.0716 | -0.0438 | -0.1472 | 0.0678 | -6.2392 | 0.8458 | -4.7192 | 0.8021 | A+ | A- | A- |
| MATH | 5 | 574152 | 4 | D-M | 2 | 9420 | 0.4918 | 0.1014 | 0.2783 | 0.4875 | 0.1239 | 0.0069 | 0.0019 | 0.2726 | -0.1732 | -0.0477 | 0.2767 | -0.1748 | -0.0603 | -0.0475 | 0.1188 | 0.0678 | 7.4112 | 1.2112 | 6.1813 | 1.2779 | A- | A- | A+ |
| MATH | 5 | 624836 | 4 | D-M | 2 | 9439 | 0.4238 | 0.2462 | 0.4209 | 0.1527 | 0.1734 | 0.0051 | 0.0018 | 0.3042 | 0.0319 | 0.3066 | -0.1712 | -0.2594 | -0.0536 | -0.0358 | 0.4528 | 0.0687 | 4.0911 | 1.122 | 5.4412 | 1.241 | A+ | A- | A+ |
| MATH | 5 | 621383 | 5 | A-F | 1 | 9385 | 0.3495 | 0.3479 | 0.0645 | 0.4965 | 0.0866 | 0.0033 | 0.0013 | 0.4766 | 0.4778 | -0.0933 | -0.3254 | -0.1344 | -0.0503 | -0.037 | 0.818 | 0.0706 | -2.2891 | 0.9279 | -1.5891 | 0.9301 | A+ | A- | A- |
| MATH | 5 | 622932 | 5 | A-F | 2 | 9350 | 0.4329 | 0.1787 | 0.4294 | 0.2452 | 0.1384 | 0.0069 | 0.0014 | 0.2264 | -0.1793 | 0.2301 | -0.0357 | -0.0685 | -0.0626 | -0.0281 | 0.3945 | 0.068 | 7.0412 | 1.2095 | 5.9912 | 1.2482 | A+ | A- | A- |
| MATH | 5 | 662454 | 5 | A-F | 2 | 9329 | 0.566 | 0.56 | 0.2052 | 0.1068 | 0.1174 | 0.0081 | 0.0024 | 0.2253 | 0.2317 | -0.0656 | -0.1528 | -0.103 | -0.0688 | -0.0407 | -0.2456 | 0.0673 | 4.7511 | 1.1235 | 3.3111 | 1.1494 | A- | A- | A- |
| MATH | 5 | 575699 | 5 | A-T | 2 | 9270 | 0.3222 | 0.2503 | 0.2375 | 0.3168 | 0.1786 | 0.0156 | 0.0012 | 0.1633 | -0.0545 | -0.0833 | 0.1692 | -0.0214 | -0.0871 | -0.0209 | 0.9908 | 0.0722 | 6.1512 | 1.2256 | 6.2413 | 1.3364 | A- | A- | A- |
| MATH | 5 | 659951 | 5 | A-T | 1 | 9242 | 0.5069 | 0.236 | 0.1181 | 0.1293 | 0.4969 | 0.018 | 0.0017 | 0.4333 | -0.2352 | -0.2181 | -0.1049 | 0.4386 | -0.0988 | -0.0178 | 0.0615 | 0.0671 | -2.7991 | 0.9293 | -2.1691 | 0.9175 | A+ | A- | A+ |
| MATH | 5 | 657745 | 5 | B-O | 2 | 9343 | 0.5192 | 0.2569 | 0.5145 | 0.1169 | 0.1027 | 0.0062 | 0.0029 | 0.1496 | 0.0261 | 0.1554 | -0.153 | -0.1081 | -0.0677 | -0.0334 | -0.0242 | 0.0671 | 8.2112 | 1.2233 | 7.7813 | 1.3412 | A+ | A- | A- |
| MATH | 5 | 657751 | 5 | C-G | 1 | 9342 | 0.2472 | 0.2023 | 0.2568 | 0.2449 | 0.2869 | 0.008 | 0.0012 | 0.0344 | -0.0343 | -0.08 | 0.038 | 0.0862 | -0.0714 | -0.008 | 1.4302 | 0.0775 | 9.4214 | 1.4377 | 9.9018 | 1.7991 | A- | A- | A- |
| MATH | 5 | 624807 | 5 | D-M | 2 | 9337 | 0.2124 | 0.2103 | 0.2324 | 0.2811 | 0.2665 | 0.0078 | 0.0018 | 0.0555 | 0.0584 | -0.0409 | -0.0125 | 0.0121 | -0.057 | -0.0286 | 1.6704 | 0.0814 | 5.3313 | 1.2623 | 7.7317 | 1.679 | A- | A- | A- |
| MATH | 5 | 575694 | 6 | A-F | 1 | 9316 | 0.566 | 0.5567 | 0.1571 | 0.1698 | 0.1 | 0.016 | 0.0004 | 0.3877 | 0.3883 | -0.205 | -0.1544 | -0.1771 | -0.054 | -0.0217 | -0.2123 | 0.0679 | 0.741 | 1.019 | -0.219 | 0.989 | A+ | A+ | A+ |
| MATH | 5 | 622927 | 6 | A-F | 1 | 9437 | 0.3964 | 0.1006 | 0.395 | 0.366 | 0.1347 | 0.0027 | 0.001 | 0.543 | -0.1556 | 0.5437 | -0.3172 | -0.1848 | -0.0399 | -0.0337 | 0.6051 | 0.0695 | -4.4491 | 0.8718 | -3.4991 | 0.8565 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 5 | 659946 | 6 | A-T | 2 | 9384 | 0.2013 | 0.0562 | 0.1994 | 0.1193 | 0.6158 | 0.0074 | 0.0019 | 0.2292 | -0.1573 | 0.2314 | -0.1412 | -0.0058 | -0.0707 | -0.0374 | 1.818 | 0.0834 | 3.9112 | 1.1983 | 5.9216 | 1.5532 | A- | A+ | A- |
| MATH | 5 | 621381 | 6 | B-O | 1 | 9392 | 0.5237 | 0.2019 | 0.1479 | 0.5193 | 0.1225 | 0.0069 | 0.0016 | 0.3738 | -0.1927 | -0.2272 | 0.3761 | -0.0734 | -0.0592 | -0.024 | -0.0267 | 0.0677 | 2.0911 | 1.0548 | 1.031 | 1.0455 | A+ | A+ | A+ |
| MATH | 5 | 657743 | 6 | B-O | 1 | 9379 | 0.4689 | 0.1731 | 0.1371 | 0.2156 | 0.4643 | 0.008 | 0.0018 | 0.5187 | -0.2751 | -0.2331 | -0.164 | 0.5213 | -0.082 | -0.0228 | 0.2481 | 0.068 | -5.1291 | 0.8667 | -4.7492 | 0.8153 | A+ | A- | A- |
| MATH | 5 | 657753 | 6 | C-G | 1 | 9387 | 0.3587 | 0.3555 | 0.3257 | 0.2154 | 0.0945 | 0.0075 | 0.0015 | 0.2167 | 0.2203 | 0.0225 | -0.2107 | -0.0764 | -0.0676 | -0.0318 | 0.8183 | 0.0709 | 6.3412 | 1.2196 | 7.4614 | 1.3858 | A- | A- | A+ |
| MATH | 5 | 624814 | 6 | D-M | 2 | 9253 | 0.5703 | 0.0988 | 0.2096 | 0.5571 | 0.1114 | 0.0226 | 0.0005 | 0.4269 | -0.2393 | -0.1291 | 0.4221 | -0.2561 | -0.0326 | -0.0127 | -0.2145 | 0.0679 | -1.349 | 0.9656 | -1.049 | 0.9504 | A- | A- | A- |
| MATH | 5 | 657760 | 6 | D-M | 1 | 9394 | 0.5525 | 0.1613 | 0.1952 | 0.5479 | 0.0873 | 0.0071 | 0.0012 | 0.4839 | -0.2314 | -0.2695 | 0.4854 | -0.1554 | -0.0567 | -0.0306 | -0.1688 | 0.0678 | -2.8791 | 0.9277 | -2.7491 | 0.8771 | A+ | A- | A- |
| MATH | 5 | 621379 | 7 | A-F | 1 | 9403 | 0.4143 | 0.1429 | 0.2007 | 0.2397 | 0.4127 | 0.0028 | 0.0013 | 0.4255 | -0.2052 | -0.2765 | -0.0579 | 0.4261 | -0.0342 | -0.019 | 0.4899 | 0.0689 | 0.491 | 1.0143 | 0.321 | 1.0127 | A+ | A- | A- |
| MATH | 5 | 662453 | 7 | A-F | 1 | 9370 | 0.4725 | 0.1045 | 0.3292 | 0.4689 | 0.0898 | 0.0057 | 0.0018 | 0.4261 | -0.2377 | -0.1689 | 0.4291 | -0.1937 | -0.0636 | -0.0438 | 0.2054 | 0.0679 | -0.479 | 0.9868 | -0.869 | 0.9652 | A- | A- | A+ |
| MATH | 5 | 622935 | 7 | A-T | 2 | 9297 | 0.212 | 0.4486 | 0.2109 | 0.1165 | 0.2088 | 0.0149 | 0.0003 | 0.0679 | -0.0371 | 0.1565 | -0.2087 | 0.0711 | -0.0585 | -0.0151 | 1.7137 | 0.0819 | 6.0113 | 1.3 | 8.5518 | 1.81 | A- | A+ | A- |
| MATH | 5 | 659948 | 7 | A-T | 1 | 9362 | 0.7734 | 0.1169 | 0.0567 | 0.0511 | 0.767 | 0.0057 | 0.0026 | 0.4736 | -0.3372 | -0.2091 | -0.1749 | 0.475 | -0.0518 | -0.0329 | -1.3639 | 0.0771 | -4.8792 | 0.8271 | -4.2493 | 0.6813 | A+ | A- | A- |
| MATH | 5 | 621366 | 7 | B-O | 2 | 9282 | 0.4014 | 0.3738 | 0.3947 | 0.1301 | 0.0846 | 0.0153 | 0.0016 | 0.2619 | -0.0801 | 0.2625 | -0.1771 | -0.09 | -0.0402 | 0.0003 | 0.5835 | 0.0694 | 4.0111 | 1.1263 | 3.7912 | 1.1675 | A+ | A+ | A+ |
| MATH | 5 | 657742 | 7 | B-O | 2 | 9381 | 0.2322 | 0.2422 | 0.3254 | 0.2307 | 0.1953 | 0.0049 | 0.0015 | 0.1462 | -0.0545 | -0.0301 | 0.1478 | -0.0523 | -0.0402 | -0.0339 | 1.5551 | 0.0794 | 4.9712 | 1.2284 | 8.1717 | 1.6858 | A- | A+ | A+ |
| MATH | 5 | 657748 | 7 | C-G | 2 | 9370 | 0.4856 | 0.1475 | 0.1366 | 0.4819 | 0.2264 | 0.0049 | 0.0026 | 0.451 | -0.1661 | -0.1814 | 0.4533 | -0.2375 | -0.0586 | -0.0359 | 0.1407 | 0.0678 | -2.1991 | 0.9417 | -1.5391 | 0.9386 | A- | A+ | A+ |
| MATH | 5 | 653734 | 7 | D-M | 1 | 9359 | 0.5918 | 0.5867 | 0.1844 | 0.1142 | 0.106 | 0.007 | 0.0017 | 0.5217 | 0.5224 | -0.2955 | -0.2261 | -0.2121 | -0.0461 | -0.0393 | -0.3769 | 0.0682 | -5.9491 | 0.8538 | -4.6792 | 0.7893 | A- | A- | A- |
| MATH | 5 | 575696 | 8 | A-F | 1 | 9345 | 0.3547 | 0.3495 | 0.1787 | 0.3134 | 0.1436 | 0.0141 | 0.0007 | 0.2259 | 0.2278 | -0.1374 | -0.0016 | -0.1403 | -0.0476 | -0.0146 | 0.8188 | 0.0708 | 6.9112 | 1.2401 | 7.2614 | 1.3755 | A+ | A+ | A- |
| MATH | 5 | 662455 | 8 | A-F | 1 | 9380 | 0.3984 | 0.2131 | 0.1253 | 0.3939 | 0.2565 | 0.0089 | 0.0023 | 0.3476 | -0.1244 | -0.1406 | 0.3499 | -0.1522 | -0.0615 | -0.0255 | 0.5805 | 0.0691 | 1.261 | 1.0373 | 0.681 | 1.0286 | A- | A- | A- |
| MATH | 5 | 622931 | 8 | A-T | 1 | 9441 | 0.6423 | 0.1065 | 0.137 | 0.1125 | 0.6393 | 0.0033 | 0.0015 | 0.4828 | -0.2477 | -0.2398 | -0.2218 | 0.485 | -0.0473 | -0.0324 | -0.6453 | 0.0688 | -4.9891 | 0.8741 | -3.8592 | 0.7969 | A+ | A- | B- |
| MATH | 5 | 624806 | 8 | A-T | 2 | 9294 | 0.4169 | 0.2086 | 0.4085 | 0.1834 | 0.1792 | 0.0198 | 0.0004 | 0.4267 | -0.1633 | 0.424 | -0.1716 | -0.1825 | -0.0382 | -0.016 | 0.505 | 0.0686 | -0.329 | 0.9902 | -0.309 | 0.9867 | A- | A+ | A- |
| MATH | 5 | 659940 | 8 | A-T | 1 | 9421 | 0.5267 | 0.2187 | 0.5231 | 0.1896 | 0.0617 | 0.0056 | 0.0013 | 0.2766 | -0.1007 | 0.2789 | -0.1384 | -0.1637 | -0.0428 | -0.0236 | -0.0668 | 0.067 | 4.8111 | 1.1243 | 2.9211 | 1.1288 | A+ | A+ | A- |
| MATH | 5 | 653731 | 8 | B-O | 2 | 9402 | 0.5239 | 0.5193 | 0.2722 | 0.1297 | 0.07 | 0.0075 | 0.0014 | 0.449 | 0.4507 | -0.1622 | -0.2603 | -0.2342 | -0.053 | -0.0328 | -0.0482 | 0.067 | -1.509 | 0.9626 | -1.049 | 0.9555 | A- | A- | A- |
| MATH | 5 | 653733 | 8 | C-G | 1 | 9417 | 0.4805 | 0.2321 | 0.1199 | 0.477 | 0.1637 | 0.0043 | 0.003 | 0.3292 | -0.2401 | -0.1491 | 0.3317 | -0.0298 | -0.0443 | -0.0363 | 0.1599 | 0.0673 | 3.3411 | 1.0887 | 2.2211 | 1.0917 | A- | A- | A- |
| MATH | 5 | 624818 | 8 | D-M | 2 | 9398 | 0.3844 | 0.1367 | 0.195 | 0.2781 | 0.3809 | 0.0077 | 0.0016 | 0.2953 | -0.1884 | -0.1461 | -0.0381 | 0.2968 | -0.0382 | -0.0272 | 0.6493 | 0.0695 | 3.8011 | 1.119 | 3.8512 | 1.1751 | A- | A- | A+ |
| MATH | 5 | 621373 | 9 | A-F | 2 | 9389 | 0.3095 | 0.1632 | 0.3078 | 0.4117 | 0.1117 | 0.0044 | 0.0011 | 0.1349 | -0.1107 | 0.1377 | 0.0239 | -0.0928 | -0.0619 | -0.0316 | 1.0554 | 0.0729 | 7.0413 | 1.2705 | 8.6515 | 1.5083 | A- | A- | A- |
| MATH | 5 | 653726 | 9 | A-F | 2 | 9319 | 0.3156 | 0.1846 | 0.3115 | 0.3452 | 0.1457 | 0.0062 | 0.0067 | 0.2013 | -0.2102 | 0.2063 | 0.1466 | -0.2079 | -0.0601 | -0.0684 | 1.0339 | 0.0727 | 5.8012 | 1.2176 | 5.9213 | 1.3278 | A- | A- | A- |
| MATH | 5 | 622924 | 9 | A-T | 1 | 9391 | 0.6168 | 0.1241 | 0.6135 | 0.1406 | 0.1165 | 0.0039 | 0.0014 | 0.455 | -0.2098 | 0.4578 | -0.2084 | -0.2386 | -0.0564 | -0.0332 | -0.5093 | 0.0683 | -2.9691 | 0.9254 | -2.2191 | 0.8919 | A+ | A- | A- |
| MATH | 5 | 659943 | 9 | A-T | 1 | 9362 | 0.5693 | 0.5646 | 0.1127 | 0.236 | 0.0784 | 0.0061 | 0.0022 | 0.5532 | 0.5547 | -0.2523 | -0.3046 | -0.2209 | -0.0603 | -0.0391 | -0.2655 | 0.0675 | -5.5791 | 0.8665 | -4.3592 | 0.819 | B- | A- | A- |
| MATH | 5 | 657740 | 9 | B-O | 1 | 9379 | 0.7121 | 0.7074 | 0.0616 | 0.0781 | 0.1463 | 0.0042 | 0.0023 | 0.4836 | 0.4865 | -0.212 | -0.1826 | -0.3278 | -0.0536 | -0.0421 | -1.0061 | 0.0722 | -5.3892 | 0.8425 | -3.9692 | 0.7544 | A+ | B- | A- |
| MATH | 5 | 624813 | 9 | C-G | 2 | 9294 | 0.4991 | 0.1479 | 0.21 | 0.4914 | 0.1352 | 0.015 | 0.0005 | 0.3753 | -0.1758 | -0.1642 | 0.3765 | -0.1528 | -0.0532 | -0.0096 | 0.0937 | 0.0673 | 0.831 | 1.0213 | 0.831 | 1.0324 | A+ | A- | A- |
| MATH | 5 | 657752 | 9 | C-G | 2 | 9314 | 0.374 | 0.1441 | 0.248 | 0.2256 | 0.3689 | 0.0128 | 0.0006 | 0.1675 | -0.0709 | -0.0174 | -0.1072 | 0.1688 | -0.0329 | -0.0206 | 0.7155 | 0.07 | 8.4713 | 1.287 | 7.8914 | 1.3771 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 5 | 657761 | 9 | D-M | 2 | 9373 | 0.1147 | 0.2259 | 0.0895 | 0.5635 | 0.1139 | 0.0052 | 0.002 | -0.029 | -0.2338 | -0.2387 | 0.3635 | -0.0267 | -0.0579 | -0.038 | 2.5635 | 0.1018 | 3.7313 | 1.2732 | 9.2426 | 2.6149 | A- | A- | A+ |
| MATH | 6 | 319298 | 0 | A-N | 1 | 81845 | 0.5788 | 0.1405 | 0.1637 | 0.5766 | 0.1154 | 0.0031 | 0.0006 | 0.4225 | -0.2689 | -0.2041 | 0.4241 | -0.1168 | -0.0482 | -0.0212 | -0.7328 | 0.0239 | 9.9012 | 1.1807 | 9.9013 | 1.271 | A+ | A- | A- |
| MATH | 6 | 319302 | 0 | A-N | 1 | 81879 | 0.4351 | 0.0816 | 0.4336 | 0.3408 | 0.1406 | 0.003 | 0.0004 | 0.4486 | -0.16 | 0.4495 | -0.2782 | -0.1274 | -0.0438 | -0.0217 | 0.467 | 0.0231 | 3.621 | 1.0364 | 2.881 | 1.0419 | A+ | A- | A- |
| MATH | 6 | 404808 | 0 | A-N | 2 | 81649 | 0.411 | 0.4085 | 0.2313 | 0.2203 | 0.1337 | 0.0048 | 0.0013 | 0.465 | 0.4669 | -0.047 | -0.2742 | -0.265 | -0.0655 | -0.0356 | 0.5802 | 0.0232 | 1.051 | 1.0107 | 2.051 | 1.0302 | A+ | A- | A- |
| MATH | 6 | 412555 | 0 | A-N | 2 | 81550 | 0.6282 | 0.6236 | 0.1267 | 0.1197 | 0.1227 | 0.0058 | 0.0015 | 0.5365 | 0.5396 | -0.2796 | -0.2796 | -0.215 | -0.078 | -0.0306 | -0.4649 | 0.0233 | -9.8991 | 0.9005 | -7.6491 | 0.8619 | A- | A+ | A+ |
| MATH | 6 | 417165 | 0 | A-N | 1 | 81710 | 0.7493 | 0.7453 | 0.1839 | 0.0331 | 0.0324 | 0.0036 | 0.0018 | 0.4601 | 0.4633 | -0.3261 | -0.2036 | -0.1929 | -0.0573 | -0.0363 | -1.1694 | 0.0254 | -9.8991 | 0.8772 | -7.2592 | 0.8087 | A- | A- | A- |
| MATH | 6 | 479634 | 0 | A-N | 1 | 81874 | 0.8037 | 0.019 | 0.1133 | 0.0633 | 0.801 | 0.0028 | 0.0007 | 0.3876 | -0.1302 | -0.2335 | -0.2505 | 0.3895 | -0.0432 | -0.0184 | -1.6738 | 0.0283 | 0.531 | 1.0084 | -1.6891 | 0.9379 | A- | A- | A- |
| MATH | 6 | 312500 | 0 | A-R | 2 | 81639 | 0.4414 | 0.1782 | 0.2866 | 0.4386 | 0.0903 | 0.005 | 0.0013 | 0.5058 | -0.117 | -0.2866 | 0.5078 | -0.2492 | -0.0687 | -0.037 | 0.4275 | 0.0231 | -3.439 | 0.9665 | -1.859 | 0.9736 | A- | A+ | A+ |
| MATH | 6 | 319255 | 0 | A-R | 2 | 81746 | 0.4498 | 0.1109 | 0.2323 | 0.4476 | 0.2043 | 0.0038 | 0.0011 | 0.4257 | -0.2424 | -0.2237 | 0.4276 | -0.0927 | -0.0595 | -0.0291 | 0.8347 | 0.0237 | 9.9012 | 1.1668 | 9.9012 | 1.2275 | B- | A- | A- |
| MATH | 6 | 401317 | 0 | A-R | 2 | 81716 | 0.454 | 0.1733 | 0.4515 | 0.1819 | 0.1879 | 0.0043 | 0.001 | 0.3603 | -0.1679 | 0.3625 | -0.2669 | -0.0231 | -0.0585 | -0.0322 | 0.3701 | 0.023 | 9.9012 | 1.1627 | 9.9012 | 1.2326 | A- | A+ | A+ |
| MATH | 6 | 412895 | 0 | A-R | 2 | 81525 | 0.4735 | 0.2697 | 0.4699 | 0.1511 | 0.1017 | 0.0064 | 0.0012 | 0.5262 | -0.2409 | 0.5285 | -0.2198 | -0.2342 | -0.0767 | -0.0363 | 0.6673 | 0.0234 | 0.181 | 1.0018 | 0.881 | 1.0131 | A- | A+ | A+ |
| MATH | 6 | 491897 | 0 | A-R | 2 | 81701 | 0.4426 | 0.1216 | 0.2366 | 0.1962 | 0.4401 | 0.0046 | 0.001 | 0.4222 | -0.211 | -0.2061 | -0.1228 | 0.4244 | -0.0661 | -0.0295 | 0.5622 | 0.0232 | 9.4811 | 1.0991 | 7.9411 | 1.1197 | A- | A- | A+ |
| MATH | 6 | 496607 | 0 | A-R | 2 | 81740 | 0.4555 | 0.0701 | 0.4532 | 0.3925 | 0.0791 | 0.0037 | 0.0014 | 0.4518 | -0.1732 | 0.4539 | -0.2336 | -0.2315 | -0.062 | -0.0383 | 0.7848 | 0.0236 | 9.9011 | 1.1241 | 8.8111 | 1.1423 | A- | A+ | A+ |
| MATH | 6 | 560214 | 0 | A-R | 2 | 81775 | 0.5683 | 0.1179 | 0.1822 | 0.5656 | 0.1296 | 0.0036 | 0.001 | 0.5126 | -0.2263 | -0.2507 | 0.5145 | -0.2405 | -0.061 | -0.0269 | 0.0415 | 0.0229 | -7.4791 | 0.9321 | -7.2691 | 0.8943 | A- | A+ | A- |
| MATH | 6 | 567155 | 0 | A-R | 2 | 81857 | 0.3511 | 0.106 | 0.3844 | 0.3499 | 0.1561 | 0.0027 | 0.0009 | 0.4136 | -0.1272 | -0.2552 | 0.4147 | -0.0853 | -0.05 | -0.0307 | 0.9517 | 0.024 | 5.5711 | 1.0636 | 8.5511 | 1.1482 | A- | A- | A+ |
| MATH | 6 | 574779 | 0 | A-R | 2 | 81794 | 0.5659 | 0.3401 | 0.0462 | 0.046 | 0.5634 | 0.0029 | 0.0015 | 0.4415 | -0.2894 | -0.1997 | -0.1753 | 0.4439 | -0.0565 | -0.0357 | 0.1594 | 0.0229 | 5.8711 | 1.0562 | 5.3511 | 1.0802 | A- | A+ | A+ |
| MATH | 6 | 314863 | 0 | B-E | 2 | 81736 | 0.5719 | 0.569 | 0.1047 | 0.134 | 0.1872 | 0.0037 | 0.0013 | 0.485 | 0.4874 | -0.2102 | -0.2471 | -0.225 | -0.0615 | -0.0352 | -0.2789 | 0.0231 | -1.929 | 0.9823 | -1.349 | 0.9769 | A+ | A+ | A+ |
| MATH | 6 | 314894 | 0 | B-E | 2 | 81777 | 0.555 | 0.5524 | 0.2004 | 0.1854 | 0.0572 | 0.0032 | 0.0014 | 0.5244 | 0.5261 | -0.238 | -0.2935 | -0.2058 | -0.0606 | -0.0279 | -0.0974 | 0.0229 | -8.1691 | 0.9266 | -7.6891 | 0.8829 | A+ | A+ | A+ |
| MATH | 6 | 319258 | 0 | B-E | 1 | 81865 | 0.5197 | 0.1079 | 0.0974 | 0.2733 | 0.5179 | 0.0027 | 0.0009 | 0.5729 | -0.2997 | -0.2569 | -0.2561 | 0.574 | -0.0528 | -0.0279 | -0.1433 | 0.0229 | -9.8991 | 0.9108 | -8.8591 | 0.8635 | A+ | A+ | A+ |
| MATH | 6 | 319283 | 0 | B-E | 1 | 81881 | 0.674 | 0.0576 | 0.1437 | 0.1237 | 0.6717 | 0.0023 | 0.001 | 0.4497 | -0.2307 | -0.1776 | -0.2821 | 0.4517 | -0.0457 | -0.0313 | -0.5362 | 0.0234 | -6.1691 | 0.9425 | -2.239 | 0.9563 | A+ | A+ | A+ |
| MATH | 6 | 412554 | 0 | B-E | 2 | 81672 | 0.5968 | 0.5933 | 0.1628 | 0.1682 | 0.0699 | 0.0039 | 0.002 | 0.522 | 0.5239 | -0.266 | -0.2685 | -0.2104 | -0.0643 | -0.0247 | -0.248 | 0.023 | -9.8991 | 0.9089 | -7.6391 | 0.876 | A+ | A+ | A+ |
| MATH | 6 | 417167 | 0 | B-E | 2 | 81766 | 0.615 | 0.2017 | 0.0905 | 0.6121 | 0.091 | 0.0037 | 0.0011 | 0.5523 | -0.2851 | -0.2856 | 0.5543 | -0.2402 | -0.06 | -0.0324 | -0.3259 | 0.0231 | -9.8991 | 0.8732 | -9.8992 | 0.801 | A- | A+ | A+ |
| MATH | 6 | 491798 | 0 | B-E | 2 | 81859 | 0.6996 | 0.1331 | 0.6971 | 0.0912 | 0.075 | 0.0027 | 0.0009 | 0.4988 | -0.2514 | 0.5011 | -0.2782 | -0.2316 | -0.0536 | -0.0338 | -0.9721 | 0.0246 | -7.3491 | 0.9221 | -6.2892 | 0.8494 | A- | A+ | A+ |
| MATH | 6 | 496957 | 0 | B-E | 2 | 81821 | 0.7346 | 0.7316 | 0.135 | 0.0778 | 0.0515 | 0.0029 | 0.0011 | 0.4788 | 0.4811 | -0.2382 | -0.2899 | -0.2274 | -0.0553 | -0.0256 | -1.1198 | 0.0252 | -8.9891 | 0.8992 | -4.9591 | 0.8697 | A+ | A+ | A+ |
| MATH | 6 | 496958 | 0 | B-E | 2 | 81612 | 0.5969 | 0.1339 | 0.593 | 0.1653 | 0.1012 | 0.0054 | 0.0012 | 0.4844 | -0.256 | 0.4877 | -0.2235 | -0.2085 | -0.0734 | -0.0327 | -0.0289 | 0.0229 | -1.109 | 0.9898 | -2.639 | 0.9598 | A+ | A+ | A+ |
| MATH | 6 | 501162 | 0 | B-E | 1 | 81615 | 0.6392 | 0.1334 | 0.1135 | 0.1115 | 0.635 | 0.0053 | 0.0013 | 0.5498 | -0.2832 | -0.2614 | -0.255 | 0.5527 | -0.0751 | -0.0329 | -0.503 | 0.0234 | -9.8991 | 0.8627 | -9.8992 | 0.7909 | A+ | A+ | A+ |
| MATH | 6 | 574297 | 0 | B-E | 2 | 81694 | 0.4988 | 0.1343 | 0.496 | 0.1487 | 0.2154 | 0.0045 | 0.0011 | 0.4987 | -0.2709 | 0.5008 | -0.2945 | -0.116 | -0.0673 | -0.0315 | 0.2139 | 0.0229 | -2.399 | 0.9774 | -2.339 | 0.9665 | A- | A+ | A+ |
| MATH | 6 | 314817 | 0 | C-G | 2 | 81739 | 0.4868 | 0.1843 | 0.1785 | 0.1478 | 0.4843 | 0.004 | 0.001 | 0.5439 | -0.2694 | -0.2316 | -0.21 | 0.5454 | -0.0631 | -0.0275 | 0.1559 | 0.0229 | -9.8991 | 0.9048 | -9.3791 | 0.8689 | A+ | A- | A- |
| MATH | 6 | 401320 | 0 | C-G | 2 | 81782 | 0.5179 | 0.5156 | 0.2306 | 0.1894 | 0.0599 | 0.0033 | 0.0012 | 0.4363 | 0.4382 | -0.2681 | -0.1482 | -0.1848 | -0.0511 | -0.0346 | 0.1194 | 0.0229 | 4.631 | 1.044 | 1.691 | 1.0251 | A+ | A- | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 6 | 411369 | 0 | C-G | 2 | 81740 | 0.3555 | 0.3108 | 0.1811 | 0.1494 | 0.3537 | 0.0039 | 0.0011 | 0.4371 | -0.2173 | -0.1621 | -0.1182 | 0.4381 | -0.0556 | -0.0266 | 0.8397 | 0.0237 | 2.051 | 1.0224 | 4.1411 | 1.0667 | A- | A- | A+ |
| MATH | 6 | 416042 | 0 | C-G | 2 | 81661 | 0.4855 | 0.4826 | 0.2054 | 0.1908 | 0.1152 | 0.0045 | 0.0015 | 0.4252 | 0.4279 | -0.2098 | -0.133 | -0.2219 | -0.0671 | -0.0381 | 0.2705 | 0.0229 | 7.7011 | 1.0755 | 6.7311 | 1.0997 | A- | A- | A- |
| MATH | 6 | 478722 | 0 | C-G | 2 | 81766 | 0.4796 | 0.4773 | 0.1905 | 0.1755 | 0.1519 | 0.0038 | 0.0009 | 0.394 | 0.3961 | -0.214 | -0.1395 | -0.1568 | -0.0605 | -0.0257 | 0.4328 | 0.0231 | 9.9011 | 1.1047 | 9.6111 | 1.1438 | A- | A+ | A+ |
| MATH | 6 | 492467 | 0 | C-G | 2 | 81503 | 0.4707 | 0.0914 | 0.1745 | 0.4669 | 0.2593 | 0.0066 | 0.0014 | 0.4268 | -0.2084 | -0.2218 | 0.4299 | -0.1437 | -0.074 | -0.0351 | 0.4611 | 0.0231 | 9.6011 | 1.0982 | 7.2811 | 1.108 | A+ | A+ | A+ |
| MATH | 6 | 496953 | 0 | C-G | 1 | 81811 | 0.5445 | 0.5423 | 0.1922 | 0.1752 | 0.0861 | 0.0031 | 0.0011 | 0.5837 | 0.5848 | -0.319 | -0.2734 | -0.2064 | -0.0507 | -0.0315 | -0.0538 | 0.0229 | -9.8991 | 0.8606 | -9.8992 | 0.796 | A+ | A- | A- |
| MATH | 6 | 497312 | 0 | C-G | 2 | 81736 | 0.3705 | 0.2579 | 0.2429 | 0.1254 | 0.3686 | 0.0039 | 0.0012 | 0.5119 | -0.1535 | -0.2788 | -0.1703 | 0.5127 | -0.0505 | -0.0293 | 0.6799 | 0.0234 | -6.7491 | 0.9313 | -6.2191 | 0.9099 | A+ | A- | A- |
| MATH | 6 | 319261 | 0 | D-S | 2 | 81667 | 0.4816 | 0.3011 | 0.1286 | 0.0857 | 0.4787 | 0.0043 | 0.0016 | 0.4079 | -0.1219 | -0.2193 | -0.2511 | 0.4101 | -0.0606 | -0.0327 | 0.2989 | 0.0229 | 9.9011 | 1.1002 | 8.5811 | 1.1279 | A+ | A+ | A+ |
| MATH | 6 | 399249 | 0 | D-S | 2 | 81780 | 0.6197 | 0.1048 | 0.0746 | 0.6169 | 0.1992 | 0.0036 | 0.001 | 0.461 | -0.1359 | -0.2392 | 0.4638 | -0.2908 | -0.0666 | -0.0287 | -0.4351 | 0.0233 | -3.339 | 0.9691 | -1.959 | 0.9638 | A- | A- | A- |
| MATH | 6 | 401985 | 0 | D-S | 2 | 81549 | 0.5869 | 0.1291 | 0.1233 | 0.5826 | 0.1577 | 0.0059 | 0.0015 | 0.4441 | -0.201 | -0.231 | 0.4483 | -0.1928 | -0.0776 | -0.0409 | -0.445 | 0.0233 | 3.031 | 1.0286 | 3.5611 | 1.068 | A+ | A- | A+ |
| MATH | 6 | 492468 | 0 | D-S | 2 | 81676 | 0.4859 | 0.1586 | 0.1317 | 0.2208 | 0.483 | 0.0045 | 0.0013 | 0.4767 | -0.203 | -0.1758 | -0.2412 | 0.4788 | -0.0663 | -0.0318 | 0.1093 | 0.0229 | 0.021 | 1.0001 | -1.159 | 0.9829 | A+ | A- | A- |
| MATH | 6 | 500237 | 0 | D-S | 2 | 81904 | 0.5685 | 0.2935 | 0.0806 | 0.5667 | 0.0561 | 0.0022 | 0.0009 | 0.4642 | -0.2366 | -0.2654 | 0.4656 | -0.2078 | -0.0451 | -0.0274 | 0.0975 | 0.0229 | 1.291 | 1.0121 | -0.529 | 0.9921 | A+ | A- | A- |
| MATH | 6 | 574853 | 0 | D-S | 1 | 81797 | 0.3563 | 0.0486 | 0.276 | 0.3548 | 0.3162 | 0.003 | 0.0014 | 0.4527 | -0.1911 | -0.2692 | 0.454 | -0.1106 | -0.0545 | -0.0374 | 0.8441 | 0.0237 | -0.409 | 0.9955 | 2.941 | 1.0472 | A+ | A- | A- |
| MATH | 6 | 617052 | 1 | A-N | 1 | 9765 | 0.5754 | 0.116 | 0.1312 | 0.5723 | 0.1751 | 0.0043 | 0.0011 | 0.3906 | -0.2251 | -0.2382 | 0.3929 | -0.0994 | -0.0519 | -0.0203 | -0.4474 | 0.069 | 3.5311 | 1.097 | 2.4111 | 1.1319 | A- | A- | A- |
| MATH | 6 | 624475 | 1 | A-N | 2 | 9727 | 0.3133 | 0.2361 | 0.3103 | 0.1514 | 0.2929 | 0.0072 | 0.002 | 0.1209 | -0.2489 | 0.1244 | -0.1678 | 0.2526 | -0.0544 | -0.0454 | 0.8134 | 0.0716 | 9.9014 | 1.4 | 9.9016 | 1.5725 | A- | A- | A- |
| MATH | 6 | 653194 | 1 | A-R | 1 | 9735 | 0.4625 | 0.4585 | 0.1221 | 0.1258 | 0.2851 | 0.0066 | 0.0018 | 0.3553 | 0.3598 | -0.2071 | -0.1854 | -0.0922 | -0.0808 | -0.0427 | 0.3044 | 0.0689 | 3.1311 | 1.095 | 2.8911 | 1.1244 | A- | A- | A- |
| MATH | 6 | 615357 | 1 | B-E | 2 | 9666 | 0.4641 | 0.4569 | 0.2261 | 0.1813 | 0.1202 | 0.0145 | 0.001 | 0.4267 | 0.4291 | -0.0671 | -0.2658 | -0.2264 | -0.0717 | -0.0337 | 0.3726 | 0.0691 | 0.731 | 1.0218 | 0.671 | 1.0276 | A+ | A+ | A+ |
| MATH | 6 | 653195 | 1 | B-E | 1 | 9723 | 0.2026 | 0.0893 | 0.315 | 0.2007 | 0.3853 | 0.0074 | 0.0022 | 0.1833 | -0.0822 | -0.2153 | 0.1864 | 0.1182 | -0.0796 | -0.04 | 1.7736 | 0.0829 | 3.7312 | 1.1816 | 5.1715 | 1.4717 | A- | A+ | A+ |
| MATH | 6 | 658872 | 1 | B-E | 2 | 9731 | 0.4316 | 0.1217 | 0.2116 | 0.2301 | 0.4278 | 0.008 | 0.0008 | 0.3876 | -0.1969 | -0.1521 | -0.1411 | 0.3906 | -0.0747 | -0.0247 | 0.4414 | 0.0694 | 3.0311 | 1.095 | 2.8311 | 1.1232 | A+ | A+ | A+ |
| MATH | 6 | 614784 | 1 | C-G | 1 | 9724 | 0.558 | 0.1587 | 0.5527 | 0.1384 | 0.1407 | 0.0077 | 0.0018 | 0.3599 | -0.2076 | 0.3655 | -0.2192 | -0.0607 | -0.0839 | -0.0401 | -0.2446 | 0.0684 | 0.601 | 1.0158 | -0.099 | 0.9943 | A+ | A- | A- |
| MATH | 6 | 625245 | 1 | D-S | 2 | 9691 | 0.3124 | 0.1393 | 0.1943 | 0.3451 | 0.3083 | 0.0122 | 0.0007 | 0.4066 | -0.1543 | -0.1262 | -0.1634 | 0.4075 | -0.0607 | -0.0164 | 0.9652 | 0.0728 | 0.741 | 1.0258 | 1.5911 | 1.0816 | A- | A- | A- |
| MATH | 6 | 617304 | 2 | A-N | 1 | 9014 | 0.4203 | 0.0829 | 0.1082 | 0.4182 | 0.3856 | 0.0033 | 0.0019 | 0.4456 | -0.1777 | -0.1885 | 0.447 | -0.2227 | -0.0453 | -0.0459 | 0.5061 | 0.0691 | -2.4991 | 0.9275 | -2.1791 | 0.9082 | A+ | A- | A- |
| MATH | 6 | 658869 | 2 | A-N | 1 | 8941 | 0.2961 | 0.126 | 0.2921 | 0.1182 | 0.4504 | 0.0128 | 0.0004 | 0.1501 | -0.1257 | 0.1532 | -0.2292 | 0.1071 | -0.0611 | -0.0178 | 1.3002 | 0.0747 | 8.8314 | 1.3651 | 9.1916 | 1.6279 | A- | A- | A- |
| MATH | 6 | 654778 | 2 | A-R | 2 | 8984 | 0.6153 | 0.6101 | 0.1474 | 0.1615 | 0.0725 | 0.0065 | 0.002 | 0.4972 | 0.5017 | -0.2475 | -0.2553 | -0.2084 | -0.0915 | -0.036 | -0.4072 | 0.0695 | -5.5091 | 0.8558 | -3.0892 | 0.833 | A- | A- | A- |
| MATH | 6 | 574784 | 2 | B-E | 2 | 8937 | 0.3068 | 0.1935 | 0.3026 | 0.2812 | 0.209 | 0.013 | 0.0007 | 0.2804 | -0.0573 | 0.2833 | -0.1833 | -0.0385 | -0.0762 | -0.0317 | 1.2544 | 0.0742 | 4.4012 | 1.1694 | 4.6713 | 1.2855 | A- | A- | A+ |
| MATH | 6 | 654994 | 2 | B-E | 1 | 8981 | 0.5872 | 0.1285 | 0.1438 | 0.5821 | 0.1369 | 0.0073 | 0.0015 | 0.4626 | -0.1496 | -0.1694 | 0.4668 | -0.3265 | -0.0837 | -0.0363 | -0.3109 | 0.0691 | -2.3091 | 0.9383 | -1.9091 | 0.8989 | A+ | A- | A+ |
| MATH | 6 | 658116 | 2 | C-G | 2 | 8974 | 0.1895 | 0.2674 | 0.206 | 0.3292 | 0.1877 | 0.0075 | 0.0021 | 0.2887 | -0.101 | -0.2048 | 0.0475 | 0.2905 | -0.0762 | -0.0352 | 2.048 | 0.0854 | 1.3211 | 1.0653 | 4.1614 | 1.412 | A- | A- | A- |
| MATH | 6 | 581338 | 2 | D-S | 2 | 8983 | 0.5176 | 0.5132 | 0.1522 | 0.1622 | 0.1638 | 0.0067 | 0.0019 | 0.4138 | 0.4176 | -0.1409 | -0.2682 | -0.1387 | -0.0743 | -0.0416 | 0.0294 | 0.0684 | 1.511 | 1.0414 | 0.851 | 1.0391 | A+ | A- | A- |
| MATH | 6 | 657506 | 2 | D-S | 2 | 8993 | 0.533 | 0.1242 | 0.529 | 0.128 | 0.2113 | 0.0062 | 0.0013 | 0.449 | -0.1514 | 0.4524 | -0.2835 | -0.1806 | -0.0766 | -0.0395 | 0.0097 | 0.0684 | -2.1891 | 0.9414 | -1.8691 | 0.9141 | A+ | A- | A- |
| MATH | 6 | 617503 | 3 | A-N | 1 | 9003 | 0.4989 | 0.1801 | 0.131 | 0.1876 | 0.4967 | 0.0034 | 0.0011 | 0.4795 | -0.244 | -0.2307 | -0.1661 | 0.4812 | -0.0534 | -0.0304 | 0.1108 | 0.0688 | -0.829 | 0.9767 | -0.879 | 0.9592 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 6 | 614778 | 3 | A-R | 1 | 8960 | 0.7613 | 0.7542 | 0.084 | 0.0776 | 0.0749 | 0.0075 | 0.0018 | 0.4736 | 0.4807 | -0.2793 | -0.2678 | -0.1829 | -0.0947 | -0.0358 | -1.3367 | 0.08 | -2.7491 | 0.8914 | -0.089 | 0.9886 | A+ | A+ | A- |
| MATH | 6 | 657501 | 3 | A-R | 2 | 8935 | 0.4145 | 0.2865 | 0.1019 | 0.19 | 0.4096 | 0.0111 | 0.001 | 0.3502 | 0.0218 | -0.2321 | -0.2642 | 0.3547 | -0.0903 | -0.0311 | 0.7141 | 0.07 | 4.7712 | 1.152 | 5.1413 | 1.2548 | A- | A- | A- |
| MATH | 6 | 615361 | 3 | B-E | 1 | 8960 | 0.6519 | 0.127 | 0.6458 | 0.0784 | 0.1394 | 0.0067 | 0.0025 | 0.3429 | -0.2581 | 0.3495 | -0.2569 | -0.0106 | -0.0737 | -0.0489 | -0.6892 | 0.0722 | 4.0411 | 1.1311 | 5.6714 | 1.4302 | A+ | A- | A+ |
| MATH | 6 | 652197 | 3 | B-E | 2 | 8927 | 0.3326 | 0.1626 | 0.2329 | 0.2633 | 0.3283 | 0.0128 | 0.0001 | 0.3428 | -0.1936 | -0.1129 | -0.0762 | 0.3459 | -0.0853 | -0.0063 | 1.1136 | 0.0726 | 2.8211 | 1.0978 | 4.5713 | 1.2663 | A- | A+ | A+ |
| MATH | 6 | 614777 | 3 | C-G | 2 | 8961 | 0.2294 | 0.1902 | 0.2443 | 0.2273 | 0.3291 | 0.0076 | 0.0015 | 0.1148 | -0.0836 | -0.0713 | 0.1184 | 0.0471 | -0.0751 | -0.0447 | 1.6572 | 0.0785 | 5.7313 | 1.2521 | 7.9517 | 1.6955 | A- | A- | A- |
| MATH | 6 | 652199 | 3 | D-S | 1 | 8961 | 0.6624 | 0.6563 | 0.0962 | 0.1638 | 0.0745 | 0.0077 | 0.0014 | 0.4311 | 0.4353 | -0.2083 | -0.2468 | -0.1767 | -0.0698 | -0.0386 | -0.7176 | 0.0724 | -0.859 | 0.9727 | -1.1491 | 0.9223 | A+ | A- | A- |
| MATH | 6 | 654784 | 3 | D-S | 2 | 8957 | 0.6387 | 0.1036 | 0.6326 | 0.1391 | 0.1151 | 0.0077 | 0.0019 | 0.4425 | -0.2152 | 0.4496 | -0.2207 | -0.2015 | -0.1 | -0.0404 | -0.6962 | 0.0722 | -1.9591 | 0.9397 | 0.041 | 1.0014 | A- | A- | A- |
| MATH | 6 | 617502 | 4 | A-N | 1 | 9014 | 0.3546 | 0.1219 | 0.3533 | 0.1964 | 0.3249 | 0.0025 | 0.0009 | 0.4208 | -0.1342 | 0.4219 | -0.1189 | -0.2293 | -0.0488 | -0.0215 | 0.9492 | 0.0719 | -0.289 | 0.99 | 0.301 | 1.0144 | A- | A+ | A- |
| MATH | 6 | 560215 | 4 | A-R | 2 | 8966 | 0.7536 | 0.0711 | 0.09 | 0.0831 | 0.747 | 0.0071 | 0.0017 | 0.4874 | -0.2597 | -0.2299 | -0.2664 | 0.4912 | -0.0781 | -0.0223 | -1.1856 | 0.0767 | -3.8991 | 0.8644 | -2.8992 | 0.7641 | A- | A+ | A+ |
| MATH | 6 | 624655 | 4 | A-R | 2 | 8973 | 0.502 | 0.1645 | 0.498 | 0.1399 | 0.1897 | 0.0064 | 0.0015 | 0.5274 | -0.2354 | 0.5305 | -0.182 | -0.2715 | -0.0895 | -0.033 | 0.1699 | 0.0688 | -2.5091 | 0.9302 | -2.2891 | 0.8993 | A+ | A- | A- |
| MATH | 6 | 657502 | 4 | B-E | 2 | 8933 | 0.3788 | 0.3477 | 0.3741 | 0.1331 | 0.1327 | 0.0121 | 0.0003 | 0.3372 | -0.0371 | 0.3399 | -0.2445 | -0.1637 | -0.0717 | -0.0194 | 0.8312 | 0.0711 | 3.4211 | 1.1148 | 3.7712 | 1.191 | A- | A- | A- |
| MATH | 6 | 657503 | 4 | B-E | 1 | 8927 | 0.5399 | 0.0845 | 0.2839 | 0.5329 | 0.0857 | 0.0126 | 0.0004 | 0.444 | -0.2255 | -0.1961 | 0.4466 | -0.2258 | -0.0752 | -0.0042 | -0.0104 | 0.0688 | -1.009 | 0.9718 | -1.5791 | 0.9255 | A- | A+ | A+ |
| MATH | 6 | 560219 | 4 | C-G | 1 | 8978 | 0.6029 | 0.1759 | 0.1374 | 0.5985 | 0.0808 | 0.0061 | 0.0013 | 0.4565 | -0.264 | -0.2392 | 0.4606 | -0.1307 | -0.077 | -0.0354 | -0.3501 | 0.0696 | -2.2891 | 0.9369 | -1.9391 | 0.8952 | A+ | A- | A- |
| MATH | 6 | 652385 | 4 | C-G | 2 | 8956 | 0.3991 | 0.2263 | 0.3951 | 0.2262 | 0.1425 | 0.0083 | 0.0015 | 0.4281 | -0.2452 | 0.4308 | -0.1152 | -0.1483 | -0.0715 | -0.0375 | 0.7147 | 0.0704 | 1.121 | 1.0354 | 2.6011 | 1.1243 | A- | A- | A- |
| MATH | 6 | 622368 | 4 | D-S | 2 | 8970 | 0.3671 | 0.3641 | 0.2619 | 0.2254 | 0.1403 | 0.0071 | 0.0012 | 0.293 | 0.2962 | -0.1749 | -0.0308 | -0.1309 | -0.0731 | -0.0333 | 0.888 | 0.0715 | 4.9712 | 1.1723 | 5.3713 | 1.2857 | A- | A+ | A- |
| MATH | 6 | 574244 | 5 | A-N | 2 | 8971 | 0.3479 | 0.2999 | 0.3444 | 0.1291 | 0.2166 | 0.0076 | 0.0023 | 0.321 | -0.0144 | 0.3237 | -0.2253 | -0.156 | -0.0647 | -0.0374 | 0.9661 | 0.0719 | 2.6911 | 1.0932 | 3.4612 | 1.1778 | A+ | A- | A+ |
| MATH | 6 | 617676 | 5 | A-N | 1 | 9027 | 0.2321 | 0.226 | 0.2776 | 0.2615 | 0.2312 | 0.003 | 0.0008 | 0.2955 | 0.0387 | -0.1325 | -0.1805 | 0.2959 | -0.029 | -0.0261 | 1.6768 | 0.0797 | 2.6311 | 1.1166 | 5.3914 | 1.4451 | A- | A+ | A+ |
| MATH | 6 | 663834 | 5 | A-R | 2 | 8918 | 0.2977 | 0.2154 | 0.1484 | 0.293 | 0.3273 | 0.0156 | 0.0002 | 0.2425 | -0.0817 | -0.2128 | 0.2433 | 0.0091 | -0.0458 | -0.0058 | 1.2697 | 0.0746 | 4.5712 | 1.1792 | 5.4013 | 1.3423 | A- | A- | A- |
| MATH | 6 | 574785 | 5 | B-E | 1 | 8982 | 0.0886 | 0.0878 | 0.116 | 0.3719 | 0.4155 | 0.0068 | 0.0019 | -0.107 | -0.1041 | -0.1154 | 0.0431 | 0.1067 | -0.0699 | -0.0288 | 3.0573 | 0.1123 | 4.1614 | 1.3541 | 9.9038 | 3.7786 | A- | A+ | A- |
| MATH | 6 | 582620 | 5 | B-E | 2 | 8934 | 0.2496 | 0.2788 | 0.3457 | 0.2461 | 0.1154 | 0.0134 | 0.0007 | 0.1425 | -0.182 | 0.207 | 0.1458 | -0.2241 | -0.0639 | -0.0286 | 1.5732 | 0.0783 | 6.7013 | 1.3025 | 8.5317 | 1.705 | A- | A+ | A- |
| MATH | 6 | 654782 | 5 | C-G | 1 | 8975 | 0.4566 | 0.1783 | 0.166 | 0.1939 | 0.4523 | 0.0066 | 0.0029 | 0.5554 | -0.2723 | -0.1887 | -0.2403 | 0.5564 | -0.0699 | -0.034 | 0.3874 | 0.0688 | -4.9291 | 0.8637 | -4.6192 | 0.8216 | A+ | A- | A- |
| MATH | 6 | 575157 | 5 | D-S | 2 | 8983 | 0.4613 | 0.2248 | 0.4573 | 0.1936 | 0.1157 | 0.0072 | 0.0014 | 0.3772 | -0.0434 | 0.3802 | -0.2313 | -0.228 | -0.0651 | -0.0397 | 0.3613 | 0.0687 | 2.3111 | 1.0677 | 2.8611 | 1.1215 | A+ | A+ | A- |
| MATH | 6 | 663841 | 5 | D-S | 1 | 8967 | 0.4531 | 0.2229 | 0.4484 | 0.1118 | 0.2065 | 0.0082 | 0.0022 | 0.4579 | -0.1496 | 0.4605 | -0.1578 | -0.2695 | -0.0662 | -0.0421 | 0.4073 | 0.0689 | -1.319 | 0.9619 | 0.081 | 1.0029 | A+ | A- | A- |
| MATH | 6 | 574777 | 6 | A-N | 2 | 8996 | 0.3593 | 0.1109 | 0.3562 | 0.3289 | 0.1955 | 0.0067 | 0.0019 | 0.3326 | -0.1455 | 0.3354 | -0.2223 | -0.0087 | -0.0719 | -0.0274 | 0.9275 | 0.072 | 3.9411 | 1.1381 | 4.7913 | 1.2565 | A- | A+ | A+ |
| MATH | 6 | 617644 | 6 | A-N | 1 | 9039 | 0.6027 | 0.1886 | 0.6004 | 0.1565 | 0.0507 | 0.0032 | 0.0007 | 0.4258 | -0.3024 | 0.4271 | -0.1312 | -0.1839 | -0.0448 | -0.0151 | -0.3598 | 0.0696 | -0.179 | 0.9948 | -0.789 | 0.9584 | A- | A- | A- |
| MATH | 6 | 574296 | 6 | A-R | 2 | 8991 | 0.5696 | 0.1032 | 0.1817 | 0.1416 | 0.5644 | 0.0073 | 0.0019 | 0.5609 | -0.2817 | -0.2494 | -0.2551 | 0.5642 | -0.0885 | -0.034 | -0.1727 | 0.0691 | -5.6792 | 0.8495 | -5.1692 | 0.771 | A- | A- | A- |
| MATH | 6 | 622369 | 6 | B-E | 2 | 8956 | 0.4232 | 0.4177 | 0.1693 | 0.2702 | 0.1298 | 0.0127 | 0.0003 | 0.327 | 0.3316 | -0.1784 | -0.1066 | -0.1169 | -0.0859 | -0.0225 | 0.589 | 0.0701 | 5.8512 | 1.1918 | 5.1212 | 1.2412 | A- | A+ | A+ |
| MATH | 6 | 654779 | 6 | B-E | 2 | 8993 | 0.5539 | 0.1346 | 0.5489 | 0.1652 | 0.1424 | 0.0071 | 0.0019 | 0.4518 | -0.1836 | 0.4552 | -0.2288 | -0.2034 | -0.0726 | -0.0398 | -0.0932 | 0.0689 | 0.711 | 1.0198 | -0.109 | 0.9943 | A+ | A+ | A+ |
| MATH | 6 | 654780 | 6 | B-E | 2 | 8956 | 0.3092 | 0.2408 | 0.2226 | 0.2184 | 0.3052 | 0.0123 | 0.0007 | 0.2356 | 0.039 | -0.1526 | -0.1348 | 0.238 | -0.0627 | -0.0068 | 1.2279 | 0.0746 | 7.2413 | 1.2904 | 8.6016 | 1.5845 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 6 | 615365 | 6 | C-G | 2 | 9002 | 0.5664 | 0.3187 | 0.5619 | 0.0566 | 0.0548 | 0.0066 | 0.0013 | 0.4308 | -0.327 | 0.4333 | -0.1375 | -0.109 | -0.0607 | -0.0308 | -0.1602 | 0.069 | -0.579 | 0.9836 | -0.709 | 0.9657 | A- | A- | A- |
| MATH | 6 | 663840 | 6 | D-S | 2 | 8972 | 0.4765 | 0.1386 | 0.1764 | 0.4711 | 0.2026 | 0.01 | 0.0012 | 0.3003 | -0.1539 | -0.1287 | 0.305 | -0.1032 | -0.0741 | -0.0333 | 0.3077 | 0.0691 | 5.8012 | 1.1791 | 5.9213 | 1.2731 | A+ | A- | A- |
| MATH | 6 | 617499 | 7 | A-N | 1 | 8965 | 0.3882 | 0.1579 | 0.2202 | 0.2309 | 0.3864 | 0.004 | 0.0007 | 0.5157 | -0.223 | -0.1529 | -0.2442 | 0.5165 | -0.0493 | -0.0314 | 0.7638 | 0.0712 | -2.0791 | 0.9331 | -1.6391 | 0.9239 | A+ | A- | A- |
| MATH | 6 | 575151 | 7 | A-R | 1 | 8876 | 0.6682 | 0.0989 | 0.6585 | 0.1404 | 0.0876 | 0.0142 | 0.0003 | 0.3862 | -0.1937 | 0.3899 | -0.1851 | -0.191 | -0.071 | -0.0204 | -0.6716 | 0.071 | 2.3211 | 1.0681 | 1.7411 | 1.1153 | A+ | A+ | A+ |
| MATH | 6 | 657500 | 7 | A-R | 2 | 8921 | 0.6862 | 0.1201 | 0.0909 | 0.6797 | 0.0997 | 0.0081 | 0.0014 | 0.4695 | -0.2691 | -0.245 | 0.4743 | -0.1837 | -0.0807 | -0.0294 | -0.789 | 0.0718 | -4.5891 | 0.8692 | -3.0092 | 0.8043 | A+ | A- | A- |
| MATH | 6 | 658871 | 7 | B-E | 2 | 8939 | 0.4894 | 0.1199 | 0.2406 | 0.4857 | 0.1462 | 0.0067 | 0.0009 | 0.4047 | -0.1778 | -0.1314 | 0.4089 | -0.2327 | -0.0882 | -0.0354 | 0.2332 | 0.069 | 0.961 | 1.0279 | 0.191 | 1.0076 | A- | A- | A- |
| MATH | 6 | 663836 | 7 | B-E | 2 | 8922 | 0.6046 | 0.1551 | 0.5989 | 0.1491 | 0.0875 | 0.0077 | 0.0018 | 0.4919 | -0.2012 | 0.4948 | -0.2638 | -0.2424 | -0.0643 | -0.0386 | -0.3529 | 0.0694 | -2.8791 | 0.9222 | -2.7791 | 0.8548 | A+ | A+ | A+ |
| MATH | 6 | 657505 | 7 | C-G | 1 | 8923 | 0.2866 | 0.2142 | 0.2839 | 0.3163 | 0.1763 | 0.0077 | 0.0017 | 0.1399 | -0.1163 | 0.1439 | 0.0859 | -0.1285 | -0.0708 | -0.0491 | 1.3716 | 0.0766 | 8.6914 | 1.382 | 9.9018 | 1.8194 | A- | A- | A- |
| MATH | 6 | 581403 | 7 | D-S | 1 | 8880 | 0.412 | 0.4062 | 0.1542 | 0.137 | 0.2884 | 0.0139 | 0.0002 | 0.3183 | 0.3194 | -0.1911 | -0.2103 | -0.0208 | -0.0495 | -0.0197 | 0.6547 | 0.0705 | 7.7513 | 1.2676 | 7.9614 | 1.4074 | A+ | A- | A+ |
| MATH | 6 | 654998 | 7 | D-S | 2 | 8928 | 0.4407 | 0.1554 | 0.2546 | 0.1443 | 0.4369 | 0.0071 | 0.0017 | 0.4631 | -0.231 | -0.1782 | -0.1781 | 0.4651 | -0.0744 | -0.012 | 0.4898 | 0.0698 | -1.179 | 0.9641 | -1.029 | 0.9544 | A+ | A- | A- |
| MATH | 6 | 575149 | 8 | A-N | 2 | 8900 | 0.4066 | 0.1225 | 0.4017 | 0.1707 | 0.2929 | 0.0111 | 0.001 | 0.3151 | -0.1532 | 0.3196 | -0.1421 | -0.0955 | -0.0807 | -0.0337 | 0.7042 | 0.0699 | 5.1412 | 1.1647 | 5.4513 | 1.2669 | A+ | A+ | A- |
| MATH | 6 | 617600 | 8 | A-N | 1 | 8975 | 0.3541 | 0.1232 | 0.3528 | 0.3816 | 0.1386 | 0.0034 | 0.0003 | 0.398 | -0.1039 | 0.3992 | -0.2569 | -0.0812 | -0.0567 | -0.0225 | 0.9768 | 0.0715 | 3.2911 | 1.1104 | 4.0912 | 1.2185 | A- | A+ | A- |
| MATH | 6 | 658112 | 8 | A-R | 2 | 8853 | 0.4623 | 0.1887 | 0.4543 | 0.2051 | 0.1345 | 0.0172 | 0.0001 | 0.5131 | -0.2301 | 0.5106 | -0.1229 | -0.3158 | -0.0531 | 0.011 | 0.4238 | 0.069 | -3.0891 | 0.9126 | -2.5591 | 0.8926 | A- | A+ | A+ |
| MATH | 6 | 582618 | 8 | B-E | 1 | 8929 | 0.4971 | 0.0926 | 0.1501 | 0.2557 | 0.4927 | 0.0068 | 0.0021 | 0.4349 | -0.2565 | -0.154 | -0.1889 | 0.4371 | -0.0703 | -0.0212 | 0.2239 | 0.0687 | 0.621 | 1.0174 | 0.451 | 1.0193 | A+ | A+ | A+ |
| MATH | 6 | 654995 | 8 | B-E | 2 | 8925 | 0.2221 | 0.1925 | 0.3825 | 0.1957 | 0.22 | 0.007 | 0.0023 | 0.1215 | -0.0617 | 0.0891 | -0.1554 | 0.1255 | -0.0836 | -0.0479 | 1.8294 | 0.0809 | 7.8614 | 1.3814 | 9.412 | 1.9567 | A+ | A- | A+ |
| MATH | 6 | 624651 | 8 | C-G | 1 | 8862 | 0.5196 | 0.5112 | 0.1637 | 0.1161 | 0.1927 | 0.016 | 0.0003 | 0.4091 | 0.4102 | -0.2456 | -0.1451 | -0.1515 | -0.0628 | -0.0026 | 0.1288 | 0.0687 | 1.471 | 1.0419 | 0.431 | 1.0186 | A+ | A- | A- |
| MATH | 6 | 663839 | 8 | C-G | 1 | 8940 | 0.8824 | 0.0319 | 0.8757 | 0.0334 | 0.0514 | 0.006 | 0.0017 | 0.3322 | -0.1669 | 0.3418 | -0.1818 | -0.1954 | -0.0788 | -0.0383 | -2.1496 | 0.0985 | -0.8091 | 0.9474 | -0.7491 | 0.8898 | A+ | A- | A- |
| MATH | 6 | 624647 | 8 | D-S | 2 | 8922 | 0.7069 | 0.0996 | 0.1088 | 0.7001 | 0.0819 | 0.0084 | 0.0012 | 0.4566 | -0.1732 | -0.2516 | 0.4621 | -0.2654 | -0.0859 | -0.0264 | -0.8768 | 0.0738 | -2.4391 | 0.9214 | 0.241 | 1.0158 | A+ | A- | A- |
| MATH | 6 | 617667 | 9 | A-N | 1 | 8983 | 0.732 | 0.1037 | 0.0819 | 0.7278 | 0.0808 | 0.0048 | 0.001 | 0.4594 | -0.2436 | -0.2318 | 0.4634 | -0.2299 | -0.0647 | -0.0414 | -1.0303 | 0.0744 | -4.2091 | 0.8662 | -4.0793 | 0.7193 | A- | A- | A- |
| MATH | 6 | 654777 | 9 | A-R | 2 | 8907 | 0.12 | 0.3055 | 0.4146 | 0.1183 | 0.1474 | 0.0136 | 0.0006 | -0.1588 | -0.0354 | 0.2794 | -0.1548 | -0.1818 | -0.0567 | -0.0135 | 2.7338 | 0.1016 | 4.3313 | 1.3121 | 9.9034 | 3.3931 | A- | A- | A- |
| MATH | 6 | 654992 | 9 | A-R | 2 | 8943 | 0.4711 | 0.084 | 0.2542 | 0.1853 | 0.4663 | 0.0084 | 0.0018 | 0.4621 | -0.2273 | -0.1879 | -0.2043 | 0.464 | -0.073 | -0.0135 | 0.3612 | 0.0688 | -1.559 | 0.9549 | -1.5791 | 0.9355 | A+ | A- | A- |
| MATH | 6 | 624476 | 9 | B-E | 2 | 8904 | 0.3676 | 0.2872 | 0.3623 | 0.1704 | 0.1656 | 0.0142 | 0.0003 | 0.3089 | -0.0332 | 0.3117 | -0.1758 | -0.1618 | -0.0696 | -0.0187 | 0.9187 | 0.0714 | 4.2911 | 1.1493 | 4.2312 | 1.2157 | A+ | A+ | A- |
| MATH | 6 | 657504 | 9 | B-E | 2 | 8965 | 0.5266 | 0.5225 | 0.1754 | 0.1692 | 0.1251 | 0.0063 | 0.0014 | 0.449 | 0.4519 | -0.2332 | -0.1791 | -0.1909 | -0.0677 | -0.0368 | 0.0725 | 0.0684 | -1.8391 | 0.9493 | -1.9991 | 0.9153 | A+ | A+ | A+ |
| MATH | 6 | 652198 | 9 | C-G | 2 | 8949 | 0.5053 | 0.1868 | 0.5005 | 0.1253 | 0.1779 | 0.0073 | 0.0022 | 0.5543 | -0.3052 | 0.5557 | -0.211 | -0.2128 | -0.0641 | -0.0465 | 0.1852 | 0.0685 | -6.2692 | 0.8325 | -5.4092 | 0.7885 | A+ | A- | A- |
| MATH | 6 | 560220 | 9 | D-S | 2 | 8954 | 0.5152 | 0.1153 | 0.2271 | 0.138 | 0.5106 | 0.0075 | 0.0014 | 0.2023 | -0.0726 | -0.0644 | -0.134 | 0.2081 | -0.0746 | -0.0314 | 0.1336 | 0.0684 | 9.9013 | 1.3475 | 9.6515 | 1.4681 | A+ | A- | A+ |
| MATH | 6 | 652200 | 9 | D-S | 2 | 8942 | 0.4104 | 0.209 | 0.4062 | 0.2094 | 0.1651 | 0.0093 | 0.001 | 0.2836 | -0.1119 | 0.2869 | -0.1045 | -0.123 | -0.0705 | -0.0138 | 0.6776 | 0.07 | 5.7112 | 1.1892 | 5.3813 | 1.2526 | A+ | A- | A- |
| MATH | 7 | 335226 | 0 | A-N | 1 | 82131 | 0.6103 | 0.1975 | 0.6085 | 0.0557 | 0.1353 | 0.0026 | 0.0004 | 0.4577 | -0.3312 | 0.4587 | -0.1781 | -0.1429 | -0.0379 | -0.0163 | -0.669 | 0.0226 | -7.1591 | 0.9425 | -5.8291 | 0.905 | B- | A- | A- |
| MATH | 7 | 335228 | 0 | A-N | 1 | 82091 | 0.4709 | 0.4692 | 0.2209 | 0.1483 | 0.1581 | 0.0029 | 0.0006 | 0.3922 | 0.3931 | -0.161 | -0.2326 | -0.1217 | -0.0385 | -0.0085 | -0.2347 | 0.0223 | 6.0611 | 1.0501 | 6.8311 | 1.0967 | A- | A+ | A+ |
| MATH | 7 | 335237 | 0 | A-N | 2 | 82060 | 0.3946 | 0.225 | 0.1499 | 0.2282 | 0.393 | 0.0028 | 0.0011 | 0.3909 | -0.0904 | -0.1993 | -0.1883 | 0.3924 | -0.0529 | -0.0283 | 0.4873 | 0.0231 | 9.2611 | 1.0972 | 7.8511 | 1.113 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 7 | 415638 | 0 | A-N | 2 | 81963 | 0.5049 | 0.5023 | 0.1396 | 0.2191 | 0.1339 | 0.0037 | 0.0014 | 0.513 | 0.5148 | -0.2731 | -0.2215 | -0.1956 | -0.0568 | -0.0281 | -0.2424 | 0.0223 | -9.8991 | 0.9169 | -9.5791 | 0.8737 | A- | A+ | A+ |
| MATH | 7 | 480243 | 0 | A-N | 2 | 81862 | 0.5193 | 0.1953 | 0.5161 | 0.1702 | 0.1121 | 0.005 | 0.0013 | 0.4641 | -0.2231 | 0.4662 | -0.2159 | -0.1845 | -0.0566 | -0.0332 | -0.3558 | 0.0223 | -1.829 | 0.9854 | -3.6791 | 0.9479 | A- | A- | A- |
| MATH | 7 | 490716 | 0 | A-N | 1 | 82088 | 0.489 | 0.1341 | 0.2518 | 0.4873 | 0.1232 | 0.003 | 0.0006 | 0.3152 | -0.0472 | -0.1848 | 0.3167 | -0.1805 | -0.0402 | -0.0189 | -0.0949 | 0.0223 | 9.9011 | 1.1403 | 9.9012 | 1.1743 | A+ | A+ | A+ |
| MATH | 7 | 496115 | 0 | A-N | 1 | 82134 | 0.6077 | 0.305 | 0.6058 | 0.048 | 0.0381 | 0.0019 | 0.0011 | 0.5123 | -0.3837 | 0.5136 | -0.188 | -0.164 | -0.0396 | -0.0306 | -0.4505 | 0.0224 | -9.8991 | 0.8574 | -9.8992 | 0.7996 | A- | A- | A- |
| MATH | 7 | 565300 | 0 | A-N | 1 | 81950 | 0.7624 | 0.7584 | 0.0712 | 0.0683 | 0.0969 | 0.0035 | 0.0017 | 0.3888 | 0.3918 | -0.2139 | -0.2101 | -0.1881 | -0.0505 | -0.0264 | -1.2967 | 0.0244 | -9.8991 | 0.8587 | -6.0891 | 0.8588 | A+ | A+ | A+ |
| MATH | 7 | 319340 | 0 | A-R | 2 | 82099 | 0.3395 | 0.2482 | 0.3383 | 0.2941 | 0.1159 | 0.0025 | 0.0009 | 0.4359 | -0.1299 | 0.4368 | -0.1897 | -0.1907 | -0.0413 | -0.0328 | 0.9918 | 0.0247 | 9.2711 | 1.1205 | 9.9012 | 1.2234 | A- | A- | A+ |
| MATH | 7 | 335233 | 0 | A-R | 2 | 81897 | 0.3715 | 0.3569 | 0.1781 | 0.3693 | 0.0897 | 0.0046 | 0.0013 | 0.4299 | -0.1758 | -0.1615 | 0.4315 | -0.2006 | -0.054 | -0.0348 | 0.5359 | 0.0233 | 0.901 | 1.0093 | 2.581 | 1.0369 | A- | A+ | A+ |
| MATH | 7 | 335234 | 0 | A-R | 2 | 82080 | 0.4622 | 0.4606 | 0.1581 | 0.1585 | 0.2192 | 0.0024 | 0.0013 | 0.364 | 0.3654 | -0.0262 | -0.2734 | -0.1688 | -0.04 | -0.0264 | 0.4045 | 0.023 | 9.9012 | 1.1765 | 9.9012 | 1.2193 | A- | A+ | A+ |
| MATH | 7 | 335236 | 0 | A-R | 2 | 82062 | 0.6355 | 0.117 | 0.6331 | 0.1241 | 0.122 | 0.0029 | 0.0009 | 0.5021 | -0.2366 | 0.5039 | -0.2652 | -0.2317 | -0.0493 | -0.0284 | -0.773 | 0.0228 | -9.8991 | 0.8667 | -9.8992 | 0.8002 | A+ | A+ | A- |
| MATH | 7 | 335238 | 0 | A-R | 2 | 81896 | 0.4504 | 0.1623 | 0.1801 | 0.204 | 0.4478 | 0.0046 | 0.0013 | 0.4975 | -0.1821 | -0.2368 | -0.2118 | 0.4989 | -0.0533 | -0.0295 | -0.1068 | 0.0223 | -5.739 | 0.9528 | -6.2691 | 0.9193 | A+ | A+ | A+ |
| MATH | 7 | 413355 | 0 | A-R | 1 | 82059 | 0.4002 | 0.0851 | 0.3987 | 0.1349 | 0.3774 | 0.0029 | 0.001 | 0.4764 | -0.1805 | 0.4776 | -0.2168 | -0.2185 | -0.047 | -0.029 | 0.4043 | 0.023 | -3.269 | 0.9681 | -2.889 | 0.9614 | A- | A- | A+ |
| MATH | 7 | 417798 | 0 | A-R | 2 | 81976 | 0.364 | 0.2423 | 0.2075 | 0.3623 | 0.183 | 0.0038 | 0.0012 | 0.4313 | -0.0742 | -0.2152 | 0.4327 | -0.2191 | -0.0528 | -0.0294 | 0.5349 | 0.0233 | 0.131 | 1.0013 | 0.861 | 1.0122 | A- | A+ | A+ |
| MATH | 7 | 496114 | 0 | A-R | 2 | 82011 | 0.5629 | 0.1156 | 0.5603 | 0.2563 | 0.0633 | 0.0034 | 0.0011 | 0.4087 | -0.2304 | 0.4111 | -0.1668 | -0.2195 | -0.0512 | -0.0328 | -0.4346 | 0.0223 | 2.251 | 1.0181 | 0.331 | 1.0049 | A- | A- | A- |
| MATH | 7 | 500367 | 0 | A-R | 2 | 82132 | 0.512 | 0.5104 | 0.1905 | 0.1297 | 0.1664 | 0.0018 | 0.0012 | 0.4762 | 0.477 | -0.282 | -0.1991 | -0.1572 | -0.0349 | -0.023 | 0.0827 | 0.0225 | -1.619 | 0.9858 | -2.539 | 0.9676 | A- | A+ | A+ |
| MATH | 7 | 314897 | 0 | B-E | 1 | 81929 | 0.3733 | 0.3712 | 0.2807 | 0.1259 | 0.2167 | 0.004 | 0.0015 | 0.4775 | 0.4789 | -0.2161 | -0.1976 | -0.1557 | -0.0547 | -0.0291 | 0.543 | 0.0233 | -3.119 | 0.9679 | -1.359 | 0.9807 | A+ | A+ | A+ |
| MATH | 7 | 319290 | 0 | B-E | 1 | 81789 | 0.3716 | 0.369 | 0.2214 | 0.2256 | 0.1768 | 0.0035 | 0.0036 | 0.4115 | 0.4128 | -0.1737 | -0.1619 | -0.1438 | -0.0438 | -0.0319 | 0.605 | 0.0234 | 3.921 | 1.0424 | 4.0611 | 1.0604 | A+ | A+ | A+ |
| MATH | 7 | 401981 | 0 | B-E | 2 | 82118 | 0.596 | 0.1302 | 0.1575 | 0.5941 | 0.1149 | 0.0027 | 0.0005 | 0.3907 | -0.1105 | -0.2379 | 0.392 | -0.2078 | -0.0358 | -0.0233 | -0.574 | 0.0225 | 3.101 | 1.0252 | -0.429 | 0.9931 | A+ | A+ | A+ |
| MATH | 7 | 404813 | 0 | B-E | 2 | 81885 | 0.506 | 0.1934 | 0.5029 | 0.1879 | 0.1099 | 0.0045 | 0.0015 | 0.5051 | -0.2648 | 0.5071 | -0.2196 | -0.1854 | -0.0589 | -0.0321 | 0.1033 | 0.0225 | -5.329 | 0.9535 | -5.6891 | 0.9283 | A- | A+ | A- |
| MATH | 7 | 412663 | 0 | B-E | 2 | 82173 | 0.7 | 0.1198 | 0.6982 | 0.0778 | 0.1016 | 0.0018 | 0.0007 | 0.4886 | -0.2915 | 0.4902 | -0.226 | -0.2227 | -0.044 | -0.0246 | -1.221 | 0.0241 | -9.8991 | 0.8704 | -9.8992 | 0.7529 | A+ | A- | A- |
| MATH | 7 | 415641 | 0 | B-E | 2 | 82050 | 0.6281 | 0.1443 | 0.6256 | 0.0985 | 0.1276 | 0.0031 | 0.0009 | 0.5284 | -0.3084 | 0.53 | -0.234 | -0.2242 | -0.0505 | -0.0264 | -0.8293 | 0.0229 | -9.8991 | 0.8802 | -9.8992 | 0.796 | A+ | A+ | A+ |
| MATH | 7 | 415662 | 0 | B-E | 2 | 82048 | 0.4903 | 0.4883 | 0.1645 | 0.1897 | 0.1535 | 0.003 | 0.0011 | 0.4414 | 0.443 | -0.2087 | -0.171 | -0.2035 | -0.0504 | -0.0281 | 0.1571 | 0.0225 | 1.701 | 1.0154 | 0.191 | 1.0024 | A+ | A+ | A+ |
| MATH | 7 | 565885 | 0 | B-E | 2 | 81903 | 0.4672 | 0.118 | 0.1268 | 0.2849 | 0.4644 | 0.0043 | 0.0015 | 0.4037 | -0.236 | -0.1962 | -0.1244 | 0.4058 | -0.0568 | -0.0278 | 0.2737 | 0.0227 | 9.9011 | 1.0976 | 7.8511 | 1.1062 | A+ | A+ | A+ |
| MATH | 7 | 567233 | 0 | B-E | 1 | 81925 | 0.5272 | 0.1388 | 0.1743 | 0.1571 | 0.5243 | 0.0043 | 0.0013 | 0.539 | -0.2703 | -0.2396 | -0.2228 | 0.5404 | -0.0538 | -0.0272 | -0.5445 | 0.0224 | -9.8991 | 0.9202 | -7.6491 | 0.8843 | A+ | A+ | A+ |
| MATH | 7 | 314813 | 0 | C-G | 1 | 82070 | 0.379 | 0.1689 | 0.1907 | 0.3775 | 0.2592 | 0.003 | 0.0008 | 0.4027 | -0.1593 | -0.1895 | 0.4038 | -0.1333 | -0.0483 | -0.0211 | 0.6047 | 0.0234 | 7.4511 | 1.0816 | 8.4511 | 1.1284 | A- | A+ | A+ |
| MATH | 7 | 412775 | 0 | C-G | 2 | 82121 | 0.5465 | 0.1276 | 0.1097 | 0.2148 | 0.5448 | 0.0021 | 0.001 | 0.45 | -0.1941 | -0.241 | -0.1998 | 0.4513 | -0.0416 | -0.022 | -0.4068 | 0.0223 | -2.509 | 0.98 | 0.521 | 1.0075 | A+ | A- | A- |
| MATH | 7 | 412776 | 0 | C-G | 1 | 81950 | 0.1831 | 0.1828 | 0.3704 | 0.2595 | 0.1821 | 0.0041 | 0.0011 | 0.3198 | -0.0822 | -0.0079 | -0.1907 | 0.3208 | -0.0575 | -0.0281 | 1.6825 | 0.0284 | 4.1011 | 1.0705 | 7.1512 | 1.2065 | A- | A- | A- |
| MATH | 7 | 477770 | 0 | C-G | 2 | 82060 | 0.3873 | 0.188 | 0.2675 | 0.3858 | 0.1548 | 0.003 | 0.0009 | 0.4272 | -0.2357 | -0.2033 | 0.428 | -0.0646 | -0.038 | -0.028 | 0.5612 | 0.0233 | 6.1011 | 1.0653 | 6.6411 | 1.0981 | A+ | A- | A- |
| MATH | 7 | 478171 | 0 | C-G | 2 | 81920 | 0.4042 | 0.267 | 0.2261 | 0.4019 | 0.0994 | 0.0044 | 0.0012 | 0.485 | -0.1349 | -0.28 | 0.4866 | -0.1904 | -0.0556 | -0.0328 | 0.2976 | 0.0228 | -4.709 | 0.956 | -2.749 | 0.9642 | A- | A- | A- |
| MATH | 7 | 560209 | 0 | C-G | 1 | 81941 | 0.4949 | 0.1426 | 0.4922 | 0.1698 | 0.19 | 0.0043 | 0.0011 | 0.4932 | -0.1956 | 0.495 | -0.2508 | -0.2043 | -0.0592 | -0.028 | -0.2627 | 0.0223 | -6.9991 | 0.9443 | -6.5491 | 0.9118 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 7 | 567235 | 0 | C-G | 1 | 82008 | 0.4271 | 0.1131 | 0.1683 | 0.2889 | 0.4252 | 0.0034 | 0.0012 | 0.4111 | -0.2564 | -0.2191 | -0.0816 | 0.4127 | -0.051 | -0.0266 | 0.1235 | 0.0225 | 2.171 | 1.0194 | 2.091 | 1.0271 | A+ | A- | A- |
| MATH | 7 | 567236 | 0 | C-G | 1 | 82170 | 0.5056 | 0.117 | 0.2435 | 0.5044 | 0.1326 | 0.0018 | 0.0008 | 0.4927 | -0.2539 | -0.3222 | 0.4932 | -0.0733 | -0.0314 | -0.0192 | -0.0773 | 0.0223 | -8.0791 | 0.9337 | -8.2591 | 0.8953 | A- | A+ | A- |
| MATH | 7 | 575224 | 0 | C-G | 2 | 82062 | 0.4227 | 0.2278 | 0.1718 | 0.4211 | 0.1755 | 0.003 | 0.0008 | 0.4389 | -0.2822 | -0.1464 | 0.4401 | -0.1062 | -0.0473 | -0.0251 | 0.1384 | 0.0225 | 0.281 | 1.0025 | -0.299 | 0.996 | A+ | A+ | A+ |
| MATH | 7 | 576068 | 0 | C-G | 2 | 82134 | 0.6175 | 0.1333 | 0.1396 | 0.6157 | 0.1084 | 0.0024 | 0.0006 | 0.38 | -0.1699 | -0.2311 | 0.3818 | -0.1452 | -0.0446 | -0.0219 | -0.6942 | 0.0226 | 0.731 | 1.006 | 3.4511 | 1.06 | A+ | A+ | A- |
| MATH | 7 | 314824 | 0 | D-S | 2 | 82104 | 0.4829 | 0.1205 | 0.169 | 0.2258 | 0.4813 | 0.0024 | 0.0009 | 0.355 | -0.1297 | -0.1228 | -0.2083 | 0.3564 | -0.0404 | -0.0253 | 0.3531 | 0.0229 | 9.9012 | 1.1653 | 9.9012 | 1.1892 | A+ | A+ | A+ |
| MATH | 7 | 314870 | 0 | D-S | 2 | 81939 | 0.5123 | 0.0775 | 0.5096 | 0.2847 | 0.1228 | 0.0042 | 0.0012 | 0.403 | -0.1952 | 0.4055 | -0.233 | -0.1239 | -0.0562 | -0.0307 | -0.2497 | 0.0223 | 3.121 | 1.0255 | 0.411 | 1.0056 | A- | A+ | A+ |
| MATH | 7 | 319265 | 0 | D-S | 2 | 81958 | 0.4442 | 0.1677 | 0.1748 | 0.4419 | 0.2105 | 0.004 | 0.0012 | 0.3836 | -0.1213 | -0.191 | 0.3855 | -0.1703 | -0.0502 | -0.0298 | -0.1213 | 0.0223 | 7.3511 | 1.0623 | 4.4011 | 1.0596 | A+ | A+ | A+ |
| MATH | 7 | 565889 | 0 | D-S | 2 | 82099 | 0.5422 | 0.1267 | 0.2278 | 0.5403 | 0.1018 | 0.0029 | 0.0006 | 0.3216 | -0.1956 | -0.1252 | 0.3236 | -0.1345 | -0.0471 | -0.0202 | -0.341 | 0.0223 | 9.9011 | 1.1141 | 9.9012 | 1.1605 | A+ | A+ | A+ |
| MATH | 7 | 617138 | 1 | A-N | 1 | 9845 | 0.3379 | 0.091 | 0.3367 | 0.2747 | 0.294 | 0.0026 | 0.001 | 0.5149 | -0.1097 | 0.5157 | -0.2843 | -0.1803 | -0.0465 | -0.0228 | 0.4701 | 0.0701 | -3.0491 | 0.9057 | -2.4891 | 0.8963 | B- | A- | A- |
| MATH | 7 | 656009 | 1 | A-R | 2 | 9796 | 0.2962 | 0.3663 | 0.2937 | 0.215 | 0.1165 | 0.0075 | 0.0011 | 0.2852 | 0.0573 | 0.2872 | -0.2349 | -0.1741 | -0.0545 | -0.0409 | 0.7332 | 0.0727 | 2.1911 | 1.0797 | 3.0712 | 1.1569 | A- | A- | A- |
| MATH | 7 | 659597 | 1 | A-R | 2 | 9800 | 0.3945 | 0.2296 | 0.3913 | 0.212 | 0.1589 | 0.0071 | 0.0011 | 0.2245 | 0.0318 | 0.2281 | -0.1601 | -0.1445 | -0.0659 | -0.0268 | 0.0374 | 0.0674 | 6.4212 | 1.1807 | 8.3014 | 1.3548 | A- | A+ | A- |
| MATH | 7 | 630681 | 1 | B-E | 2 | 9797 | 0.4443 | 0.2469 | 0.1358 | 0.1682 | 0.4405 | 0.0063 | 0.0022 | 0.4579 | -0.1415 | -0.2381 | -0.2111 | 0.4604 | -0.0677 | -0.0354 | 0.0881 | 0.0677 | -2.7391 | 0.9272 | -2.3991 | 0.9096 | A- | A- | A- |
| MATH | 7 | 656011 | 1 | B-E | 2 | 9748 | 0.3585 | 0.3537 | 0.2495 | 0.2089 | 0.1745 | 0.0122 | 0.0012 | 0.3311 | 0.3323 | -0.0331 | -0.1717 | -0.1799 | -0.048 | -0.0337 | 0.5516 | 0.0708 | 3.3611 | 1.1147 | 2.8011 | 1.1294 | A- | A- | A- |
| MATH | 7 | 659602 | 1 | C-G | 2 | 9799 | 0.2364 | 0.2548 | 0.23 | 0.2344 | 0.2724 | 0.0061 | 0.0022 | 0.1976 | 0.0665 | -0.1505 | 0.2004 | -0.0981 | -0.0662 | -0.0364 | 1.0895 | 0.0772 | 3.7712 | 1.1653 | 4.4813 | 1.2931 | A- | A- | A- |
| MATH | 7 | 613071 | 1 | D-S | 2 | 9774 | 0.2879 | 0.2003 | 0.242 | 0.2621 | 0.2848 | 0.0102 | 0.0006 | 0.3475 | -0.136 | -0.1613 | -0.0642 | 0.3485 | -0.0499 | -0.0207 | 0.8731 | 0.0743 | 0.681 | 1.0257 | 1.5111 | 1.081 | A- | A- | A+ |
| MATH | 7 | 617913 | 1 | D-S | 2 | 9789 | 0.5331 | 0.1288 | 0.1624 | 0.5282 | 0.1712 | 0.0076 | 0.0017 | 0.5122 | -0.2271 | -0.2116 | 0.5143 | -0.2551 | -0.0593 | -0.0335 | -0.4426 | 0.0666 | -3.3291 | 0.9239 | -2.7491 | 0.8861 | A- | A- | A- |
| MATH | 7 | 617364 | 2 | A-N | 1 | 9021 | 0.3001 | 0.2994 | 0.2252 | 0.2549 | 0.2184 | 0.0013 | 0.0008 | 0.2073 | 0.208 | -0.0748 | -0.0938 | -0.052 | -0.038 | -0.0112 | 0.9862 | 0.0734 | 3.7811 | 1.1434 | 4.6213 | 1.2594 | A- | A+ | A- |
| MATH | 7 | 629172 | 2 | A-N | 1 | 8976 | 0.6002 | 0.5959 | 0.1927 | 0.1184 | 0.086 | 0.0054 | 0.0017 | 0.5143 | 0.5164 | -0.2483 | -0.259 | -0.2369 | -0.0535 | -0.036 | -0.5865 | 0.0678 | -6.0291 | 0.8578 | -4.9192 | 0.7734 | A- | A- | A- |
| MATH | 7 | 617914 | 2 | A-R | 2 | 8993 | 0.2929 | 0.3129 | 0.2697 | 0.1208 | 0.2914 | 0.005 | 0.0002 | 0.2906 | -0.0017 | -0.1606 | -0.1756 | 0.2915 | -0.0479 | 0.013 | 1.0435 | 0.0741 | 3.2711 | 1.1261 | 4.1812 | 1.2414 | A+ | A- | A+ |
| MATH | 7 | 655928 | 2 | A-R | 2 | 8930 | 0.4269 | 0.1021 | 0.4217 | 0.2162 | 0.2479 | 0.0117 | 0.0004 | 0.3535 | -0.1664 | 0.3549 | -0.0721 | -0.2063 | -0.0571 | 0 | 0.1171 | 0.0673 | 2.0211 | 1.0536 | 1.7811 | 1.0703 | A- | A- | A- |
| MATH | 7 | 659600 | 2 | B-E | 2 | 8950 | 0.3247 | 0.1365 | 0.1405 | 0.3916 | 0.3215 | 0.0096 | 0.0003 | 0.2361 | -0.2259 | -0.2463 | 0.1177 | 0.2384 | -0.0608 | 0.0146 | 0.8949 | 0.0724 | 4.7412 | 1.1747 | 5.5113 | 1.2974 | A- | A- | A+ |
| MATH | 7 | 613069 | 2 | C-G | 2 | 8977 | 0.3907 | 0.3956 | 0.3879 | 0.1195 | 0.09 | 0.0058 | 0.0012 | 0.3429 | -0.1835 | 0.3457 | -0.1694 | -0.0617 | -0.0679 | -0.0275 | 0.3331 | 0.0681 | 3.1911 | 1.0921 | 2.8311 | 1.115 | A- | A- | A- |
| MATH | 7 | 656013 | 2 | C-G | 1 | 8970 | 0.5236 | 0.1957 | 0.1834 | 0.5196 | 0.0936 | 0.0059 | 0.0019 | 0.4751 | -0.2799 | -0.2203 | 0.4783 | -0.123 | -0.0695 | -0.0353 | -0.2396 | 0.0669 | -3.8391 | 0.909 | -2.6991 | 0.8901 | A+ | A- | A- |
| MATH | 7 | 659604 | 2 | D-S | 2 | 8973 | 0.2353 | 0.2335 | 0.2576 | 0.2674 | 0.2341 | 0.006 | 0.0014 | 0.0615 | 0.0637 | -0.001 | -0.0614 | 0.012 | -0.0534 | -0.0086 | 1.3442 | 0.0781 | 6.7413 | 1.3122 | 7.9416 | 1.6022 | A- | A- | A- |
| MATH | 7 | 617255 | 3 | A-N | 1 | 9028 | 0.4029 | 0.1927 | 0.1465 | 0.4017 | 0.2561 | 0.0025 | 0.0004 | 0.3817 | -0.237 | -0.1049 | 0.3829 | -0.125 | -0.0425 | -0.0208 | 0.3279 | 0.0681 | 1.081 | 1.03 | 1.141 | 1.045 | A- | A- | A- |
| MATH | 7 | 630757 | 3 | A-R | 2 | 8993 | 0.4056 | 0.4029 | 0.2629 | 0.2351 | 0.0922 | 0.0055 | 0.0013 | 0.4816 | 0.4836 | -0.1957 | -0.192 | -0.2198 | -0.0666 | -0.0297 | 0.4929 | 0.0691 | -2.9291 | 0.9151 | -3.2991 | 0.8697 | A+ | A- | A- |
| MATH | 7 | 651114 | 3 | A-R | 2 | 8997 | 0.5346 | 0.5312 | 0.12 | 0.2382 | 0.1041 | 0.0052 | 0.0012 | 0.2847 | 0.2873 | -0.2287 | -0.0415 | -0.1547 | -0.0419 | -0.0326 | -0.2769 | 0.0668 | 3.3411 | 1.0815 | 2.3711 | 1.105 | A- | A- | A- |
| MATH | 7 | 632829 | 3 | B-E | 2 | 8982 | 0.3185 | 0.1829 | 0.316 | 0.3338 | 0.1592 | 0.0078 | 0.0002 | 0.1869 | -0.0752 | 0.1885 | -0.0251 | -0.1176 | -0.0388 | -0.0191 | 0.7282 | 0.071 | 5.9712 | 1.2088 | 6.1913 | 1.3071 | A+ | A+ | A- |
| MATH | 7 | 659601 | 3 | B-E | 2 | 8993 | 0.4279 | 0.1494 | 0.255 | 0.425 | 0.1638 | 0.0054 | 0.0014 | 0.4089 | -0.187 | -0.0959 | 0.4102 | -0.2429 | -0.0471 | -0.025 | 0.118 | 0.0672 | -0.299 | 0.9921 | -0.529 | 0.9789 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 7 | 565888 | 3 | C-G | 2 | 8985 | 0.4726 | 0.1352 | 0.1337 | 0.4689 | 0.2544 | 0.0067 | 0.001 | 0.2744 | -0.2044 | -0.1665 | 0.2782 | -0.0137 | -0.0629 | -0.0382 | -0.0994 | 0.0668 | 3.8511 | 1.097 | 2.8111 | 1.1172 | A+ | A+ | A+ |
| MATH | 7 | 651115 | 3 | C-G | 1 | 8997 | 0.3622 | 0.274 | 0.2514 | 0.1083 | 0.3599 | 0.005 | 0.0014 | 0.3453 | -0.1244 | -0.1528 | -0.1319 | 0.3463 | -0.0413 | -0.0139 | 0.5691 | 0.0696 | 3.9611 | 1.1261 | 3.5612 | 1.1576 | A+ | A- | A- |
| MATH | 7 | 613068 | 3 | D-S | 2 | 8970 | 0.4412 | 0.1273 | 0.2738 | 0.1524 | 0.4371 | 0.0087 | 0.0007 | 0.3843 | -0.2758 | -0.0049 | -0.2563 | 0.3854 | -0.0468 | -0.0218 | 0.1895 | 0.0675 | -0.069 | 0.9978 | 1.2811 | 1.0502 | A- | A- | A- |
| MATH | 7 | 617753 | 4 | A-N | 1 | 9001 | 0.5267 | 0.1256 | 0.5243 | 0.2546 | 0.0909 | 0.0035 | 0.001 | 0.3613 | -0.2032 | 0.3632 | -0.1209 | -0.2015 | -0.0484 | -0.0189 | -0.2435 | 0.0667 | 1.891 | 1.0465 | 2.1011 | 1.0831 | A- | A- | A- |
| MATH | 7 | 617919 | 4 | A-R | 2 | 8976 | 0.3372 | 0.3343 | 0.1308 | 0.1928 | 0.3348 | 0.007 | 0.0003 | 0.3369 | -0.0904 | -0.2084 | -0.1073 | 0.3382 | -0.0479 | -0.0197 | 0.7174 | 0.071 | 3.0611 | 1.1053 | 3.3812 | 1.1575 | A- | A- | A+ |
| MATH | 7 | 655096 | 4 | A-R | 2 | 8989 | 0.2338 | 0.2568 | 0.3593 | 0.1455 | 0.2325 | 0.005 | 0.0009 | 0.2499 | -0.0644 | 0.018 | -0.2331 | 0.2514 | -0.0563 | -0.0181 | 1.3449 | 0.0787 | 1.9211 | 1.0844 | 2.4512 | 1.166 | A+ | A+ | A+ |
| MATH | 7 | 617923 | 4 | B-E | 2 | 8969 | 0.2014 | 0.366 | 0.1997 | 0.2558 | 0.1704 | 0.0075 | 0.0006 | -0.0368 | 0.1777 | -0.0345 | -0.0376 | -0.136 | -0.0456 | -0.0158 | 1.5822 | 0.0827 | 6.3313 | 1.3317 | 8.7918 | 1.811 | A- | A+ | A+ |
| MATH | 7 | 659599 | 4 | B-E | 2 | 8990 | 0.3279 | 0.326 | 0.2525 | 0.2152 | 0.2005 | 0.0049 | 0.0009 | 0.3402 | 0.342 | -0.0825 | -0.1259 | -0.1702 | -0.0587 | -0.0158 | 0.7662 | 0.0715 | 3.1011 | 1.1087 | 3.5712 | 1.1714 | A+ | A- | A- |
| MATH | 7 | 617922 | 4 | C-G | 2 | 8986 | 0.4159 | 0.1343 | 0.2758 | 0.4133 | 0.1704 | 0.0052 | 0.001 | 0.3594 | -0.1935 | -0.1178 | 0.3614 | -0.1451 | -0.0546 | -0.0272 | 0.3022 | 0.0681 | 2.0211 | 1.058 | 2.0111 | 1.0766 | A+ | A+ | A- |
| MATH | 7 | 617912 | 4 | D-S | 2 | 8985 | 0.5878 | 0.1224 | 0.0891 | 0.5841 | 0.1981 | 0.0054 | 0.0009 | 0.2805 | -0.1844 | -0.2371 | 0.2841 | -0.0181 | -0.0562 | -0.0232 | -0.5331 | 0.0672 | 2.9111 | 1.0713 | 3.0411 | 1.1401 | A+ | A+ | A+ |
| MATH | 7 | 655102 | 4 | D-S | 2 | 8989 | 0.3653 | 0.1102 | 0.3632 | 0.1776 | 0.3432 | 0.0051 | 0.0008 | 0.2484 | -0.2292 | 0.2507 | -0.2284 | 0.0906 | -0.0565 | -0.0177 | 0.5626 | 0.0698 | 6.4612 | 1.216 | 6.9913 | 1.3156 | A- | A- | A- |
| MATH | 7 | 617834 | 5 | A-N | 1 | 9070 | 0.385 | 0.1591 | 0.1606 | 0.3834 | 0.2927 | 0.0033 | 0.0009 | 0.322 | -0.1971 | -0.1462 | 0.3239 | -0.0609 | -0.0546 | -0.0289 | 0.4706 | 0.0695 | 4.3411 | 1.1368 | 4.0012 | 1.179 | A- | A- | A+ |
| MATH | 7 | 613074 | 5 | A-R | 2 | 9042 | 0.4392 | 0.436 | 0.2197 | 0.2343 | 0.1028 | 0.0061 | 0.0011 | 0.3221 | 0.3251 | -0.1263 | -0.1414 | -0.1422 | -0.0649 | -0.0241 | 0.1984 | 0.068 | 2.3511 | 1.0659 | 1.5411 | 1.0624 | A+ | A+ | A- |
| MATH | 7 | 617925 | 5 | A-R | 1 | 9055 | 0.5171 | 0.5141 | 0.1562 | 0.195 | 0.1289 | 0.0047 | 0.0011 | 0.3839 | 0.3862 | -0.1687 | -0.1818 | -0.1647 | -0.0553 | -0.0247 | -0.1894 | 0.0672 | 1.441 | 1.0362 | 2.7111 | 1.1186 | A+ | A- | A- |
| MATH | 7 | 617921 | 5 | B-E | 2 | 9015 | 0.549 | 0.1531 | 0.1469 | 0.5434 | 0.1465 | 0.0097 | 0.0005 | 0.446 | -0.2068 | -0.1929 | 0.4485 | -0.2091 | -0.0642 | -0.0196 | -0.3332 | 0.0672 | -3.3391 | 0.9198 | -2.4491 | 0.8936 | A- | A+ | A- |
| MATH | 7 | 658382 | 5 | B-E | 1 | 9005 | 0.3604 | 0.1916 | 0.2096 | 0.2312 | 0.3563 | 0.0108 | 0.0005 | 0.3591 | -0.1988 | -0.1786 | -0.0354 | 0.3616 | -0.0689 | -0.0099 | 0.617 | 0.0706 | 2.0611 | 1.0673 | 2.0911 | 1.0959 | A+ | A- | A+ |
| MATH | 7 | 632827 | 5 | C-G | 2 | 9047 | 0.1983 | 0.0961 | 0.197 | 0.5543 | 0.1459 | 0.0049 | 0.0018 | 0.2234 | -0.1164 | 0.2252 | 0.0324 | -0.1855 | -0.0605 | -0.0389 | 1.6412 | 0.0841 | 3.2412 | 1.1672 | 7.8918 | 1.767 | A- | A+ | A- |
| MATH | 7 | 655931 | 5 | C-G | 2 | 9028 | 0.5105 | 0.1347 | 0.1472 | 0.2032 | 0.506 | 0.0071 | 0.0016 | 0.42 | -0.1529 | -0.1896 | -0.2107 | 0.4238 | -0.0744 | -0.0364 | -0.1501 | 0.0672 | -2.1291 | 0.9471 | -2.3191 | 0.9054 | A+ | A- | A- |
| MATH | 7 | 575228 | 5 | D-S | 2 | 9047 | 0.6472 | 0.12 | 0.0916 | 0.6428 | 0.1389 | 0.0058 | 0.0009 | 0.3286 | -0.2569 | -0.2406 | 0.3328 | -0.0034 | -0.0596 | -0.0299 | -0.8294 | 0.0691 | -1.229 | 0.9678 | 3.6012 | 1.2225 | A- | A- | A- |
| MATH | 7 | 617367 | 6 | A-N | 1 | 9034 | 0.4056 | 0.1444 | 0.1248 | 0.3229 | 0.404 | 0.0033 | 0.0006 | 0.3786 | -0.0651 | -0.1594 | -0.232 | 0.3789 | -0.0282 | -0.0104 | 0.3474 | 0.0682 | 1.381 | 1.0393 | 1.5711 | 1.0607 | A- | A- | A- |
| MATH | 7 | 656443 | 6 | A-N | 2 | 8996 | 0.4374 | 0.1804 | 0.1366 | 0.4339 | 0.241 | 0.0078 | 0.0002 | 0.2843 | -0.1714 | -0.158 | 0.2864 | -0.04 | -0.0513 | -0.0107 | 0.1958 | 0.0675 | 4.4011 | 1.122 | 3.9312 | 1.1525 | A+ | A+ | A- |
| MATH | 7 | 565884 | 6 | A-R | 2 | 9013 | 0.256 | 0.5067 | 0.2544 | 0.1604 | 0.0723 | 0.0054 | 0.0008 | 0.1208 | 0.1822 | 0.1233 | -0.2327 | -0.2092 | -0.063 | -0.021 | 1.1997 | 0.0766 | 5.4612 | 1.2374 | 6.8615 | 1.4677 | A- | A- | A+ |
| MATH | 7 | 659598 | 6 | A-R | 2 | 9008 | 0.2885 | 0.2373 | 0.2126 | 0.2568 | 0.2866 | 0.0057 | 0.001 | 0.206 | -0.031 | -0.1089 | -0.0715 | 0.2083 | -0.062 | -0.0167 | 0.9971 | 0.0739 | 6.7913 | 1.2733 | 7.2514 | 1.4335 | A+ | A+ | A+ |
| MATH | 7 | 651175 | 6 | B-E | 1 | 9009 | 0.3487 | 0.3463 | 0.2084 | 0.2042 | 0.2344 | 0.0055 | 0.0011 | 0.4331 | 0.4345 | -0.1672 | -0.2103 | -0.1158 | -0.06 | -0.0148 | 0.653 | 0.0704 | -2.7891 | 0.9129 | -2.1091 | 0.9105 | A+ | A- | A+ |
| MATH | 7 | 574901 | 6 | C-G | 1 | 9012 | 0.2123 | 0.2297 | 0.304 | 0.2491 | 0.2109 | 0.0055 | 0.0008 | 0.0768 | -0.1199 | 0.0512 | -0.0003 | 0.0793 | -0.0616 | -0.0281 | 1.5007 | 0.0814 | 6.9814 | 1.3585 | 7.8617 | 1.6769 | A+ | A- | A- |
| MATH | 7 | 657049 | 6 | C-G | 2 | 9005 | 0.1822 | 0.1809 | 0.3499 | 0.1536 | 0.3085 | 0.0062 | 0.0009 | 0.133 | 0.1346 | 0.1224 | -0.1094 | -0.1428 | -0.0617 | 0.0025 | 1.7341 | 0.0859 | 3.9012 | 1.2135 | 7.3617 | 1.7383 | A- | A- | A+ |
| MATH | 7 | 632830 | 6 | D-S | 2 | 8951 | 0.4267 | 0.4211 | 0.2124 | 0.2515 | 0.102 | 0.0123 | 0.0007 | 0.4766 | 0.475 | -0.0798 | -0.3052 | -0.2148 | -0.0361 | -0.0182 | 0.2602 | 0.0677 | -4.2791 | 0.8872 | -3.5691 | 0.8715 | A- | A- | A- |
| MATH | 7 | 615280 | 7 | A-N | 1 | 9004 | 0.5139 | 0.1695 | 0.112 | 0.1996 | 0.5085 | 0.0097 | 0.0009 | 0.4326 | -0.2023 | -0.2138 | -0.1718 | 0.4319 | -0.0324 | -0.0261 | -0.1825 | 0.0663 | -0.889 | 0.9784 | -1.049 | 0.9584 | A+ | A- | A- |
| MATH | 7 | 613066 | 7 | A-R | 2 | 9037 | 0.2575 | 0.4637 | 0.1663 | 0.2557 | 0.1074 | 0.0056 | 0.0013 | 0.1095 | 0.1428 | -0.1454 | 0.1127 | -0.1933 | -0.0662 | -0.0399 | 1.1731 | 0.0769 | 4.4612 | 1.193 | 4.8713 | 1.3268 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 7 | 630491 | 7 | A-R | 2 | 9038 | 0.3729 | 0.2727 | 0.198 | 0.3703 | 0.1521 | 0.0046 | 0.0022 | 0.2959 | -0.0394 | -0.1587 | 0.2981 | -0.162 | -0.05 | -0.0335 | 0.5094 | 0.0693 | 3.4011 | 1.1071 | 2.7311 | 1.1195 | A+ | A+ | A- |
| MATH | 7 | 574886 | 7 | B-E | 2 | 9025 | 0.2854 | 0.2343 | 0.2831 | 0.2432 | 0.2312 | 0.0076 | 0.0007 | 0.1087 | -0.0139 | 0.111 | -0.068 | -0.0243 | -0.0476 | -0.0236 | 1.0016 | 0.0745 | 5.7112 | 1.2313 | 5.2813 | 1.3193 | A+ | A- | A- |
| MATH | 7 | 617258 | 7 | B-E | 1 | 9066 | 0.5215 | 0.2052 | 0.1552 | 0.5196 | 0.1164 | 0.0032 | 0.0005 | 0.4715 | -0.2934 | -0.1731 | 0.4731 | -0.1623 | -0.0488 | -0.0169 | -0.2364 | 0.0662 | -3.9691 | 0.9082 | -3.2891 | 0.8729 | A- | A- | A- |
| MATH | 7 | 655929 | 7 | B-E | 2 | 9040 | 0.2262 | 0.4438 | 0.1638 | 0.2247 | 0.161 | 0.0049 | 0.0016 | -0.0127 | 0.2313 | -0.2219 | -0.01 | -0.0646 | -0.0536 | -0.0275 | 1.3817 | 0.0803 | 7.9014 | 1.398 | 8.6817 | 1.7285 | A+ | A+ | A+ |
| MATH | 7 | 630798 | 7 | C-G | 2 | 9043 | 0.3551 | 0.1168 | 0.3707 | 0.3529 | 0.1534 | 0.0052 | 0.0011 | 0.2651 | -0.133 | -0.0735 | 0.2677 | -0.1229 | -0.0615 | -0.0316 | 0.6029 | 0.0701 | 3.8311 | 1.1262 | 3.5012 | 1.1626 | A- | A- | A- |
| MATH | 7 | 655103 | 7 | D-S | 2 | 9045 | 0.307 | 0.237 | 0.3052 | 0.1915 | 0.2602 | 0.0046 | 0.0014 | 0.1615 | -0.0629 | 0.1644 | -0.1387 | 0.0256 | -0.067 | -0.0286 | 0.8702 | 0.0728 | 6.0212 | 1.23 | 7.1914 | 1.4131 | A- | A+ | A- |
| MATH | 7 | 617391 | 8 | A-N | 1 | 9022 | 0.3436 | 0.4123 | 0.1276 | 0.1142 | 0.3424 | 0.003 | 0.0007 | 0.4681 | -0.2567 | -0.1283 | -0.1585 | 0.4688 | -0.0416 | -0.0234 | 0.6738 | 0.0714 | -1.6291 | 0.9458 | -1.3091 | 0.9392 | A+ | A- | A- |
| MATH | 7 | 659595 | 8 | A-N | 1 | 8958 | 0.4096 | 0.1337 | 0.3461 | 0.4052 | 0.1043 | 0.0102 | 0.0006 | 0.519 | -0.1421 | -0.291 | 0.52 | -0.2024 | -0.0651 | -0.0035 | 0.336 | 0.069 | -3.1891 | 0.9078 | -2.2791 | 0.9074 | A- | A- | A+ |
| MATH | 7 | 560206 | 8 | A-R | 1 | 8991 | 0.4536 | 0.1163 | 0.4504 | 0.2233 | 0.203 | 0.0053 | 0.0018 | 0.4756 | -0.1241 | 0.4779 | -0.2692 | -0.1981 | -0.0628 | -0.038 | 0.1057 | 0.0681 | -3.4691 | 0.9068 | -3.2291 | 0.8732 | A- | A- | A- |
| MATH | 7 | 632831 | 8 | A-R | 2 | 8988 | 0.6328 | 0.6282 | 0.1433 | 0.1237 | 0.0974 | 0.0062 | 0.0012 | 0.4889 | 0.4925 | -0.1972 | -0.2656 | -0.2527 | -0.0699 | -0.0315 | -0.7751 | 0.069 | -4.8891 | 0.8782 | -3.1392 | 0.8302 | A+ | A- | A- |
| MATH | 7 | 652382 | 8 | B-E | 2 | 8990 | 0.398 | 0.1496 | 0.3951 | 0.1891 | 0.259 | 0.0063 | 0.0009 | 0.2045 | -0.096 | 0.2074 | -0.1536 | -0.0043 | -0.0556 | -0.0245 | 0.3885 | 0.0693 | 7.1112 | 1.2312 | 6.0913 | 1.2789 | A+ | A+ | A- |
| MATH | 7 | 658384 | 8 | B-E | 2 | 9002 | 0.1862 | 0.2127 | 0.1851 | 0.2209 | 0.3755 | 0.0044 | 0.0014 | -0.0625 | -0.0231 | -0.06 | -0.1533 | 0.2084 | -0.0521 | -0.0285 | 1.7136 | 0.0853 | 6.7114 | 1.3714 | 9.432 | 2.015 | A- | A- | A- |
| MATH | 7 | 655101 | 8 | C-G | 2 | 8959 | 0.385 | 0.2349 | 0.1701 | 0.2035 | 0.3809 | 0.01 | 0.0006 | 0.3893 | -0.1435 | -0.2087 | -0.1093 | 0.3917 | -0.0679 | -0.0094 | 0.4638 | 0.0698 | 1.341 | 1.042 | 1.7011 | 1.0741 | A- | A- | A- |
| MATH | 7 | 581343 | 8 | D-S | 2 | 8990 | 0.2786 | 0.1886 | 0.2636 | 0.2639 | 0.2766 | 0.0057 | 0.0014 | 0.1318 | -0.1283 | -0.0172 | 0.0064 | 0.1344 | -0.0558 | -0.0241 | 1.0621 | 0.0753 | 7.6913 | 1.3279 | 7.2915 | 1.4768 | A- | A+ | A- |
| MATH | 7 | 567229 | 9 | A-R | 2 | 8984 | 0.4142 | 0.1456 | 0.412 | 0.2756 | 0.1616 | 0.0039 | 0.0013 | 0.4076 | -0.1718 | 0.4097 | -0.1258 | -0.2182 | -0.0521 | -0.0355 | 0.2861 | 0.0684 | 0.831 | 1.0236 | 0.311 | 1.0118 | A- | A+ | A+ |
| MATH | 7 | 574884 | 9 | A-R | 2 | 8969 | 0.5028 | 0.2315 | 0.1403 | 0.4994 | 0.1219 | 0.0048 | 0.0021 | 0.3765 | -0.1612 | -0.2472 | 0.379 | -0.0938 | -0.0501 | -0.0327 | -0.1477 | 0.0671 | 0.851 | 1.0212 | 1.111 | 1.0449 | A+ | A+ | A- |
| MATH | 7 | 575222 | 9 | B-E | 2 | 8964 | 0.3532 | 0.1951 | 0.1508 | 0.2961 | 0.3506 | 0.0054 | 0.002 | 0.2794 | -0.0455 | -0.2207 | -0.0701 | 0.2819 | -0.0535 | -0.0353 | 0.6103 | 0.0706 | 5.3912 | 1.1848 | 5.1012 | 1.2401 | A+ | A- | A- |
| MATH | 7 | 617399 | 9 | B-E | 1 | 9007 | 0.4411 | 0.4399 | 0.3032 | 0.1762 | 0.0781 | 0.0022 | 0.0004 | 0.3658 | 0.3664 | -0.109 | -0.2022 | -0.1975 | -0.0413 | 0.0103 | 0.1452 | 0.0678 | 1.661 | 1.0455 | 1.6711 | 1.0655 | A- | A- | A- |
| MATH | 7 | 632835 | 9 | B-E | 2 | 8981 | 0.3149 | 0.2553 | 0.2454 | 0.3131 | 0.1806 | 0.0047 | 0.0009 | 0.2029 | -0.1037 | -0.1191 | 0.2054 | 0.0154 | -0.0584 | -0.0248 | 0.8209 | 0.0726 | 5.4212 | 1.2035 | 5.7813 | 1.3082 | A- | A- | A+ |
| MATH | 7 | 617918 | 9 | C-G | 2 | 8977 | 0.2002 | 0.232 | 0.179 | 0.384 | 0.199 | 0.0052 | 0.0008 | 0.2534 | -0.1108 | -0.0749 | -0.0461 | 0.2544 | -0.0431 | -0.0207 | 1.5761 | 0.0832 | 1.3511 | 1.0658 | 3.0813 | 1.2514 | A- | A+ | A- |
| MATH | 7 | 658385 | 9 | C-G | 1 | 8948 | 0.3272 | 0.3242 | 0.2166 | 0.2349 | 0.2151 | 0.0087 | 0.0004 | 0.3107 | 0.3118 | -0.1155 | -0.1435 | -0.0801 | -0.0477 | -0.0097 | 0.7573 | 0.0719 | 1.171 | 1.0404 | 1.7211 | 1.0825 | A- | A- | A- |
| MATH | 7 | 630802 | 9 | D-S | 2 | 8960 | 0.3515 | 0.229 | 0.3487 | 0.2099 | 0.2045 | 0.0076 | 0.0002 | 0.2508 | -0.0586 | 0.2532 | -0.064 | -0.1602 | -0.0598 | -0.0119 | 0.6206 | 0.0707 | 5.0512 | 1.1735 | 4.9212 | 1.232 | A+ | A- | A- |
| MATH | 8 | 335243 | 0 | A-N | 1 | 82645 | 0.5715 | 0.2 | 0.5699 | 0.1167 | 0.1106 | 0.002 | 0.0009 | 0.4726 | -0.2 | 0.474 | -0.2453 | -0.2332 | -0.0414 | -0.0331 | -0.639 | 0.0225 | -5.709 | 0.9529 | -3.189 | 0.9501 | A+ | A- | A+ |
| MATH | 8 | 335255 | 0 | A-N | 2 | 82458 | 0.3865 | 0.3845 | 0.3336 | 0.1434 | 0.1334 | 0.004 | 0.0011 | 0.4831 | 0.4847 | -0.1127 | -0.2702 | -0.2443 | -0.0606 | -0.0311 | 0.091 | 0.0228 | -6.3391 | 0.9408 | -4.6491 | 0.9376 | A- | A+ | A- |
| MATH | 8 | 415804 | 0 | A-N | 1 | 82674 | 0.483 | 0.3842 | 0.4818 | 0.0345 | 0.0969 | 0.0015 | 0.001 | 0.5669 | -0.3423 | 0.5678 | -0.1457 | -0.2978 | -0.0401 | -0.0301 | -0.3688 | 0.0224 | -9.8991 | 0.8654 | -9.8992 | 0.821 | A+ | A- | A- |
| MATH | 8 | 416599 | 0 | A-N | 2 | 82473 | 0.6194 | 0.1136 | 0.1227 | 0.1424 | 0.6163 | 0.0036 | 0.0013 | 0.5189 | -0.2422 | -0.2473 | -0.2598 | 0.5211 | -0.06 | -0.0282 | -0.9982 | 0.023 | -9.8991 | 0.9016 | -9.3292 | 0.8306 | A+ | A+ | A+ |
| MATH | 8 | 493096 | 0 | A-N | 2 | 82540 | 0.3197 | 0.1772 | 0.3184 | 0.2774 | 0.2229 | 0.0031 | 0.001 | 0.3349 | -0.1626 | 0.3364 | -0.1532 | -0.0531 | -0.0543 | -0.0279 | 0.5427 | 0.0239 | 9.3411 | 1.1076 | 9.9012 | 1.1846 | A- | A+ | A+ |
| MATH | 8 | 494637 | 0 | A-N | 1 | 82610 | 0.502 | 0.1377 | 0.2356 | 0.5004 | 0.1231 | 0.0026 | 0.0006 | 0.4124 | -0.1775 | -0.1325 | 0.4138 | -0.2635 | -0.0472 | -0.021 | -0.4728 | 0.0224 | 6.1211 | 1.0525 | 6.1111 | 1.0931 | A+ | A+ | A+ |
| MATH | 8 | 499241 | 0 | A-N | 1 | 82511 | 0.3314 | 0.3828 | 0.1855 | 0.0972 | 0.33 | 0.0034 | 0.001 | 0.4548 | -0.3281 | 0.014 | -0.1898 | 0.4559 | -0.057 | -0.0239 | 0.1838 | 0.023 | -5.1991 | 0.9499 | -4.4691 | 0.9387 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 8 | 312494 | 0 | B-E | 1 | 82664 | 0.5507 | 0.5493 | 0.1462 | 0.1845 | 0.1174 | 0.0021 | 0.0005 | 0.4269 | 0.4277 | -0.1737 | -0.2274 | -0.1904 | -0.034 | -0.0155 | -0.5403 | 0.0225 | 2.051 | 1.0173 | 2.031 | 1.0311 | A- | A- | A- |
| MATH | 8 | 314876 | 0 | B-E | 2 | 82656 | 0.4549 | 0.1562 | 0.4537 | 0.3218 | 0.0656 | 0.0019 | 0.0008 | 0.424 | -0.1413 | 0.425 | -0.2223 | -0.2183 | -0.0352 | -0.03 | -0.0325 | 0.0227 | 2.581 | 1.0239 | 1.801 | 1.0246 | A- | A- | A- |
| MATH | 8 | 314900 | 0 | B-E | 2 | 82638 | 0.7127 | 0.1308 | 0.0679 | 0.0878 | 0.7106 | 0.0021 | 0.0008 | 0.4888 | -0.2722 | -0.2339 | -0.2438 | 0.4907 | -0.0485 | -0.0238 | -1.3656 | 0.024 | -9.8991 | 0.8617 | -9.8992 | 0.779 | A- | A- | A- |
| MATH | 8 | 314901 | 0 | B-E | 1 | 82634 | 0.3827 | 0.0612 | 0.3815 | 0.3085 | 0.2458 | 0.0025 | 0.0005 | 0.268 | -0.1228 | 0.269 | -0.1704 | -0.0474 | -0.036 | -0.0167 | 0.3761 | 0.0234 | 9.9012 | 1.2161 | 9.9013 | 1.3066 | A- | A+ | A+ |
| MATH | 8 | 319312 | 0 | B-E | 2 | 82655 | 0.5349 | 0.1795 | 0.1342 | 0.5335 | 0.15 | 0.0022 | 0.0005 | 0.3504 | -0.0677 | -0.1665 | 0.3515 | -0.2536 | -0.036 | -0.0156 | -0.4283 | 0.0224 | 9.9011 | 1.1045 | 7.3511 | 1.1107 | A- | A+ | A+ |
| MATH | 8 | 412781 | 0 | B-E | 2 | 82458 | 0.492 | 0.2267 | 0.1513 | 0.4895 | 0.1275 | 0.0041 | 0.001 | 0.4545 | -0.1397 | -0.246 | 0.4567 | -0.2303 | -0.0612 | -0.0294 | -0.0895 | 0.0226 | 1.121 | 1.0101 | -0.049 | 0.9992 | A- | A+ | A+ |
| MATH | 8 | 413598 | 0 | B-E | 2 | 82651 | 0.3475 | 0.3465 | 0.2472 | 0.1418 | 0.2617 | 0.0021 | 0.0006 | 0.2717 | 0.273 | -0.1257 | -0.2319 | 0.018 | -0.0478 | -0.0197 | 0.4762 | 0.0237 | 9.9012 | 1.2171 | 9.9013 | 1.2915 | A+ | A+ | A+ |
| MATH | 8 | 415801 | 0 | B-E | 2 | 82579 | 0.4504 | 0.1285 | 0.2259 | 0.1932 | 0.4487 | 0.0028 | 0.0008 | 0.4609 | -0.2241 | -0.1152 | -0.2621 | 0.4621 | -0.0472 | -0.023 | 0.2783 | 0.0232 | 4.701 | 1.0483 | 4.2911 | 1.0628 | A- | A+ | A- |
| MATH | 8 | 415803 | 0 | B-E | 2 | 82499 | 0.3375 | 0.3359 | 0.3004 | 0.1648 | 0.1943 | 0.0036 | 0.001 | 0.3833 | 0.3846 | -0.0621 | -0.2212 | -0.1697 | -0.0524 | -0.0267 | 0.6377 | 0.0242 | 5.9111 | 1.0697 | 8.2511 | 1.145 | A- | A+ | A+ |
| MATH | 8 | 416363 | 0 | B-E | 2 | 82643 | 0.489 | 0.1246 | 0.2115 | 0.4876 | 0.1735 | 0.0021 | 0.0008 | 0.4118 | -0.1737 | -0.1901 | 0.4131 | -0.1816 | -0.0422 | -0.0292 | 0.0654 | 0.0228 | 9.4711 | 1.092 | 7.6211 | 1.1077 | A+ | A+ | A- |
| MATH | 8 | 416550 | 0 | B-E | 1 | 82473 | 0.5586 | 0.142 | 0.1593 | 0.5559 | 0.1378 | 0.004 | 0.0009 | 0.4873 | -0.209 | -0.2436 | 0.4892 | -0.2224 | -0.0553 | -0.0273 | -0.7772 | 0.0227 | -4.799 | 0.9599 | -4.7991 | 0.9202 | A+ | A+ | A+ |
| MATH | 8 | 416558 | 0 | B-E | 2 | 82624 | 0.4808 | 0.116 | 0.2155 | 0.1861 | 0.4793 | 0.0022 | 0.0008 | 0.4875 | -0.2497 | -0.1835 | -0.2205 | 0.4886 | -0.0477 | -0.0196 | -0.1261 | 0.0226 | -3.479 | 0.9692 | -3.679 | 0.9507 | A+ | A- | A- |
| MATH | 8 | 416559 | 0 | B-E | 1 | 82557 | 0.4617 | 0.182 | 0.1494 | 0.2048 | 0.4599 | 0.0031 | 0.0008 | 0.5105 | -0.1551 | -0.2352 | -0.2673 | 0.5117 | -0.0496 | -0.0241 | -0.374 | 0.0224 | -6.7091 | 0.9439 | -4.8791 | 0.9318 | A+ | A+ | A+ |
| MATH | 8 | 503512 | 0 | B-E | 2 | 82473 | 0.5856 | 0.1538 | 0.1763 | 0.5827 | 0.0824 | 0.0038 | 0.0012 | 0.5518 | -0.233 | -0.3162 | 0.5542 | -0.2317 | -0.0638 | -0.0334 | -0.6844 | 0.0226 | -9.8991 | 0.8551 | -9.8992 | 0.8053 | A- | A- | A- |
| MATH | 8 | 565842 | 0 | B-E | 1 | 82587 | 0.5153 | 0.2388 | 0.1373 | 0.5135 | 0.1068 | 0.0027 | 0.0009 | 0.5206 | -0.1927 | -0.3017 | 0.5219 | -0.2316 | -0.049 | -0.0273 | -0.4682 | 0.0224 | -9.8991 | 0.9054 | -9.8991 | 0.8609 | A+ | A+ | A- |
| MATH | 8 | 575469 | 0 | B-E | 1 | 82511 | 0.4349 | 0.2248 | 0.1959 | 0.433 | 0.1419 | 0.0036 | 0.0009 | 0.3426 | -0.043 | -0.1894 | 0.3446 | -0.2111 | -0.0532 | -0.0276 | 0.013 | 0.0227 | 9.9011 | 1.1291 | 9.9012 | 1.1664 | A+ | A+ | A+ |
| MATH | 8 | 314892 | 0 | B-F | 2 | 82701 | 0.6484 | 0.0467 | 0.074 | 0.647 | 0.2301 | 0.0016 | 0.0005 | 0.531 | -0.2074 | -0.2768 | 0.5322 | -0.3229 | -0.0398 | -0.0249 | -1.277 | 0.0238 | -7.7691 | 0.9256 | -8.3592 | 0.8221 | B- | A- | A- |
| MATH | 8 | 404826 | 0 | B-F | 1 | 82519 | 0.5283 | 0.1594 | 0.526 | 0.1299 | 0.1804 | 0.0034 | 0.001 | 0.4436 | -0.2278 | 0.4456 | -0.2356 | -0.1453 | -0.0529 | -0.031 | -0.5092 | 0.0224 | -0.559 | 0.9953 | -0.519 | 0.9922 | A+ | A+ | A- |
| MATH | 8 | 404827 | 0 | B-F | 2 | 82447 | 0.5787 | 0.5757 | 0.154 | 0.1281 | 0.1371 | 0.0041 | 0.0011 | 0.4804 | 0.4828 | -0.201 | -0.2496 | -0.2264 | -0.0568 | -0.0349 | -0.9578 | 0.0229 | 0.011 | 1.0001 | -1.269 | 0.9761 | A+ | A+ | A+ |
| MATH | 8 | 413332 | 0 | B-F | 2 | 82559 | 0.444 | 0.116 | 0.3312 | 0.1067 | 0.4422 | 0.0029 | 0.001 | 0.5308 | -0.2737 | -0.2418 | -0.1913 | 0.532 | -0.0542 | -0.0257 | -0.1102 | 0.0226 | -9.7191 | 0.9151 | -7.8391 | 0.8972 | A- | A+ | A- |
| MATH | 8 | 415806 | 0 | B-F | 2 | 82639 | 0.6833 | 0.0517 | 0.0548 | 0.6813 | 0.2093 | 0.002 | 0.0009 | 0.4492 | -0.2115 | -0.2211 | 0.4512 | -0.271 | -0.0459 | -0.0271 | -1.3135 | 0.0239 | -4.999 | 0.9508 | -2.159 | 0.9506 | A- | A- | A- |
| MATH | 8 | 416594 | 0 | B-F | 2 | 82460 | 0.4531 | 0.4508 | 0.1768 | 0.2522 | 0.1152 | 0.0038 | 0.0012 | 0.504 | 0.5057 | -0.2582 | -0.1829 | -0.2163 | -0.0585 | -0.0307 | 0.056 | 0.0228 | -5.349 | 0.9505 | -4.6891 | 0.9372 | A- | A- | A- |
| MATH | 8 | 416600 | 0 | B-F | 2 | 82631 | 0.5092 | 0.5077 | 0.1052 | 0.2659 | 0.1182 | 0.0021 | 0.0009 | 0.4485 | 0.4497 | -0.2474 | -0.1653 | -0.2266 | -0.0421 | -0.0264 | -0.0901 | 0.0226 | 2.381 | 1.0216 | 1.441 | 1.0196 | A- | A- | A- |
| MATH | 8 | 575464 | 0 | B-F | 2 | 82674 | 0.5192 | 0.518 | 0.2193 | 0.1483 | 0.1119 | 0.0018 | 0.0007 | 0.477 | 0.4779 | -0.2116 | -0.2516 | -0.1892 | -0.037 | -0.0237 | -0.0665 | 0.0226 | -0.909 | 0.9917 | -2.249 | 0.9697 | A+ | A+ | A+ |
| MATH | 8 | 319332 | 0 | C-G | 1 | 82602 | 0.2919 | 0.2106 | 0.3566 | 0.291 | 0.1385 | 0.0026 | 0.0007 | 0.3577 | -0.2528 | -0.064 | 0.3581 | -0.0777 | -0.0294 | -0.0205 | 0.8306 | 0.0249 | 5.7011 | 1.0726 | 9.7912 | 1.1939 | A- | A- | A+ |
| MATH | 8 | 404815 | 0 | C-G | 2 | 82605 | 0.357 | 0.3558 | 0.3279 | 0.1755 | 0.1375 | 0.0024 | 0.0009 | 0.4226 | 0.4236 | -0.058 | -0.1941 | -0.2867 | -0.0463 | -0.0237 | 0.3251 | 0.0233 | -0.669 | 0.9931 | 1.951 | 1.0287 | A- | A+ | A+ |
| MATH | 8 | 412790 | 0 | C-G | 2 | 82646 | 0.3267 | 0.1867 | 0.3084 | 0.1763 | 0.3258 | 0.0022 | 0.0006 | 0.2946 | -0.1379 | -0.0346 | -0.1743 | 0.2955 | -0.039 | -0.0204 | 0.554 | 0.0239 | 9.9012 | 1.1717 | 9.9012 | 1.217 | A+ | A+ | A+ |
| MATH | 8 | 416369 | 0 | C-G | 2 | 82618 | 0.4467 | 0.1653 | 0.4452 | 0.1669 | 0.2194 | 0.0024 | 0.0007 | 0.3563 | -0.1963 | 0.3577 | -0.1948 | -0.0709 | -0.0465 | -0.0214 | 0.1947 | 0.023 | 9.9012 | 1.1579 | 9.9012 | 1.2007 | A- | A+ | A+ |
| MATH | 8 | 488718 | 0 | C-G | 2 | 82506 | 0.4925 | 0.2771 | 0.4903 | 0.1297 | 0.0984 | 0.0032 | 0.0013 | 0.3409 | -0.0612 | 0.3436 | -0.2458 | -0.1924 | -0.0584 | -0.0329 | -0.141 | 0.0225 | 9.9011 | 1.133 | 9.9012 | 1.1823 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 8 | 314841 | 0 | D-S | 2 | 82538 | 0.4713 | 0.1726 | 0.2023 | 0.1516 | 0.4694 | 0.002 | 0.0021 | 0.4633 | -0.1859 | -0.2037 | -0.2128 | 0.4648 | -0.0424 | -0.0354 | 0.0851 | 0.0228 | 2.831 | 1.0271 | 1.751 | 1.0241 | A+ | A+ | A+ |
| MATH | 8 | 502455 | 0 | D-S | 2 | 82538 | 0.582 | 0.1154 | 0.5796 | 0.1489 | 0.1519 | 0.0032 | 0.0009 | 0.3708 | -0.2084 | 0.3732 | -0.2065 | -0.1127 | -0.0509 | -0.0267 | -0.4607 | 0.0224 | 7.3411 | 1.0632 | 4.1211 | 1.0618 | A+ | A+ | A+ |
| MATH | 8 | 569264 | 0 | D-S | 1 | 82531 | 0.6038 | 0.0892 | 0.1792 | 0.6012 | 0.1262 | 0.0032 | 0.001 | 0.4241 | -0.2695 | -0.2169 | 0.4268 | -0.1348 | -0.0577 | -0.03 | -0.7128 | 0.0226 | -3.639 | 0.9697 | -0.119 | 0.998 | A+ | A- | A- |
| MATH | 8 | 569270 | 0 | D-S | 1 | 82621 | 0.5112 | 0.0982 | 0.2173 | 0.1718 | 0.5096 | 0.0024 | 0.0007 | 0.5665 | -0.2416 | -0.2469 | -0.2833 | 0.5676 | -0.0492 | -0.0281 | -0.4693 | 0.0224 | -9.8991 | 0.8569 | -9.8992 | 0.8114 | A+ | A+ | A+ |
| MATH | 8 | 574587 | 1 | B-E | 1 | 9835 | 0.3516 | 0.2376 | 0.3489 | 0.2131 | 0.1927 | 0.0061 | 0.0017 | 0.2832 | -0.0743 | 0.2864 | -0.1874 | -0.0541 | -0.0736 | -0.0265 | 0.3509 | 0.0707 | 4.5512 | 1.1537 | 4.2812 | 1.2096 | A+ | A- | A- |
| MATH | 8 | 617261 | 1 | B-E | 1 | 9874 | 0.334 | 0.1255 | 0.4333 | 0.3327 | 0.1046 | 0.0034 | 0.0004 | 0.3635 | -0.1613 | -0.1047 | 0.3645 | -0.2074 | -0.0454 | -0.0136 | 0.4146 | 0.0712 | 1.241 | 1.0411 | 1.6611 | 1.0799 | A+ | A- | A+ |
| MATH | 8 | 625322 | 1 | B-E | 2 | 9802 | 0.3275 | 0.2156 | 0.3238 | 0.1828 | 0.2666 | 0.0079 | 0.0032 | 0.3956 | -0.0412 | 0.3981 | -0.2142 | -0.1777 | -0.0662 | -0.0375 | 0.3183 | 0.0705 | 0.631 | 1.0198 | 1.4911 | 1.0687 | A- | A+ | A+ |
| MATH | 8 | 569261 | 1 | B-F | 2 | 9827 | 0.6914 | 0.0766 | 0.1643 | 0.6854 | 0.0651 | 0.008 | 0.0006 | 0.4966 | -0.2025 | -0.3195 | 0.5001 | -0.2149 | -0.0711 | -0.0257 | -1.432 | 0.0724 | -6.4592 | 0.8138 | -2.8792 | 0.8021 | A- | A- | A- |
| MATH | 8 | 658904 | 1 | B-F | 2 | 9828 | 0.5829 | 0.1478 | 0.578 | 0.1713 | 0.0944 | 0.0053 | 0.0031 | 0.4159 | -0.2428 | 0.4191 | -0.1403 | -0.2117 | -0.065 | -0.0238 | -0.7823 | 0.0681 | -0.519 | 0.9865 | 0.021 | 1.0001 | A+ | A+ | A- |
| MATH | 8 | 651121 | 1 | C-G | 1 | 9840 | 0.4029 | 0.1304 | 0.242 | 0.2202 | 0.4 | 0.0058 | 0.0015 | 0.4836 | -0.2017 | -0.1735 | -0.216 | 0.4855 | -0.0629 | -0.0347 | 0.1622 | 0.0695 | -2.9191 | 0.9138 | -1.8491 | 0.9213 | A- | A- | A- |
| MATH | 8 | 655109 | 1 | C-G | 2 | 9843 | 0.287 | 0.2073 | 0.2275 | 0.2732 | 0.285 | 0.0055 | 0.0014 | 0.2644 | -0.0999 | -0.1048 | -0.0684 | 0.2665 | -0.0604 | -0.0246 | 0.6663 | 0.0736 | 5.2012 | 1.1991 | 6.2014 | 1.3689 | A- | A+ | A+ |
| MATH | 8 | 565840 | 1 | D-S | 2 | 9836 | 0.5682 | 0.0859 | 0.2024 | 0.5639 | 0.1402 | 0.0065 | 0.0012 | 0.4515 | -0.192 | -0.2054 | 0.455 | -0.238 | -0.0686 | -0.0344 | -0.7394 | 0.068 | -2.6491 | 0.9332 | -0.299 | 0.9843 | A- | A- | A- |
| MATH | 8 | 617468 | 2 | A-N | 1 | 9100 | 0.3349 | 0.3337 | 0.2723 | 0.2117 | 0.1786 | 0.0028 | 0.0009 | 0.5146 | 0.5147 | -0.2036 | -0.1472 | -0.2335 | -0.0337 | -0.0239 | 0.7148 | 0.0732 | -2.2691 | 0.9216 | -1.5791 | 0.9177 | A- | A- | A- |
| MATH | 8 | 654310 | 2 | A-N | 2 | 9070 | 0.6077 | 0.121 | 0.6035 | 0.1231 | 0.1455 | 0.006 | 0.001 | 0.5153 | -0.2694 | 0.5163 | -0.2141 | -0.2544 | -0.0532 | -0.0187 | -0.9304 | 0.0691 | -4.4391 | 0.8862 | -2.4091 | 0.8597 | A+ | A+ | A+ |
| MATH | 8 | 574468 | 2 | B-E | 1 | 9077 | 0.4362 | 0.2161 | 0.4334 | 0.2151 | 0.1291 | 0.0054 | 0.0009 | 0.3445 | -0.0611 | 0.347 | -0.2206 | -0.152 | -0.0631 | -0.0178 | 0.0457 | 0.0685 | 0.901 | 1.0255 | 1.5811 | 1.0691 | A+ | A- | A- |
| MATH | 8 | 575468 | 2 | B-E | 1 | 9052 | 0.3127 | 0.3099 | 0.2694 | 0.162 | 0.2496 | 0.0081 | 0.0009 | 0.3038 | 0.3054 | -0.0917 | -0.1962 | -0.0529 | -0.0519 | -0.0242 | 0.7959 | 0.074 | 3.4511 | 1.1306 | 3.7212 | 1.2188 | A- | A- | A+ |
| MATH | 8 | 655107 | 2 | B-F | 2 | 9058 | 0.2686 | 0.3339 | 0.2138 | 0.2664 | 0.1776 | 0.0066 | 0.0018 | 0.1389 | 0.0873 | -0.1608 | 0.1427 | -0.0808 | -0.075 | -0.0331 | 0.7992 | 0.0741 | 8.4413 | 1.3403 | 9.5616 | 1.6274 | A- | A+ | A+ |
| MATH | 8 | 615375 | 2 | C-G | 2 | 9087 | 0.505 | 0.5024 | 0.1984 | 0.1668 | 0.1272 | 0.0047 | 0.0004 | 0.4465 | 0.4489 | -0.183 | -0.1851 | -0.2328 | -0.0655 | -0.0198 | -0.1328 | 0.0679 | -1.129 | 0.9692 | -0.459 | 0.9792 | A+ | A- | A- |
| MATH | 8 | 618329 | 2 | C-G | 2 | 9070 | 0.5553 | 0.1655 | 0.1535 | 0.5515 | 0.1225 | 0.0065 | 0.0005 | 0.4239 | -0.2014 | -0.1979 | 0.4265 | -0.1845 | -0.0628 | -0.0155 | -0.617 | 0.0678 | 0.111 | 1.0027 | 0.031 | 1.0004 | A+ | A- | A- |
| MATH | 8 | 623657 | 2 | D-S | 2 | 9075 | 0.5523 | 0.0887 | 0.2529 | 0.1032 | 0.5487 | 0.0057 | 0.0008 | 0.5351 | -0.2745 | -0.2506 | -0.2453 | 0.5374 | -0.0678 | -0.0253 | -0.6182 | 0.0679 | -5.5991 | 0.8627 | -4.3192 | 0.7928 | A- | A- | A- |
| MATH | 8 | 655969 | 3 | A-N | 2 | 9077 | 0.3674 | 0.3655 | 0.2391 | 0.2125 | 0.1777 | 0.0042 | 0.001 | 0.2684 | 0.2702 | 0.0109 | -0.1526 | -0.1791 | -0.0496 | -0.0229 | 0.3126 | 0.069 | 3.1111 | 1.095 | 2.6711 | 1.1124 | A+ | A+ | A+ |
| MATH | 8 | 574946 | 3 | B-E | 2 | 9053 | 0.3276 | 0.2637 | 0.1587 | 0.3251 | 0.2447 | 0.0075 | 0.0003 | 0.086 | -0.0263 | -0.1232 | 0.0879 | 0.0438 | -0.0353 | -0.0176 | 0.42 | 0.0698 | 9.3513 | 1.3176 | 9.0614 | 1.4391 | A+ | A+ | A+ |
| MATH | 8 | 617475 | 3 | B-E | 1 | 9093 | 0.2366 | 0.1181 | 0.4391 | 0.2358 | 0.2036 | 0.0022 | 0.0012 | 0.2422 | -0.1968 | -0.039 | 0.2429 | -0.0449 | -0.0247 | -0.0274 | 0.9949 | 0.076 | 3.8012 | 1.1566 | 5.8414 | 1.3881 | A- | A+ | A+ |
| MATH | 8 | 621941 | 3 | B-F | 2 | 9071 | 0.3618 | 0.1917 | 0.292 | 0.3597 | 0.1508 | 0.0046 | 0.0012 | 0.2233 | -0.093 | 0.0063 | 0.226 | -0.1946 | -0.0583 | -0.0326 | 0.2735 | 0.0687 | 5.7612 | 1.1778 | 4.8112 | 1.2049 | A- | A+ | A+ |
| MATH | 8 | 655975 | 3 | B-F | 2 | 9076 | 0.2825 | 0.281 | 0.2798 | 0.24 | 0.1939 | 0.0044 | 0.0009 | 0.1634 | 0.1657 | 0.0304 | -0.1346 | -0.0657 | -0.0569 | -0.0294 | 0.9758 | 0.0758 | 5.4512 | 1.2275 | 5.4514 | 1.3548 | A+ | A- | A+ |
| MATH | 8 | 625321 | 3 | C-G | 2 | 9068 | 0.3786 | 0.1241 | 0.3326 | 0.1609 | 0.3763 | 0.0058 | 0.0003 | 0.3897 | -0.2384 | -0.0937 | -0.1691 | 0.3916 | -0.0597 | -0.0171 | 0.2993 | 0.0689 | 0.121 | 1.0034 | 0.461 | 1.0183 | A- | A+ | A+ |
| MATH | 8 | 662581 | 3 | C-G | 2 | 9080 | 0.5445 | 0.1425 | 0.5419 | 0.1794 | 0.1314 | 0.0037 | 0.0011 | 0.3998 | -0.1717 | 0.4024 | -0.1859 | -0.1915 | -0.0553 | -0.0328 | -0.5249 | 0.0667 | -0.999 | 0.9759 | -1.5391 | 0.9377 | A+ | A- | A- |
| MATH | 8 | 656984 | 3 | D-S | 2 | 9066 | 0.4512 | 0.2148 | 0.4484 | 0.1552 | 0.1753 | 0.0054 | 0.001 | 0.3516 | -0.1217 | 0.3546 | -0.1961 | -0.1301 | -0.0669 | -0.033 | -0.0945 | 0.067 | 2.2411 | 1.0588 | 1.4111 | 1.0529 | A- | A- | A- |
| MATH | 8 | 617260 | 4 | A-N | 1 | 9086 | 0.3819 | 0.1979 | 0.3809 | 0.1575 | 0.261 | 0.002 | 0.0008 | 0.3615 | -0.1695 | 0.3624 | -0.0989 | -0.1592 | -0.0403 | -0.0255 | 0.286 | 0.0697 | 2.1211 | 1.0657 | 1.6911 | 1.076 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 8 | 655193 | 4 | A-N | 2 | 9053 | 0.3211 | 0.1325 | 0.4198 | 0.1223 | 0.3191 | 0.0048 | 0.0015 | 0.5177 | -0.1558 | -0.2281 | -0.2185 | 0.5185 | -0.0561 | -0.0204 | 0.6277 | 0.0725 | -4.4891 | 0.8528 | -3.5092 | 0.8313 | A- | A- | A- |
| MATH | 8 | 618002 | 4 | B-E | 2 | 9050 | 0.4035 | 0.4008 | 0.121 | 0.3237 | 0.1478 | 0.0059 | 0.0008 | 0.3352 | 0.3371 | -0.173 | -0.0702 | -0.2009 | -0.0499 | -0.0286 | 0.1809 | 0.0691 | 3.5011 | 1.1064 | 2.6711 | 1.1187 | A- | A- | A+ |
| MATH | 8 | 662577 | 4 | B-E | 2 | 9061 | 0.4344 | 0.1972 | 0.432 | 0.2169 | 0.1484 | 0.0046 | 0.0009 | 0.3419 | -0.1404 | 0.3445 | -0.1368 | -0.1497 | -0.0611 | -0.034 | 0.0207 | 0.0684 | 2.9611 | 1.0851 | 2.6511 | 1.115 | A+ | A+ | A+ |
| MATH | 8 | 662579 | 4 | B-F | 2 | 9068 | 0.4472 | 0.2431 | 0.156 | 0.4451 | 0.1511 | 0.0034 | 0.0013 | 0.3916 | -0.0583 | -0.243 | 0.3938 | -0.2181 | -0.0516 | -0.0397 | -0.0453 | 0.0681 | 0.391 | 1.0106 | 0.791 | 1.0332 | A- | A- | A- |
| MATH | 8 | 569267 | 4 | C-G | 1 | 9068 | 0.667 | 0.1163 | 0.1107 | 0.1044 | 0.6638 | 0.0035 | 0.0012 | 0.4813 | -0.234 | -0.2497 | -0.2313 | 0.4842 | -0.0623 | -0.0278 | -1.139 | 0.0702 | -5.9192 | 0.8426 | -4.4393 | 0.736 | B+ | A- | A+ |
| MATH | 8 | 658907 | 4 | C-G | 2 | 9051 | 0.366 | 0.2163 | 0.1751 | 0.2384 | 0.3636 | 0.0064 | 0.0002 | 0.305 | -0.1338 | -0.1441 | -0.077 | 0.3073 | -0.0606 | -0.0217 | 0.3785 | 0.0704 | 5.0712 | 1.1675 | 4.9312 | 1.2411 | A- | A- | A- |
| MATH | 8 | 618336 | 4 | D-S | 2 | 9077 | 0.3475 | 0.1454 | 0.1945 | 0.3462 | 0.3102 | 0.0033 | 0.0004 | 0.3561 | -0.09 | -0.0679 | 0.3576 | -0.2326 | -0.0604 | -0.022 | 0.4742 | 0.0711 | 2.2311 | 1.074 | 3.5412 | 1.1764 | A- | A- | A- |
| MATH | 8 | 662574 | 5 | A-N | 1 | 9077 | 0.6115 | 0.1181 | 0.6083 | 0.1481 | 0.1201 | 0.0048 | 0.0005 | 0.5323 | -0.233 | 0.535 | -0.3282 | -0.1969 | -0.0708 | -0.0188 | -0.8148 | 0.0682 | -7.0592 | 0.8312 | -5.0992 | 0.7508 | A+ | A- | A- |
| MATH | 8 | 615384 | 5 | B-E | 2 | 9075 | 0.3697 | 0.176 | 0.1661 | 0.3676 | 0.2847 | 0.005 | 0.0005 | 0.3344 | -0.1155 | -0.1852 | 0.3361 | -0.099 | -0.0601 | -0.0073 | 0.3942 | 0.0701 | 2.4111 | 1.0767 | 2.8011 | 1.1298 | A- | A+ | A+ |
| MATH | 8 | 617858 | 5 | B-E | 1 | 9104 | 0.3159 | 0.1576 | 0.0931 | 0.4317 | 0.3151 | 0.0014 | 0.001 | 0.5186 | -0.2849 | -0.2008 | -0.1557 | 0.5186 | -0.0308 | -0.0156 | 0.6868 | 0.0727 | -3.4591 | 0.8835 | -2.7491 | 0.8651 | A- | A- | A- |
| MATH | 8 | 655972 | 5 | B-E | 2 | 9074 | 0.3642 | 0.3622 | 0.1937 | 0.2206 | 0.2178 | 0.0043 | 0.0014 | 0.2603 | 0.2623 | -0.1052 | -0.127 | -0.0662 | -0.051 | -0.0308 | 0.4238 | 0.0704 | 5.1112 | 1.1697 | 4.6212 | 1.2231 | A+ | A+ | A+ |
| MATH | 8 | 658905 | 5 | B-F | 2 | 9081 | 0.3609 | 0.1749 | 0.2163 | 0.3591 | 0.2448 | 0.0036 | 0.0013 | 0.1281 | -0.0225 | -0.087 | 0.1309 | -0.0325 | -0.0536 | -0.0343 | 0.4405 | 0.0705 | 8.9913 | 1.3132 | 7.8914 | 1.4029 | A- | A- | A+ |
| MATH | 8 | 574472 | 5 | C-G | 2 | 9072 | 0.3644 | 0.187 | 0.2066 | 0.3623 | 0.2382 | 0.0054 | 0.0005 | 0.2433 | -0.1421 | -0.0353 | 0.2461 | -0.1017 | -0.067 | -0.0167 | 0.4232 | 0.0704 | 6.8412 | 1.2314 | 6.3713 | 1.3158 | A- | A+ | A+ |
| MATH | 8 | 658639 | 5 | C-G | 2 | 9073 | 0.3657 | 0.2208 | 0.1912 | 0.3636 | 0.2186 | 0.0056 | 0.0002 | 0.3686 | -0.1675 | -0.2157 | 0.3687 | -0.0497 | -0.035 | 0.0064 | 0.4161 | 0.0703 | 2.7611 | 1.089 | 3.3212 | 1.1563 | A+ | A- | A- |
| MATH | 8 | 661387 | 5 | D-S | 2 | 9081 | 0.6591 | 0.1295 | 0.6558 | 0.14 | 0.0697 | 0.0041 | 0.0009 | 0.4573 | -0.2326 | 0.4598 | -0.2306 | -0.2203 | -0.0552 | -0.0228 | -1.0587 | 0.0696 | -4.7891 | 0.8757 | -3.7292 | 0.7869 | A+ | A- | A+ |
| MATH | 8 | 574393 | 6 | A-N | 2 | 9098 | 0.519 | 0.1352 | 0.1812 | 0.516 | 0.1618 | 0.0044 | 0.0014 | 0.4036 | -0.2628 | -0.1521 | 0.4061 | -0.1348 | -0.0527 | -0.0378 | -0.3915 | 0.0675 | 1.491 | 1.0389 | 0.151 | 1.0058 | A+ | A+ | A+ |
| MATH | 8 | 617295 | 6 | B-E | 1 | 9125 | 0.1939 | 0.1569 | 0.1933 | 0.3984 | 0.2485 | 0.0022 | 0.0007 | -0.008 | -0.1207 | -0.0069 | 0.018 | 0.0929 | -0.0401 | -0.0197 | 1.4555 | 0.0835 | 6.9514 | 1.3688 | 8.7419 | 1.8792 | A- | A- | A+ |
| MATH | 8 | 651117 | 6 | B-E | 1 | 9096 | 0.3969 | 0.227 | 0.1976 | 0.175 | 0.3945 | 0.0056 | 0.0004 | 0.4274 | -0.2476 | -0.1129 | -0.1499 | 0.4284 | -0.0452 | -0.0179 | 0.2169 | 0.0692 | -0.679 | 0.9795 | -0.549 | 0.9762 | A+ | A- | A- |
| MATH | 8 | 655973 | 6 | B-E | 1 | 9085 | 0.5173 | 0.0927 | 0.5136 | 0.2661 | 0.1204 | 0.0071 | 0.0001 | 0.3533 | -0.2016 | 0.3545 | -0.1374 | -0.1666 | -0.0441 | -0.0067 | -0.3798 | 0.0675 | 2.5011 | 1.0663 | 1.2011 | 1.0521 | A+ | A+ | A+ |
| MATH | 8 | 618327 | 6 | B-F | 2 | 9097 | 0.3974 | 0.395 | 0.0702 | 0.1145 | 0.4144 | 0.0044 | 0.0015 | 0.5308 | 0.5323 | -0.2196 | -0.1838 | -0.2849 | -0.0649 | -0.0244 | 0.2141 | 0.0692 | -4.6491 | 0.8668 | -3.8692 | 0.8445 | C- | B- | A- |
| MATH | 8 | 658636 | 6 | B-F | 2 | 9094 | 0.3656 | 0.3633 | 0.1812 | 0.2477 | 0.2015 | 0.0052 | 0.001 | 0.2753 | 0.2776 | -0.1679 | -0.1194 | -0.0308 | -0.0612 | -0.016 | 0.3817 | 0.0703 | 5.8812 | 1.1972 | 5.3113 | 1.2555 | A+ | A+ | A- |
| MATH | 8 | 658641 | 6 | D-S | 2 | 9104 | 0.5091 | 0.5065 | 0.1276 | 0.112 | 0.2487 | 0.0039 | 0.0012 | 0.4958 | 0.4973 | -0.2378 | -0.2471 | -0.2016 | -0.0517 | -0.0285 | -0.3449 | 0.0675 | -2.7191 | 0.9305 | -2.5691 | 0.8936 | A- | A- | A- |
| MATH | 8 | 658908 | 6 | D-S | 2 | 9092 | 0.3263 | 0.2289 | 0.3242 | 0.1552 | 0.2852 | 0.0054 | 0.0011 | 0.2707 | -0.169 | 0.2732 | -0.1467 | 0.0042 | -0.0608 | -0.0373 | 0.5979 | 0.072 | 4.1111 | 1.1462 | 4.4112 | 1.2325 | A- | A+ | A- |
| MATH | 8 | 617856 | 7 | A-N | 1 | 9052 | 0.408 | 0.0989 | 0.2504 | 0.4067 | 0.2409 | 0.0028 | 0.0003 | 0.3936 | -0.1936 | -0.3458 | 0.3943 | 0.0376 | -0.0391 | -0.0079 | 0.1649 | 0.0687 | 1.101 | 1.0321 | 1.4111 | 1.0589 | A+ | A- | A- |
| MATH | 8 | 618328 | 7 | A-N | 1 | 9023 | 0.4612 | 0.2129 | 0.1357 | 0.4583 | 0.1869 | 0.0053 | 0.001 | 0.3232 | -0.0849 | -0.1782 | 0.3257 | -0.1586 | -0.0534 | -0.0256 | -0.0986 | 0.0677 | 4.8111 | 1.1351 | 3.5011 | 1.1464 | A+ | A+ | A+ |
| MATH | 8 | 575463 | 7 | B-E | 1 | 9033 | 0.6073 | 0.1267 | 0.1112 | 0.6042 | 0.1528 | 0.0048 | 0.0003 | 0.595 | -0.3288 | -0.2465 | 0.5953 | -0.2805 | -0.0469 | -0.0058 | -0.8244 | 0.0681 | -9.8992 | 0.7605 | -7.2093 | 0.6714 | A+ | A- | A- |
| MATH | 8 | 658901 | 7 | B-E | 2 | 9042 | 0.4137 | 0.1828 | 0.412 | 0.2052 | 0.1958 | 0.0034 | 0.0008 | 0.3376 | -0.1812 | 0.3393 | -0.2135 | -0.0185 | -0.0473 | -0.0236 | 0.1374 | 0.0686 | 3.8511 | 1.1146 | 3.6212 | 1.1554 | A+ | A- | A- |
| MATH | 8 | 658637 | 7 | B-F | 2 | 9032 | 0.4192 | 0.1771 | 0.1756 | 0.2251 | 0.417 | 0.0047 | 0.0006 | 0.4624 | -0.223 | -0.2072 | -0.146 | 0.4634 | -0.0488 | -0.0089 | 0.1118 | 0.0685 | -1.619 | 0.9543 | -0.989 | 0.9594 | A+ | A+ | A- |
| MATH | 8 | 662578 | 7 | B-F | 2 | 9008 | 0.2537 | 0.3507 | 0.2517 | 0.1336 | 0.2562 | 0.0073 | 0.0007 | 0.2164 | 0.0186 | 0.2179 | -0.1049 | -0.145 | -0.047 | -0.0202 | 1.0634 | 0.0774 | 3.7012 | 1.1584 | 5.9714 | 1.43 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| MATH | 8 | 618003 | 7 | C-G | 2 | 9030 | 0.4692 | 0.1394 | 0.1671 | 0.2214 | 0.4666 | 0.0041 | 0.0014 | 0.3758 | -0.1822 | -0.1059 | -0.1956 | 0.3784 | -0.0558 | -0.0369 | -0.1407 | 0.0675 | 2.5111 | 1.0681 | 1.6511 | 1.0673 | A- | A- | A- |
| MATH | 8 | 655978 | 7 | D-S | 2 | 9038 | 0.6147 | 0.1727 | 0.6119 | 0.1105 | 0.1003 | 0.0041 | 0.0006 | 0.4581 | -0.1918 | 0.4601 | -0.2445 | -0.2369 | -0.0523 | -0.0248 | -0.8634 | 0.0683 | -3.1091 | 0.9215 | -2.0691 | 0.8939 | A+ | A- | A- |
| MATH | 8 | 658632 | 8 | A-N | 2 | 9074 | 0.4298 | 0.123 | 0.2569 | 0.1862 | 0.4266 | 0.0061 | 0.0012 | 0.4104 | -0.2273 | -0.0804 | -0.2243 | 0.4137 | -0.079 | -0.0388 | 0.0347 | 0.0676 | 0.291 | 1.0075 | 0.271 | 1.0097 | A+ | A+ | A+ |
| MATH | 8 | 617473 | 8 | B-E | 1 | 9112 | 0.289 | 0.3082 | 0.2516 | 0.149 | 0.288 | 0.0026 | 0.0005 | 0.3412 | -0.1337 | -0.1538 | -0.0676 | 0.3419 | -0.0323 | -0.0279 | 0.7879 | 0.0739 | 0.931 | 1.0345 | 2.4611 | 1.1356 | A- | A- | A- |
| MATH | 8 | 621934 | 8 | B-E | 1 | 9088 | 0.412 | 0.4096 | 0.2122 | 0.2603 | 0.1121 | 0.0044 | 0.0014 | 0.3473 | 0.3504 | -0.1531 | -0.1128 | -0.1714 | -0.0701 | -0.0403 | 0.121 | 0.0681 | 2.4511 | 1.0698 | 1.8311 | 1.0719 | A+ | A- | A- |
| MATH | 8 | 655971 | 8 | B-E | 2 | 9068 | 0.3706 | 0.1456 | 0.3677 | 0.1271 | 0.3516 | 0.0058 | 0.0022 | 0.1797 | -0.2511 | 0.1845 | -0.2373 | 0.1815 | -0.0756 | -0.049 | 0.3388 | 0.0695 | 7.4912 | 1.2455 | 7.3613 | 1.3385 | A- | A- | A- |
| MATH | 8 | 615383 | 8 | B-F | 2 | 9094 | 0.3137 | 0.3354 | 0.1974 | 0.3121 | 0.15 | 0.004 | 0.0011 | 0.2638 | 0.0267 | -0.2442 | 0.2656 | -0.0957 | -0.0581 | -0.0184 | 0.6459 | 0.0723 | 1.5311 | 1.0538 | 2.0311 | 1.1015 | A- | A- | A- |
| MATH | 8 | 658906 | 8 | B-F | 2 | 9083 | 0.3102 | 0.226 | 0.235 | 0.3083 | 0.2244 | 0.0046 | 0.0018 | 0.2272 | -0.02 | -0.1723 | 0.2296 | -0.0455 | -0.063 | -0.0332 | 0.6681 | 0.0725 | 4.5112 | 1.1665 | 5.1313 | 1.2753 | A+ | A- | A+ |
| MATH | 8 | 658638 | 8 | C-G | 2 | 9065 | 0.3707 | 0.3676 | 0.3817 | 0.1257 | 0.1167 | 0.0074 | 0.0009 | 0.3128 | 0.314 | -0.0753 | -0.1557 | -0.1835 | -0.0381 | -0.0346 | 0.3394 | 0.0695 | 2.7911 | 1.087 | 2.7911 | 1.1203 | A+ | A- | A+ |
| MATH | 8 | 625328 | 8 | D-S | 2 | 9068 | 0.3858 | 0.1546 | 0.3827 | 0.2941 | 0.1607 | 0.0072 | 0.0008 | 0.4232 | -0.2538 | 0.4248 | -0.1251 | -0.1405 | -0.0606 | -0.0359 | 0.2598 | 0.0689 | -0.379 | 0.9885 | -0.189 | 0.9917 | A- | A- | A- |
| MATH | 8 | 618000 | 9 | A-N | 1 | 9042 | 0.4854 | 0.31 | 0.1449 | 0.0564 | 0.4823 | 0.0062 | 0.0003 | 0.5705 | -0.2511 | -0.347 | -0.187 | 0.5698 | -0.0391 | -0.0162 | -0.2242 | 0.068 | -6.4692 | 0.834 | -5.3492 | 0.7897 | A+ | A- | A- |
| MATH | 8 | 566758 | 9 | B-E | 1 | 9046 | 0.5476 | 0.1612 | 0.1345 | 0.1539 | 0.5443 | 0.0046 | 0.0014 | 0.5241 | -0.2144 | -0.2984 | -0.2102 | 0.5262 | -0.0627 | -0.0352 | -0.5328 | 0.0678 | -6.1092 | 0.8496 | -4.9992 | 0.7846 | A- | A- | A- |
| MATH | 8 | 617294 | 9 | B-E | 1 | 9087 | 0.4963 | 0.4955 | 0.1717 | 0.1989 | 0.1323 | 0.001 | 0.0005 | 0.3927 | 0.3932 | -0.0076 | -0.3072 | -0.206 | -0.0211 | -0.027 | -0.2906 | 0.0679 | 0.811 | 1.0215 | 0.921 | 1.0392 | A- | A- | A- |
| MATH | 8 | 658902 | 9 | B-E | 1 | 9052 | 0.5531 | 0.5502 | 0.1456 | 0.1487 | 0.1502 | 0.0043 | 0.0011 | 0.5359 | 0.5372 | -0.2294 | -0.2842 | -0.2271 | -0.0548 | -0.0158 | -0.5618 | 0.0679 | -5.7391 | 0.8585 | -4.3192 | 0.8096 | A- | A- | A- |
| MATH | 8 | 651119 | 9 | B-F | 2 | 9058 | 0.3607 | 0.15 | 0.269 | 0.359 | 0.2173 | 0.0037 | 0.001 | 0.3378 | -0.276 | -0.1253 | 0.3396 | -0.0109 | -0.0523 | -0.035 | 0.416 | 0.071 | 2.8411 | 1.0953 | 4.0912 | 1.2007 | B- | A- | A- |
| MATH | 8 | 574593 | 9 | C-G | 2 | 9040 | 0.3455 | 0.2173 | 0.2467 | 0.3431 | 0.1861 | 0.0059 | 0.0008 | 0.2217 | 0.0387 | -0.1055 | 0.2238 | -0.1855 | -0.0479 | -0.0319 | 0.5037 | 0.0718 | 7.0413 | 1.2557 | 6.4813 | 1.344 | A- | A+ | A+ |
| MATH | 8 | 618006 | 9 | D-S | 2 | 9062 | 0.3567 | 0.216 | 0.3527 | 0.0719 | 0.3551 | 0.0034 | 0.0009 | 0.4104 | -0.0967 | -0.2052 | -0.2139 | 0.4119 | -0.0586 | -0.0203 | 0.4371 | 0.0712 | 0.581 | 1.0188 | 0.981 | 1.0458 | A+ | A- | A- |
| MATH | 8 | 653199 | 9 | D-S | 2 | 9048 | 0.3576 | 0.1816 | 0.3556 | 0.28 | 0.177 | 0.0048 | 0.001 | 0.2295 | -0.0788 | 0.2321 | -0.0159 | -0.1793 | -0.0636 | -0.0226 | 0.4347 | 0.0712 | 7.0412 | 1.2494 | 6.3913 | 1.3281 | A- | A- | A- |
| SCIENCE | 4 | 301023 | 0 | A | 2 | 85789 | 0.4742 | 0.1921 | 0.4718 | 0.1525 | 0.1785 | 0.004 | 0.0012 | 0.3633 | -0.1514 | 0.3658 | -0.1843 | -0.134 | -0.0674 | -0.0334 | 1.1535 | 0.0193 | 9.2011 | 1.0699 | 8.5111 | 1.0899 | A- | A+ | A+ |
| SCIENCE | 4 | 304895 | 0 | A | 2 | 85884 | 0.5931 | 0.2144 | 0.1007 | 0.5907 | 0.0902 | 0.0026 | 0.0014 | 0.546 | -0.3125 | -0.2082 | 0.5476 | -0.2583 | -0.0535 | -0.0445 | 0.6412 | 0.0195 | -9.8991 | 0.871 | -9.8992 | 0.8163 | A- | A- | A- |
| SCIENCE | 4 | 304914 | 0 | A | 2 | 85363 | 0.6208 | 0.0983 | 0.6145 | 0.0889 | 0.1882 | 0.005 | 0.0051 | 0.4735 | -0.2427 | 0.4771 | -0.2742 | -0.1871 | -0.0777 | -0.0463 | 0.5459 | 0.0197 | -8.2291 | 0.9363 | -7.2091 | 0.9177 | A+ | A+ | A+ |
| SCIENCE | 4 | 401659 | 0 | A | 2 | 85539 | 0.5935 | 0.1777 | 0.1326 | 0.0929 | 0.5887 | 0.0058 | 0.0023 | 0.5179 | -0.2017 | -0.2695 | -0.2753 | 0.5206 | -0.0741 | -0.0443 | 0.7464 | 0.0194 | -9.8991 | 0.8941 | -9.8991 | 0.8545 | A- | A+ | A+ |
| SCIENCE | 4 | 408840 | 0 | A | 2 | 85689 | 0.6112 | 0.0953 | 0.1463 | 0.6073 | 0.1448 | 0.0047 | 0.0016 | 0.4954 | -0.274 | -0.2224 | 0.4983 | -0.2212 | -0.0678 | -0.0459 | 0.5695 | 0.0196 | -9.8991 | 0.9196 | -9.8991 | 0.8793 | A+ | A- | A- |
| SCIENCE | 4 | 409062 | 0 | A | 2 | 85625 | 0.5648 | 0.0959 | 0.1917 | 0.5608 | 0.1446 | 0.0051 | 0.002 | 0.5148 | -0.2439 | -0.1943 | 0.5176 | -0.2875 | -0.0762 | -0.0471 | 0.674 | 0.0195 | -9.2091 | 0.9308 | -9.8391 | 0.8949 | A+ | A+ | A+ |
| SCIENCE | 4 | 410859 | 0 | A | 2 | 85640 | 0.5397 | 0.536 | 0.2582 | 0.1174 | 0.0816 | 0.0044 | 0.0024 | 0.4689 | 0.4716 | -0.218 | -0.2338 | -0.2107 | -0.0697 | -0.0447 | 0.873 | 0.0194 | -4.979 | 0.9632 | -3.649 | 0.9625 | B- | A+ | A+ |
| SCIENCE | 4 | 411189 | 0 | A | 2 | 85736 | 0.4426 | 0.1281 | 0.3357 | 0.0904 | 0.4401 | 0.0038 | 0.002 | 0.3719 | -0.216 | -0.0918 | -0.2259 | 0.374 | -0.0581 | -0.0402 | 1.3573 | 0.0195 | 7.4911 | 1.0578 | 8.2611 | 1.0917 | A+ | A+ | A+ |
| SCIENCE | 4 | 411272 | 0 | A | 2 | 85884 | 0.611 | 0.1423 | 0.6085 | 0.168 | 0.0772 | 0.0026 | 0.0014 | 0.4197 | -0.203 | 0.4216 | -0.1832 | -0.2345 | -0.0423 | -0.0438 | 0.8192 | 0.0194 | -1.059 | 0.992 | -2.049 | 0.9786 | A+ | A+ | A- |
| SCIENCE | 4 | 411597 | 0 | A | 2 | 85802 | 0.6821 | 0.6787 | 0.0565 | 0.1179 | 0.1419 | 0.0035 | 0.0015 | 0.4348 | 0.4383 | -0.2629 | -0.217 | -0.1965 | -0.0669 | -0.0383 | 0.1327 | 0.0205 | -3.469 | 0.9691 | -3.189 | 0.9532 | A- | A- | A- |
| SCIENCE | 4 | 494804 | 0 | A | 2 | 85801 | 0.4696 | 0.1784 | 0.4672 | 0.207 | 0.1424 | 0.0039 | 0.0011 | 0.3974 | -0.1667 | 0.3996 | -0.1058 | -0.2501 | -0.0625 | -0.0413 | 1.3462 | 0.0195 | 5.601 | 1.043 | 7.0211 | 1.0773 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 4 | 494808 | 0 | A | 2 | 85735 | 0.5169 | 0.0713 | 0.0935 | 0.5139 | 0.3154 | 0.0036 | 0.0022 | 0.3548 | -0.1927 | -0.1382 | 0.3579 | -0.179 | -0.0567 | -0.0526 | 1.0342 | 0.0193 | 9.9011 | 1.0985 | 9.9011 | 1.1243 | A+ | A+ | A+ |
| SCIENCE | 4 | 494813 | 0 | A | 2 | 85915 | 0.569 | 0.064 | 0.1143 | 0.2511 | 0.5669 | 0.0026 | 0.0011 | 0.5515 | -0.2683 | -0.2113 | -0.3163 | 0.5526 | -0.0494 | -0.0366 | 0.545 | 0.0197 | -9.8991 | 0.9033 | -9.8991 | 0.8748 | A+ | A- | A- |
| SCIENCE | 4 | 494819 | 0 | A | 2 | 85827 | 0.7146 | 0.7112 | 0.1229 | 0.1063 | 0.0549 | 0.0032 | 0.0016 | 0.5195 | 0.5217 | -0.3378 | -0.1889 | -0.2747 | -0.0585 | -0.0367 | -0.0145 | 0.0209 | -9.8991 | 0.8519 | -9.8992 | 0.8316 | A- | A- | A- |
| SCIENCE | 4 | 494837 | 0 | A | 2 | 85843 | 0.5884 | 0.1499 | 0.1059 | 0.5858 | 0.1539 | 0.0029 | 0.0017 | 0.5423 | -0.2588 | -0.242 | 0.5439 | -0.2674 | -0.0466 | -0.0506 | 0.6526 | 0.0195 | -9.8991 | 0.888 | -9.8992 | 0.845 | A- | A- | A- |
| SCIENCE | 4 | 495279 | 0 | A | 2 | 85734 | 0.4393 | 0.1247 | 0.128 | 0.3048 | 0.4367 | 0.0037 | 0.002 | 0.3075 | -0.209 | -0.1699 | -0.0492 | 0.31 | -0.0592 | -0.0378 | 1.4035 | 0.0195 | 9.9011 | 1.1362 | 9.9012 | 1.1745 | A+ | A+ | A+ |
| SCIENCE | 4 | 496499 | 0 | A | 2 | 85645 | 0.3992 | 0.3965 | 0.0807 | 0.1489 | 0.367 | 0.0041 | 0.0028 | 0.4384 | 0.4399 | -0.2405 | -0.2483 | -0.1146 | -0.059 | -0.044 | 1.5431 | 0.0197 | -4.329 | 0.9663 | 2.631 | 1.0309 | A- | A+ | A+ |
| SCIENCE | 4 | 496516 | 0 | A | 2 | 85591 | 0.4401 | 0.2033 | 0.2498 | 0.1027 | 0.4368 | 0.0048 | 0.0027 | 0.3139 | -0.0863 | -0.0743 | -0.275 | 0.3172 | -0.0682 | -0.0437 | 1.5318 | 0.0197 | 9.9012 | 1.162 | 9.9012 | 1.2331 | A+ | A+ | A+ |
| SCIENCE | 4 | 565987 | 0 | A | 2 | 85740 | 0.5553 | 0.1002 | 0.5521 | 0.1965 | 0.1454 | 0.004 | 0.0017 | 0.4199 | -0.1473 | 0.4225 | -0.2302 | -0.1951 | -0.0585 | -0.0462 | 0.6049 | 0.0196 | 6.241 | 1.0495 | 7.1811 | 1.0841 | A+ | A- | A- |
| SCIENCE | 4 | 574816 | 0 | A | 2 | 85866 | 0.6009 | 0.5984 | 0.0926 | 0.1885 | 0.1163 | 0.0033 | 0.001 | 0.4477 | 0.4495 | -0.2976 | -0.1374 | -0.2379 | -0.0574 | -0.0262 | 0.4603 | 0.0198 | -0.509 | 0.9958 | 0.251 | 1.003 | A+ | A+ | A+ |
| SCIENCE | 4 | 335265 | 0 | B | 2 | 85738 | 0.5437 | 0.1161 | 0.2451 | 0.5406 | 0.0925 | 0.004 | 0.0017 | 0.4287 | -0.2554 | -0.1462 | 0.4309 | -0.2232 | -0.0548 | -0.046 | 0.8569 | 0.0194 | 1.091 | 1.0082 | 2.601 | 1.0274 | A+ | A- | A- |
| SCIENCE | 4 | 336960 | 0 | B | 2 | 85817 | 0.3375 | 0.2662 | 0.1745 | 0.3358 | 0.2187 | 0.0039 | 0.0009 | 0.2415 | -0.0187 | -0.0932 | 0.2433 | -0.1616 | -0.0572 | -0.0292 | 1.611 | 0.0198 | 9.9011 | 1.1181 | 9.9012 | 1.2032 | A+ | A+ | A+ |
| SCIENCE | 4 | 409067 | 0 | B | 2 | 85725 | 0.6396 | 0.1604 | 0.6358 | 0.065 | 0.1329 | 0.004 | 0.0019 | 0.4452 | -0.3089 | 0.4487 | -0.2433 | -0.1072 | -0.0638 | -0.0503 | 0.565 | 0.0196 | -6.4391 | 0.9501 | -5.5191 | 0.9371 | A- | A+ | A+ |
| SCIENCE | 4 | 479683 | 0 | B | 2 | 85764 | 0.6397 | 0.1256 | 0.6363 | 0.0793 | 0.1534 | 0.0035 | 0.0019 | 0.4826 | -0.2276 | 0.4855 | -0.2371 | -0.245 | -0.0628 | -0.0472 | 0.4721 | 0.0198 | -9.5391 | 0.925 | -9.8991 | 0.8814 | A- | A+ | A- |
| SCIENCE | 4 | 498448 | 0 | B | 3 | 85815 | 0.569 | 0.136 | 0.1312 | 0.1618 | 0.5662 | 0.0039 | 0.001 | 0.5548 | -0.2677 | -0.2591 | -0.2482 | 0.5562 | -0.0639 | -0.0329 | 0.7797 | 0.0194 | -9.8991 | 0.8556 | -9.8992 | 0.8154 | A- | A+ | A+ |
| SCIENCE | 4 | 579552 | 0 | B | 2 | 85662 | 0.4847 | 0.1363 | 0.2145 | 0.161 | 0.4815 | 0.0049 | 0.0017 | 0.3946 | -0.1843 | -0.1938 | -0.1331 | 0.3977 | -0.0791 | -0.0355 | 0.9032 | 0.0194 | 7.1711 | 1.0544 | 7.1811 | 1.0761 | A+ | A- | A+ |
| SCIENCE | 4 | 272655 | 0 | C | 2 | 85826 | 0.3825 | 0.1813 | 0.2534 | 0.1798 | 0.3807 | 0.0038 | 0.0009 | 0.4493 | -0.2721 | -0.0656 | -0.2102 | 0.4502 | -0.0592 | -0.0272 | 1.4509 | 0.0196 | -6.079 | 0.9538 | -1.689 | 0.9812 | A- | A+ | A+ |
| SCIENCE | 4 | 337529 | 0 | C | 2 | 85886 | 0.5543 | 0.0937 | 0.5521 | 0.277 | 0.0731 | 0.0031 | 0.0009 | 0.4272 | -0.2239 | 0.4294 | -0.2093 | -0.1929 | -0.0568 | -0.0394 | 0.9034 | 0.0194 | 2.381 | 1.0179 | 1.421 | 1.0147 | A- | A+ | A- |
| SCIENCE | 4 | 409093 | 0 | C | 2 | 85690 | 0.3717 | 0.1572 | 0.1619 | 0.3054 | 0.3693 | 0.0043 | 0.0019 | 0.2833 | -0.1597 | -0.1114 | -0.0708 | 0.2861 | -0.067 | -0.0424 | 1.2781 | 0.0194 | 9.9011 | 1.1282 | 9.9012 | 1.1699 | A+ | A- | A+ |
| SCIENCE | 4 | 496501 | 0 | C | 2 | 85715 | 0.5091 | 0.1999 | 0.1657 | 0.506 | 0.1223 | 0.0039 | 0.0021 | 0.3737 | -0.1802 | -0.1205 | 0.3769 | -0.1995 | -0.0635 | -0.048 | 1.0714 | 0.0193 | 8.2211 | 1.0621 | 7.2011 | 1.0752 | A- | A+ | A- |
| SCIENCE | 4 | 496502 | 0 | C | 2 | 85912 | 0.8323 | 0.8292 | 0.0513 | 0.0694 | 0.0464 | 0.0024 | 0.0013 | 0.4641 | 0.4656 | -0.2775 | -0.2486 | -0.2264 | -0.0424 | -0.0311 | -0.5423 | 0.023 | -9.8992 | 0.7578 | -9.8994 | 0.6394 | A+ | A- | A- |
| SCIENCE | 4 | 579555 | 0 | C | 2 | 85797 | 0.6959 | 0.0907 | 0.1009 | 0.6923 | 0.1109 | 0.0042 | 0.0009 | 0.531 | -0.2942 | -0.2617 | 0.5332 | -0.247 | -0.0658 | -0.0309 | 0.0121 | 0.0208 | -9.8991 | 0.8862 | -9.8992 | 0.8179 | A+ | A+ | A+ |
| SCIENCE | 4 | 304994 | 0 | D | 2 | 85614 | 0.4638 | 0.4605 | 0.1543 | 0.1562 | 0.2219 | 0.005 | 0.0022 | 0.3984 | 0.4009 | -0.2108 | -0.1782 | -0.1257 | -0.0709 | -0.0379 | 1.1557 | 0.0193 | 5.541 | 1.0417 | 5.8311 | 1.0611 | A- | A+ | A- |
| SCIENCE | 4 | 336966 | 0 | D | 2 | 85605 | 0.6858 | 0.6808 | 0.1623 | 0.0807 | 0.0689 | 0.005 | 0.0023 | 0.4877 | 0.492 | -0.2128 | -0.2932 | -0.2499 | -0.08 | -0.0439 | -0.199 | 0.0215 | 1.731 | 1.018 | -1.349 | 0.9754 | A+ | A+ | A+ |
| SCIENCE | 4 | 410858 | 0 | D | 2 | 85662 | 0.6171 | 0.1673 | 0.613 | 0.1138 | 0.0993 | 0.0043 | 0.0023 | 0.4969 | -0.1901 | 0.4995 | -0.2555 | -0.2838 | -0.0633 | -0.0451 | 0.1507 | 0.0204 | 2.161 | 1.0194 | -0.159 | 0.9975 | A+ | A- | A- |
| SCIENCE | 4 | 410863 | 0 | D | 2 | 85620 | 0.6161 | 0.1803 | 0.6117 | 0.1048 | 0.096 | 0.0051 | 0.002 | 0.4271 | -0.2049 | 0.4308 | -0.2045 | -0.2091 | -0.071 | -0.0419 | 0.2984 | 0.0201 | 3.821 | 1.0328 | 1.891 | 1.0256 | A- | A+ | A+ |
| SCIENCE | 4 | 565986 | 0 | D | 2 | 85871 | 0.4064 | 0.2409 | 0.1026 | 0.2476 | 0.4047 | 0.0028 | 0.0014 | 0.3507 | -0.1312 | -0.242 | -0.0914 | 0.352 | -0.0485 | -0.033 | 1.4474 | 0.0196 | 6.8411 | 1.0536 | 7.2811 | 1.0834 | A- | A- | A- |
| SCIENCE | 4 | 579540 | 0 | D | 2 | 85607 | 0.3599 | 0.1356 | 0.1829 | 0.3573 | 0.317 | 0.0049 | 0.0023 | 0.3043 | -0.1762 | -0.1782 | 0.307 | -0.0232 | -0.0705 | -0.0449 | 1.5149 | 0.0196 | 9.9011 | 1.0854 | 9.9012 | 1.1518 | A- | A- | A- |
| SCIENCE | 4 | 622821 | 1 | A | 2 | 7642 | 0.4655 | 0.2178 | 0.1073 | 0.4571 | 0.1998 | 0.0172 | 0.0006 | 0.3704 | -0.0792 | -0.2264 | 0.3702 | -0.1879 | -0.0462 | -0.0219 | 1.1099 | 0.0671 | 1.451 | 1.0379 | 1.131 | 1.0402 | A+ | A- | A- |
| SCIENCE | 4 | 657814 | 1 | A | 2 | 7705 | 0.5968 | 0.1594 | 0.1004 | 0.5909 | 0.1396 | 0.0078 | 0.0019 | 0.5402 | -0.2684 | -0.2382 | 0.5433 | -0.256 | -0.0749 | -0.0447 | 0.3819 | 0.0684 | -4.6691 | 0.8766 | -5.0592 | 0.7983 | A- | A- | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 4 | 657980 | 1 | A | 2 | 7696 | 0.6366 | 0.1234 | 0.6296 | 0.1252 | 0.1109 | 0.0086 | 0.0023 | 0.5438 | -0.2798 | 0.5468 | -0.2499 | -0.2541 | -0.0823 | -0.0407 | 0.1939 | 0.0696 | -7.0692 | 0.8081 | -6.6393 | 0.7153 | A+ | A- | A- |
| SCIENCE | 4 | 657827 | 1 | B | 2 | 7694 | 0.6578 | 0.6504 | 0.122 | 0.1141 | 0.1023 | 0.0096 | 0.0015 | 0.4582 | 0.4608 | -0.2326 | -0.2547 | -0.1811 | -0.0606 | -0.0462 | 0.1873 | 0.0696 | -2.4491 | 0.9301 | -3.1891 | 0.8543 | A+ | A- | A- |
| SCIENCE | 4 | 662319 | 1 | B | 2 | 7699 | 0.609 | 0.0996 | 0.2252 | 0.0621 | 0.6026 | 0.0066 | 0.004 | 0.2815 | -0.2672 | 0.0032 | -0.2225 | 0.2877 | -0.0678 | -0.0471 | 0.3583 | 0.0685 | 4.0211 | 1.1153 | 4.6812 | 1.2159 | A+ | A+ | A+ |
| SCIENCE | 4 | 661169 | 1 | C | 2 | 7711 | 0.4005 | 0.2465 | 0.3969 | 0.1722 | 0.1754 | 0.0066 | 0.0024 | 0.1964 | -0.0286 | 0.2 | -0.1712 | -0.0375 | -0.0582 | -0.0387 | 1.3873 | 0.0679 | 6.9012 | 1.2 | 6.4013 | 1.2656 | A+ | A- | A- |
| SCIENCE | 4 | 623205 | 1 | D | 2 | 7683 | 0.5676 | 0.1452 | 0.2226 | 0.0591 | 0.5605 | 0.0104 | 0.0022 | 0.4393 | -0.1719 | -0.2255 | -0.2414 | 0.44 | -0.0524 | -0.0383 | 0.5753 | 0.0675 | -2.6591 | 0.931 | -2.4391 | 0.9079 | A- | A- | A- |
| SCIENCE | 4 | 624053 | 1 | D | 2 | 7634 | 0.5874 | 0.111 | 0.5763 | 0.161 | 0.1328 | 0.018 | 0.0009 | 0.526 | -0.2457 | 0.5216 | -0.2387 | -0.2539 | -0.0427 | -0.0338 | 0.3438 | 0.0686 | -3.1091 | 0.9159 | -2.4191 | 0.8974 | A- | A- | A- |
| SCIENCE | 4 | 622357 | 2 | A | 1 | 7021 | 0.7912 | 0.7833 | 0.1221 | 0.054 | 0.0306 | 0.0075 | 0.0025 | 0.2759 | 0.2867 | -0.0861 | -0.2042 | -0.1988 | -0.0832 | -0.0471 | -0.4705 | 0.0789 | 0.751 | 1.0309 | 1.2011 | 1.0906 | A+ | A+ | A+ |
| SCIENCE | 4 | 657812 | 2 | A | 2 | 7029 | 0.6994 | 0.1211 | 0.0987 | 0.6932 | 0.0781 | 0.0075 | 0.0014 | 0.4302 | -0.2015 | -0.2175 | 0.4366 | -0.2285 | -0.0897 | -0.046 | -0.0645 | 0.0732 | -1.5291 | 0.9484 | -1.0591 | 0.9387 | A+ | A- | A- |
| SCIENCE | 4 | 657978 | 2 | A | 2 | 7012 | 0.5434 | 0.1273 | 0.1537 | 0.1705 | 0.5372 | 0.0086 | 0.0027 | 0.4812 | -0.2285 | -0.2126 | -0.21 | 0.4835 | -0.0776 | -0.041 | 0.8255 | 0.0672 | -3.7791 | 0.9044 | -3.5891 | 0.876 | A+ | A+ | A+ |
| SCIENCE | 4 | 622352 | 2 | B | 2 | 6994 | 0.679 | 0.0629 | 0.0888 | 0.6696 | 0.1648 | 0.0133 | 0.0006 | 0.4849 | -0.2644 | -0.2718 | 0.4897 | -0.2081 | -0.0945 | -0.0332 | 0.0395 | 0.072 | -2.2791 | 0.9271 | -1.8091 | 0.9039 | A- | A- | A- |
| SCIENCE | 4 | 661161 | 2 | B | 2 | 7035 | 0.7485 | 0.0888 | 0.7425 | 0.0921 | 0.0685 | 0.0068 | 0.0013 | 0.522 | -0.2694 | 0.5265 | -0.2734 | -0.2616 | -0.0801 | -0.0522 | -0.3862 | 0.0775 | -4.9292 | 0.8159 | -5.7294 | 0.6441 | A+ | A+ | A+ |
| SCIENCE | 4 | 624015 | 2 | C | 2 | 6986 | 0.4762 | 0.3067 | 0.0974 | 0.1118 | 0.4691 | 0.0148 | 0.0001 | 0.3669 | -0.1327 | -0.1691 | -0.2021 | 0.3692 | -0.0747 | -0.0142 | 1.2726 | 0.0671 | 0.881 | 1.0226 | 1.6211 | 1.0581 | A- | A+ | A- |
| SCIENCE | 4 | 661167 | 2 | C | 2 | 7028 | 0.4612 | 0.457 | 0.1495 | 0.099 | 0.2855 | 0.0071 | 0.002 | 0.0818 | 0.0887 | -0.1178 | -0.2543 | 0.1822 | -0.0849 | -0.032 | 1.2916 | 0.0671 | 9.9013 | 1.3376 | 9.9014 | 1.4146 | A- | A+ | A+ |
| SCIENCE | 4 | 661186 | 2 | D | 2 | 7016 | 0.7175 | 0.1062 | 0.7098 | 0.1045 | 0.0688 | 0.0102 | 0.0006 | 0.5027 | -0.2787 | 0.5054 | -0.2527 | -0.2262 | -0.0853 | -0.0181 | -0.2044 | 0.0749 | -2.9891 | 0.8948 | -3.2492 | 0.806 | A- | A- | A+ |
| SCIENCE | 4 | 620953 | 3 | A | 2 | 6993 | 0.6664 | 0.1006 | 0.1177 | 0.6539 | 0.109 | 0.0185 | 0.0001 | 0.5068 | -0.3348 | -0.1892 | 0.5052 | -0.2195 | -0.0743 | -0.0176 | -0.0276 | 0.0732 | -2.1191 | 0.9287 | -2.8892 | 0.8389 | A+ | A- | A- |
| SCIENCE | 4 | 653785 | 3 | A | 2 | 7073 | 0.6457 | 0.6409 | 0.1309 | 0.1038 | 0.1169 | 0.0059 | 0.0015 | 0.5439 | 0.5454 | -0.2728 | -0.2655 | -0.256 | -0.0582 | -0.0488 | 0.3273 | 0.0702 | -4.4691 | 0.8702 | -4.4792 | 0.8008 | A- | A- | A- |
| SCIENCE | 4 | 653786 | 3 | A | 2 | 7071 | 0.7426 | 0.0791 | 0.7369 | 0.1024 | 0.0738 | 0.0072 | 0.0006 | 0.5129 | -0.2745 | 0.5143 | -0.2772 | -0.2382 | -0.0605 | -0.0394 | -0.3977 | 0.0779 | -3.0991 | 0.8806 | -3.2592 | 0.7775 | A+ | A- | A- |
| SCIENCE | 4 | 653791 | 3 | A | 2 | 7057 | 0.6584 | 0.0582 | 0.0834 | 0.652 | 0.1967 | 0.0084 | 0.0013 | 0.3939 | -0.2584 | -0.2824 | 0.3982 | -0.1076 | -0.0751 | -0.041 | 0.2425 | 0.0708 | 1.291 | 1.0404 | 0.581 | 1.0283 | A- | A- | A+ |
| SCIENCE | 4 | 579534 | 3 | B | 1 | 7063 | 0.8189 | 0.0575 | 0.8117 | 0.0839 | 0.038 | 0.007 | 0.0018 | 0.3678 | -0.222 | 0.376 | -0.1693 | -0.2081 | -0.072 | -0.0596 | -0.8933 | 0.087 | -0.489 | 0.9743 | 0.061 | 1.003 | A+ | A- | A- |
| SCIENCE | 4 | 661200 | 3 | C | 2 | 7050 | 0.5955 | 0.5891 | 0.1116 | 0.2115 | 0.0772 | 0.0086 | 0.0021 | 0.3596 | 0.3649 | -0.2366 | -0.1047 | -0.1981 | -0.0838 | -0.037 | 0.6191 | 0.0686 | 0.621 | 1.0173 | 0.721 | 1.0292 | A- | A+ | A+ |
| SCIENCE | 4 | 624054 | 3 | D | 2 | 7005 | 0.4408 | 0.2276 | 0.1509 | 0.1712 | 0.4333 | 0.0161 | 0.0008 | 0.2798 | -0.1267 | -0.0862 | -0.1313 | 0.28 | -0.0369 | -0.0238 | 1.4773 | 0.0684 | 3.0711 | 1.0868 | 4.0112 | 1.174 | A- | A+ | A+ |
| SCIENCE | 4 | 661188 | 3 | D | 2 | 7059 | 0.4818 | 0.0908 | 0.2171 | 0.4773 | 0.2054 | 0.0072 | 0.0022 | 0.2923 | -0.2142 | -0.0308 | 0.2985 | -0.1594 | -0.092 | -0.0565 | 1.149 | 0.0677 | 5.4112 | 1.1519 | 5.0212 | 1.1999 | A- | A- | A- |
| SCIENCE | 4 | 620952 | 4 | A | 2 | 7071 | 0.7572 | 0.0507 | 0.0937 | 0.7442 | 0.0942 | 0.0165 | 0.0006 | 0.4862 | -0.2706 | -0.239 | 0.4838 | -0.2519 | -0.0652 | -0.0067 | -0.2536 | 0.0751 | -3.1291 | 0.8886 | -0.339 | 0.9769 | A- | A- | A- |
| SCIENCE | 4 | 657838 | 4 | A | 2 | 7122 | 0.8172 | 0.809 | 0.0393 | 0.0808 | 0.0609 | 0.0082 | 0.0018 | 0.3779 | 0.3869 | -0.1832 | -0.222 | -0.1926 | -0.0936 | -0.0348 | -0.6919 | 0.0827 | -1.3891 | 0.9356 | -0.9491 | 0.9196 | A- | A- | A- |
| SCIENCE | 4 | 657987 | 4 | A | 2 | 7146 | 0.637 | 0.6327 | 0.2045 | 0.0805 | 0.0756 | 0.0054 | 0.0013 | 0.4103 | 0.4146 | -0.1452 | -0.2602 | -0.2404 | -0.0719 | -0.0482 | 0.3758 | 0.0686 | -0.639 | 0.9819 | -1.059 | 0.9536 | A+ | A+ | A+ |
| SCIENCE | 4 | 653790 | 4 | B | 2 | 7130 | 0.6833 | 0.0721 | 0.1689 | 0.0728 | 0.6772 | 0.0071 | 0.0018 | 0.4017 | -0.1722 | -0.1787 | -0.2726 | 0.4058 | -0.0727 | -0.0307 | 0.137 | 0.0705 | -2.2291 | 0.933 | -1.6691 | 0.9165 | A- | A- | A+ |
| SCIENCE | 4 | 661175 | 4 | C | 2 | 7133 | 0.8255 | 0.0474 | 0.0607 | 0.0649 | 0.8185 | 0.0076 | 0.0008 | 0.4052 | -0.2359 | -0.2213 | -0.1956 | 0.4061 | -0.0577 | -0.012 | -0.7636 | 0.0842 | -1.8091 | 0.9134 | -2.1292 | 0.8214 | A+ | A- | A- |
| SCIENCE | 4 | 498456 | 4 | D | 2 | 7122 | 0.3057 | 0.3397 | 0.1537 | 0.3026 | 0.1939 | 0.0092 | 0.0008 | 0.2767 | -0.0947 | -0.137 | 0.2794 | -0.0649 | -0.0781 | -0.0348 | 2.0644 | 0.0718 | 2.2411 | 1.0742 | 5.1413 | 1.2978 | A- | A- | A- |
| SCIENCE | 4 | 623219 | 4 | D | 3 | 7045 | 0.4319 | 0.2465 | 0.0714 | 0.423 | 0.2384 | 0.0203 | 0.0004 | 0.4538 | -0.2147 | -0.1849 | 0.452 | -0.1733 | -0.0645 | -0.0106 | 1.4253 | 0.0672 | -0.059 | 0.9981 | 1.051 | 1.039 | B- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 4 | 661185 | 4 | D | 2 | 7137 | 0.4254 | 0.2035 | 0.422 | 0.2702 | 0.0963 | 0.0064 | 0.0015 | 0.3033 | -0.0776 | 0.3059 | -0.1068 | -0.2234 | -0.0691 | -0.0246 | 1.4302 | 0.0672 | 2.5811 | 1.0681 | 2.7411 | 1.105 | A- | A- | A- |
| SCIENCE | 4 | 621089 | 5 | A | 2 | 7070 | 0.4946 | 0.1149 | 0.2112 | 0.4865 | 0.171 | 0.0152 | 0.0013 | 0.2783 | -0.215 | -0.0937 | 0.2809 | -0.0684 | -0.0499 | -0.0488 | 1.1063 | 0.0671 | 4.5411 | 1.1228 | 3.3611 | 1.124 | A+ | A- | A- |
| SCIENCE | 4 | 657811 | 5 | A | 2 | 7107 | 0.5364 | 0.1135 | 0.1845 | 0.5303 | 0.1604 | 0.01 | 0.0013 | 0.4233 | -0.2091 | -0.1763 | 0.4255 | -0.1915 | -0.0654 | -0.0252 | 0.8906 | 0.0673 | -2.9391 | 0.9243 | -3.0691 | 0.8923 | A+ | A- | A- |
| SCIENCE | 4 | 657820 | 5 | A | 2 | 7132 | 0.5709 | 0.5665 | 0.1388 | 0.1913 | 0.0956 | 0.0063 | 0.0015 | 0.3854 | 0.3871 | -0.2066 | -0.202 | -0.1226 | -0.0443 | -0.0362 | 0.7115 | 0.0677 | -0.929 | 0.9749 | -1.5791 | 0.9402 | A- | A- | A- |
| SCIENCE | 4 | 663694 | 5 | A | 2 | 7120 | 0.5662 | 0.1244 | 0.163 | 0.5608 | 0.1423 | 0.0071 | 0.0024 | 0.492 | -0.2616 | -0.2357 | 0.4942 | -0.1837 | -0.0656 | -0.0449 | 0.7399 | 0.0676 | -2.6691 | 0.9299 | -2.9491 | 0.8917 | A- | A+ | A+ |
| SCIENCE | 4 | 618935 | 5 | B | 2 | 7112 | 0.4377 | 0.2144 | 0.1292 | 0.4331 | 0.2127 | 0.0085 | 0.0021 | 0.3444 | -0.1005 | -0.2446 | 0.3481 | -0.0984 | -0.0754 | -0.0428 | 1.371 | 0.0676 | 2.2111 | 1.0596 | 2.9111 | 1.1125 | A- | A+ | A- |
| SCIENCE | 4 | 622351 | 5 | B | 1 | 7071 | 0.6985 | 0.0876 | 0.1131 | 0.6871 | 0.0959 | 0.0159 | 0.0004 | 0.3091 | -0.2042 | -0.1218 | 0.3111 | -0.1395 | -0.0492 | -0.0353 | 0.0824 | 0.0716 | -0.139 | 0.9953 | -0.239 | 0.9861 | A- | A- | A- |
| SCIENCE | 4 | 661165 | 5 | C | 2 | 7127 | 0.7233 | 0.0561 | 0.0999 | 0.1184 | 0.7172 | 0.0067 | 0.0018 | 0.4477 | -0.233 | -0.2522 | -0.2065 | 0.4524 | -0.0756 | -0.0393 | -0.0889 | 0.0734 | -2.9791 | 0.9006 | -2.6492 | 0.8476 | A+ | A- | A+ |
| SCIENCE | 4 | 661178 | 5 | D | 2 | 7113 | 0.3915 | 0.1561 | 0.3417 | 0.1043 | 0.3875 | 0.0074 | 0.0031 | 0.2315 | -0.1266 | -0.0118 | -0.1807 | 0.2353 | -0.0629 | -0.0436 | 1.6025 | 0.0686 | 4.7611 | 1.1371 | 5.0012 | 1.2208 | A- | A- | A- |
| SCIENCE | 4 | 630324 | 6 | A | 2 | 7001 | 0.4814 | 0.1437 | 0.2394 | 0.4729 | 0.1264 | 0.0174 | 0.0001 | 0.3782 | -0.2175 | -0.1325 | 0.378 | -0.1453 | -0.0553 | -0.0289 | 1.1681 | 0.0671 | 0.601 | 1.0153 | 0.331 | 1.0119 | A+ | A+ | A- |
| SCIENCE | 4 | 657985 | 6 | A | 2 | 7055 | 0.4172 | 0.0522 | 0.4615 | 0.413 | 0.0633 | 0.0083 | 0.0017 | 0.3225 | -0.2517 | -0.0684 | 0.3284 | -0.2425 | -0.1145 | -0.0524 | 1.4658 | 0.0681 | 1.171 | 1.0319 | 1.3411 | 1.0565 | A- | A- | A- |
| SCIENCE | 4 | 657988 | 6 | A | 2 | 7054 | 0.3297 | 0.31 | 0.3264 | 0.1753 | 0.1782 | 0.009 | 0.0011 | 0.1661 | -0.02 | 0.1703 | -0.0684 | -0.0935 | -0.0786 | -0.0416 | 1.9185 | 0.0712 | 6.3212 | 1.2122 | 6.9114 | 1.417 | A- | A+ | A+ |
| SCIENCE | 4 | 660576 | 6 | B | 2 | 7069 | 0.7372 | 0.7313 | 0.1078 | 0.0765 | 0.0765 | 0.0062 | 0.0018 | 0.4749 | 0.4806 | -0.2165 | -0.291 | -0.2243 | -0.0968 | -0.0326 | -0.1779 | 0.0738 | -4.2791 | 0.8572 | -4.3392 | 0.7548 | A- | B- | A- |
| SCIENCE | 4 | 661166 | 6 | C | 2 | 7053 | 0.3675 | 0.2446 | 0.1732 | 0.3637 | 0.2083 | 0.0087 | 0.0015 | 0.1322 | -0.0475 | -0.0594 | 0.1384 | -0.0328 | -0.096 | -0.0373 | 1.7185 | 0.0695 | 7.6612 | 1.2404 | 7.9714 | 1.4288 | A- | A- | A+ |
| SCIENCE | 4 | 661174 | 6 | C | 2 | 7055 | 0.8075 | 0.0647 | 0.0629 | 0.063 | 0.7995 | 0.008 | 0.002 | 0.5204 | -0.2812 | -0.2714 | -0.2686 | 0.5261 | -0.0908 | -0.0511 | -0.6246 | 0.0805 | -5.1592 | 0.7911 | -5.7394 | 0.603 | A+ | A- | A- |
| SCIENCE | 4 | 623206 | 6 | D | 2 | 7029 | 0.7101 | 0.0466 | 0.1723 | 0.0671 | 0.7004 | 0.0131 | 0.0006 | 0.471 | -0.2365 | -0.247 | -0.2551 | 0.4747 | -0.0868 | -0.0288 | 0.0028 | 0.0718 | -5.5192 | 0.8315 | -5.3893 | 0.7306 | A- | A- | A- |
| SCIENCE | 4 | 661187 | 6 | D | 2 | 7054 | 0.3906 | 0.3866 | 0.0907 | 0.3601 | 0.1525 | 0.0083 | 0.0018 | 0.2855 | 0.2906 | -0.2491 | -0.0146 | -0.1446 | -0.1063 | -0.0323 | 1.5999 | 0.0688 | 3.5611 | 1.1033 | 3.3612 | 1.1567 | A- | A- | A- |
| SCIENCE | 4 | 620957 | 7 | A | 2 | 7057 | 0.3886 | 0.174 | 0.199 | 0.2296 | 0.383 | 0.0141 | 0.0003 | 0.3102 | -0.1855 | -0.0886 | -0.0894 | 0.3125 | -0.0693 | -0.0234 | 1.6306 | 0.068 | 1.451 | 1.039 | 2.0611 | 1.0845 | A+ | A- | A- |
| SCIENCE | 4 | 657813 | 7 | A | 2 | 7090 | 0.4784 | 0.1911 | 0.1521 | 0.1733 | 0.4737 | 0.0084 | 0.0014 | 0.3717 | -0.1158 | -0.2102 | -0.1524 | 0.3754 | -0.0792 | -0.0393 | 1.1786 | 0.0665 | 0.731 | 1.0178 | 1.001 | 1.0345 | A+ | A+ | A+ |
| SCIENCE | 4 | 657819 | 7 | A | 2 | 7097 | 0.5113 | 0.5068 | 0.1443 | 0.199 | 0.1411 | 0.0073 | 0.0015 | 0.3831 | 0.3884 | -0.2124 | -0.1419 | -0.1521 | -0.0957 | -0.0475 | 1.0171 | 0.0665 | 0.381 | 1.0091 | 0.271 | 1.009 | A- | A- | A- |
| SCIENCE | 4 | 657991 | 7 | A | 2 | 7093 | 0.2907 | 0.2616 | 0.2811 | 0.1599 | 0.288 | 0.0084 | 0.001 | 0.1697 | -0.0528 | -0.0204 | -0.1041 | 0.173 | -0.0768 | -0.0261 | 2.1442 | 0.0723 | 3.5311 | 1.1211 | 5.2713 | 1.3156 | A- | A- | A- |
| SCIENCE | 4 | 617340 | 7 | B | 2 | 7082 | 0.622 | 0.0764 | 0.124 | 0.6152 | 0.1735 | 0.0095 | 0.0014 | 0.446 | -0.1817 | -0.2671 | 0.4493 | -0.1945 | -0.0831 | -0.0151 | 0.48 | 0.0683 | -2.8091 | 0.9244 | -2.6791 | 0.89 | A- | A- | A+ |
| SCIENCE | 4 | 661156 | 7 | B | 2 | 7086 | 0.3085 | 0.3053 | 0.3637 | 0.0718 | 0.2489 | 0.008 | 0.0024 | 0.1389 | 0.1433 | 0.0839 | -0.2376 | -0.0838 | -0.0719 | -0.049 | 2.0454 | 0.0712 | 4.9012 | 1.1624 | 6.1113 | 1.347 | A+ | A- | A- |
| SCIENCE | 4 | 623212 | 7 | D | 2 | 7045 | 0.4977 | 0.1915 | 0.1419 | 0.4897 | 0.1609 | 0.0155 | 0.0006 | 0.3717 | -0.1416 | -0.1572 | 0.3759 | -0.1798 | -0.0866 | -0.024 | 1.1009 | 0.0665 | 0.831 | 1.0203 | 0.891 | 1.0306 | A- | A- | A- |
| SCIENCE | 4 | 660577 | 7 | D | 2 | 7084 | 0.783 | 0.0517 | 0.7747 | 0.069 | 0.094 | 0.0087 | 0.002 | 0.441 | -0.2343 | 0.4479 | -0.2172 | -0.2394 | -0.0812 | -0.0637 | -0.4278 | 0.0785 | -3.0991 | 0.8762 | -3.0592 | 0.788 | A+ | A- | A- |
| SCIENCE | 4 | 620943 | 8 | A | 2 | 7044 | 0.53 | 0.1011 | 0.2389 | 0.1231 | 0.5221 | 0.0143 | 0.0006 | 0.3562 | -0.2681 | -0.0242 | -0.2399 | 0.3605 | -0.0783 | -0.0348 | 0.9295 | 0.0667 | 2.2511 | 1.0578 | 2.1511 | 1.0746 | A+ | A- | A+ |
| SCIENCE | 4 | 657825 | 8 | A | 2 | 7059 | 0.5336 | 0.5269 | 0.1474 | 0.1825 | 0.1305 | 0.0108 | 0.002 | 0.3733 | 0.3792 | -0.1863 | -0.1362 | -0.1757 | -0.0892 | -0.0523 | 0.9062 | 0.0668 | -0.049 | 0.9986 | 0.211 | 1.0067 | A- | A- | A+ |
| SCIENCE | 4 | 657989 | 8 | A | 3 | 7079 | 0.5509 | 0.1354 | 0.1457 | 0.1635 | 0.5455 | 0.008 | 0.002 | 0.4192 | -0.2118 | -0.1783 | -0.1782 | 0.4233 | -0.0884 | -0.0369 | 0.8148 | 0.067 | -1.459 | 0.9628 | -0.989 | 0.9652 | A+ | A- | A+ |
| SCIENCE | 4 | 657990 | 8 | A | 2 | 7078 | 0.603 | 0.1269 | 0.1589 | 0.1073 | 0.5969 | 0.0085 | 0.0015 | 0.5069 | -0.2345 | -0.2108 | -0.2743 | 0.5113 | -0.1017 | -0.0365 | 0.5584 | 0.0679 | -4.0491 | 0.8937 | -3.6191 | 0.8643 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 4 | 623819 | 8 | B | 2 | 7077 | 0.4231 | 0.1586 | 0.3211 | 0.4187 | 0.0913 | 0.0087 | 0.0015 | 0.2795 | -0.2192 | -0.0495 | 0.2841 | -0.0954 | -0.0813 | -0.0485 | 1.4383 | 0.0673 | 3.8111 | 1.102 | 4.2412 | 1.1622 | A- | A- | A+ |
| SCIENCE | 4 | 623858 | 8 | C | 2 | 7082 | 0.171 | 0.2529 | 0.4277 | 0.1694 | 0.1406 | 0.0078 | 0.0017 | 0.0127 | -0.241 | 0.2949 | 0.0172 | -0.1077 | -0.0936 | -0.0467 | 2.9307 | 0.0853 | 2.7411 | 1.143 | 6.2917 | 1.6679 | A- | A- | A- |
| SCIENCE | 4 | 624012 | 8 | C | 2 | 7038 | 0.5402 | 0.2187 | 0.5317 | 0.0843 | 0.1495 | 0.0148 | 0.0008 | 0.3721 | -0.1201 | 0.3766 | -0.2095 | -0.1935 | -0.082 | -0.0392 | 0.8822 | 0.0668 | 1.801 | 1.0464 | 1.8111 | 1.0631 | A- | A- | A+ |
| SCIENCE | 4 | 661176 | 8 | D | 2 | 7073 | 0.2983 | 0.2951 | 0.1838 | 0.2912 | 0.2192 | 0.0091 | 0.0017 | 0.1345 | 0.1394 | -0.1353 | 0.0406 | -0.0483 | -0.0836 | -0.0415 | 2.0931 | 0.0718 | 7.2013 | 1.2512 | 9.2016 | 1.5704 | A- | A- | A- |
| SCIENCE | 4 | 620950 | 9 | A | 2 | 6998 | 0.666 | 0.0555 | 0.6538 | 0.145 | 0.1272 | 0.0181 | 0.0003 | 0.4853 | -0.2144 | 0.48 | -0.2132 | -0.2948 | -0.0443 | -0.0024 | 0.2554 | 0.0701 | -2.9091 | 0.9142 | -3.1291 | 0.8557 | A- | A- | A- |
| SCIENCE | 4 | 653788 | 9 | A | 2 | 7055 | 0.3946 | 0.1406 | 0.3905 | 0.2491 | 0.2094 | 0.0086 | 0.0018 | 0.2603 | -0.11 | 0.2655 | -0.1024 | -0.0908 | -0.0922 | -0.0366 | 1.5771 | 0.0686 | 4.0411 | 1.1163 | 4.5112 | 1.2005 | A+ | A- | A- |
| SCIENCE | 4 | 663785 | 9 | A | 2 | 7055 | 0.4384 | 0.4339 | 0.1316 | 0.2378 | 0.1864 | 0.008 | 0.0024 | 0.1918 | 0.197 | -0.2145 | -0.0053 | -0.0368 | -0.0788 | -0.0313 | 1.3585 | 0.0677 | 7.9212 | 1.2261 | 8.1013 | 1.3413 | A+ | A- | A+ |
| SCIENCE | 4 | 617586 | 9 | B | 2 | 7058 | 0.4127 | 0.173 | 0.2148 | 0.4086 | 0.1937 | 0.0091 | 0.0008 | 0.2786 | -0.2341 | -0.0657 | 0.2825 | -0.0379 | -0.0796 | -0.0272 | 1.4852 | 0.0682 | 3.7911 | 1.1066 | 3.9712 | 1.167 | A- | A+ | A- |
| SCIENCE | 4 | 661160 | 9 | B | 2 | 7079 | 0.6511 | 0.0736 | 0.1298 | 0.6465 | 0.1431 | 0.0053 | 0.0017 | 0.4472 | -0.257 | -0.223 | 0.4514 | -0.1904 | -0.0764 | -0.0371 | 0.2942 | 0.0698 | -3.2291 | 0.9064 | -3.0491 | 0.8623 | A+ | A- | A- |
| SCIENCE | 4 | 623831 | 9 | C | 2 | 7014 | 0.6915 | 0.0966 | 0.6803 | 0.1177 | 0.0892 | 0.0159 | 0.0003 | 0.4373 | -0.2832 | 0.4393 | -0.1922 | -0.1751 | -0.0722 | -0.0202 | 0.1113 | 0.0713 | -1.179 | 0.9626 | -1.7691 | 0.9087 | A+ | A- | A- |
| SCIENCE | 4 | 653792 | 9 | C | 2 | 7063 | 0.589 | 0.232 | 0.0923 | 0.0829 | 0.5835 | 0.0079 | 0.0014 | 0.4109 | -0.1257 | -0.2506 | -0.2577 | 0.4149 | -0.0726 | -0.0403 | 0.6186 | 0.0681 | -0.969 | 0.9733 | -1.2691 | 0.9497 | A+ | A- | A+ |
| SCIENCE | 4 | 624017 | 9 | D | 2 | 7054 | 0.4643 | 0.147 | 0.1919 | 0.1912 | 0.4594 | 0.009 | 0.0015 | 0.2688 | -0.198 | -0.082 | -0.0704 | 0.2698 | -0.0515 | 0.0126 | 1.232 | 0.0674 | 3.1911 | 1.0861 | 2.9811 | 1.1133 | A- | A- | A- |
| SCIENCE | 4 | 574834 | 10 | A | 2 | 7013 | 0.7607 | 0.0879 | 0.755 | 0.0986 | 0.0509 | 0.0059 | 0.0016 | 0.4158 | -0.2129 | 0.4202 | -0.2013 | -0.2451 | -0.0614 | -0.0457 | -0.3427 | 0.0765 | -0.349 | 0.9859 | -0.369 | 0.9729 | A+ | A- | A+ |
| SCIENCE | 4 | 620956 | 10 | A | 2 | 6968 | 0.5992 | 0.1377 | 0.5909 | 0.1144 | 0.1432 | 0.0134 | 0.0004 | 0.4479 | -0.2132 | 0.4456 | -0.2437 | -0.1805 | -0.0385 | -0.0192 | 0.5688 | 0.0681 | -2.0891 | 0.9436 | -1.219 | 0.9504 | A+ | C- | C- |
| SCIENCE | 4 | 657821 | 10 | A | 2 | 7015 | 0.42 | 0.1855 | 0.4169 | 0.1639 | 0.2264 | 0.0061 | 0.0011 | 0.2646 | -0.1429 | 0.2682 | -0.1774 | -0.0098 | -0.0759 | -0.0298 | 1.4332 | 0.0679 | 5.7112 | 1.16 | 5.6112 | 1.2356 | A- | A- | A- |
| SCIENCE | 4 | 657993 | 10 | A | 2 | 7007 | 0.5068 | 0.063 | 0.3007 | 0.1254 | 0.5025 | 0.0075 | 0.0008 | 0.3588 | -0.2645 | -0.0417 | -0.2733 | 0.3617 | -0.0734 | -0.0217 | 1.0079 | 0.0671 | 1.671 | 1.0435 | 1.7711 | 1.0648 | A+ | A- | A+ |
| SCIENCE | 4 | 661154 | 10 | B | 2 | 6986 | 0.3958 | 0.3757 | 0.0986 | 0.3913 | 0.123 | 0.0092 | 0.0021 | 0.245 | 0.0615 | -0.2588 | 0.2497 | -0.1976 | -0.0801 | -0.0427 | 1.5637 | 0.0685 | 4.6611 | 1.1334 | 5.7113 | 1.2558 | A- | A- | A- |
| SCIENCE | 4 | 623821 | 10 | C | 2 | 6912 | 0.7555 | 0.1105 | 0.739 | 0.073 | 0.0556 | 0.0214 | 0.0004 | 0.4707 | -0.24 | 0.4628 | -0.2419 | -0.2507 | -0.0489 | -0.0255 | -0.243 | 0.0751 | -2.8591 | 0.8981 | -2.4192 | 0.8481 | A- | A- | A- |
| SCIENCE | 4 | 663513 | 10 | D | 2 | 7005 | 0.3963 | 0.329 | 0.1799 | 0.0896 | 0.3929 | 0.0081 | 0.0006 | 0.3684 | -0.1227 | -0.1154 | -0.2486 | 0.3713 | -0.0883 | -0.0196 | 1.5557 | 0.0684 | 0.231 | 1.006 | 1.3511 | 1.0564 | A- | A- | A- |
| SCIENCE | 4 | 663514 | 10 | D | 2 | 6987 | 0.6733 | 0.6657 | 0.0879 | 0.1531 | 0.0821 | 0.0099 | 0.0013 | 0.4719 | 0.4741 | -0.261 | -0.1899 | -0.2682 | -0.069 | -0.0252 | 0.1778 | 0.0706 | -2.9091 | 0.9126 | -2.1491 | 0.8941 | A- | A- | A- |
| SCIENCE | 4 | 622346 | 11 | A | 2 | 7012 | 0.7126 | 0.7017 | 0.124 | 0.0864 | 0.0726 | 0.0143 | 0.001 | 0.4053 | 0.4096 | -0.1349 | -0.2632 | -0.2268 | -0.0739 | -0.0438 | 0.0107 | 0.0717 | -1.269 | 0.959 | -1.9891 | 0.8991 | A- | A- | A- |
| SCIENCE | 4 | 623823 | 11 | A | 2 | 7050 | 0.5109 | 0.0993 | 0.213 | 0.5058 | 0.1719 | 0.0084 | 0.0015 | 0.279 | -0.2349 | -0.0994 | 0.2849 | -0.0584 | -0.0888 | -0.0346 | 1.0104 | 0.0667 | 1.701 | 1.0434 | 1.301 | 1.0441 | A- | A+ | A+ |
| SCIENCE | 4 | 657815 | 11 | A | 2 | 7047 | 0.2966 | 0.4355 | 0.126 | 0.1347 | 0.2935 | 0.0079 | 0.0025 | 0.2681 | 0.0169 | -0.2086 | -0.1554 | 0.2714 | -0.0865 | -0.0412 | 2.0936 | 0.0726 | 3.3611 | 1.115 | 5.2613 | 1.3228 | A- | A+ | A+ |
| SCIENCE | 4 | 617539 | 11 | B | 2 | 7012 | 0.5351 | 0.5269 | 0.1639 | 0.1195 | 0.1744 | 0.0143 | 0.001 | 0.3272 | 0.3334 | -0.1333 | -0.1844 | -0.1191 | -0.0928 | -0.0346 | 0.9082 | 0.0668 | 2.2911 | 1.0592 | 2.3411 | 1.0808 | A- | A+ | A- |
| SCIENCE | 4 | 661168 | 11 | C | 2 | 7042 | 0.398 | 0.2766 | 0.3936 | 0.1852 | 0.1334 | 0.0094 | 0.0017 | 0.3287 | -0.1682 | 0.3331 | -0.1305 | -0.0766 | -0.0941 | -0.0416 | 1.561 | 0.0681 | 1.731 | 1.0472 | 2.0011 | 1.0824 | A+ | A- | A- |
| SCIENCE | 4 | 661172 | 11 | C | 2 | 7057 | 0.6593 | 0.6534 | 0.1254 | 0.0858 | 0.1264 | 0.0063 | 0.0027 | 0.3418 | 0.3461 | -0.2137 | -0.1899 | -0.102 | -0.0612 | -0.0387 | 0.2739 | 0.0694 | -0.259 | 0.9922 | 0.581 | 1.025 | A+ | A- | A- |
| SCIENCE | 4 | 653793 | 11 | D | 2 | 7058 | 0.276 | 0.2254 | 0.1694 | 0.2736 | 0.3228 | 0.0066 | 0.0022 | 0.0044 | -0.0886 | -0.0861 | 0.0089 | 0.1555 | -0.064 | -0.0467 | 2.2093 | 0.074 | 8.1213 | 1.3123 | 9.3817 | 1.6764 | A- | A- | A+ |
| SCIENCE | 4 | 657823 | 11 | D | 2 | 7056 | 0.6205 | 0.6148 | 0.1062 | 0.176 | 0.0939 | 0.0067 | 0.0024 | 0.359 | 0.3671 | -0.2166 | -0.1425 | -0.16 | -0.0956 | -0.0652 | 0.4736 | 0.0681 | 0.711 | 1.0195 | 0.011 | 1 | A- | A- | A- |
| SCIENCE | 4 | 617344 | 12 | A | 2 | 7003 | 0.5775 | 0.5696 | 0.1306 | 0.1225 | 0.1637 | 0.0134 | 0.0003 | 0.4505 | 0.4507 | -0.2101 | -0.2272 | -0.1908 | -0.062 | -0.0071 | 0.7095 | 0.0677 | -3.1591 | 0.9173 | -2.9691 | 0.8866 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 4 | 617346 | 12 | A | 2 | 7012 | 0.5114 | 0.197 | 0.1337 | 0.5051 | 0.1518 | 0.0115 | 0.0008 | 0.4512 | -0.1732 | -0.2022 | 0.4517 | -0.2269 | -0.053 | -0.0362 | 1.0296 | 0.0671 | -1.349 | 0.965 | -1.029 | 0.9629 | A- | A- | A- |
| SCIENCE | 4 | 657983 | 12 | A | 2 | 7033 | 0.3424 | 0.2473 | 0.2338 | 0.3392 | 0.1703 | 0.0075 | 0.002 | 0.2229 | -0.0533 | -0.0964 | 0.2272 | -0.092 | -0.0835 | -0.0436 | 1.8741 | 0.0702 | 3.2311 | 1.1004 | 4.4612 | 1.2241 | A+ | A- | A- |
| SCIENCE | 4 | 657992 | 12 | A | 2 | 7052 | 0.7111 | 0.0454 | 0.7063 | 0.199 | 0.0425 | 0.0056 | 0.0011 | 0.5357 | -0.2238 | 0.5394 | -0.3661 | -0.226 | -0.0804 | -0.0392 | -0.0159 | 0.0728 | -5.6092 | 0.8245 | -5.3293 | 0.7138 | A- | A- | B- |
| SCIENCE | 4 | 623200 | 12 | B | 2 | 7043 | 0.6764 | 0.0939 | 0.1075 | 0.1196 | 0.671 | 0.0063 | 0.0017 | 0.5372 | -0.2663 | -0.2864 | -0.2488 | 0.5376 | -0.0544 | -0.028 | 0.1823 | 0.0709 | -6.9292 | 0.8016 | -5.6493 | 0.7296 | A+ | A- | A+ |
| SCIENCE | 4 | 661271 | 12 | C | 2 | 7052 | 0.4996 | 0.2569 | 0.4962 | 0.1746 | 0.0655 | 0.0052 | 0.0015 | 0.2541 | -0.0421 | 0.2584 | -0.1262 | -0.2275 | -0.0739 | -0.0318 | 1.0734 | 0.0671 | 5.7912 | 1.1588 | 5.0712 | 1.1927 | A- | A- | A- |
| SCIENCE | 4 | 657824 | 12 | D | 2 | 7045 | 0.5881 | 0.5835 | 0.1252 | 0.1846 | 0.0989 | 0.0059 | 0.0018 | 0.3687 | 0.3728 | -0.147 | -0.1683 | -0.2102 | -0.0651 | -0.0489 | 0.6394 | 0.068 | 0.381 | 1.0101 | -0.139 | 0.9938 | A- | A+ | A+ |
| SCIENCE | 4 | 661179 | 12 | D | 2 | 7032 | 0.6516 | 0.1262 | 0.098 | 0.6454 | 0.1208 | 0.008 | 0.0015 | 0.4523 | -0.1967 | -0.256 | 0.4564 | -0.2092 | -0.0765 | -0.0469 | 0.3203 | 0.0698 | -3.3891 | 0.9034 | -3.0691 | 0.8574 | A- | A- | A- |
| SCIENCE | 8 | 303675 | 0 | A | 2 | 80554 | 0.619 | 0.0847 | 0.1234 | 0.1719 | 0.6174 | 0.0018 | 0.0008 | 0.5149 | -0.2776 | -0.2543 | -0.2306 | 0.5165 | -0.0523 | -0.0308 | -0.282 | 0.0202 | -6.9691 | 0.9413 | -5.5191 | 0.9212 | A+ | A+ | A+ |
| SCIENCE | 8 | 305069 | 0 | A | 2 | 80479 | 0.389 | 0.3876 | 0.2578 | 0.1519 | 0.1992 | 0.0025 | 0.001 | 0.342 | 0.3435 | -0.0843 | -0.2205 | -0.1194 | -0.0494 | -0.0374 | 1.0683 | 0.0199 | 9.9011 | 1.0939 | 9.9012 | 1.1678 | A- | A- | A+ |
| SCIENCE | 8 | 313619 | 0 | A | 2 | 80655 | 0.4267 | 0.4261 | 0.16 | 0.1263 | 0.2862 | 0.0009 | 0.0005 | 0.4264 | 0.4269 | -0.1701 | -0.23 | -0.1566 | -0.0338 | -0.0247 | 0.8798 | 0.0196 | 2.121 | 1.0168 | 5.0611 | 1.0579 | A- | A- | A- |
| SCIENCE | 8 | 313643 | 0 | A | 2 | 80544 | 0.3173 | 0.4008 | 0.3165 | 0.1813 | 0.0987 | 0.0019 | 0.0008 | 0.2828 | 0.0193 | 0.2841 | -0.1944 | -0.2128 | -0.0533 | -0.0322 | 1.1989 | 0.0201 | 9.9011 | 1.0884 | 9.9012 | 1.1765 | A+ | A- | A- |
| SCIENCE | 8 | 401706 | 0 | A | 1 | 80561 | 0.6462 | 0.0722 | 0.0614 | 0.6446 | 0.2193 | 0.0015 | 0.001 | 0.3923 | -0.2574 | -0.2857 | 0.3944 | -0.1225 | -0.0485 | -0.0322 | -0.358 | 0.0204 | 7.9811 | 1.0719 | 7.5211 | 1.1197 | A- | A+ | A+ |
| SCIENCE | 8 | 401720 | 0 | A | 2 | 80594 | 0.406 | 0.1201 | 0.1918 | 0.2808 | 0.4052 | 0.0014 | 0.0007 | 0.3614 | -0.195 | -0.1987 | -0.075 | 0.3626 | -0.0471 | -0.0354 | 1.0235 | 0.0198 | 9.9011 | 1.0865 | 9.9011 | 1.1365 | A- | A+ | A+ |
| SCIENCE | 8 | 410880 | 0 | A | 2 | 80618 | 0.6463 | 0.0755 | 0.0777 | 0.1999 | 0.6452 | 0.0012 | 0.0006 | 0.4263 | -0.2035 | -0.2193 | -0.2253 | 0.4277 | -0.0383 | -0.0301 | 0.042 | 0.0197 | -4.449 | 0.9651 | -2.369 | 0.9712 | A+ | A+ | A+ |
| SCIENCE | 8 | 412137 | 0 | A | 2 | 80649 | 0.5128 | 0.0727 | 0.5121 | 0.2926 | 0.1212 | 0.0009 | 0.0005 | 0.2903 | -0.2621 | 0.2913 | -0.0476 | -0.1664 | -0.0323 | -0.0276 | 0.5519 | 0.0194 | 9.9012 | 1.1911 | 9.9012 | 1.2449 | A+ | A+ | A+ |
| SCIENCE | 8 | 412141 | 0 | A | 2 | 80492 | 0.6266 | 0.1224 | 0.6245 | 0.1307 | 0.119 | 0.0024 | 0.001 | 0.4897 | -0.2654 | 0.4918 | -0.264 | -0.1799 | -0.06 | -0.0316 | -0.1498 | 0.02 | -7.5991 | 0.9383 | -6.1691 | 0.9186 | A+ | A+ | A+ |
| SCIENCE | 8 | 412150 | 0 | A | 2 | 80627 | 0.4006 | 0.1384 | 0.2837 | 0.4 | 0.1762 | 0.0011 | 0.0006 | 0.3174 | -0.1485 | -0.0378 | 0.3182 | -0.2251 | -0.0318 | -0.0295 | 0.8166 | 0.0196 | 9.9011 | 1.1175 | 9.9012 | 1.167 | A- | A- | A- |
| SCIENCE | 8 | 493907 | 0 | A | 2 | 80608 | 0.629 | 0.179 | 0.0715 | 0.6278 | 0.1197 | 0.0013 | 0.0007 | 0.4493 | -0.205 | -0.2917 | 0.4506 | -0.1906 | -0.0383 | -0.0319 | 0.1676 | 0.0196 | -5.739 | 0.9559 | -6.1591 | 0.9302 | A+ | A+ | A+ |
| SCIENCE | 8 | 493917 | 0 | A | 2 | 80595 | 0.7041 | 0.7027 | 0.1252 | 0.1017 | 0.0683 | 0.0013 | 0.0007 | 0.4887 | 0.4899 | -0.2583 | -0.241 | -0.2514 | -0.0413 | -0.0245 | -0.4586 | 0.0207 | -9.8991 | 0.8797 | -9.8792 | 0.8475 | A+ | A+ | A+ |
| SCIENCE | 8 | 494531 | 0 | A | 2 | 80588 | 0.7607 | 0.759 | 0.0777 | 0.0762 | 0.0849 | 0.0012 | 0.001 | 0.4945 | 0.4962 | -0.2856 | -0.266 | -0.2253 | -0.0398 | -0.0328 | -0.7767 | 0.0217 | -9.8992 | 0.8282 | -9.8993 | 0.7271 | A+ | A+ | A+ |
| SCIENCE | 8 | 561248 | 0 | A | 2 | 80437 | 0.5356 | 0.156 | 0.191 | 0.5334 | 0.1156 | 0.003 | 0.001 | 0.4996 | -0.2056 | -0.2465 | 0.5012 | -0.2324 | -0.06 | -0.0296 | -0.2751 | 0.0202 | 9.9011 | 1.0994 | 4.5311 | 1.0674 | A+ | A+ | A+ |
| SCIENCE | 8 | 566177 | 0 | A | 2 | 80592 | 0.3669 | 0.2545 | 0.3661 | 0.1039 | 0.2734 | 0.0015 | 0.0006 | 0.2888 | -0.0913 | 0.2897 | -0.2258 | -0.0645 | -0.0376 | -0.0277 | 1.2976 | 0.0203 | 9.9012 | 1.1732 | 9.9013 | 1.3329 | A- | A+ | A+ |
| SCIENCE | 8 | 566178 | 0 | A | 2 | 80522 | 0.5834 | 0.0861 | 0.207 | 0.1223 | 0.5816 | 0.002 | 0.001 | 0.507 | -0.2663 | -0.1978 | -0.2824 | 0.5088 | -0.0543 | -0.0374 | 0.0254 | 0.0197 | -9.8991 | 0.921 | -9.8991 | 0.8805 | A+ | A+ | A- |
| SCIENCE | 8 | 566925 | 0 | A | 2 | 80510 | 0.403 | 0.1439 | 0.1318 | 0.3194 | 0.4017 | 0.0026 | 0.0006 | 0.4042 | -0.2597 | -0.2395 | -0.05 | 0.4053 | -0.0521 | -0.025 | 0.8707 | 0.0196 | 4.341 | 1.0347 | 4.8911 | 1.0558 | A- | A+ | A+ |
| SCIENCE | 8 | 579570 | 0 | A | 2 | 80520 | 0.7472 | 0.7449 | 0.0792 | 0.0921 | 0.0806 | 0.0022 | 0.0008 | 0.5148 | 0.5169 | -0.2692 | -0.2577 | -0.2744 | -0.0531 | -0.0296 | -0.8314 | 0.0219 | -9.8991 | 0.8587 | -9.8992 | 0.7582 | A+ | A- | A- |
| SCIENCE | 8 | 401734 | 0 | B | 2 | 80495 | 0.5916 | 0.5896 | 0.1347 | 0.1416 | 0.1307 | 0.0021 | 0.0012 | 0.5132 | 0.5148 | -0.22 | -0.2974 | -0.21 | -0.052 | -0.0359 | 0.0033 | 0.0198 | -9.8991 | 0.9146 | -9.8991 | 0.8694 | A+ | A+ | A- |
| SCIENCE | 8 | 411602 | 0 | B | 2 | 80448 | 0.478 | 0.1575 | 0.1113 | 0.4761 | 0.2512 | 0.0029 | 0.001 | 0.4174 | -0.224 | -0.2613 | 0.4195 | -0.0951 | -0.0626 | -0.0352 | 0.6062 | 0.0195 | 4.431 | 1.0343 | 3.611 | 1.0389 | A- | A- | A+ |
| SCIENCE | 8 | 412167 | 0 | B | 2 | 80494 | 0.6386 | 0.1391 | 0.1248 | 0.0963 | 0.6364 | 0.0021 | 0.0013 | 0.5208 | -0.1676 | -0.3033 | -0.303 | 0.5227 | -0.0546 | -0.036 | -0.1496 | 0.02 | -9.8991 | 0.8731 | -9.8992 | 0.8173 | A+ | A+ | A+ |
| SCIENCE | 8 | 577687 | 0 | B | 2 | 80668 | 0.6928 | 0.0601 | 0.692 | 0.1139 | 0.1328 | 0.0007 | 0.0004 | 0.5474 | -0.2418 | 0.5482 | -0.284 | -0.3062 | -0.0317 | -0.0289 | -0.2777 | 0.0202 | -9.8992 | 0.8164 | -9.8993 | 0.7365 | A+ | B- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 8 | 577688 | 0 | B | 3 | 80576 | 0.6847 | 0.6831 | 0.1215 | 0.0982 | 0.0949 | 0.0016 | 0.0007 | 0.587 | 0.5879 | -0.3282 | -0.259 | -0.2959 | -0.0446 | -0.0275 | -0.4538 | 0.0207 | -9.8992 | 0.8129 | -9.8993 | 0.7042 | A- | A- | A+ |
| SCIENCE | 8 | 579922 | 0 | B | 2 | 80673 | 0.51 | 0.5095 | 0.0901 | 0.336 | 0.0633 | 0.0007 | 0.0004 | 0.3618 | 0.3625 | -0.2852 | -0.0973 | -0.2147 | -0.0326 | -0.0204 | 0.6392 | 0.0195 | 9.9011 | 1.0882 | 9.3911 | 1.1035 | A- | A+ | A+ |
| SCIENCE | 8 | 303367 | 0 | C | 2 | 80482 | 0.5704 | 0.1497 | 0.1382 | 0.5684 | 0.1401 | 0.0025 | 0.001 | 0.5028 | -0.2511 | -0.2481 | 0.5047 | -0.2038 | -0.0573 | -0.0356 | 0.3068 | 0.0195 | -9.3191 | 0.9302 | -8.6391 | 0.9076 | A- | A+ | A+ |
| SCIENCE | 8 | 337536 | 0 | C | 2 | 80598 | 0.5319 | 0.1936 | 0.1333 | 0.1402 | 0.5309 | 0.0013 | 0.0008 | 0.5191 | -0.3147 | -0.2011 | -0.1853 | 0.5201 | -0.0446 | -0.0341 | 0.24 | 0.0195 | -9.3591 | 0.9295 | -9.0391 | 0.9014 | B- | A- | A- |
| SCIENCE | 8 | 340479 | 0 | C | 2 | 80663 | 0.5164 | 0.1022 | 0.1796 | 0.2011 | 0.5158 | 0.0008 | 0.0004 | 0.3561 | -0.2068 | -0.1946 | -0.0993 | 0.3568 | -0.025 | -0.0207 | 0.8223 | 0.0196 | 9.9012 | 1.158 | 9.9012 | 1.2048 | A- | A+ | A+ |
| SCIENCE | 8 | 479414 | 0 | C | 2 | 80592 | 0.6718 | 0.1048 | 0.6704 | 0.1399 | 0.0828 | 0.0017 | 0.0005 | 0.5795 | -0.2978 | 0.5807 | -0.3249 | -0.2416 | -0.0466 | -0.0261 | -0.406 | 0.0205 | -9.8992 | 0.8286 | -9.8993 | 0.727 | A- | A+ | A+ |
| SCIENCE | 8 | 496014 | 0 | C | 3 | 80557 | 0.7352 | 0.7334 | 0.0905 | 0.1141 | 0.0595 | 0.0016 | 0.001 | 0.555 | 0.5568 | -0.3198 | -0.2866 | -0.2548 | -0.0519 | -0.0327 | -0.7289 | 0.0215 | -9.8992 | 0.8023 | -9.8993 | 0.6848 | A+ | A+ | A+ |
| SCIENCE | 8 | 561263 | 0 | C | 2 | 80409 | 0.5868 | 0.1378 | 0.1252 | 0.5842 | 0.1484 | 0.0032 | 0.0012 | 0.5486 | -0.2782 | -0.233 | 0.5507 | -0.2628 | -0.0656 | -0.0371 | -0.0428 | 0.0198 | -9.8991 | 0.8965 | -9.8992 | 0.8375 | A+ | A- | A- |
| SCIENCE | 8 | 339838 | 0 | D | 2 | 80536 | 0.4448 | 0.1792 | 0.2028 | 0.1717 | 0.4435 | 0.0022 | 0.0006 | 0.4505 | -0.1142 | -0.2296 | -0.2255 | 0.4518 | -0.055 | -0.0303 | 1.1051 | 0.02 | 5.411 | 1.0457 | 8.3911 | 1.1074 | A+ | A+ | A+ |
| SCIENCE | 8 | 401762 | 0 | D | 2 | 80548 | 0.642 | 0.0816 | 0.1955 | 0.0799 | 0.6403 | 0.0018 | 0.0009 | 0.4729 | -0.2605 | -0.209 | -0.2607 | 0.4744 | -0.0489 | -0.0237 | 0.0468 | 0.0197 | -9.8991 | 0.9105 | -9.8991 | 0.8779 | A+ | A+ | A+ |
| SCIENCE | 8 | 401768 | 0 | D | 2 | 80537 | 0.4234 | 0.2378 | 0.4222 | 0.2483 | 0.0889 | 0.002 | 0.0008 | 0.314 | -0.1752 | 0.3157 | -0.0281 | -0.2319 | -0.0535 | -0.0292 | 1.1576 | 0.02 | 9.9012 | 1.2071 | 9.9013 | 1.3354 | A- | A+ | A+ |
| SCIENCE | 8 | 413214 | 0 | D | 3 | 80606 | 0.3885 | 0.3877 | 0.3523 | 0.1637 | 0.0944 | 0.0012 | 0.0008 | 0.3681 | 0.3689 | -0.1325 | -0.1388 | -0.2155 | -0.0353 | -0.0326 | 0.9929 | 0.0198 | 6.1511 | 1.0506 | 8.5811 | 1.1041 | A- | A+ | A- |
| SCIENCE | 8 | 496016 | 0 | D | 2 | 80681 | 0.8992 | 0.0445 | 0.0314 | 0.8982 | 0.0249 | 0.0006 | 0.0004 | 0.3826 | -0.2468 | -0.2057 | 0.3843 | -0.1809 | -0.0298 | -0.0266 | -2.0843 | 0.0305 | -5.0891 | 0.8941 | -8.5393 | 0.6867 | A+ | A- | A- |
| SCIENCE | 8 | 498860 | 0 | D | 2 | 80502 | 0.5083 | 0.5066 | 0.2101 | 0.1727 | 0.1073 | 0.0024 | 0.0009 | 0.3104 | 0.3125 | -0.0529 | -0.1846 | -0.1987 | -0.0511 | -0.0313 | 0.4447 | 0.0194 | 9.9011 | 1.1455 | 9.9012 | 1.1931 | A+ | A+ | A+ |
| SCIENCE | 8 | 561262 | 0 | D | 2 | 80412 | 0.3735 | 0.3719 | 0.2409 | 0.2704 | 0.1125 | 0.0032 | 0.0011 | 0.3161 | 0.3181 | -0.0776 | -0.0953 | -0.2327 | -0.0627 | -0.0352 | 0.9432 | 0.0197 | 9.9011 | 1.118 | 9.9012 | 1.1743 | A- | A+ | A+ |
| SCIENCE | 8 | 561264 | 0 | D | 2 | 80398 | 0.4445 | 0.2285 | 0.4425 | 0.1541 | 0.1704 | 0.0032 | 0.0013 | 0.3374 | -0.0524 | 0.3401 | -0.2631 | -0.1243 | -0.0659 | -0.0411 | 0.6006 | 0.0195 | 9.9011 | 1.1204 | 9.9012 | 1.1638 | A+ | A+ | A+ |
| SCIENCE | 8 | 622822 | 1 | A | 2 | 7424 | 0.5323 | 0.1359 | 0.5293 | 0.1641 | 0.165 | 0.0055 | 0.0003 | 0.5069 | -0.2424 | 0.5082 | -0.2398 | -0.2083 | -0.057 | -0.0167 | 0.2235 | 0.0674 | -3.3191 | 0.9155 | -3.4491 | 0.8717 | A+ | A+ | A- |
| SCIENCE | 8 | 657841 | 1 | A | 2 | 7428 | 0.6272 | 0.6239 | 0.1279 | 0.178 | 0.065 | 0.0046 | 0.0007 | 0.3686 | 0.3721 | -0.14 | -0.2074 | -0.1996 | -0.0631 | -0.0274 | -0.2664 | 0.0692 | 1.091 | 1.0311 | 3.0712 | 1.1546 | A+ | A+ | A- |
| SCIENCE | 8 | 663515 | 1 | A | 2 | 7433 | 0.3966 | 0.1162 | 0.1596 | 0.3948 | 0.3248 | 0.0032 | 0.0013 | 0.3111 | -0.2215 | -0.1661 | 0.3138 | -0.0346 | -0.0731 | -0.0329 | 0.7756 | 0.0681 | 4.8611 | 1.1383 | 5.2812 | 1.2215 | A+ | A+ | A+ |
| SCIENCE | 8 | 663516 | 1 | A | 2 | 7434 | 0.6886 | 0.6855 | 0.1179 | 0.114 | 0.0782 | 0.0031 | 0.0013 | 0.4645 | 0.4683 | -0.2702 | -0.1964 | -0.2334 | -0.0638 | -0.0453 | -0.2844 | 0.0693 | -8.5392 | 0.7757 | -6.8693 | 0.7001 | A+ | A+ | A+ |
| SCIENCE | 8 | 617343 | 1 | B | 2 | 7414 | 0.5031 | 0.4995 | 0.2558 | 0.1225 | 0.115 | 0.0067 | 0.0004 | 0.4598 | 0.4608 | -0.1748 | -0.2829 | -0.1771 | -0.0528 | -0.0277 | 0.4041 | 0.0673 | -1.239 | 0.9678 | -1.6991 | 0.9371 | A+ | A- | A- |
| SCIENCE | 8 | 623861 | 1 | B | 2 | 7434 | 0.407 | 0.1086 | 0.1298 | 0.3519 | 0.4052 | 0.0035 | 0.0009 | 0.313 | -0.2451 | -0.2426 | 0.0171 | 0.3155 | -0.0672 | -0.0425 | 0.8917 | 0.0686 | 1.751 | 1.0498 | 2.4411 | 1.1028 | A+ | A- | A+ |
| SCIENCE | 8 | 663519 | 1 | B | 2 | 7426 | 0.5043 | 0.1736 | 0.1319 | 0.5015 | 0.1875 | 0.004 | 0.0015 | 0.3557 | -0.1599 | -0.2118 | 0.3592 | -0.1057 | -0.0709 | -0.0426 | 0.29 | 0.0673 | 2.6811 | 1.0712 | 1.9911 | 1.0771 | A- | A- | A- |
| SCIENCE | 8 | 663521 | 1 | B | 2 | 7439 | 0.4491 | 0.1192 | 0.4474 | 0.2692 | 0.1604 | 0.0025 | 0.0012 | 0.2617 | -0.2055 | 0.2642 | -0.0955 | -0.0501 | -0.0535 | -0.0384 | 0.7468 | 0.068 | 5.9512 | 1.1703 | 6.0613 | 1.2543 | A+ | A+ | A+ |
| SCIENCE | 8 | 566210 | 1 | C | 2 | 7426 | 0.5458 | 0.0995 | 0.5428 | 0.1547 | 0.1975 | 0.0044 | 0.0011 | 0.2498 | -0.2276 | 0.2548 | -0.0209 | -0.1124 | -0.079 | -0.0378 | 0.0947 | 0.0676 | 3.2711 | 1.0887 | 3.3711 | 1.1421 | A+ | A+ | A+ |
| SCIENCE | 8 | 654771 | 1 | C | 2 | 7429 | 0.4671 | 0.2234 | 0.4647 | 0.1555 | 0.1513 | 0.0042 | 0.0009 | 0.3818 | -0.1642 | 0.3846 | -0.2001 | -0.1264 | -0.0736 | -0.029 | 0.5545 | 0.0674 | -1.019 | 0.9731 | -1.019 | 0.9619 | A- | A- | A- |
| SCIENCE | 8 | 617355 | 2 | A | 3 | 6635 | 0.4014 | 0.1888 | 0.218 | 0.1879 | 0.3987 | 0.0066 | | 0.3522 | -0.1885 | -0.1915 | -0.0417 | 0.3531 | -0.0457 | | 0.9547 | 0.0684 | 0.341 | 1.0091 | 1.171 | 1.0475 | A+ | A- | A+ |
| SCIENCE | 8 | 657847 | 2 | A | 2 | 6650 | 0.3821 | 0.3804 | 0.1325 | 0.277 | 0.2057 | 0.0037 | 0.0006 | 0.3053 | 0.3075 | -0.2405 | -0.136 | -0.0059 | -0.0653 | -0.0221 | 1.0422 | 0.0688 | 1.9311 | 1.0557 | 2.0611 | 1.0884 | A+ | A+ | A- |
| SCIENCE | 8 | 657854 | 2 | A | 2 | 6644 | 0.3826 | 0.3806 | 0.0996 | 0.3617 | 0.1529 | 0.0039 | 0.0013 | 0.2157 | 0.2182 | -0.2544 | 0.1012 | -0.2048 | -0.0619 | -0.0234 | 0.998 | 0.0686 | 4.4811 | 1.1314 | 4.9612 | 1.2178 | A- | A+ | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 8 | 657855 | 2 | A | 2 | 6648 | 0.6047 | 0.1346 | 0.1452 | 0.6019 | 0.1136 | 0.0034 | 0.0012 | 0.4142 | -0.2205 | -0.1975 | 0.4162 | -0.1725 | -0.0486 | -0.037 | -0.1908 | 0.0694 | 0.671 | 1.019 | 0.131 | 1.0054 | A+ | A+ | A- |
| SCIENCE | 8 | 659833 | 2 | A | 2 | 6660 | 0.3524 | 0.3514 | 0.2369 | 0.2057 | 0.2032 | 0.0025 | 0.0003 | 0.2582 | 0.2598 | -0.1274 | -0.0966 | -0.0688 | -0.0529 | -0.0252 | 1.3082 | 0.0706 | 3.8411 | 1.1227 | 4.5712 | 1.2348 | A- | A- | A- |
| SCIENCE | 8 | 659834 | 2 | A | 2 | 6660 | 0.5751 | 0.2192 | 0.5734 | 0.1499 | 0.0546 | 0.0025 | 0.0003 | 0.3959 | -0.1153 | 0.3979 | -0.2595 | -0.2348 | -0.0526 | -0.0226 | 0.1174 | 0.0679 | 0.221 | 1.0057 | -0.329 | 0.9854 | A+ | A- | A- |
| SCIENCE | 8 | 659836 | 2 | A | 2 | 6648 | 0.4656 | 0.4634 | 0.118 | 0.1488 | 0.2652 | 0.0034 | 0.0012 | 0.3995 | 0.4013 | -0.2687 | -0.2586 | -0.0389 | -0.0493 | -0.0392 | 0.6754 | 0.0675 | 0.571 | 1.015 | 0.091 | 1.0029 | A+ | A- | A- |
| SCIENCE | 8 | 623847 | 2 | C | 3 | 6642 | 0.4074 | 0.3063 | 0.4052 | 0.1023 | 0.1807 | 0.0046 | 0.0009 | 0.418 | -0.1646 | 0.4183 | -0.2103 | -0.1614 | -0.0452 | -0.0196 | 0.9027 | 0.0682 | -2.0891 | 0.9431 | -1.3391 | 0.947 | A- | A- | A+ |
| SCIENCE | 8 | 661201 | 2 | C | 2 | 6649 | 0.6766 | 0.128 | 0.0948 | 0.6736 | 0.0991 | 0.0039 | 0.0006 | 0.4184 | -0.1999 | -0.1945 | 0.4202 | -0.2335 | -0.0464 | -0.0246 | -0.4818 | 0.0717 | -0.209 | 0.993 | -1.0991 | 0.9353 | A+ | A+ | A- |
| SCIENCE | 8 | 659840 | 2 | D | 2 | 6659 | 0.7019 | 0.0726 | 0.1487 | 0.0759 | 0.6998 | 0.0022 | 0.0007 | 0.4785 | -0.2611 | -0.2115 | -0.2809 | 0.4795 | -0.0432 | -0.0115 | -0.5614 | 0.0725 | -4.1391 | 0.8708 | -3.1492 | 0.8164 | A+ | A- | A- |
| SCIENCE | 8 | 622819 | 3 | A | 2 | 6590 | 0.5243 | 0.5218 | 0.1278 | 0.1986 | 0.1471 | 0.0041 | 0.0006 | 0.5087 | 0.51 | -0.2382 | -0.2081 | -0.2477 | -0.0582 | -0.0316 | 0.3953 | 0.0669 | -4.4091 | 0.8918 | -4.2891 | 0.8549 | A- | A+ | A- |
| SCIENCE | 8 | 657853 | 3 | A | 2 | 6591 | 0.381 | 0.2463 | 0.3792 | 0.1982 | 0.1717 | 0.0029 | 0.0017 | 0.2214 | -0.0037 | 0.2246 | -0.1702 | -0.0894 | -0.0723 | -0.0478 | 1.0022 | 0.0681 | 5.7812 | 1.1672 | 5.9212 | 1.2481 | A- | A- | A- |
| SCIENCE | 8 | 660669 | 3 | A | 2 | 6598 | 0.2928 | 0.1954 | 0.3762 | 0.2918 | 0.1331 | 0.0027 | 0.0008 | 0.1432 | -0.1979 | 0.1101 | 0.1451 | -0.1091 | -0.0622 | -0.0188 | 1.6257 | 0.0733 | 6.5112 | 1.2431 | 8.2715 | 1.5353 | A- | A- | A- |
| SCIENCE | 8 | 660675 | 3 | A | 2 | 6593 | 0.4714 | 0.4694 | 0.2013 | 0.1538 | 0.1713 | 0.0032 | 0.0011 | 0.4195 | 0.4219 | -0.1436 | -0.1495 | -0.2494 | -0.0685 | -0.0384 | 0.6046 | 0.0669 | -1.779 | 0.9549 | -1.5691 | 0.9457 | A+ | A- | A- |
| SCIENCE | 8 | 660673 | 3 | B | 2 | 6596 | 0.3161 | 0.2013 | 0.2259 | 0.254 | 0.3149 | 0.0032 | 0.0006 | 0.2244 | -0.0969 | -0.0669 | -0.0772 | 0.2266 | -0.0701 | -0.0353 | 1.3304 | 0.0703 | 3.2111 | 1.1012 | 3.9312 | 1.1932 | A+ | A- | A+ |
| SCIENCE | 8 | 660674 | 3 | B | 2 | 6601 | 0.6226 | 0.1587 | 0.1281 | 0.0894 | 0.6208 | 0.002 | 0.0011 | 0.4733 | -0.2381 | -0.1795 | -0.2804 | 0.4756 | -0.0619 | -0.0323 | -0.0819 | 0.0684 | -3.0991 | 0.9174 | -1.8591 | 0.9208 | A+ | A+ | A+ |
| SCIENCE | 8 | 661199 | 3 | C | 2 | 6591 | 0.3884 | 0.329 | 0.3866 | 0.1713 | 0.1086 | 0.0036 | 0.0009 | 0.2022 | 0.1079 | 0.2054 | -0.2282 | -0.1905 | -0.0754 | -0.0318 | 0.978 | 0.068 | 4.1311 | 1.1167 | 3.7712 | 1.152 | A- | A- | A+ |
| SCIENCE | 8 | 661202 | 3 | C | 2 | 6592 | 0.243 | 0.132 | 0.1982 | 0.242 | 0.4235 | 0.0035 | 0.0009 | 0.0778 | -0.222 | -0.1597 | 0.0806 | 0.2228 | -0.0859 | -0.0253 | 1.6791 | 0.0739 | 4.3712 | 1.1633 | 6.7414 | 1.4401 | A- | A- | A+ |
| SCIENCE | 8 | 623844 | 3 | D | 2 | 6570 | 0.4443 | 0.4409 | 0.2196 | 0.1409 | 0.1909 | 0.0066 | 0.0011 | 0.3144 | 0.3166 | -0.1515 | -0.1744 | -0.0729 | -0.0487 | -0.037 | 0.7368 | 0.0672 | 2.2311 | 1.059 | 1.5511 | 1.0557 | A- | A- | A- |
| SCIENCE | 8 | 661207 | 3 | D | 2 | 6591 | 0.4002 | 0.2803 | 0.3984 | 0.2116 | 0.1051 | 0.0038 | 0.0008 | 0.3491 | -0.169 | 0.3512 | -0.0501 | -0.2295 | -0.0704 | -0.0321 | 1.0417 | 0.0684 | 1.691 | 1.0474 | 2.7011 | 1.1106 | A- | A- | A- |
| SCIENCE | 8 | 622838 | 4 | A | 2 | 6607 | 0.5692 | 0.1631 | 0.147 | 0.567 | 0.119 | 0.0036 | 0.0003 | 0.4018 | -0.1981 | -0.1389 | 0.4029 | -0.2297 | -0.0406 | -0.0244 | 0.1637 | 0.0679 | -0.409 | 0.9887 | 0.181 | 1.0069 | A+ | A- | A- |
| SCIENCE | 8 | 653698 | 4 | A | 2 | 6604 | 0.5298 | 0.5275 | 0.082 | 0.3246 | 0.0615 | 0.0024 | 0.002 | 0.383 | 0.3864 | -0.2495 | -0.1282 | -0.2445 | -0.0589 | -0.0634 | 0.3618 | 0.0675 | 0.481 | 1.0126 | -0.139 | 0.9943 | A- | B- | A- |
| SCIENCE | 8 | 657837 | 4 | A | 2 | 6598 | 0.5265 | 0.0942 | 0.5237 | 0.1235 | 0.2533 | 0.0045 | 0.0008 | 0.3847 | -0.2486 | 0.388 | -0.2124 | -0.1043 | -0.0799 | -0.0214 | 0.3807 | 0.0675 | 0.261 | 1.0066 | 0.701 | 1.0262 | A+ | A- | A- |
| SCIENCE | 8 | 660670 | 4 | A | 2 | 6613 | 0.4453 | 0.444 | 0.1909 | 0.1983 | 0.1639 | 0.0023 | 0.0008 | 0.4639 | 0.465 | -0.2376 | -0.2519 | -0.0918 | -0.0523 | -0.0293 | 0.7796 | 0.0678 | -2.4691 | 0.9342 | -1.6191 | 0.9394 | A+ | A+ | A+ |
| SCIENCE | 8 | 660671 | 4 | A | 2 | 6614 | 0.6784 | 0.109 | 0.0802 | 0.1315 | 0.6765 | 0.002 | 0.0009 | 0.4671 | -0.2646 | -0.2711 | -0.1776 | 0.4694 | -0.0522 | -0.0396 | -0.4108 | 0.0712 | -2.1091 | 0.9354 | -0.9191 | 0.9492 | B+ | A+ | A- |
| SCIENCE | 8 | 660672 | 4 | A | 2 | 6611 | 0.6406 | 0.6385 | 0.1099 | 0.1437 | 0.1046 | 0.0023 | 0.0011 | 0.4379 | 0.4403 | -0.2285 | -0.235 | -0.1756 | -0.0562 | -0.0373 | -0.2051 | 0.0696 | -0.809 | 0.9763 | -1.4191 | 0.9318 | A+ | A+ | A- |
| SCIENCE | 8 | 498025 | 4 | B | 2 | 6610 | 0.6911 | 0.6887 | 0.1101 | 0.1061 | 0.0917 | 0.0029 | 0.0006 | 0.53 | 0.5329 | -0.278 | -0.2769 | -0.2414 | -0.0765 | -0.0294 | -0.479 | 0.0718 | -7.2692 | 0.7854 | -6.7293 | 0.6604 | A+ | A+ | A+ |
| SCIENCE | 8 | 660676 | 4 | B | 2 | 6608 | 0.6483 | 0.1076 | 0.0984 | 0.1443 | 0.6459 | 0.0023 | 0.0015 | 0.4787 | -0.2862 | -0.261 | -0.1707 | 0.4798 | -0.0426 | -0.0267 | -0.2444 | 0.0699 | -4.2091 | 0.8809 | -3.4192 | 0.8382 | A+ | A+ | A+ |
| SCIENCE | 8 | 574874 | 4 | C | 2 | 6613 | 0.6257 | 0.0994 | 0.1871 | 0.6239 | 0.0867 | 0.0029 | 0.0002 | 0.4926 | -0.2666 | -0.2053 | 0.4939 | -0.2712 | -0.052 | -0.0279 | -0.128 | 0.0692 | -2.8291 | 0.921 | -1.5891 | 0.9269 | A+ | A- | A- |
| SCIENCE | 8 | 617349 | 4 | D | 2 | 6602 | 0.4664 | 0.4642 | 0.1212 | 0.2055 | 0.2044 | 0.0038 | 0.0009 | 0.3934 | 0.3955 | -0.2192 | -0.1963 | -0.1021 | -0.0658 | -0.0407 | 0.678 | 0.0676 | 2.0211 | 1.0549 | 2.1111 | 1.0802 | A- | A- | A- |
| SCIENCE | 8 | 622832 | 5 | A | 2 | 6623 | 0.5002 | 0.1749 | 0.1527 | 0.497 | 0.1689 | 0.006 | 0.0005 | 0.4184 | -0.1755 | -0.1762 | 0.4181 | -0.2034 | -0.0282 | -0.0304 | 0.5023 | 0.0674 | -1.289 | 0.966 | -1.059 | 0.9611 | A+ | A+ | A+ |
| SCIENCE | 8 | 657831 | 5 | A | 2 | 6652 | 0.7049 | 0.1196 | 0.1193 | 0.7034 | 0.0557 | 0.0017 | 0.0005 | 0.4169 | -0.1843 | -0.2214 | 0.4187 | -0.2505 | -0.0474 | -0.0175 | -0.5693 | 0.073 | -2.0391 | 0.9332 | -1.1891 | 0.928 | B+ | A- | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 8 | 657843 | 5 | A | 2 | 6644 | 0.669 | 0.0945 | 0.1406 | 0.0948 | 0.6668 | 0.003 | 0.0003 | 0.539 | -0.252 | -0.2756 | -0.2806 | 0.5404 | -0.051 | -0.0125 | -0.365 | 0.071 | -5.4092 | 0.8421 | -4.7692 | 0.7641 | A+ | A+ | A+ |
| SCIENCE | 8 | 657857 | 5 | A | 2 | 6639 | 0.5701 | 0.2624 | 0.5678 | 0.0927 | 0.0731 | 0.0036 | 0.0005 | 0.4209 | -0.1235 | 0.4226 | -0.3076 | -0.2395 | -0.0526 | -0.0153 | 0.1497 | 0.068 | 0.831 | 1.0225 | 0.591 | 1.0236 | A- | A+ | A+ |
| SCIENCE | 8 | 660029 | 5 | A | 2 | 6648 | 0.4823 | 0.1617 | 0.4809 | 0.1656 | 0.189 | 0.002 | 0.0008 | 0.4196 | -0.2372 | 0.4208 | -0.14 | -0.1745 | -0.0395 | -0.0287 | 0.582 | 0.0674 | -1.569 | 0.9588 | -1.5591 | 0.9437 | A- | A- | A- |
| SCIENCE | 8 | 660030 | 5 | B | 2 | 6647 | 0.7173 | 0.0786 | 0.1196 | 0.0837 | 0.7153 | 0.0023 | 0.0006 | 0.5165 | -0.2724 | -0.2762 | -0.2464 | 0.5173 | -0.0398 | -0.0152 | -0.638 | 0.0737 | -4.5491 | 0.8518 | -4.5293 | 0.7376 | B+ | A+ | A+ |
| SCIENCE | 8 | 660033 | 5 | B | 2 | 6644 | 0.326 | 0.4227 | 0.1436 | 0.3249 | 0.1055 | 0.003 | 0.0003 | 0.0626 | 0.1617 | -0.1876 | 0.0643 | -0.1351 | -0.0444 | -0.016 | 1.3904 | 0.071 | 9.9014 | 1.3783 | 9.9016 | 1.6089 | A+ | A- | A- |
| SCIENCE | 8 | 662318 | 5 | B | 2 | 6635 | 0.3248 | 0.3233 | 0.2567 | 0.3239 | 0.0915 | 0.0036 | 0.0011 | 0.3448 | 0.3459 | -0.1032 | -0.1532 | -0.1424 | -0.0607 | -0.0108 | 1.3996 | 0.071 | -1.139 | 0.9643 | 0.911 | 1.0448 | A+ | A- | A- |
| SCIENCE | 8 | 623150 | 5 | D | 2 | 6643 | 0.4719 | 0.1533 | 0.1322 | 0.2408 | 0.4703 | 0.003 | 0.0005 | 0.3898 | -0.2373 | -0.181 | -0.1079 | 0.3903 | -0.0257 | -0.0218 | 0.635 | 0.0674 | 0.351 | 1.009 | 0.641 | 1.0229 | A+ | A- | A- |
| SCIENCE | 8 | 660028 | 5 | D | 2 | 6649 | 0.6645 | 0.1115 | 0.1143 | 0.6628 | 0.1089 | 0.0018 | 0.0008 | 0.4114 | -0.2877 | -0.1865 | 0.4122 | -0.1389 | -0.0343 | -0.0092 | -0.343 | 0.0708 | -1.539 | 0.9535 | 0.101 | 1.0044 | A+ | A+ | A- |
| SCIENCE | 8 | 617345 | 6 | A | 2 | 6623 | 0.4388 | 0.4367 | 0.1443 | 0.1414 | 0.2729 | 0.0044 | 0.0003 | 0.3544 | 0.3543 | -0.2717 | -0.2476 | 0.0177 | -0.0233 | -0.0214 | 0.8098 | 0.0675 | 1.011 | 1.0269 | 0.901 | 1.0328 | A+ | A+ | A- |
| SCIENCE | 8 | 661145 | 6 | A | 2 | 6625 | 0.7239 | 0.0911 | 0.7208 | 0.1046 | 0.0792 | 0.0033 | 0.0011 | 0.5269 | -0.2747 | 0.529 | -0.2789 | -0.2539 | -0.0561 | -0.0348 | -0.6669 | 0.0746 | -4.9192 | 0.8332 | -5.7893 | 0.6783 | A+ | A+ | A+ |
| SCIENCE | 8 | 661148 | 6 | A | 2 | 6631 | 0.5685 | 0.1494 | 0.121 | 0.1596 | 0.5666 | 0.0029 | 0.0006 | 0.4812 | -0.1626 | -0.2426 | -0.268 | 0.4834 | -0.0764 | -0.0091 | 0.1613 | 0.0681 | -2.4691 | 0.9329 | -2.5891 | 0.9024 | A- | A- | A- |
| SCIENCE | 8 | 661150 | 6 | A | 2 | 6631 | 0.7371 | 0.7346 | 0.0861 | 0.0945 | 0.0813 | 0.0026 | 0.0009 | 0.4442 | 0.4475 | -0.2436 | -0.2515 | -0.1888 | -0.0689 | -0.0208 | -0.75 | 0.0757 | -1.8491 | 0.9324 | -1.6791 | 0.8918 | A+ | A- | A+ |
| SCIENCE | 8 | 661583 | 6 | A | 2 | 6619 | 0.2939 | 0.2923 | 0.3306 | 0.1315 | 0.2403 | 0.0047 | 0.0006 | 0.125 | 0.1273 | 0.0379 | -0.2151 | 0.0036 | -0.0624 | -0.0135 | 1.5863 | 0.0721 | 6.6212 | 1.2297 | 7.6315 | 1.4786 | A- | A+ | A- |
| SCIENCE | 8 | 661194 | 6 | B | 2 | 6629 | 0.6217 | 0.0848 | 0.1531 | 0.139 | 0.6193 | 0.0026 | 0.0012 | 0.4399 | -0.2282 | -0.1597 | -0.2598 | 0.4416 | -0.0593 | -0.0142 | -0.1081 | 0.0694 | -2.2191 | 0.9357 | -1.4891 | 0.9343 | A- | A- | A- |
| SCIENCE | 8 | 565993 | 6 | C | 2 | 6638 | 0.5976 | 0.1004 | 0.5962 | 0.211 | 0.09 | 0.0018 | 0.0006 | 0.4078 | -0.2025 | 0.4101 | -0.1783 | -0.2247 | -0.0584 | -0.0327 | 0.0112 | 0.0687 | -1.089 | 0.9691 | -1.9591 | 0.9199 | A+ | A- | A+ |
| SCIENCE | 8 | 617347 | 6 | C | 2 | 6616 | 0.5627 | 0.1258 | 0.1758 | 0.5595 | 0.1332 | 0.0045 | 0.0012 | 0.5155 | -0.2602 | -0.2262 | 0.5149 | -0.2361 | -0.0391 | -0.0125 | 0.1968 | 0.0679 | -5.1991 | 0.8635 | -4.8492 | 0.8252 | A- | A- | A- |
| SCIENCE | 8 | 661151 | 6 | C | 2 | 6637 | 0.44 | 0.4388 | 0.2 | 0.1716 | 0.187 | 0.0023 | 0.0003 | 0.2739 | 0.2761 | -0.1318 | -0.138 | -0.0734 | -0.0694 | -0.0187 | 0.7992 | 0.0675 | 4.9811 | 1.1381 | 4.8012 | 1.1851 | A+ | A+ | A- |
| SCIENCE | 8 | 653706 | 6 | D | 2 | 6621 | 0.6652 | 0.0902 | 0.1348 | 0.6619 | 0.1082 | 0.0041 | 0.0009 | 0.4311 | -0.2824 | -0.1827 | 0.4336 | -0.1851 | -0.0628 | -0.0117 | -0.3337 | 0.0711 | -1.029 | 0.9675 | -0.519 | 0.973 | A- | A+ | A- |
| SCIENCE | 8 | 621000 | 7 | A | 2 | 6659 | 0.5454 | 0.1254 | 0.1582 | 0.5431 | 0.169 | 0.0033 | 0.001 | 0.4782 | -0.2737 | -0.2311 | 0.4787 | -0.1608 | -0.0351 | -0.0369 | 0.2703 | 0.0679 | -3.4191 | 0.9099 | -3.4491 | 0.8646 | A+ | A+ | A- |
| SCIENCE | 8 | 622835 | 7 | A | 2 | 6660 | 0.568 | 0.5656 | 0.124 | 0.1286 | 0.1776 | 0.0039 | 0.0003 | 0.4369 | 0.4361 | -0.2589 | -0.2628 | -0.1087 | -0.0154 | -0.0227 | 0.1562 | 0.0682 | -1.479 | 0.9597 | -0.249 | 0.9887 | A+ | A+ | A- |
| SCIENCE | 8 | 657834 | 7 | A | 2 | 6667 | 0.6868 | 0.0803 | 0.6847 | 0.0975 | 0.1344 | 0.0021 | 0.001 | 0.5395 | -0.2823 | 0.5408 | -0.2884 | -0.2526 | -0.0421 | -0.0286 | -0.4728 | 0.0719 | -5.0092 | 0.8496 | -4.7293 | 0.7412 | A+ | A+ | A+ |
| SCIENCE | 8 | 657835 | 7 | A | 2 | 6667 | 0.4863 | 0.1068 | 0.2436 | 0.4847 | 0.1618 | 0.0019 | 0.0012 | 0.389 | -0.2633 | -0.1736 | 0.3907 | -0.0979 | -0.0389 | -0.048 | 0.5631 | 0.0678 | 2.0811 | 1.0572 | 1.8911 | 1.0745 | A+ | A+ | A+ |
| SCIENCE | 8 | 657836 | 7 | A | 2 | 6668 | 0.5454 | 0.0961 | 0.5438 | 0.1012 | 0.2558 | 0.0022 | 0.0007 | 0.4827 | -0.2494 | 0.4837 | -0.2953 | -0.1727 | -0.0603 | -0.0036 | 0.2665 | 0.068 | -2.7591 | 0.9269 | -3.0691 | 0.8788 | A- | A- | A- |
| SCIENCE | 8 | 661146 | 7 | A | 2 | 6672 | 0.6201 | 0.1613 | 0.6186 | 0.1114 | 0.1063 | 0.0012 | 0.0012 | 0.4121 | -0.2142 | 0.4139 | -0.2686 | -0.1142 | -0.0333 | -0.041 | -0.1159 | 0.0693 | 1.331 | 1.0381 | 1.4911 | 1.0738 | A+ | A- | A- |
| SCIENCE | 8 | 661147 | 7 | A | 2 | 6668 | 0.5544 | 0.0848 | 0.2537 | 0.5528 | 0.1057 | 0.0022 | 0.0007 | 0.4194 | -0.229 | -0.194 | 0.4209 | -0.1894 | -0.0362 | -0.0413 | 0.2213 | 0.068 | -1.409 | 0.9619 | -1.6091 | 0.9338 | A- | A- | A- |
| SCIENCE | 8 | 622358 | 7 | B | 2 | 6661 | 0.661 | 0.1456 | 0.08 | 0.112 | 0.6583 | 0.0028 | 0.0012 | 0.5047 | -0.2368 | -0.2907 | -0.2351 | 0.5062 | -0.0357 | -0.048 | -0.3276 | 0.0707 | -4.2191 | 0.8777 | -3.5892 | 0.8141 | A+ | A+ | A- |
| SCIENCE | 8 | 661149 | 7 | B | 2 | 6665 | 0.541 | 0.5392 | 0.1884 | 0.1123 | 0.1567 | 0.0021 | 0.0013 | 0.338 | 0.3397 | -0.16 | -0.1992 | -0.1121 | -0.0306 | -0.0473 | 0.2898 | 0.0679 | 3.1611 | 1.0878 | 3.1411 | 1.1326 | A- | A- | A- |
| SCIENCE | 8 | 661269 | 7 | B | 2 | 6674 | 0.3726 | 0.11 | 0.3719 | 0.2814 | 0.2346 | 0.0012 | 0.0009 | 0.3194 | -0.2545 | 0.3201 | -0.0468 | -0.1231 | -0.022 | -0.0353 | 1.144 | 0.0699 | 1.551 | 1.0471 | 3.5112 | 1.1659 | A+ | A+ | A+ |
| SCIENCE | 8 | 657839 | 8 | A | 2 | 6677 | 0.6886 | 0.6856 | 0.1059 | 0.126 | 0.0781 | 0.0036 | 0.0009 | 0.5152 | 0.5174 | -0.246 | -0.2781 | -0.2523 | -0.0669 | -0.0176 | -0.4829 | 0.0724 | -4.4991 | 0.8587 | -4.1592 | 0.7738 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 8 | 661582 | 8 | A | 2 | 6682 | 0.7287 | 0.0987 | 0.075 | 0.726 | 0.0966 | 0.003 | 0.0007 | 0.4903 | -0.2841 | -0.2456 | 0.4931 | -0.2246 | -0.0589 | -0.0342 | -0.7159 | 0.0749 | -3.3991 | 0.8825 | -2.7592 | 0.8232 | A+ | A+ | A+ |
| SCIENCE | 8 | 661584 | 8 | A | 3 | 6679 | 0.3108 | 0.1633 | 0.2386 | 0.2845 | 0.3095 | 0.0036 | 0.0006 | 0.3008 | -0.1849 | -0.1246 | -0.0329 | 0.3017 | -0.0447 | -0.021 | 1.4645 | 0.0717 | -0.079 | 0.9971 | 3.0612 | 1.1759 | A+ | A- | A+ |
| SCIENCE | 8 | 661586 | 8 | A | 2 | 6692 | 0.516 | 0.5148 | 0.1136 | 0.123 | 0.2463 | 0.001 | 0.0012 | 0.4734 | 0.4746 | -0.2604 | -0.2888 | -0.1324 | -0.0341 | -0.045 | 0.3996 | 0.0677 | -3.7391 | 0.9019 | -3.3491 | 0.874 | A- | A- | A- |
| SCIENCE | 8 | 623868 | 8 | B | 2 | 6675 | 0.6782 | 0.0971 | 0.0866 | 0.1366 | 0.675 | 0.0043 | 0.0004 | 0.532 | -0.2804 | -0.2538 | -0.2669 | 0.5322 | -0.0432 | -0.0178 | -0.4243 | 0.0718 | -5.4092 | 0.8351 | -5.1993 | 0.7318 | A+ | B- | A- |
| SCIENCE | 8 | 661190 | 8 | B | 2 | 6678 | 0.4298 | 0.1297 | 0.4279 | 0.3147 | 0.1233 | 0.003 | 0.0013 | 0.2208 | -0.2122 | 0.2232 | 0.0595 | -0.191 | -0.0417 | -0.0477 | 0.8337 | 0.0681 | 8.0212 | 1.234 | 8.3914 | 1.3779 | A- | A+ | A+ |
| SCIENCE | 8 | 661590 | 8 | B | 2 | 6672 | 0.4406 | 0.1063 | 0.192 | 0.4383 | 0.2581 | 0.0034 | 0.0018 | 0.2511 | -0.2207 | -0.1488 | 0.2538 | 0.0124 | -0.0423 | -0.0524 | 0.7809 | 0.0679 | 6.6512 | 1.1907 | 6.1113 | 1.2628 | A+ | A- | A- |
| SCIENCE | 8 | 623866 | 8 | C | 2 | 6655 | 0.6012 | 0.1653 | 0.1258 | 0.5965 | 0.1045 | 0.0072 | 0.0006 | 0.5432 | -0.2948 | -0.2402 | 0.5423 | -0.2383 | -0.0418 | -0.0185 | -0.0102 | 0.069 | -5.6492 | 0.8457 | -4.8192 | 0.797 | A- | A- | A- |
| SCIENCE | 8 | 661198 | 8 | C | 2 | 6675 | 0.4587 | 0.1627 | 0.4565 | 0.2026 | 0.1734 | 0.0036 | 0.0012 | 0.3108 | -0.1328 | 0.3121 | -0.1093 | -0.1563 | -0.0358 | -0.0362 | 0.6896 | 0.0678 | 3.5311 | 1.0978 | 3.1811 | 1.129 | A+ | A- | A+ |
| SCIENCE | 8 | 661591 | 8 | C | 2 | 6692 | 0.6952 | 0.6936 | 0.088 | 0.0881 | 0.1281 | 0.0013 | 0.0009 | 0.2971 | 0.2998 | -0.2563 | -0.2103 | -0.0099 | -0.0346 | -0.0479 | -0.5281 | 0.0728 | -0.289 | 0.9899 | -0.029 | 0.9968 | A+ | A+ | A+ |
| SCIENCE | 8 | 620981 | 9 | A | 2 | 6656 | 0.523 | 0.0956 | 0.1356 | 0.2431 | 0.52 | 0.0048 | 0.0009 | 0.4106 | -0.253 | -0.2173 | -0.1218 | 0.4129 | -0.0698 | -0.0157 | 0.3825 | 0.0672 | 0.491 | 1.0127 | -0.149 | 0.9942 | A+ | A+ | A- |
| SCIENCE | 8 | 620999 | 9 | A | 2 | 6657 | 0.3067 | 0.3021 | 0.1863 | 0.305 | 0.2011 | 0.0051 | 0.0004 | 0.1076 | 0.0125 | -0.072 | 0.1102 | -0.059 | -0.0617 | -0.0178 | 1.4927 | 0.072 | 7.5713 | 1.2679 | 9.0916 | 1.558 | A- | A- | A+ |
| SCIENCE | 8 | 653701 | 9 | A | 2 | 6666 | 0.6586 | 0.6558 | 0.086 | 0.1739 | 0.0801 | 0.0039 | 0.0003 | 0.5315 | 0.5335 | -0.2764 | -0.2726 | -0.2519 | -0.0641 | -0.0157 | -0.3075 | 0.0701 | -4.1491 | 0.8815 | -4.4392 | 0.7907 | A+ | A+ | A+ |
| SCIENCE | 8 | 661585 | 9 | A | 3 | 6664 | 0.4967 | 0.1542 | 0.1569 | 0.4945 | 0.19 | 0.0033 | 0.0012 | 0.3436 | -0.1752 | -0.2207 | 0.3465 | -0.0628 | -0.0649 | -0.0379 | 0.5085 | 0.0671 | 3.3111 | 1.0893 | 2.3311 | 1.0861 | A+ | A+ | A- |
| SCIENCE | 8 | 661587 | 9 | A | 2 | 6676 | 0.5222 | 0.5208 | 0.1486 | 0.2235 | 0.1044 | 0.0018 | 0.0009 | 0.3811 | 0.3826 | -0.2456 | -0.0836 | -0.2158 | -0.0459 | -0.0332 | 0.3788 | 0.0672 | 1.131 | 1.0298 | 1.071 | 1.0395 | B+ | A- | A- |
| SCIENCE | 8 | 623138 | 9 | B | 2 | 6664 | 0.4937 | 0.2753 | 0.117 | 0.4915 | 0.1117 | 0.0042 | 0.0003 | 0.366 | -0.0942 | -0.2363 | 0.3672 | -0.1983 | -0.0422 | -0.0209 | 0.5233 | 0.0672 | 0.371 | 1.0095 | 0.131 | 1.0042 | A+ | A- | A- |
| SCIENCE | 8 | 661588 | 9 | B | 2 | 6665 | 0.3988 | 0.2363 | 0.1693 | 0.193 | 0.3971 | 0.003 | 0.0013 | 0.3256 | -0.0353 | -0.2334 | -0.1351 | 0.3273 | -0.0546 | -0.0358 | 0.9965 | 0.0684 | 2.7411 | 1.0783 | 3.1211 | 1.1298 | A+ | A+ | A+ |
| SCIENCE | 8 | 661589 | 9 | B | 2 | 6676 | 0.3984 | 0.1573 | 0.2451 | 0.1975 | 0.3974 | 0.0015 | 0.0012 | 0.3488 | -0.2209 | -0.0748 | -0.1396 | 0.3502 | -0.0502 | -0.0366 | 0.995 | 0.0684 | 3.6611 | 1.1053 | 3.8812 | 1.163 | A+ | A+ | A- |
| SCIENCE | 8 | 653704 | 9 | C | 2 | 6674 | 0.573 | 0.0978 | 0.5713 | 0.1062 | 0.2217 | 0.0025 | 0.0004 | 0.37 | -0.2476 | 0.3723 | -0.2629 | -0.0629 | -0.0612 | -0.022 | 0.1281 | 0.0677 | 2.6811 | 1.0733 | 2.0311 | 1.0828 | A- | A+ | A+ |
| SCIENCE | 8 | 657979 | 9 | D | 2 | 6663 | 0.3689 | 0.3672 | 0.1491 | 0.316 | 0.1631 | 0.004 | 0.0006 | 0.2756 | 0.2771 | -0.1483 | -0.0272 | -0.1747 | -0.0542 | -0.0045 | 1.1521 | 0.0693 | 1.8411 | 1.054 | 2.9611 | 1.1327 | A+ | A+ | A+ |
| SCIENCE | 8 | 493905 | 10 | A | 2 | 6638 | 0.4418 | 0.1689 | 0.1147 | 0.2721 | 0.4399 | 0.0037 | 0.0006 | 0.4221 | -0.1796 | -0.2358 | -0.1456 | 0.4224 | -0.0334 | -0.0169 | 0.7836 | 0.0681 | -2.4291 | 0.934 | -1.6791 | 0.935 | A+ | A+ | A+ |
| SCIENCE | 8 | 620964 | 10 | A | 2 | 6642 | 0.6034 | 0.1401 | 0.1362 | 0.1188 | 0.6012 | 0.0028 | 0.0009 | 0.5448 | -0.2246 | -0.2694 | -0.289 | 0.5462 | -0.0525 | -0.0265 | -0.0313 | 0.0688 | -7.2792 | 0.8083 | -6.0192 | 0.7505 | B+ | A+ | A+ |
| SCIENCE | 8 | 620987 | 10 | A | 1 | 6639 | 0.631 | 0.1302 | 0.6283 | 0.1485 | 0.0888 | 0.0034 | 0.0007 | 0.4635 | -0.2515 | 0.4643 | -0.1585 | -0.2836 | -0.0418 | -0.0079 | -0.1729 | 0.0696 | -2.8991 | 0.9177 | -2.3791 | 0.8871 | A+ | A+ | A+ |
| SCIENCE | 8 | 653699 | 10 | A | 2 | 6643 | 0.7676 | 0.7648 | 0.0745 | 0.0892 | 0.0678 | 0.0027 | 0.0009 | 0.5322 | 0.5319 | -0.2821 | -0.2865 | -0.2693 | -0.0276 | -0.023 | -0.9601 | 0.0777 | -6.3192 | 0.7731 | -6.0394 | 0.597 | A+ | A- | A- |
| SCIENCE | 8 | 661592 | 10 | A | 2 | 6640 | 0.5699 | 0.5676 | 0.1534 | 0.1098 | 0.1651 | 0.0033 | 0.0007 | 0.4967 | 0.4978 | -0.2422 | -0.2677 | -0.1942 | -0.0459 | -0.0312 | 0.1405 | 0.0682 | -4.3691 | 0.8842 | -3.9692 | 0.8423 | A- | A- | A+ |
| SCIENCE | 8 | 661594 | 10 | A | 2 | 6647 | 0.5491 | 0.1891 | 0.1663 | 0.5475 | 0.094 | 0.0024 | 0.0006 | 0.4023 | -0.1252 | -0.2626 | 0.4045 | -0.1743 | -0.0615 | -0.0243 | 0.2421 | 0.0679 | 1.151 | 1.0313 | 1.5711 | 1.0643 | A- | A- | A- |
| SCIENCE | 8 | 653703 | 10 | B | 2 | 6646 | 0.6598 | 0.1054 | 0.6577 | 0.129 | 0.1047 | 0.0016 | 0.0015 | 0.5279 | -0.2701 | 0.5305 | -0.2918 | -0.2181 | -0.0523 | -0.0528 | -0.3299 | 0.0706 | -5.3092 | 0.8475 | -4.8992 | 0.7591 | A- | A+ | A- |
| SCIENCE | 8 | 623872 | 10 | C | 2 | 6627 | 0.4267 | 0.1344 | 0.1696 | 0.2658 | 0.4242 | 0.0052 | 0.0007 | 0.3389 | -0.1825 | -0.1117 | -0.1396 | 0.338 | -0.0089 | -0.0201 | 0.8641 | 0.0684 | 2.5411 | 1.0725 | 2.3211 | 1.0955 | A+ | A- | A- |
| SCIENCE | 8 | 661596 | 10 | C | 2 | 6636 | 0.5048 | 0.12 | 0.253 | 0.1198 | 0.5025 | 0.0028 | 0.0018 | 0.4837 | -0.2722 | -0.1431 | -0.2683 | 0.486 | -0.0753 | -0.0286 | 0.4681 | 0.0677 | -2.4491 | 0.9349 | -2.6691 | 0.9006 | C- | B- | A- |
| SCIENCE | 8 | 661598 | 10 | C | 2 | 6652 | 0.4112 | 0.4102 | 0.1879 | 0.1731 | 0.2265 | 0.0019 | 0.0003 | 0.3338 | 0.3349 | -0.1723 | -0.1755 | -0.0688 | -0.0495 | -0.0045 | 0.9361 | 0.0686 | 2.5411 | 1.0736 | 3.1411 | 1.134 | A- | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | P(INV) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|--------|---------|---------|---------|---------|------------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| SCIENCE | 8 | 657833 | 11 | A | 2 | 6651 | 0.5429 | 0.1433 | 0.1908 | 0.1216 | 0.5412 | 0.0028 | 0.0003 | 0.4942 | -0.2104 | -0.2165 | -0.2617 | 0.4943 | -0.0281 | -0.0271 | 0.2767 | 0.0677 | -3.2791 | 0.9144 | -3.0591 | 0.8858 | A- | A- | A- |
| SCIENCE | 8 | 658045 | 11 | A | 2 | 6650 | 0.5878 | 0.1716 | 0.1331 | 0.1061 | 0.5859 | 0.0021 | 0.0012 | 0.4548 | -0.1149 | -0.2578 | -0.294 | 0.4562 | -0.0592 | -0.0151 | 0.052 | 0.0684 | -2.8191 | 0.924 | -1.9691 | 0.9179 | A+ | A- | A- |
| SCIENCE | 8 | 661593 | 11 | A | 2 | 6647 | 0.5374 | 0.5354 | 0.1295 | 0.1284 | 0.2029 | 0.0033 | 0.0004 | 0.4732 | 0.4755 | -0.2546 | -0.2269 | -0.177 | -0.0734 | -0.0165 | 0.3059 | 0.0676 | -2.9391 | 0.9233 | -2.9791 | 0.8898 | A- | A- | A- |
| SCIENCE | 8 | 661595 | 11 | A | 2 | 6644 | 0.4025 | 0.1677 | 0.299 | 0.4008 | 0.1283 | 0.003 | 0.0012 | 0.3265 | -0.2359 | -0.0017 | 0.3283 | -0.2024 | -0.0664 | -0.0199 | 0.9836 | 0.0685 | 2.0611 | 1.0589 | 3.0411 | 1.1262 | A- | A- | A- |
| SCIENCE | 8 | 618936 | 11 | B | 2 | 6647 | 0.6283 | 0.6259 | 0.1165 | 0.1764 | 0.0775 | 0.0031 | 0.0006 | 0.4922 | 0.4926 | -0.2198 | -0.2538 | -0.2566 | -0.0399 | -0.0125 | -0.1539 | 0.0694 | -4.7991 | 0.8675 | -4.6292 | 0.7953 | A+ | A- | A- |
| SCIENCE | 8 | 653702 | 11 | B | 2 | 6650 | 0.6901 | 0.0441 | 0.0561 | 0.6878 | 0.2088 | 0.0031 | 0.0001 | 0.4651 | -0.2431 | -0.2524 | 0.4677 | -0.2578 | -0.0678 | -0.0161 | -0.4873 | 0.0721 | -3.4091 | 0.894 | -3.8192 | 0.7935 | A- | A+ | A+ |
| SCIENCE | 8 | 653705 | 11 | C | 2 | 6652 | 0.4654 | 0.1238 | 0.464 | 0.1713 | 0.2379 | 0.0021 | 0.0009 | 0.3805 | -0.247 | 0.3816 | -0.2142 | -0.0599 | -0.0441 | -0.0238 | 0.6618 | 0.0675 | -0.669 | 0.982 | -0.589 | 0.9779 | A- | A- | A- |
| SCIENCE | 8 | 661597 | 11 | C | 2 | 6643 | 0.3824 | 0.3807 | 0.2554 | 0.2313 | 0.1283 | 0.0033 | 0.001 | 0.3696 | 0.3709 | -0.1785 | -0.1015 | -0.1659 | -0.0506 | -0.0342 | 1.0886 | 0.069 | 1.221 | 1.0353 | 2.4911 | 1.1077 | A- | A+ | A- |
| SCIENCE | 8 | 661599 | 11 | C | 2 | 6645 | 0.4727 | 0.2623 | 0.4708 | 0.1174 | 0.1455 | 0.0034 | 0.0006 | 0.36 | -0.0442 | 0.3625 | -0.2625 | -0.2051 | -0.0654 | -0.0352 | 0.628 | 0.0675 | 0.011 | 1 | 0.041 | 1.0009 | A- | A- | A- |
| SCIENCE | 8 | 617339 | 11 | D | 2 | 6643 | 0.2576 | 0.1484 | 0.2085 | 0.3823 | 0.2564 | 0.004 | 0.0003 | 0.1327 | -0.2616 | -0.1417 | 0.1948 | 0.1336 | -0.0361 | -0.0097 | 1.7998 | 0.0754 | 5.4812 | 1.2166 | 7.1715 | 1.5259 | A- | A- | A- |
| SCIENCE | 8 | 623139 | 12 | A | 2 | 6572 | 0.5981 | 0.1091 | 0.5942 | 0.1252 | 0.1649 | 0.006 | 0.0006 | 0.5105 | -0.2798 | 0.5129 | -0.2512 | -0.203 | -0.0688 | -0.0349 | 0.0146 | 0.0681 | -4.5791 | 0.8801 | -4.0592 | 0.8442 | A+ | A+ | A- |
| SCIENCE | 8 | 657830 | 12 | A | 2 | 6582 | 0.4844 | 0.3014 | 0.092 | 0.4819 | 0.1196 | 0.0042 | 0.0009 | 0.2173 | 0.0155 | -0.2356 | 0.2201 | -0.1374 | -0.058 | -0.0215 | 0.5696 | 0.0669 | 6.5912 | 1.1796 | 5.9212 | 1.2162 | A- | A+ | A+ |
| SCIENCE | 8 | 657851 | 12 | A | 2 | 6590 | 0.3586 | 0.1513 | 0.2604 | 0.3572 | 0.2272 | 0.003 | 0.0009 | 0.1995 | -0.1952 | 0.0621 | 0.2018 | -0.1187 | -0.0634 | -0.028 | 1.2006 | 0.0691 | 6.5812 | 1.2021 | 6.8213 | 1.3182 | A- | A+ | A- |
| SCIENCE | 8 | 663348 | 12 | A | 2 | 6591 | 0.5083 | 0.5063 | 0.1611 | 0.1404 | 0.1883 | 0.0027 | 0.0011 | 0.393 | 0.3954 | -0.1926 | -0.2373 | -0.1026 | -0.067 | -0.0251 | 0.4494 | 0.0669 | -0.359 | 0.9905 | -0.869 | 0.97 | A+ | A+ | A- |
| SCIENCE | 8 | 663350 | 12 | A | 2 | 6583 | 0.3002 | 0.302 | 0.1879 | 0.2065 | 0.2987 | 0.0035 | 0.0015 | 0.2469 | -0.0781 | -0.1677 | -0.0206 | 0.2483 | -0.0602 | -0.0109 | 1.5231 | 0.0718 | 2.9411 | 1.0981 | 4.3512 | 1.2417 | A+ | A- | A+ |
| SCIENCE | 8 | 701295 | 12 | A | 2 | 6588 | 0.3227 | 0.2341 | 0.2502 | 0.1901 | 0.3213 | 0.0039 | 0.0003 | 0.3025 | -0.0819 | -0.0889 | -0.1633 | 0.3044 | -0.0696 | -0.0316 | 1.3949 | 0.0706 | 1.011 | 1.0311 | 1.3211 | 1.0638 | A+ | A+ | A+ |
| SCIENCE | 8 | 622830 | 12 | B | 2 | 6584 | 0.6034 | 0.6005 | 0.1546 | 0.1351 | 0.1049 | 0.0045 | 0.0003 | 0.4783 | 0.4813 | -0.1839 | -0.2672 | -0.2368 | -0.0739 | -0.022 | -0.0175 | 0.0683 | -2.9691 | 0.9204 | -2.0991 | 0.9157 | A- | A- | A- |
| SCIENCE | 8 | 663351 | 12 | B | 2 | 6599 | 0.5057 | 0.1651 | 0.1836 | 0.5044 | 0.1443 | 0.002 | 0.0006 | 0.3169 | -0.1288 | -0.1808 | 0.319 | -0.1095 | -0.0581 | -0.025 | 0.459 | 0.0669 | 4.1111 | 1.1096 | 3.4811 | 1.1242 | A+ | A+ | A+ |
| SCIENCE | 8 | 663354 | 12 | B | 2 | 6585 | 0.4345 | 0.2133 | 0.4324 | 0.1697 | 0.1799 | 0.003 | 0.0017 | 0.2997 | -0.0688 | 0.3025 | -0.1792 | -0.128 | -0.07 | -0.0347 | 0.8143 | 0.0673 | 1.841 | 1.0492 | 2.1611 | 1.0785 | A+ | A+ | A- |
| SCIENCE | 8 | 574822 | 12 | C | 3 | 6581 | 0.4729 | 0.1651 | 0.1164 | 0.4704 | 0.2429 | 0.0042 | 0.0011 | 0.3201 | -0.0839 | -0.2234 | 0.3238 | -0.1224 | -0.0818 | -0.0316 | 0.6261 | 0.067 | 2.7811 | 1.0734 | 2.9311 | 1.1033 | A- | A- | A+ |

Multiple-Choice Computer-Based Item Statistics

| Column Heading | Definition |
|----------------|--------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| PValue | <i>P</i> -Value |
| P(A) | Proportion A |
| P(B) | Proportion B |
| P(C) | Proportion C |
| P(D) | Proportion D |
| P(OMIT) | Proportion Omits |
| PtBis | Point Biserial |
| Corr(A) | Correlation A |
| Corr(B) | Correlation B |
| Corr(C) | Correlation C |
| Corr(D) | Correlation D |
| Corr(OMIT) | Correlation Omits |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 3 | 496239 | 0 | A-C | 3 | 87065 | 0.6244 | 0.6104 | 0.1515 | 0.0965 | 0.1192 | 0.0219 | 0.5481 | 0.5533 | -0.2715 | -0.2562 | -0.2423 | -0.1199 |
| ELA | 3 | 496237 | 0 | A-K | 2 | 87750 | 0.4822 | 0.1744 | 0.0794 | 0.2564 | 0.475 | 0.0142 | 0.4429 | -0.2829 | -0.2879 | -0.0584 | 0.447 | -0.0998 |
| ELA | 3 | 496240 | 0 | A-K | 2 | 87264 | 0.6521 | 0.196 | 0.0684 | 0.0765 | 0.6389 | 0.0194 | 0.571 | -0.2995 | -0.2754 | -0.2693 | 0.5738 | -0.1047 |
| ELA | 3 | 496245 | 0 | A-K | 2 | 87309 | 0.5276 | 0.2224 | 0.0831 | 0.5172 | 0.1575 | 0.0189 | 0.4139 | -0.1617 | -0.2675 | 0.4219 | -0.1438 | -0.1194 |
| ELA | 3 | 578118 | 0 | A-K | 2 | 87300 | 0.3227 | 0.3868 | 0.1064 | 0.3163 | 0.1707 | 0.0188 | 0.2989 | -0.0288 | -0.2541 | 0.305 | -0.0864 | -0.1199 |
| ELA | 3 | 578121 | 0 | A-K | 2 | 87301 | 0.5018 | 0.153 | 0.4918 | 0.2545 | 0.0809 | 0.019 | 0.4271 | -0.192 | 0.4348 | -0.1254 | -0.277 | -0.1264 |
| ELA | 3 | 496242 | 0 | A-V | 2 | 87560 | 0.7861 | 0.0465 | 0.0851 | 0.7728 | 0.0787 | 0.0164 | 0.5489 | -0.2702 | -0.3068 | 0.55 | -0.2796 | -0.0942 |
| ELA | 3 | 496244 | 0 | A-V | 2 | 87289 | 0.6526 | 0.6396 | 0.074 | 0.1685 | 0.098 | 0.0195 | 0.5245 | 0.529 | -0.3069 | -0.2027 | -0.2762 | -0.1086 |
| ELA | 3 | 496246 | 0 | A-V | 2 | 87528 | 0.6329 | 0.1387 | 0.6219 | 0.1072 | 0.1148 | 0.0167 | 0.5214 | -0.2564 | 0.526 | -0.2997 | -0.187 | -0.1038 |
| ELA | 3 | 578125 | 0 | A-V | 2 | 87208 | 0.6287 | 0.6156 | 0.0541 | 0.0644 | 0.2451 | 0.02 | 0.4099 | 0.4203 | -0.2845 | -0.2683 | -0.1306 | -0.1215 |
| ELA | 3 | 493315 | 0 | B-C | 3 | 87525 | 0.5086 | 0.1977 | 0.1622 | 0.4998 | 0.1229 | 0.0163 | 0.4513 | -0.2245 | -0.2128 | 0.4548 | -0.1432 | -0.0907 |
| ELA | 3 | 493316 | 0 | B-C | 2 | 87818 | 0.4188 | 0.0914 | 0.4129 | 0.0881 | 0.3935 | 0.0135 | 0.3273 | -0.1017 | 0.3318 | -0.0879 | -0.2008 | -0.0895 |
| ELA | 3 | 493318 | 0 | B-C | 2 | 87937 | 0.7661 | 0.0805 | 0.085 | 0.7564 | 0.0654 | 0.0122 | 0.5314 | -0.2859 | -0.2892 | 0.5345 | -0.2447 | -0.0893 |
| ELA | 3 | 579123 | 0 | B-C | 2 | 87028 | 0.5446 | 0.0684 | 0.5321 | 0.1795 | 0.1971 | 0.0213 | 0.4122 | -0.2956 | 0.4159 | -0.2553 | -0.0525 | -0.0855 |
| ELA | 3 | 579124 | 0 | B-C | 3 | 86796 | 0.6972 | 0.134 | 0.0934 | 0.0677 | 0.6794 | 0.0231 | 0.5674 | -0.2871 | -0.3126 | -0.2375 | 0.5662 | -0.0887 |
| ELA | 3 | 493319 | 0 | B-K | 2 | 87482 | 0.5044 | 0.1557 | 0.1876 | 0.1435 | 0.4954 | 0.0156 | 0.3845 | -0.132 | -0.1748 | -0.1858 | 0.3901 | -0.0925 |
| ELA | 3 | 493321 | 0 | B-K | 1 | 87860 | 0.7643 | 0.7539 | 0.0383 | 0.0457 | 0.1486 | 0.013 | 0.4168 | 0.422 | -0.2309 | -0.2081 | -0.2358 | -0.0841 |
| ELA | 3 | 579127 | 0 | B-K | 2 | 87445 | 0.5438 | 0.1019 | 0.5339 | 0.1013 | 0.2448 | 0.0172 | 0.5165 | -0.3243 | 0.5189 | -0.2445 | -0.1711 | -0.0945 |
| ELA | 3 | 493323 | 0 | B-V | 2 | 87838 | 0.5911 | 0.1209 | 0.0516 | 0.2307 | 0.583 | 0.0133 | 0.4062 | -0.2357 | -0.2417 | -0.1471 | 0.4104 | -0.083 |
| ELA | 3 | 579130 | 0 | B-V | 2 | 87437 | 0.641 | 0.6293 | 0.1622 | 0.1132 | 0.0771 | 0.0176 | 0.5424 | 0.5459 | -0.3514 | -0.2301 | -0.1757 | -0.1021 |
| ELA | 3 | 408513 | 0 | D | 2 | 88273 | 0.3038 | 0.2613 | 0.3011 | 0.3195 | 0.1092 | 0.0061 | 0.3626 | -0.1717 | 0.364 | -0.0657 | -0.1747 | -0.0588 |
| ELA | 3 | 409150 | 0 | D | 2 | 88475 | 0.4771 | 0.1722 | 0.1931 | 0.1541 | 0.4739 | 0.0056 | 0.384 | -0.157 | -0.2039 | -0.1338 | 0.3854 | -0.0451 |
| ELA | 3 | 504084 | 0 | D | 3 | 87750 | 0.2947 | 0.3149 | 0.1298 | 0.2502 | 0.2903 | 0.0087 | 0.3163 | -0.096 | -0.1594 | -0.0863 | 0.3186 | -0.0671 |
| ELA | 3 | 581076 | 0 | D | 2 | 88497 | 0.763 | 0.0741 | 0.7581 | 0.099 | 0.0624 | 0.0057 | 0.4963 | -0.2555 | 0.4979 | -0.2994 | -0.2149 | -0.0537 |
| ELA | 3 | 581080 | 0 | D | 2 | 88441 | 0.3434 | 0.2765 | 0.1241 | 0.341 | 0.2514 | 0.0054 | 0.3835 | -0.2122 | -0.1027 | 0.3848 | -0.1111 | -0.0549 |
| ELA | 3 | 581082 | 0 | D | 2 | 88191 | 0.4057 | 0.1911 | 0.2065 | 0.4017 | 0.1908 | 0.0085 | 0.4177 | -0.215 | -0.1116 | 0.4187 | -0.1773 | -0.0549 |
| ELA | 3 | 581083 | 0 | D | 2 | 87783 | 0.4401 | 0.1539 | 0.4337 | 0.1482 | 0.2497 | 0.0075 | 0.2607 | -0.1458 | 0.2628 | -0.1583 | -0.0348 | -0.0584 |
| ELA | 3 | 581088 | 0 | D | 2 | 88426 | 0.514 | 0.1648 | 0.1535 | 0.1641 | 0.5103 | 0.0058 | 0.3375 | -0.1554 | -0.1405 | -0.1521 | 0.3401 | -0.0583 |
| ELA | 3 | 581090 | 0 | D | 2 | 88513 | 0.7703 | 0.7655 | 0.0793 | 0.05 | 0.0991 | 0.0052 | 0.3753 | 0.3789 | -0.2851 | -0.1591 | -0.1468 | -0.0649 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 3 | 658479 | 1 | A-C | 3 | 7337 | 0.492 | 0.1559 | 0.1804 | 0.4844 | 0.1638 | 0.013 | 0.3995 | -0.1514 | -0.1736 | 0.4042 | -0.1823 | -0.087 |
| ELA | 3 | 658480 | 1 | A-K | 3 | 7307 | 0.4589 | 0.1935 | 0.1473 | 0.1897 | 0.4499 | 0.0174 | 0.3663 | -0.2351 | -0.1848 | -0.027 | 0.3737 | -0.1123 |
| ELA | 3 | 658481 | 1 | A-K | 2 | 7163 | 0.663 | 0.1414 | 0.0776 | 0.6373 | 0.1049 | 0.0365 | 0.5392 | -0.2633 | -0.2467 | 0.5315 | -0.2632 | -0.0745 |
| ELA | 3 | 658484 | 1 | A-K | 2 | 7272 | 0.7996 | 0.0717 | 0.7803 | 0.0502 | 0.0737 | 0.0233 | 0.4699 | -0.2218 | 0.4657 | -0.2601 | -0.2554 | -0.0722 |
| ELA | 3 | 658486 | 1 | A-K | 3 | 7324 | 0.4794 | 0.1848 | 0.4711 | 0.1009 | 0.226 | 0.0156 | 0.3569 | -0.2047 | 0.3631 | -0.1582 | -0.0954 | -0.1002 |
| ELA | 3 | 658487 | 1 | A-V | 2 | 7346 | 0.4366 | 0.0929 | 0.2006 | 0.2619 | 0.4304 | 0.0129 | 0.282 | -0.2979 | -0.0765 | -0.0293 | 0.2893 | -0.1027 |
| ELA | 3 | 658488 | 1 | A-V | 2 | 7176 | 0.6083 | 0.1541 | 0.5857 | 0.1308 | 0.0923 | 0.0152 | 0.3344 | -0.0747 | 0.3399 | -0.1538 | -0.2465 | -0.0842 |
| ELA | 3 | 660573 | 1 | A-V | 2 | 7352 | 0.6993 | 0.6899 | 0.0654 | 0.1586 | 0.0727 | 0.0119 | 0.3987 | 0.4056 | -0.2629 | -0.1436 | -0.2265 | -0.0844 |
| ELA | 3 | 623012 | 1 | B-C | 2 | 44050 | 0.6937 | 0.6859 | 0.0738 | 0.0991 | 0.13 | 0.0104 | 0.5625 | 0.5623 | -0.2611 | -0.2492 | -0.3305 | -0.0592 |
| ELA | 3 | 623100 | 1 | B-C | 2 | 43728 | 0.4742 | 0.1605 | 0.2437 | 0.1119 | 0.4654 | 0.0174 | 0.3925 | -0.2963 | -0.0453 | -0.1844 | 0.395 | -0.0709 |
| ELA | 3 | 623013 | 1 | B-K | 2 | 43572 | 0.4668 | 0.0808 | 0.4565 | 0.0891 | 0.3516 | 0.021 | 0.3887 | -0.2685 | 0.3879 | -0.2412 | -0.0913 | -0.045 |
| ELA | 3 | 623103 | 1 | B-K | 2 | 44044 | 0.4845 | 0.224 | 0.0758 | 0.2099 | 0.479 | 0.0105 | 0.2911 | -0.1107 | -0.2484 | -0.0682 | 0.2951 | -0.0666 |
| ELA | 3 | 623104 | 1 | B-K | 2 | 43971 | 0.4316 | 0.1271 | 0.1717 | 0.426 | 0.2622 | 0.0121 | 0.4463 | -0.3188 | -0.0981 | 0.4477 | -0.1588 | -0.0655 |
| ELA | 3 | 623105 | 1 | B-K | 2 | 44198 | 0.7608 | 0.1351 | 0.0591 | 0.7547 | 0.0431 | 0.0073 | 0.4712 | -0.2832 | -0.2462 | 0.4729 | -0.2117 | -0.0559 |
| ELA | 3 | 629366 | 1 | D | 1 | 7379 | 0.7092 | 0.1047 | 0.1005 | 0.7022 | 0.0828 | 0.0086 | 0.4975 | -0.2743 | -0.2347 | 0.4958 | -0.2441 | -0.0407 |
| ELA | 3 | 662650 | 1 | D | 3 | 7376 | 0.5812 | 0.0629 | 0.5753 | 0.1107 | 0.2409 | 0.0085 | 0.4512 | -0.2258 | 0.4506 | -0.2937 | -0.1671 | -0.0378 |
| ELA | 3 | 662659 | 1 | D | 3 | 7368 | 0.657 | 0.6496 | 0.182 | 0.068 | 0.0891 | 0.0101 | 0.2867 | 0.2907 | -0.0377 | -0.2468 | -0.1949 | -0.0547 |
| ELA | 3 | 660236 | 2 | A-C | 2 | 7278 | 0.4711 | 0.3079 | 0.1186 | 0.0927 | 0.4625 | 0.0175 | 0.3786 | -0.0718 | -0.1895 | -0.2905 | 0.3835 | -0.0879 |
| ELA | 3 | 660238 | 2 | A-K | 2 | 7275 | 0.6063 | 0.1921 | 0.1244 | 0.595 | 0.0699 | 0.0178 | 0.4895 | -0.2009 | -0.2512 | 0.4931 | -0.2616 | -0.0934 |
| ELA | 3 | 660240 | 2 | A-K | 2 | 7301 | 0.4157 | 0.3023 | 0.1152 | 0.4094 | 0.1579 | 0.0146 | 0.3334 | -0.0468 | -0.2028 | 0.3369 | -0.1896 | -0.08 |
| ELA | 3 | 660245 | 2 | A-K | 2 | 7215 | 0.6004 | 0.5843 | 0.1049 | 0.1592 | 0.1248 | 0.0232 | 0.5142 | 0.5167 | -0.2496 | -0.2047 | -0.2616 | -0.0874 |
| ELA | 3 | 660247 | 2 | A-K | 2 | 7282 | 0.4989 | 0.2145 | 0.1613 | 0.1164 | 0.49 | 0.014 | 0.4622 | -0.1706 | -0.2149 | -0.217 | 0.4677 | -0.0903 |
| ELA | 3 | 660251 | 2 | A-V | 2 | 7319 | 0.7539 | 0.0968 | 0.0763 | 0.7443 | 0.0697 | 0.0125 | 0.5298 | -0.2788 | -0.2768 | 0.5307 | -0.2613 | -0.0777 |
| ELA | 3 | 660253 | 2 | A-V | 2 | 7309 | 0.577 | 0.1664 | 0.1173 | 0.1333 | 0.5688 | 0.0135 | 0.4349 | -0.2492 | -0.1797 | -0.1643 | 0.439 | -0.084 |
| ELA | 3 | 661914 | 2 | A-V | 2 | 7326 | 0.6381 | 0.1316 | 0.6306 | 0.1145 | 0.1114 | 0.0109 | 0.3509 | -0.2061 | 0.36 | -0.1655 | -0.1258 | -0.1033 |
| ELA | 3 | 629365 | 2 | D | 1 | 7328 | 0.7504 | 0.1757 | 0.0259 | 0.7417 | 0.045 | 0.0108 | 0.4477 | -0.2919 | -0.1849 | 0.4487 | -0.2376 | -0.0536 |
| ELA | 3 | 662651 | 2 | D | 3 | 7337 | 0.3413 | 0.45 | 0.1024 | 0.0995 | 0.3377 | 0.01 | 0.3351 | -0.1064 | -0.1684 | -0.1598 | 0.3373 | -0.0736 |
| ELA | 3 | 662661 | 2 | D | 2 | 7294 | 0.2872 | 0.2545 | 0.2826 | 0.14 | 0.3067 | 0.0144 | 0.2539 | -0.134 | 0.2561 | -0.1499 | 0.008 | -0.0571 |
| ELA | 3 | 659166 | 3 | A-C | 2 | 7333 | 0.4623 | 0.1764 | 0.1756 | 0.4569 | 0.1794 | 0.0101 | 0.3712 | -0.2455 | -0.1773 | 0.3745 | -0.0438 | -0.0758 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 3 | 659167 | 3 | A-K | 3 | 7318 | 0.6782 | 0.669 | 0.1318 | 0.0923 | 0.0933 | 0.0125 | 0.5004 | 0.504 | -0.2644 | -0.2473 | -0.226 | -0.0811 |
| ELA | 3 | 659169 | 3 | A-K | 2 | 7313 | 0.6704 | 0.1684 | 0.0704 | 0.0861 | 0.6609 | 0.0133 | 0.5313 | -0.2425 | -0.2848 | -0.2836 | 0.5327 | -0.0715 |
| ELA | 3 | 659171 | 3 | A-K | 3 | 7321 | 0.4363 | 0.214 | 0.1293 | 0.4305 | 0.213 | 0.0119 | 0.348 | -0.2127 | -0.2024 | 0.3521 | -0.0224 | -0.0772 |
| ELA | 3 | 659172 | 3 | A-K | 3 | 7270 | 0.4773 | 0.2828 | 0.4677 | 0.1406 | 0.0888 | 0.0186 | 0.3846 | -0.1305 | 0.3878 | -0.1899 | -0.2004 | -0.0771 |
| ELA | 3 | 659173 | 3 | A-K | 3 | 7323 | 0.4999 | 0.4935 | 0.21 | 0.1546 | 0.129 | 0.0096 | 0.3129 | 0.3183 | -0.0516 | -0.2007 | -0.1662 | -0.0579 |
| ELA | 3 | 659175 | 3 | A-V | 2 | 7160 | 0.7385 | 0.1054 | 0.0992 | 0.0477 | 0.7128 | 0.0111 | 0.531 | -0.3456 | -0.2033 | -0.256 | 0.524 | -0.0776 |
| ELA | 3 | 660746 | 3 | A-V | 2 | 7239 | 0.7554 | 0.737 | 0.1467 | 0.0447 | 0.0473 | 0.0237 | 0.4909 | 0.4826 | -0.2873 | -0.2556 | -0.2315 | -0.0527 |
| ELA | 3 | 629368 | 3 | D | 1 | 7308 | 0.4215 | 0.1822 | 0.1549 | 0.4152 | 0.2328 | 0.0147 | 0.3419 | -0.1619 | -0.0942 | 0.3418 | -0.1587 | -0.0392 |
| ELA | 3 | 662652 | 3 | D | 3 | 7262 | 0.6692 | 0.6551 | 0.1915 | 0.0964 | 0.0359 | 0.0205 | 0.5483 | 0.5453 | -0.3365 | -0.2472 | -0.2323 | -0.0704 |
| ELA | 3 | 662662 | 3 | D | 2 | 7350 | 0.4325 | 0.4285 | 0.153 | 0.2661 | 0.1431 | 0.0084 | 0.2611 | 0.2648 | -0.1203 | -0.0579 | -0.1568 | -0.0731 |
| ELA | 4 | 409583 | 0 | A-K | 2 | 86614 | 0.606 | 0.6007 | 0.1301 | 0.1256 | 0.1348 | 0.007 | 0.5358 | 0.54 | -0.3184 | -0.2053 | -0.2292 | -0.1054 |
| ELA | 4 | 409585 | 0 | A-K | 2 | 86521 | 0.6239 | 0.1942 | 0.0709 | 0.1073 | 0.6177 | 0.0077 | 0.5545 | -0.2496 | -0.2752 | -0.2925 | 0.5586 | -0.1074 |
| ELA | 4 | 409587 | 0 | A-K | 2 | 86558 | 0.666 | 0.116 | 0.6596 | 0.1486 | 0.0662 | 0.0077 | 0.4935 | -0.3069 | 0.4997 | -0.1603 | -0.2802 | -0.1055 |
| ELA | 4 | 579107 | 0 | A-K | 2 | 86311 | 0.6608 | 0.6526 | 0.1884 | 0.0789 | 0.0677 | 0.011 | 0.5432 | 0.5483 | -0.2543 | -0.307 | -0.2605 | -0.1127 |
| ELA | 4 | 579110 | 0 | A-K | 2 | 86082 | 0.4023 | 0.3206 | 0.1988 | 0.3963 | 0.0694 | 0.0127 | 0.4101 | -0.1092 | -0.1787 | 0.4134 | -0.2612 | -0.1101 |
| ELA | 4 | 579116 | 0 | A-K | 2 | 86132 | 0.6628 | 0.1061 | 0.1575 | 0.6532 | 0.0688 | 0.0127 | 0.4917 | -0.3101 | -0.15 | 0.4979 | -0.2863 | -0.1114 |
| ELA | 4 | 409584 | 0 | A-V | 2 | 86727 | 0.6925 | 0.1269 | 0.0913 | 0.6873 | 0.087 | 0.0057 | 0.5384 | -0.2752 | -0.2519 | 0.5437 | -0.2763 | -0.0996 |
| ELA | 4 | 409588 | 0 | A-V | 2 | 86749 | 0.8409 | 0.8347 | 0.0556 | 0.0692 | 0.0331 | 0.0057 | 0.5177 | 0.5255 | -0.2704 | -0.316 | -0.2409 | -0.1078 |
| ELA | 4 | 409589 | 0 | A-V | 2 | 86562 | 0.6597 | 0.0866 | 0.6535 | 0.1396 | 0.1108 | 0.0082 | 0.4086 | -0.3182 | 0.4147 | -0.1785 | -0.1146 | -0.091 |
| ELA | 4 | 409591 | 0 | A-V | 1 | 86664 | 0.8286 | 0.0537 | 0.0514 | 0.0648 | 0.8218 | 0.006 | 0.4039 | -0.2511 | -0.211 | -0.1826 | 0.4152 | -0.1059 |
| ELA | 4 | 493325 | 0 | B-C | 3 | 86284 | 0.3497 | 0.3737 | 0.1512 | 0.1171 | 0.3453 | 0.0112 | 0.2618 | 0.0901 | -0.1724 | -0.2938 | 0.268 | -0.1234 |
| ELA | 4 | 493326 | 0 | B-C | 2 | 86297 | 0.6009 | 0.5934 | 0.1315 | 0.1255 | 0.1371 | 0.0108 | 0.5267 | 0.5309 | -0.2492 | -0.2351 | -0.2476 | -0.1121 |
| ELA | 4 | 493328 | 0 | B-C | 3 | 86417 | 0.6878 | 0.6801 | 0.0834 | 0.0978 | 0.1276 | 0.0097 | 0.5525 | 0.5589 | -0.2726 | -0.3016 | -0.2453 | -0.1229 |
| ELA | 4 | 579407 | 0 | B-C | 2 | 87019 | 0.5334 | 0.1999 | 0.5311 | 0.0824 | 0.1824 | 0.0034 | 0.4362 | -0.2172 | 0.4379 | -0.2718 | -0.1365 | -0.0542 |
| ELA | 4 | 579408 | 0 | B-C | 2 | 86549 | 0.3586 | 0.1832 | 0.1961 | 0.3552 | 0.2559 | 0.0074 | 0.3548 | -0.1987 | -0.0992 | 0.3572 | -0.1061 | -0.0725 |
| ELA | 4 | 493332 | 0 | B-K | 2 | 86650 | 0.6935 | 0.0784 | 0.1273 | 0.0982 | 0.6876 | 0.0068 | 0.5844 | -0.3041 | -0.2854 | -0.2853 | 0.5898 | -0.12 |
| ELA | 4 | 579410 | 0 | B-K | 2 | 87026 | 0.661 | 0.1319 | 0.1247 | 0.6583 | 0.0809 | 0.0031 | 0.602 | -0.3791 | -0.2782 | 0.6031 | -0.2256 | -0.0541 |
| ELA | 4 | 579411 | 0 | B-K | 3 | 86381 | 0.662 | 0.1359 | 0.1119 | 0.6543 | 0.0863 | 0.01 | 0.5229 | -0.2097 | -0.286 | 0.5244 | -0.2804 | -0.0717 |
| ELA | 4 | 579412 | 0 | B-K | 2 | 86425 | 0.4062 | 0.148 | 0.2405 | 0.1987 | 0.4017 | 0.009 | 0.3445 | -0.2502 | -0.0326 | -0.1477 | 0.3471 | -0.0693 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 4 | 493327 | 0 | B-V | 2 | 86542 | 0.7095 | 0.1139 | 0.0683 | 0.7026 | 0.1054 | 0.0086 | 0.5358 | -0.2997 | -0.2585 | 0.5418 | -0.2451 | -0.1122 |
| ELA | 4 | 493333 | 0 | B-V | 2 | 86519 | 0.7375 | 0.1135 | 0.7301 | 0.077 | 0.0695 | 0.0085 | 0.5302 | -0.2443 | 0.5387 | -0.2426 | -0.3275 | -0.1273 |
| ELA | 4 | 493334 | 0 | B-V | 1 | 86611 | 0.5398 | 0.3018 | 0.535 | 0.08 | 0.0743 | 0.0073 | 0.2197 | 0.0254 | 0.2285 | -0.188 | -0.2406 | -0.1151 |
| ELA | 4 | 579405 | 0 | B-V | 2 | 86554 | 0.7887 | 0.7812 | 0.058 | 0.0537 | 0.0976 | 0.0069 | 0.5069 | 0.5111 | -0.2719 | -0.3047 | -0.2358 | -0.0844 |
| ELA | 4 | 504068 | 0 | D | 2 | 86922 | 0.6214 | 0.0969 | 0.1987 | 0.081 | 0.6181 | 0.0032 | 0.4001 | -0.2074 | -0.1836 | -0.206 | 0.4026 | -0.0569 |
| ELA | 4 | 504071 | 0 | D | 2 | 86630 | 0.5897 | 0.1842 | 0.145 | 0.5845 | 0.0775 | 0.0065 | 0.459 | -0.217 | -0.2182 | 0.463 | -0.2175 | -0.0855 |
| ELA | 4 | 504085 | 0 | D | 2 | 86889 | 0.5872 | 0.5839 | 0.1873 | 0.1296 | 0.0935 | 0.0038 | 0.4455 | 0.4483 | -0.1467 | -0.2529 | -0.2501 | -0.0665 |
| ELA | 4 | 504087 | 0 | D | 1 | 86934 | 0.845 | 0.0456 | 0.0693 | 0.8406 | 0.0393 | 0.0039 | 0.5079 | -0.2858 | -0.3037 | 0.5112 | -0.2302 | -0.065 |
| ELA | 4 | 581064 | 0 | D | 2 | 86524 | 0.4854 | 0.1936 | 0.4806 | 0.1847 | 0.1313 | 0.0078 | 0.416 | -0.1908 | 0.4196 | -0.1466 | -0.2001 | -0.0871 |
| ELA | 4 | 581066 | 0 | D | 2 | 86595 | 0.5426 | 0.5377 | 0.188 | 0.075 | 0.1902 | 0.0067 | 0.4301 | 0.4345 | -0.229 | -0.2637 | -0.1219 | -0.0924 |
| ELA | 4 | 581095 | 0 | D | 2 | 86800 | 0.6828 | 0.1158 | 0.6782 | 0.1328 | 0.0664 | 0.0052 | 0.4891 | -0.2674 | 0.4931 | -0.2433 | -0.2198 | -0.0756 |
| ELA | 4 | 581097 | 0 | D | 2 | 86869 | 0.4062 | 0.3917 | 0.4037 | 0.0476 | 0.1509 | 0.0037 | 0.2961 | -0.0617 | 0.2987 | -0.2285 | -0.173 | -0.0607 |
| ELA | 4 | 581099 | 0 | D | 2 | 86596 | 0.795 | 0.0851 | 0.0431 | 0.0749 | 0.7878 | 0.0061 | 0.5037 | -0.2466 | -0.2591 | -0.2936 | 0.5089 | -0.0839 |
| ELA | 4 | 658459 | 1 | A-C | 2 | 7256 | 0.622 | 0.0972 | 0.618 | 0.0759 | 0.2025 | 0.0055 | 0.4243 | -0.2583 | 0.4262 | -0.2502 | -0.1487 | -0.053 |
| ELA | 4 | 658460 | 1 | A-K | 2 | 7282 | 0.7278 | 0.1332 | 0.0885 | 0.0497 | 0.7257 | 0.0023 | 0.5222 | -0.3107 | -0.246 | -0.2503 | 0.525 | -0.0688 |
| ELA | 4 | 658461 | 1 | A-K | 2 | 7261 | 0.2343 | 0.5281 | 0.1402 | 0.2329 | 0.093 | 0.0038 | 0.1622 | 0.1638 | -0.1946 | 0.1647 | -0.2662 | -0.0704 |
| ELA | 4 | 658462 | 1 | A-K | 3 | 7219 | 0.4754 | 0.2311 | 0.1361 | 0.1513 | 0.4699 | 0.0101 | 0.361 | -0.1228 | -0.2184 | -0.1316 | 0.3632 | -0.0562 |
| ELA | 4 | 658464 | 1 | A-K | 2 | 7221 | 0.3842 | 0.3798 | 0.2284 | 0.113 | 0.2676 | 0.0103 | 0.1624 | 0.1649 | 0.0738 | -0.2849 | -0.035 | -0.0392 |
| ELA | 4 | 658465 | 1 | A-K | 2 | 7237 | 0.2848 | 0.2295 | 0.3612 | 0.2822 | 0.118 | 0.0058 | 0.1091 | -0.0839 | 0.1044 | 0.1139 | -0.1763 | -0.0723 |
| ELA | 4 | 658467 | 1 | A-V | 2 | 7233 | 0.5534 | 0.1568 | 0.1017 | 0.5481 | 0.1838 | 0.0077 | 0.4001 | -0.0869 | -0.223 | 0.4045 | -0.2411 | -0.0813 |
| ELA | 4 | 660446 | 1 | A-V | 2 | 7246 | 0.7448 | 0.739 | 0.0716 | 0.0802 | 0.1013 | 0.0055 | 0.4965 | 0.5005 | -0.2827 | -0.2876 | -0.2013 | -0.0764 |
| ELA | 4 | 624726 | 1 | B-C | 3 | 43417 | 0.7041 | 0.0905 | 0.1169 | 0.7001 | 0.0868 | 0.0046 | 0.4024 | -0.2865 | -0.3039 | 0.4061 | -0.0029 | -0.0629 |
| ELA | 4 | 624721 | 1 | B-K | 2 | 43378 | 0.5777 | 0.5739 | 0.1427 | 0.1751 | 0.1018 | 0.0058 | 0.3846 | 0.3864 | -0.1918 | -0.1101 | -0.2566 | -0.0503 |
| ELA | 4 | 624723 | 1 | B-K | 2 | 43500 | 0.6808 | 0.1243 | 0.111 | 0.0828 | 0.6783 | 0.0032 | 0.5348 | -0.2953 | -0.2685 | -0.2363 | 0.536 | -0.0472 |
| ELA | 4 | 624727 | 1 | B-K | 2 | 43387 | 0.7471 | 0.0834 | 0.7424 | 0.0746 | 0.0933 | 0.0044 | 0.5075 | -0.2907 | 0.5104 | -0.2267 | -0.2652 | -0.0648 |
| ELA | 4 | 624718 | 1 | B-V | 2 | 43257 | 0.6488 | 0.0913 | 0.0602 | 0.1964 | 0.6428 | 0.0061 | 0.4374 | -0.3299 | -0.1887 | -0.1597 | 0.4415 | -0.0765 |
| ELA | 4 | 632344 | 1 | B-V | 2 | 43315 | 0.7728 | 0.7667 | 0.0843 | 0.0887 | 0.0524 | 0.0052 | 0.4964 | 0.5009 | -0.1991 | -0.2938 | -0.2917 | -0.0675 |
| ELA | 4 | 629444 | 1 | D | 1 | 14452 | 0.7961 | 0.7899 | 0.1152 | 0.0455 | 0.0416 | 0.0043 | 0.4465 | 0.4465 | -0.2641 | -0.2306 | -0.2242 | -0.061 |
| ELA | 4 | 662664 | 1 | D | 2 | 7226 | 0.7931 | 0.1043 | 0.7847 | 0.0393 | 0.0611 | 0.0092 | 0.4565 | -0.3079 | 0.4601 | -0.2042 | -0.1949 | -0.0748 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 4 | 662733 | 1 | D | 2 | 7272 | 0.5784 | 0.1417 | 0.1441 | 0.1341 | 0.5759 | 0.0031 | 0.4155 | -0.1661 | -0.2082 | -0.2105 | 0.4167 | -0.0472 |
| ELA | 4 | 658489 | 2 | A-C | 2 | 7169 | 0.4928 | 0.4868 | 0.1977 | 0.1131 | 0.1902 | 0.0105 | 0.2822 | 0.2875 | -0.1585 | -0.2493 | 0.0211 | -0.0741 |
| ELA | 4 | 658490 | 2 | A-K | 2 | 7226 | 0.6366 | 0.1436 | 0.0813 | 0.137 | 0.6339 | 0.0033 | 0.5126 | -0.302 | -0.2564 | -0.1965 | 0.5133 | -0.0306 |
| ELA | 4 | 658493 | 2 | A-K | 3 | 7088 | 0.321 | 0.2421 | 0.1957 | 0.2254 | 0.3135 | 0.0218 | 0.2206 | -0.0557 | -0.1144 | -0.0533 | 0.2246 | -0.0737 |
| ELA | 4 | 658494 | 2 | A-K | 2 | 7151 | 0.634 | 0.0699 | 0.1463 | 0.1444 | 0.6248 | 0.0116 | 0.4583 | -0.2564 | -0.2561 | -0.1647 | 0.4585 | -0.0576 |
| ELA | 4 | 658495 | 2 | A-K | 2 | 7203 | 0.6314 | 0.6267 | 0.1615 | 0.0879 | 0.1164 | 0.0055 | 0.3811 | 0.3831 | -0.1556 | -0.2449 | -0.1659 | -0.0565 |
| ELA | 4 | 658496 | 2 | A-K | 3 | 7195 | 0.3356 | 0.2462 | 0.3328 | 0.2147 | 0.1977 | 0.0062 | 0.1904 | -0.1261 | 0.1935 | -0.0221 | -0.0525 | -0.0556 |
| ELA | 4 | 658498 | 2 | A-V | 3 | 7179 | 0.32 | 0.2141 | 0.1579 | 0.3165 | 0.3007 | 0.0098 | 0.1634 | -0.0623 | -0.2677 | 0.1671 | 0.1164 | -0.0694 |
| ELA | 4 | 660480 | 2 | A-V | 2 | 7220 | 0.8047 | 0.0791 | 0.8006 | 0.0733 | 0.0419 | 0.0037 | 0.4415 | -0.1726 | 0.4433 | -0.2933 | -0.2492 | -0.0464 |
| ELA | 4 | 629445 | 2 | D | 1 | 7214 | 0.5674 | 0.0661 | 0.564 | 0.2795 | 0.0845 | 0.0037 | 0.3281 | -0.2675 | 0.3327 | -0.08 | -0.2006 | -0.0715 |
| ELA | 4 | 662665 | 2 | D | 2 | 7156 | 0.7406 | 0.0754 | 0.7303 | 0.1021 | 0.0783 | 0.0125 | 0.5221 | -0.2753 | 0.5233 | -0.2566 | -0.2649 | -0.0778 |
| ELA | 4 | 662789 | 2 | D | 2 | 7206 | 0.7677 | 0.0562 | 0.0674 | 0.7623 | 0.1071 | 0.0061 | 0.4619 | -0.2561 | -0.2105 | 0.4641 | -0.2589 | -0.0514 |
| ELA | 4 | 660255 | 3 | A-C | 3 | 7218 | 0.435 | 0.121 | 0.2342 | 0.4301 | 0.2034 | 0.0093 | 0.2511 | -0.2448 | -0.0333 | 0.2558 | -0.0584 | -0.0703 |
| ELA | 4 | 660256 | 3 | A-K | 2 | 7238 | 0.4388 | 0.2799 | 0.197 | 0.0796 | 0.4351 | 0.0067 | 0.3752 | -0.13 | -0.151 | -0.2261 | 0.3781 | -0.0647 |
| ELA | 4 | 660257 | 3 | A-K | 3 | 7237 | 0.6821 | 0.1282 | 0.6762 | 0.1256 | 0.0614 | 0.0066 | 0.4688 | -0.2832 | 0.4736 | -0.1876 | -0.2336 | -0.0793 |
| ELA | 4 | 660260 | 3 | A-K | 3 | 7147 | 0.5528 | 0.161 | 0.5412 | 0.1381 | 0.1388 | 0.0195 | 0.3877 | -0.1365 | 0.3866 | -0.2094 | -0.1798 | -0.0456 |
| ELA | 4 | 660261 | 3 | A-K | 2 | 7209 | 0.453 | 0.4474 | 0.0977 | 0.3656 | 0.0768 | 0.0099 | 0.2868 | 0.2902 | -0.1932 | -0.01 | -0.2765 | -0.0729 |
| ELA | 4 | 660262 | 3 | A-K | 3 | 7260 | 0.5687 | 0.5656 | 0.1029 | 0.2786 | 0.0474 | 0.0045 | 0.2147 | 0.2187 | -0.2013 | -0.0059 | -0.186 | -0.0568 |
| ELA | 4 | 660264 | 3 | A-V | 3 | 7256 | 0.497 | 0.494 | 0.356 | 0.0789 | 0.0651 | 0.0052 | 0.267 | 0.2705 | 0.0147 | -0.232 | -0.3002 | -0.071 |
| ELA | 4 | 662026 | 3 | A-V | 2 | 7191 | 0.6671 | 0.1129 | 0.6571 | 0.1608 | 0.0542 | 0.0136 | 0.4407 | -0.1966 | 0.4422 | -0.213 | -0.2666 | -0.0673 |
| ELA | 4 | 629446 | 3 | D | 1 | 7255 | 0.6699 | 0.0611 | 0.0964 | 0.6658 | 0.1705 | 0.0036 | 0.4758 | -0.2684 | -0.2612 | 0.4764 | -0.211 | -0.0436 |
| ELA | 4 | 662666 | 3 | D | 2 | 7214 | 0.7075 | 0.2193 | 0.6992 | 0.0363 | 0.0334 | 0.0107 | 0.3823 | -0.1907 | 0.3879 | -0.2428 | -0.2424 | -0.0786 |
| ELA | 4 | 662790 | 3 | D | 2 | 7256 | 0.5641 | 0.2449 | 0.1421 | 0.0463 | 0.5607 | 0.0055 | 0.3666 | -0.1471 | -0.1966 | -0.2192 | 0.3695 | -0.072 |
| ELA | 5 | 566389 | 0 | A-K | 2 | 84926 | 0.5429 | 0.1673 | 0.1012 | 0.1853 | 0.5391 | 0.0061 | 0.5174 | -0.267 | -0.2035 | -0.2315 | 0.5205 | -0.0991 |
| ELA | 5 | 566391 | 0 | A-K | 3 | 84556 | 0.4833 | 0.2062 | 0.1617 | 0.1429 | 0.4778 | 0.0102 | 0.4401 | -0.1323 | -0.229 | -0.2095 | 0.4431 | -0.0948 |
| ELA | 5 | 566393 | 0 | A-K | 2 | 84914 | 0.5416 | 0.5377 | 0.0718 | 0.2608 | 0.1225 | 0.0064 | 0.505 | 0.5078 | -0.2834 | -0.2017 | -0.2542 | -0.0909 |
| ELA | 5 | 566394 | 0 | A-K | 2 | 84724 | 0.4561 | 0.3737 | 0.1226 | 0.4518 | 0.0425 | 0.0087 | 0.3647 | -0.0781 | -0.275 | 0.3686 | -0.2282 | -0.0923 |
| ELA | 5 | 580582 | 0 | A-K | 2 | 84677 | 0.7081 | 0.7011 | 0.074 | 0.0509 | 0.1641 | 0.0091 | 0.4073 | 0.4107 | -0.1881 | -0.2385 | -0.2133 | -0.0685 |
| ELA | 5 | 580586 | 0 | A-K | 2 | 85122 | 0.7454 | 0.1387 | 0.0581 | 0.7418 | 0.0566 | 0.0037 | 0.5292 | -0.2959 | -0.266 | 0.5319 | -0.2728 | -0.0611 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 5 | 566395 | 0 | A-V | 1 | 84917 | 0.5458 | 0.5418 | 0.1749 | 0.0967 | 0.1794 | 0.0065 | 0.4271 | 0.4304 | -0.1346 | -0.2389 | -0.2222 | -0.0828 |
| ELA | 5 | 566396 | 0 | A-V | 2 | 84988 | 0.7534 | 0.0758 | 0.7486 | 0.1179 | 0.0514 | 0.0053 | 0.5419 | -0.3198 | 0.5463 | -0.2772 | -0.2498 | -0.0916 |
| ELA | 5 | 580581 | 0 | A-V | 2 | 84978 | 0.7008 | 0.1252 | 0.6963 | 0.107 | 0.065 | 0.0054 | 0.4556 | -0.1689 | 0.4571 | -0.238 | -0.3086 | -0.0482 |
| ELA | 5 | 580588 | 0 | A-V | 2 | 84772 | 0.52 | 0.0709 | 0.5154 | 0.1911 | 0.2138 | 0.0072 | 0.2906 | -0.3204 | 0.2934 | -0.0283 | -0.1154 | -0.0583 |
| ELA | 5 | 580589 | 0 | A-V | 2 | 85014 | 0.6593 | 0.6553 | 0.0715 | 0.1712 | 0.0959 | 0.0047 | 0.5516 | 0.5529 | -0.3186 | -0.3658 | -0.1274 | -0.0599 |
| ELA | 5 | 493356 | 0 | B-C | 3 | 84600 | 0.5563 | 0.5502 | 0.1592 | 0.111 | 0.1687 | 0.0099 | 0.4301 | 0.4348 | -0.2355 | -0.3026 | -0.0652 | -0.0955 |
| ELA | 5 | 580462 | 0 | B-C | 2 | 84743 | 0.4083 | 0.4046 | 0.1034 | 0.2534 | 0.2294 | 0.008 | 0.3738 | 0.3757 | -0.2275 | -0.0895 | -0.1642 | -0.0726 |
| ELA | 5 | 580493 | 0 | B-C | 2 | 84998 | 0.383 | 0.3806 | 0.1629 | 0.3107 | 0.1396 | 0.005 | 0.3544 | 0.3568 | -0.1643 | -0.1467 | -0.1093 | -0.0779 |
| ELA | 5 | 493359 | 0 | B-K | 2 | 84744 | 0.5798 | 0.1988 | 0.141 | 0.5744 | 0.0766 | 0.0083 | 0.4639 | -0.1615 | -0.2725 | 0.4678 | -0.2361 | -0.09 |
| ELA | 5 | 493361 | 0 | B-K | 2 | 84877 | 0.5841 | 0.5796 | 0.1165 | 0.1775 | 0.1187 | 0.0067 | 0.4182 | 0.4229 | -0.2743 | -0.1605 | -0.157 | -0.0952 |
| ELA | 5 | 580464 | 0 | B-K | 2 | 85043 | 0.6825 | 0.0684 | 0.6786 | 0.0799 | 0.1675 | 0.0044 | 0.4683 | -0.2841 | 0.4711 | -0.2999 | -0.1642 | -0.0719 |
| ELA | 5 | 580465 | 0 | B-K | 2 | 85130 | 0.5949 | 0.2699 | 0.5921 | 0.093 | 0.0404 | 0.0039 | 0.3901 | -0.1731 | 0.3938 | -0.2338 | -0.2178 | -0.0794 |
| ELA | 5 | 580466 | 0 | B-K | 2 | 85103 | 0.5532 | 0.5504 | 0.087 | 0.2258 | 0.1318 | 0.004 | 0.3008 | 0.3043 | -0.1678 | -0.0756 | -0.1982 | -0.0717 |
| ELA | 5 | 493357 | 0 | B-V | 1 | 84823 | 0.8109 | 0.0577 | 0.0469 | 0.083 | 0.8042 | 0.0071 | 0.4902 | -0.2474 | -0.2433 | -0.2848 | 0.4969 | -0.0983 |
| ELA | 5 | 493363 | 0 | B-V | 2 | 84584 | 0.5204 | 0.2385 | 0.5146 | 0.1449 | 0.0909 | 0.0098 | 0.4101 | -0.225 | 0.4142 | -0.1492 | -0.1681 | -0.0954 |
| ELA | 5 | 493364 | 0 | B-V | 2 | 84879 | 0.7205 | 0.0893 | 0.076 | 0.715 | 0.1121 | 0.0071 | 0.5459 | -0.3068 | -0.2924 | 0.5501 | -0.2366 | -0.096 |
| ELA | 5 | 580467 | 0 | B-V | 2 | 85066 | 0.6915 | 0.0746 | 0.0804 | 0.6878 | 0.1518 | 0.0042 | 0.4718 | -0.26 | -0.3399 | 0.4753 | -0.1489 | -0.0763 |
| ELA | 5 | 505536 | 0 | D | 3 | 85092 | 0.4847 | 0.4822 | 0.2508 | 0.1398 | 0.1221 | 0.0027 | 0.3502 | 0.3525 | -0.166 | -0.1787 | -0.1143 | -0.0484 |
| ELA | 5 | 505538 | 0 | D | 2 | 85134 | 0.4549 | 0.1795 | 0.4528 | 0.2372 | 0.1259 | 0.0022 | 0.4279 | -0.3005 | 0.4293 | -0.1132 | -0.1387 | -0.0419 |
| ELA | 5 | 505542 | 0 | D | 2 | 85149 | 0.4904 | 0.2156 | 0.1664 | 0.1254 | 0.4882 | 0.0026 | 0.3156 | -0.0869 | -0.1602 | -0.1798 | 0.3175 | -0.0435 |
| ELA | 5 | 505543 | 0 | D | 2 | 84880 | 0.2676 | 0.2655 | 0.358 | 0.1705 | 0.1984 | 0.006 | 0.266 | 0.268 | -0.0304 | -0.0867 | -0.1617 | -0.0645 |
| ELA | 5 | 505544 | 0 | D | 2 | 85039 | 0.7395 | 0.0935 | 0.0668 | 0.7353 | 0.0987 | 0.0043 | 0.5371 | -0.3234 | -0.2761 | 0.539 | -0.2335 | -0.0595 |
| ELA | 5 | 581215 | 0 | D | 2 | 84943 | 0.7366 | 0.0383 | 0.1065 | 0.1168 | 0.7315 | 0.0048 | 0.4899 | -0.2608 | -0.2917 | -0.2246 | 0.4929 | -0.0662 |
| ELA | 5 | 581217 | 0 | D | 2 | 84935 | 0.3801 | 0.3775 | 0.2082 | 0.1445 | 0.2629 | 0.0054 | 0.2504 | 0.2533 | -0.0695 | -0.1956 | -0.0448 | -0.0673 |
| ELA | 5 | 581220 | 0 | D | 2 | 84960 | 0.4393 | 0.1485 | 0.2904 | 0.1181 | 0.4363 | 0.0051 | 0.4657 | -0.2875 | -0.1383 | -0.1891 | 0.4671 | -0.0641 |
| ELA | 5 | 581223 | 0 | D | 2 | 85181 | 0.4231 | 0.1607 | 0.4214 | 0.3802 | 0.0337 | 0.0025 | 0.3048 | -0.1603 | 0.3065 | -0.1207 | -0.167 | -0.0474 |
| ELA | 5 | 621496 | 1 | A-K | 2 | 42550 | 0.6014 | 0.5985 | 0.1211 | 0.1832 | 0.0924 | 0.0034 | 0.398 | 0.401 | -0.2296 | -0.1287 | -0.2309 | -0.06 |
| ELA | 5 | 621503 | 1 | A-K | 2 | 42550 | 0.7604 | 0.0644 | 0.0717 | 0.1023 | 0.7568 | 0.0043 | 0.5027 | -0.2714 | -0.2806 | -0.2415 | 0.5039 | -0.0521 |
| ELA | 5 | 621597 | 1 | A-K | 2 | 42528 | 0.5829 | 0.5798 | 0.1707 | 0.0682 | 0.176 | 0.004 | 0.3772 | 0.3792 | -0.1711 | -0.2693 | -0.1329 | -0.0529 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 5 | 621600 | 1 | A-K | 2 | 42559 | 0.7447 | 0.0738 | 0.0866 | 0.0937 | 0.7413 | 0.0031 | 0.4686 | -0.2368 | -0.1938 | -0.2931 | 0.4712 | -0.0581 |
| ELA | 5 | 621500 | 1 | A-V | 2 | 42667 | 0.6414 | 0.194 | 0.6401 | 0.0997 | 0.0641 | 0.0016 | 0.3312 | -0.2149 | 0.3322 | -0.1671 | -0.0929 | -0.0279 |
| ELA | 5 | 621601 | 1 | A-V | 2 | 42631 | 0.681 | 0.1206 | 0.087 | 0.679 | 0.1104 | 0.0024 | 0.4134 | -0.2258 | -0.2592 | 0.4154 | -0.1411 | -0.0555 |
| ELA | 5 | 653716 | 1 | B-C | 2 | 7044 | 0.4855 | 0.0839 | 0.2844 | 0.4775 | 0.1377 | 0.0119 | 0.2782 | -0.2592 | 0.0668 | 0.2783 | -0.2679 | -0.0462 |
| ELA | 5 | 653717 | 1 | B-C | 2 | 7112 | 0.4886 | 0.1532 | 0.1083 | 0.2463 | 0.4852 | 0.0049 | 0.4453 | -0.2191 | -0.2185 | -0.1629 | 0.4473 | -0.0568 |
| ELA | 5 | 653718 | 1 | B-C | 2 | 7102 | 0.6774 | 0.1252 | 0.6717 | 0.0827 | 0.112 | 0.0077 | 0.5278 | -0.2589 | 0.5294 | -0.2532 | -0.2736 | -0.0768 |
| ELA | 5 | 653720 | 1 | B-K | 3 | 7131 | 0.5539 | 0.1218 | 0.5515 | 0.197 | 0.1254 | 0.0034 | 0.3508 | -0.266 | 0.3538 | -0.0626 | -0.1779 | -0.0592 |
| ELA | 5 | 653723 | 1 | B-K | 2 | 7121 | 0.4224 | 0.0688 | 0.3897 | 0.1157 | 0.42 | 0.0049 | 0.2996 | -0.2994 | -0.0253 | -0.1733 | 0.3023 | -0.0751 |
| ELA | 5 | 653724 | 1 | B-V | 2 | 7139 | 0.4138 | 0.4125 | 0.1068 | 0.212 | 0.2656 | 0.0028 | 0.1928 | 0.1943 | -0.2935 | -0.1888 | 0.1694 | -0.04 |
| ELA | 5 | 653725 | 1 | B-V | 3 | 7113 | 0.707 | 0.0866 | 0.1312 | 0.0732 | 0.7022 | 0.0053 | 0.5257 | -0.256 | -0.2797 | -0.2646 | 0.5265 | -0.0632 |
| ELA | 5 | 654551 | 1 | B-V | 2 | 7117 | 0.5123 | 0.1273 | 0.2576 | 0.5091 | 0.0997 | 0.0049 | 0.4129 | -0.1543 | -0.2423 | 0.4159 | -0.1469 | -0.067 |
| ELA | 5 | 629643 | 1 | D | 2 | 7118 | 0.7735 | 0.7688 | 0.0954 | 0.0607 | 0.069 | 0.004 | 0.2837 | 0.289 | -0.0945 | -0.1711 | -0.1894 | -0.0477 |
| ELA | 5 | 660715 | 1 | D | 2 | 7094 | 0.4961 | 0.0829 | 0.2851 | 0.1311 | 0.4913 | 0.0088 | 0.3846 | -0.2292 | -0.105 | -0.2255 | 0.3864 | -0.061 |
| ELA | 5 | 661442 | 1 | D | 1 | 7116 | 0.6553 | 0.6511 | 0.1086 | 0.1275 | 0.1064 | 0.0043 | 0.4656 | 0.4672 | -0.2207 | -0.2147 | -0.252 | -0.0451 |
| ELA | 5 | 660285 | 2 | B-C | 2 | 7060 | 0.2983 | 0.1092 | 0.1112 | 0.4743 | 0.2953 | 0.009 | 0.1695 | -0.2041 | -0.234 | 0.1295 | 0.1717 | -0.0635 |
| ELA | 5 | 660287 | 2 | B-C | 3 | 7086 | 0.5672 | 0.5636 | 0.1377 | 0.1127 | 0.1796 | 0.0049 | 0.2721 | 0.2737 | -0.1566 | -0.1202 | -0.1047 | -0.0341 |
| ELA | 5 | 660288 | 2 | B-K | 3 | 7089 | 0.62 | 0.1036 | 0.0941 | 0.1801 | 0.6163 | 0.0045 | 0.5118 | -0.3773 | -0.252 | -0.146 | 0.5133 | -0.0619 |
| ELA | 5 | 660290 | 2 | B-K | 2 | 7063 | 0.6242 | 0.1139 | 0.0645 | 0.6183 | 0.1938 | 0.0073 | 0.3894 | -0.2404 | -0.2507 | 0.3905 | -0.1182 | -0.0514 |
| ELA | 5 | 660291 | 2 | B-K | 3 | 6908 | 0.5022 | 0.1503 | 0.1854 | 0.1465 | 0.4865 | 0.0035 | 0.3696 | -0.2047 | -0.1467 | -0.1293 | 0.3667 | -0.0638 |
| ELA | 5 | 660292 | 2 | B-K | 3 | 7078 | 0.382 | 0.3792 | 0.1039 | 0.3768 | 0.1327 | 0.0067 | 0.1525 | 0.1545 | -0.1621 | 0.0219 | -0.0941 | -0.0418 |
| ELA | 5 | 660294 | 2 | B-V | 2 | 7117 | 0.6497 | 0.1216 | 0.6484 | 0.1219 | 0.1062 | 0.0018 | 0.3372 | -0.2403 | 0.3381 | -0.1812 | -0.0718 | -0.0287 |
| ELA | 5 | 662270 | 2 | B-V | 2 | 7103 | 0.517 | 0.1143 | 0.5149 | 0.234 | 0.1328 | 0.0031 | 0.191 | -0.1646 | 0.1933 | -0.0756 | -0.0265 | -0.0335 |
| ELA | 5 | 629634 | 2 | D | 1 | 7088 | 0.5944 | 0.1572 | 0.1761 | 0.5908 | 0.0698 | 0.0038 | 0.4609 | -0.3375 | -0.1216 | 0.4634 | -0.2076 | -0.0517 |
| ELA | 5 | 660716 | 2 | D | 2 | 7093 | 0.4059 | 0.0813 | 0.1113 | 0.3983 | 0.4037 | 0.0038 | 0.3661 | -0.2331 | -0.1784 | -0.1154 | 0.3673 | -0.0402 |
| ELA | 5 | 661443 | 2 | D | 1 | 7089 | 0.2542 | 0.2211 | 0.2527 | 0.3444 | 0.1759 | 0.0046 | 0.0786 | -0.0961 | 0.0802 | 0.0843 | -0.0834 | -0.0359 |
| ELA | 5 | 658540 | 3 | B-C | 3 | 7096 | 0.6395 | 0.1517 | 0.1529 | 0.6355 | 0.0536 | 0.0049 | 0.467 | -0.2888 | -0.1794 | 0.4712 | -0.2257 | -0.0892 |
| ELA | 5 | 658541 | 3 | B-C | 2 | 7100 | 0.1763 | 0.2369 | 0.1753 | 0.2811 | 0.3009 | 0.0039 | 0.0135 | -0.1071 | 0.0163 | 0.1995 | -0.0961 | -0.069 |
| ELA | 5 | 658542 | 3 | B-C | 2 | 7110 | 0.6674 | 0.066 | 0.0851 | 0.1801 | 0.6645 | 0.0031 | 0.3834 | -0.2446 | -0.2683 | -0.111 | 0.3861 | -0.0529 |
| ELA | 5 | 658543 | 3 | B-K | 2 | 7045 | 0.4055 | 0.4001 | 0.2178 | 0.0724 | 0.2963 | 0.0113 | 0.2539 | 0.2582 | -0.1093 | -0.2261 | -0.0292 | -0.0762 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 5 | 658545 | 3 | B-K | 3 | 5610 | 0.4989 | 0.1573 | 0.1581 | 0.0783 | 0.392 | 0.0059 | 0.4468 | -0.215 | -0.1706 | -0.1872 | 0.3586 | -0.0653 |
| ELA | 5 | 658547 | 3 | B-K | 2 | 7062 | 0.5344 | 0.2179 | 0.5285 | 0.1531 | 0.0895 | 0.0101 | 0.3756 | -0.1065 | 0.3778 | -0.2429 | -0.1746 | -0.0657 |
| ELA | 5 | 658548 | 3 | B-V | 2 | 7114 | 0.6015 | 0.5992 | 0.1141 | 0.1818 | 0.1011 | 0.0034 | 0.4096 | 0.4098 | -0.2299 | -0.1888 | -0.1752 | -0.0248 |
| ELA | 5 | 659819 | 3 | B-V | 2 | 7097 | 0.8267 | 0.0794 | 0.8216 | 0.0462 | 0.0466 | 0.0045 | 0.4353 | -0.1939 | 0.4407 | -0.2639 | -0.2572 | -0.0643 |
| ELA | 5 | 629644 | 3 | D | 2 | 7105 | 0.8518 | 0.8475 | 0.0403 | 0.0478 | 0.0594 | 0.0035 | 0.4854 | 0.4877 | -0.2777 | -0.269 | -0.2476 | -0.0546 |
| ELA | 5 | 660717 | 3 | D | 2 | 7083 | 0.8028 | 0.0899 | 0.0685 | 0.7962 | 0.0372 | 0.0071 | 0.4988 | -0.3027 | -0.2625 | 0.5023 | -0.2217 | -0.0784 |
| ELA | 5 | 661444 | 3 | D | 1 | 7096 | 0.3884 | 0.2606 | 0.1778 | 0.1693 | 0.3859 | 0.0053 | 0.1554 | -0.0279 | -0.0828 | -0.0743 | 0.1585 | -0.0571 |
| ELA | 6 | 495896 | 0 | A-C | 2 | 80747 | 0.3732 | 0.1724 | 0.1521 | 0.2962 | 0.3696 | 0.0082 | 0.3235 | 0.0146 | -0.2072 | -0.1712 | 0.3276 | -0.1062 |
| ELA | 6 | 495897 | 0 | A-C | 2 | 80902 | 0.6163 | 0.6115 | 0.1249 | 0.1057 | 0.1501 | 0.0067 | 0.3735 | 0.3803 | -0.2138 | -0.2067 | -0.115 | -0.107 |
| ELA | 6 | 496307 | 0 | A-C | 2 | 81101 | 0.4489 | 0.0968 | 0.4465 | 0.078 | 0.3734 | 0.0046 | 0.4021 | -0.2901 | 0.4046 | -0.2913 | -0.0631 | -0.0889 |
| ELA | 6 | 499798 | 0 | A-C | 2 | 80972 | 0.4748 | 0.1563 | 0.4716 | 0.2235 | 0.1417 | 0.006 | 0.3409 | -0.0877 | 0.3456 | -0.1736 | -0.1696 | -0.1038 |
| ELA | 6 | 495898 | 0 | A-K | 3 | 80858 | 0.3906 | 0.3426 | 0.1443 | 0.1175 | 0.3873 | 0.0068 | 0.499 | -0.1438 | -0.272 | -0.2188 | 0.5007 | -0.1039 |
| ELA | 6 | 495899 | 0 | A-K | 2 | 80627 | 0.3977 | 0.1977 | 0.1918 | 0.2061 | 0.3932 | 0.0101 | 0.4717 | -0.203 | -0.2042 | -0.1461 | 0.4737 | -0.1001 |
| ELA | 6 | 496311 | 0 | A-K | 3 | 81011 | 0.6055 | 0.6016 | 0.0826 | 0.0784 | 0.231 | 0.0056 | 0.3745 | 0.3791 | -0.1807 | -0.2633 | -0.1368 | -0.0871 |
| ELA | 6 | 496315 | 0 | A-K | 2 | 80915 | 0.6608 | 0.1881 | 0.0969 | 0.0517 | 0.6558 | 0.0058 | 0.4723 | -0.2062 | -0.2807 | -0.2488 | 0.475 | -0.0807 |
| ELA | 6 | 495895 | 0 | A-V | 1 | 80824 | 0.4703 | 0.4662 | 0.2017 | 0.1744 | 0.1491 | 0.0072 | 0.4138 | 0.418 | -0.1581 | -0.1762 | -0.1895 | -0.1061 |
| ELA | 6 | 495900 | 0 | A-V | 2 | 80860 | 0.6388 | 0.0958 | 0.6335 | 0.0769 | 0.1856 | 0.007 | 0.3541 | -0.2232 | 0.3614 | -0.209 | -0.1098 | -0.1058 |
| ELA | 6 | 496308 | 0 | A-V | 2 | 81009 | 0.7968 | 0.0952 | 0.0567 | 0.0499 | 0.7917 | 0.0055 | 0.506 | -0.2577 | -0.2879 | -0.2645 | 0.5109 | -0.0934 |
| ELA | 6 | 496309 | 0 | A-V | 2 | 81016 | 0.714 | 0.0475 | 0.151 | 0.7094 | 0.0857 | 0.0055 | 0.4446 | -0.291 | -0.2068 | 0.4492 | -0.2172 | -0.0851 |
| ELA | 6 | 496313 | 0 | A-V | 2 | 80879 | 0.5928 | 0.183 | 0.588 | 0.146 | 0.075 | 0.0069 | 0.4013 | -0.2027 | 0.4062 | -0.1344 | -0.2478 | -0.0946 |
| ELA | 6 | 495090 | 0 | B-C | 2 | 80689 | 0.4874 | 0.1067 | 0.4824 | 0.2874 | 0.1132 | 0.0095 | 0.3811 | -0.1985 | 0.3856 | -0.083 | -0.2628 | -0.0991 |
| ELA | 6 | 576358 | 0 | B-C | 2 | 81009 | 0.578 | 0.0728 | 0.0902 | 0.2563 | 0.5743 | 0.0053 | 0.323 | -0.217 | -0.2699 | -0.0504 | 0.3265 | -0.0606 |
| ELA | 6 | 578140 | 0 | B-C | 2 | 81154 | 0.5945 | 0.1841 | 0.0848 | 0.1347 | 0.5917 | 0.0039 | 0.442 | -0.1474 | -0.2569 | -0.2486 | 0.4441 | -0.063 |
| ELA | 6 | 495091 | 0 | B-K | 2 | 80940 | 0.3736 | 0.1144 | 0.1789 | 0.3284 | 0.3709 | 0.0064 | 0.3079 | -0.2601 | -0.2162 | 0.0515 | 0.3116 | -0.101 |
| ELA | 6 | 495092 | 0 | B-K | 2 | 80804 | 0.5543 | 0.1508 | 0.1673 | 0.5493 | 0.1237 | 0.008 | 0.4807 | -0.2117 | -0.1991 | 0.4847 | -0.2458 | -0.1053 |
| ELA | 6 | 576364 | 0 | B-K | 2 | 80962 | 0.6047 | 0.0751 | 0.6004 | 0.1668 | 0.1507 | 0.006 | 0.4486 | -0.2557 | 0.4516 | -0.1886 | -0.215 | -0.0709 |
| ELA | 6 | 576365 | 0 | B-K | 2 | 81052 | 0.596 | 0.5925 | 0.0995 | 0.2181 | 0.084 | 0.005 | 0.4625 | 0.4643 | -0.2725 | -0.1975 | -0.2159 | -0.0582 |
| ELA | 6 | 576366 | 0 | B-K | 2 | 81057 | 0.6635 | 0.1453 | 0.1262 | 0.6596 | 0.0632 | 0.0049 | 0.5597 | -0.2929 | -0.303 | 0.5615 | -0.232 | -0.0666 |
| ELA | 6 | 495094 | 0 | B-V | 2 | 81007 | 0.6166 | 0.2669 | 0.6126 | 0.0472 | 0.0668 | 0.0059 | 0.3987 | -0.1716 | 0.4041 | -0.2766 | -0.2156 | -0.1014 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 6 | 576367 | 0 | B-V | 2 | 81204 | 0.8006 | 0.1026 | 0.0575 | 0.7973 | 0.0386 | 0.0035 | 0.4174 | -0.2637 | -0.2534 | 0.4208 | -0.1343 | -0.0599 |
| ELA | 6 | 341235 | 0 | D | 1 | 80940 | 0.6385 | 0.0442 | 0.2675 | 0.0471 | 0.6339 | 0.0051 | 0.2588 | -0.1998 | -0.0885 | -0.1896 | 0.2649 | -0.0761 |
| ELA | 6 | 503913 | 0 | D | 2 | 80922 | 0.538 | 0.1493 | 0.5339 | 0.2011 | 0.1082 | 0.0065 | 0.4112 | -0.1448 | 0.4146 | -0.2321 | -0.1754 | -0.0822 |
| ELA | 6 | 503920 | 0 | D | 2 | 81229 | 0.7387 | 0.7359 | 0.0915 | 0.1328 | 0.036 | 0.002 | 0.4332 | 0.436 | -0.239 | -0.2144 | -0.2499 | -0.0525 |
| ELA | 6 | 503922 | 0 | D | 2 | 80979 | 0.621 | 0.6168 | 0.182 | 0.1093 | 0.0851 | 0.0055 | 0.286 | 0.2914 | -0.1568 | -0.092 | -0.163 | -0.0756 |
| ELA | 6 | 584194 | 0 | D | 2 | 80896 | 0.7966 | 0.0692 | 0.084 | 0.0486 | 0.7904 | 0.0057 | 0.3333 | -0.1915 | -0.1583 | -0.1788 | 0.3415 | -0.0815 |
| ELA | 6 | 584195 | 0 | D | 2 | 80966 | 0.5611 | 0.1844 | 0.5572 | 0.1676 | 0.0839 | 0.0058 | 0.3248 | -0.0958 | 0.3296 | -0.1939 | -0.1679 | -0.0839 |
| ELA | 6 | 584200 | 0 | D | 2 | 81193 | 0.7395 | 0.7364 | 0.0851 | 0.114 | 0.0604 | 0.0022 | 0.4251 | 0.4282 | -0.1882 | -0.2342 | -0.2407 | -0.0535 |
| ELA | 6 | 584202 | 0 | D | 2 | 81261 | 0.712 | 0.0485 | 0.1564 | 0.7096 | 0.0821 | 0.002 | 0.5434 | -0.229 | -0.3164 | 0.5451 | -0.2899 | -0.0486 |
| ELA | 6 | 584206 | 0 | D | 1 | 81234 | 0.677 | 0.0982 | 0.6745 | 0.0992 | 0.1245 | 0.002 | 0.4975 | -0.273 | 0.5 | -0.247 | -0.2267 | -0.0566 |
| ELA | 6 | 621527 | 1 | A-C | 3 | 40706 | 0.274 | 0.2732 | 0.1477 | 0.394 | 0.1823 | 0.0021 | 0.0897 | 0.0908 | -0.1657 | 0.0534 | -0.0139 | -0.0415 |
| ELA | 6 | 621533 | 1 | A-C | 3 | 40628 | 0.3416 | 0.1574 | 0.1216 | 0.3764 | 0.3399 | 0.0036 | 0.1749 | -0.1323 | -0.2068 | 0.0745 | 0.1768 | -0.0514 |
| ELA | 6 | 621536 | 1 | A-C | 2 | 40684 | 0.5431 | 0.1198 | 0.5413 | 0.2839 | 0.0517 | 0.0027 | 0.3734 | -0.2104 | 0.3754 | -0.1695 | -0.1738 | -0.0563 |
| ELA | 6 | 621518 | 1 | A-K | 2 | 40626 | 0.4204 | 0.1705 | 0.1301 | 0.2762 | 0.4184 | 0.0043 | 0.2952 | -0.2291 | -0.1445 | -0.0183 | 0.2962 | -0.0414 |
| ELA | 6 | 621519 | 1 | A-V | 2 | 40636 | 0.2302 | 0.5468 | 0.123 | 0.2292 | 0.0964 | 0.0027 | 0.0778 | 0.099 | -0.066 | 0.0798 | -0.1921 | -0.0537 |
| ELA | 6 | 623654 | 1 | A-V | 2 | 40739 | 0.5231 | 0.1727 | 0.2534 | 0.522 | 0.0498 | 0.0017 | 0.4259 | -0.2186 | -0.2039 | 0.4267 | -0.1828 | -0.0393 |
| ELA | 6 | 659211 | 1 | B-C | 3 | 6802 | 0.4016 | 0.2979 | 0.3995 | 0.093 | 0.2043 | 0.0045 | 0.19 | 0.126 | 0.1931 | -0.1597 | -0.2488 | -0.0687 |
| ELA | 6 | 659216 | 1 | B-C | 2 | 6798 | 0.4034 | 0.4009 | 0.16 | 0.2592 | 0.1739 | 0.0045 | 0.216 | 0.2208 | -0.1798 | 0.0398 | -0.1351 | -0.0975 |
| ELA | 6 | 659220 | 1 | B-K | 2 | 6799 | 0.6261 | 0.1097 | 0.173 | 0.6225 | 0.089 | 0.0044 | 0.4733 | -0.2842 | -0.178 | 0.4758 | -0.2412 | -0.0614 |
| ELA | 6 | 659222 | 1 | B-K | 3 | 6813 | 0.4515 | 0.1768 | 0.3267 | 0.4498 | 0.043 | 0.0025 | 0.1708 | -0.1966 | 0.0718 | 0.1743 | -0.1984 | -0.0666 |
| ELA | 6 | 659224 | 1 | B-K | 3 | 6793 | 0.5567 | 0.1608 | 0.0888 | 0.1907 | 0.553 | 0.0039 | 0.2964 | -0.1183 | -0.1575 | -0.1403 | 0.2996 | -0.0827 |
| ELA | 6 | 659289 | 1 | B-K | 2 | 6782 | 0.6143 | 0.1714 | 0.6092 | 0.1312 | 0.08 | 0.0075 | 0.4727 | -0.1829 | 0.4721 | -0.2379 | -0.2829 | -0.0438 |
| ELA | 6 | 659228 | 1 | B-V | 2 | 6821 | 0.2333 | 0.1361 | 0.1512 | 0.4774 | 0.2326 | 0.0025 | 0.1071 | -0.0337 | -0.0862 | 0.0007 | 0.1088 | -0.0715 |
| ELA | 6 | 661275 | 1 | B-V | 2 | 6825 | 0.6561 | 0.1794 | 0.6548 | 0.111 | 0.0528 | 0.0018 | 0.4079 | -0.1822 | 0.4093 | -0.2149 | -0.245 | -0.0429 |
| ELA | 6 | 629732 | 1 | D | 2 | 6811 | 0.698 | 0.1253 | 0.1063 | 0.0692 | 0.6951 | 0.0025 | 0.3995 | -0.3159 | -0.0853 | -0.1976 | 0.4019 | -0.0487 |
| ELA | 6 | 663361 | 1 | D | 2 | 13502 | 0.6042 | 0.1136 | 0.098 | 0.5983 | 0.1803 | 0.0092 | 0.3473 | -0.187 | -0.1773 | 0.3527 | -0.1351 | -0.0905 |
| ELA | 6 | 663369 | 1 | D | 3 | 13580 | 0.6572 | 0.1229 | 0.6544 | 0.158 | 0.0604 | 0.0037 | 0.2845 | -0.1237 | 0.2877 | -0.1352 | -0.1794 | -0.0597 |
| ELA | 6 | 662385 | 2 | B-C | 3 | 6711 | 0.489 | 0.1389 | 0.4829 | 0.2585 | 0.1071 | 0.0102 | 0.2726 | -0.0936 | 0.274 | -0.076 | -0.2139 | -0.0578 |
| ELA | 6 | 662387 | 2 | B-C | 3 | 6772 | 0.2292 | 0.2965 | 0.349 | 0.1226 | 0.2283 | 0.0024 | 0.0626 | 0.0328 | 0.1167 | -0.2846 | 0.0647 | -0.0733 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 6 | 662388 | 2 | B-C | 2 | 6717 | 0.3639 | 0.108 | 0.3119 | 0.3596 | 0.2088 | 0.011 | 0.1992 | -0.282 | 0.1451 | 0.2039 | -0.1668 | -0.0879 |
| ELA | 6 | 662389 | 2 | B-C | 3 | 6755 | 0.4509 | 0.2392 | 0.1713 | 0.4481 | 0.1352 | 0.0041 | 0.3754 | -0.2331 | -0.1244 | 0.3783 | -0.1017 | -0.0732 |
| ELA | 6 | 662390 | 2 | B-K | 2 | 6776 | 0.5643 | 0.1708 | 0.5626 | 0.1457 | 0.1178 | 0.0026 | 0.308 | -0.159 | 0.3109 | -0.1956 | -0.0657 | -0.0698 |
| ELA | 6 | 662391 | 2 | B-K | 3 | 6741 | 0.3094 | 0.3069 | 0.4115 | 0.1015 | 0.1718 | 0.0074 | 0.0636 | 0.0666 | 0.154 | -0.2018 | -0.1068 | -0.0585 |
| ELA | 6 | 662392 | 2 | B-K | 2 | 6766 | 0.5186 | 0.2147 | 0.1632 | 0.5163 | 0.1014 | 0.0043 | 0.3777 | -0.1752 | -0.1492 | 0.3803 | -0.1917 | -0.0766 |
| ELA | 6 | 662394 | 2 | B-V | 3 | 6780 | 0.4565 | 0.1829 | 0.1142 | 0.2451 | 0.4553 | 0.0021 | 0.3027 | -0.1563 | -0.2621 | -0.0101 | 0.3046 | -0.0665 |
| ELA | 6 | 629749 | 2 | D | 2 | 13500 | 0.6125 | 0.088 | 0.109 | 0.6098 | 0.1888 | 0.0026 | 0.4316 | -0.2154 | -0.2346 | 0.4338 | -0.1875 | -0.0527 |
| ELA | 6 | 663362 | 2 | D | 2 | 13482 | 0.5459 | 0.1228 | 0.2142 | 0.5413 | 0.1133 | 0.0072 | 0.3513 | -0.15 | -0.1853 | 0.356 | -0.1381 | -0.0836 |
| ELA | 6 | 660305 | 3 | B-C | 2 | 6783 | 0.5204 | 0.1117 | 0.0508 | 0.3162 | 0.5194 | 0.0013 | 0.308 | -0.3227 | -0.2279 | -0.0032 | 0.308 | -0.0013 |
| ELA | 6 | 660306 | 3 | B-C | 2 | 6754 | 0.3901 | 0.0817 | 0.1096 | 0.3877 | 0.4148 | 0.004 | 0.2944 | -0.2064 | -0.2542 | 0.2968 | -0.0051 | -0.0574 |
| ELA | 6 | 660307 | 3 | B-C | 2 | 6759 | 0.5927 | 0.1881 | 0.1558 | 0.5895 | 0.0612 | 0.004 | 0.3823 | -0.1216 | -0.2081 | 0.3866 | -0.2525 | -0.0689 |
| ELA | 6 | 660313 | 3 | B-C | 3 | 6741 | 0.3953 | 0.3921 | 0.3043 | 0.1211 | 0.1744 | 0.0062 | 0.2285 | 0.2315 | 0.017 | -0.2434 | -0.0923 | -0.0523 |
| ELA | 6 | 660309 | 3 | B-K | 2 | 6729 | 0.6325 | 0.2245 | 0.0642 | 0.6263 | 0.0752 | 0.0091 | 0.5116 | -0.2784 | -0.2639 | 0.5116 | -0.2296 | -0.0601 |
| ELA | 6 | 660310 | 3 | B-K | 2 | 6769 | 0.6782 | 0.1115 | 0.6755 | 0.0793 | 0.1296 | 0.0032 | 0.4288 | -0.2438 | 0.4317 | -0.2345 | -0.1713 | -0.0596 |
| ELA | 6 | 660311 | 3 | B-K | 3 | 6748 | 0.4344 | 0.1711 | 0.1254 | 0.2652 | 0.4313 | 0.006 | 0.287 | -0.1848 | -0.2051 | 0.0025 | 0.2906 | -0.083 |
| ELA | 6 | 662735 | 3 | B-V | 2 | 6771 | 0.4756 | 0.3668 | 0.1062 | 0.4738 | 0.0494 | 0.0028 | 0.1643 | 0.0967 | -0.2395 | 0.1673 | -0.2405 | -0.0602 |
| ELA | 6 | 629748 | 3 | D | 2 | 6753 | 0.7337 | 0.0642 | 0.1161 | 0.0843 | 0.7291 | 0.0035 | 0.4518 | -0.2269 | -0.2418 | -0.2276 | 0.4552 | -0.0742 |
| ELA | 6 | 663341 | 3 | D | 2 | 13426 | 0.6944 | 0.0962 | 0.6876 | 0.1119 | 0.0945 | 0.0077 | 0.4879 | -0.2517 | 0.4922 | -0.2584 | -0.2149 | -0.0871 |
| ELA | 6 | 663363 | 3 | D | 1 | 6766 | 0.7065 | 0.0823 | 0.7034 | 0.1258 | 0.0842 | 0.0034 | 0.4716 | -0.242 | 0.4743 | -0.2548 | -0.2201 | -0.0577 |
| ELA | 7 | 495922 | 0 | A-C | 2 | 80864 | 0.603 | 0.2049 | 0.5994 | 0.1077 | 0.0821 | 0.0056 | 0.4791 | -0.2451 | 0.4824 | -0.2018 | -0.2467 | -0.0909 |
| ELA | 7 | 495924 | 0 | A-C | 2 | 80841 | 0.6165 | 0.0985 | 0.1265 | 0.6127 | 0.1561 | 0.0056 | 0.4991 | -0.2937 | -0.2177 | 0.5023 | -0.2136 | -0.0879 |
| ELA | 7 | 495926 | 0 | A-C | 3 | 80917 | 0.5759 | 0.1676 | 0.0728 | 0.1814 | 0.5728 | 0.0045 | 0.4879 | -0.2152 | -0.2989 | -0.202 | 0.4911 | -0.0917 |
| ELA | 7 | 580604 | 0 | A-C | 2 | 80732 | 0.6104 | 0.6058 | 0.0707 | 0.1768 | 0.1391 | 0.0069 | 0.4472 | 0.4497 | -0.2895 | -0.2233 | -0.1559 | -0.0684 |
| ELA | 7 | 580590 | 0 | A-K | 3 | 80989 | 0.5705 | 0.568 | 0.1957 | 0.0678 | 0.1641 | 0.0035 | 0.481 | 0.4826 | -0.2626 | -0.2973 | -0.1502 | -0.0606 |
| ELA | 7 | 580603 | 0 | A-K | 3 | 80911 | 0.7537 | 0.047 | 0.7496 | 0.0987 | 0.0992 | 0.0049 | 0.5368 | -0.2786 | 0.5381 | -0.2804 | -0.2871 | -0.0578 |
| ELA | 7 | 495929 | 0 | A-V | 2 | 81045 | 0.8267 | 0.0395 | 0.0358 | 0.0974 | 0.8236 | 0.0033 | 0.5152 | -0.2656 | -0.2707 | -0.3058 | 0.5196 | -0.0849 |
| ELA | 7 | 495930 | 0 | A-V | 2 | 80994 | 0.5737 | 0.0938 | 0.5712 | 0.1347 | 0.1959 | 0.004 | 0.3255 | -0.2891 | 0.3293 | -0.1514 | -0.0535 | -0.0837 |
| ELA | 7 | 495931 | 0 | A-V | 1 | 80897 | 0.5279 | 0.3617 | 0.0556 | 0.525 | 0.0522 | 0.0045 | 0.1878 | 0.0357 | -0.2298 | 0.1939 | -0.2412 | -0.0953 |
| ELA | 7 | 580591 | 0 | A-V | 2 | 80804 | 0.659 | 0.1176 | 0.1763 | 0.0448 | 0.6546 | 0.0056 | 0.4177 | -0.2461 | -0.1678 | -0.2475 | 0.4201 | -0.0667 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 7 | 580607 | 0 | A-V | 2 | 80896 | 0.7251 | 0.1115 | 0.0876 | 0.0743 | 0.721 | 0.0041 | 0.5908 | -0.3179 | -0.2828 | -0.3051 | 0.5925 | -0.0709 |
| ELA | 7 | 494379 | 0 | B-C | 2 | 81083 | 0.5385 | 0.1243 | 0.5368 | 0.1112 | 0.2245 | 0.0026 | 0.3772 | -0.1299 | 0.3796 | -0.2685 | -0.138 | -0.0712 |
| ELA | 7 | 494380 | 0 | B-C | 2 | 81077 | 0.5923 | 0.2077 | 0.1165 | 0.0821 | 0.5903 | 0.0027 | 0.4438 | -0.1406 | -0.2453 | -0.2892 | 0.4459 | -0.0637 |
| ELA | 7 | 497154 | 0 | B-C | 3 | 80707 | 0.422 | 0.4187 | 0.1542 | 0.2631 | 0.1561 | 0.0071 | 0.2968 | 0.301 | -0.1737 | -0.0648 | -0.1331 | -0.096 |
| ELA | 7 | 497158 | 0 | B-C | 3 | 80796 | 0.4461 | 0.4431 | 0.1339 | 0.1822 | 0.2341 | 0.006 | 0.3649 | 0.3681 | -0.2046 | -0.1223 | -0.1377 | -0.0913 |
| ELA | 7 | 502775 | 0 | B-C | 3 | 80809 | 0.4259 | 0.2533 | 0.0833 | 0.2337 | 0.423 | 0.0056 | 0.4018 | -0.055 | -0.2812 | -0.2141 | 0.4045 | -0.0886 |
| ELA | 7 | 494382 | 0 | B-K | 2 | 80817 | 0.4614 | 0.2662 | 0.4583 | 0.2239 | 0.045 | 0.005 | 0.3662 | -0.2174 | 0.3683 | -0.0728 | -0.2472 | -0.0695 |
| ELA | 7 | 494384 | 0 | B-K | 2 | 80879 | 0.4787 | 0.0956 | 0.2462 | 0.476 | 0.1764 | 0.0049 | 0.4021 | -0.1688 | -0.1692 | 0.404 | -0.1932 | -0.0712 |
| ELA | 7 | 497159 | 0 | B-K | 3 | 80758 | 0.4276 | 0.254 | 0.1679 | 0.4245 | 0.1463 | 0.0066 | 0.316 | 0.0273 | -0.2605 | 0.3199 | -0.1815 | -0.0982 |
| ELA | 7 | 497160 | 0 | B-K | 3 | 80578 | 0.5482 | 0.1434 | 0.543 | 0.1778 | 0.1264 | 0.0088 | 0.4207 | -0.1958 | 0.4261 | -0.1868 | -0.1848 | -0.1089 |
| ELA | 7 | 494378 | 0 | B-V | 2 | 81065 | 0.7758 | 0.132 | 0.0682 | 0.7731 | 0.0232 | 0.003 | 0.464 | -0.2715 | -0.2612 | 0.4681 | -0.2222 | -0.0744 |
| ELA | 7 | 494385 | 0 | B-V | 2 | 81061 | 0.6498 | 0.6475 | 0.2028 | 0.0492 | 0.097 | 0.0028 | 0.4357 | 0.4387 | -0.2178 | -0.2465 | -0.216 | -0.0767 |
| ELA | 7 | 497153 | 0 | B-V | 1 | 80980 | 0.6767 | 0.0672 | 0.1161 | 0.1386 | 0.6736 | 0.0041 | 0.5258 | -0.2768 | -0.2566 | -0.2621 | 0.529 | -0.0863 |
| ELA | 7 | 503916 | 0 | D | 2 | 80983 | 0.6093 | 0.1161 | 0.1479 | 0.6065 | 0.125 | 0.0037 | 0.4617 | -0.2486 | -0.2148 | 0.4642 | -0.1992 | -0.0656 |
| ELA | 7 | 503924 | 0 | D | 2 | 81187 | 0.5538 | 0.2424 | 0.0348 | 0.5527 | 0.168 | 0.0013 | 0.4685 | -0.2597 | -0.2179 | 0.4694 | -0.2138 | -0.0362 |
| ELA | 7 | 503927 | 0 | D | 3 | 80925 | 0.3981 | 0.396 | 0.2278 | 0.1338 | 0.2371 | 0.0042 | 0.375 | 0.3769 | -0.1171 | -0.2721 | -0.0871 | -0.0671 |
| ELA | 7 | 503931 | 0 | D | 2 | 80575 | 0.6479 | 0.2609 | 0.0511 | 0.0368 | 0.6417 | 0.0039 | 0.2278 | -0.0532 | -0.183 | -0.2118 | 0.238 | -0.0617 |
| ELA | 7 | 584045 | 0 | D | 2 | 81190 | 0.8404 | 0.8387 | 0.1025 | 0.0364 | 0.0205 | 0.0011 | 0.4025 | 0.405 | -0.2291 | -0.264 | -0.1951 | -0.0467 |
| ELA | 7 | 584047 | 0 | D | 2 | 81163 | 0.4048 | 0.4039 | 0.2991 | 0.242 | 0.0527 | 0.0014 | 0.3944 | 0.3954 | -0.1551 | -0.162 | -0.2272 | -0.0471 |
| ELA | 7 | 584048 | 0 | D | 2 | 81165 | 0.8541 | 0.0615 | 0.8522 | 0.0402 | 0.0439 | 0.0015 | 0.4676 | -0.2658 | 0.4707 | -0.2519 | -0.2472 | -0.0534 |
| ELA | 7 | 584128 | 0 | D | 2 | 80948 | 0.7888 | 0.7849 | 0.0341 | 0.1 | 0.0761 | 0.0037 | 0.4186 | 0.4233 | -0.228 | -0.2479 | -0.1986 | -0.0674 |
| ELA | 7 | 584129 | 0 | D | 2 | 80961 | 0.6941 | 0.6908 | 0.1325 | 0.1406 | 0.0314 | 0.0034 | 0.5 | 0.5026 | -0.2773 | -0.2725 | -0.2209 | -0.0625 |
| ELA | 7 | 625515 | 1 | A-C | 2 | 40610 | 0.5358 | 0.2808 | 0.0467 | 0.5352 | 0.1363 | 0.0009 | 0.2111 | -0.1458 | -0.2474 | 0.2119 | 0.0383 | -0.0288 |
| ELA | 7 | 625518 | 1 | A-C | 3 | 40506 | 0.678 | 0.6755 | 0.0632 | 0.1504 | 0.1072 | 0.0024 | 0.4253 | 0.427 | -0.28 | -0.134 | -0.261 | -0.0418 |
| ELA | 7 | 625511 | 1 | A-K | 3 | 40502 | 0.3648 | 0.3635 | 0.2816 | 0.1448 | 0.2064 | 0.0033 | 0.1952 | 0.1962 | -0.0244 | -0.1171 | -0.0985 | -0.0324 |
| ELA | 7 | 625512 | 1 | A-K | 2 | 40552 | 0.3657 | 0.0543 | 0.3648 | 0.2505 | 0.3278 | 0.002 | 0.005 | -0.1779 | 0.0063 | 0.1294 | -0.0365 | -0.0271 |
| ELA | 7 | 625514 | 1 | A-V | 1 | 40506 | 0.2757 | 0.2639 | 0.2747 | 0.1836 | 0.2742 | 0.0025 | 0.191 | -0.0491 | 0.192 | -0.154 | -0.0036 | -0.0385 |
| ELA | 7 | 625519 | 1 | A-V | 2 | 40509 | 0.2384 | 0.2291 | 0.2704 | 0.2594 | 0.2375 | 0.0027 | 0.2085 | -0.0288 | -0.123 | -0.0438 | 0.2095 | -0.0451 |
| ELA | 7 | 661927 | 1 | B-C | 2 | 6843 | 0.5107 | 0.2598 | 0.0965 | 0.131 | 0.5087 | 0.0031 | 0.3727 | -0.1953 | -0.218 | -0.1007 | 0.3737 | -0.0464 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 7 | 661928 | 1 | B-C | 2 | 6837 | 0.477 | 0.2943 | 0.4747 | 0.1095 | 0.1167 | 0.0035 | 0.3484 | -0.1018 | 0.3505 | -0.1902 | -0.2023 | -0.0449 |
| ELA | 7 | 661929 | 1 | B-C | 2 | 6854 | 0.5788 | 0.0981 | 0.2183 | 0.5774 | 0.1038 | 0.0022 | 0.3657 | -0.2312 | -0.123 | 0.3672 | -0.1945 | -0.0473 |
| ELA | 7 | 661931 | 1 | B-K | 2 | 6842 | 0.595 | 0.0997 | 0.1063 | 0.5926 | 0.1974 | 0.0028 | 0.3982 | -0.2757 | -0.2273 | 0.3996 | -0.1011 | -0.0448 |
| ELA | 7 | 661934 | 1 | B-K | 3 | 6767 | 0.4868 | 0.4795 | 0.1015 | 0.1477 | 0.2563 | 0.0068 | 0.3013 | 0.3014 | -0.278 | -0.176 | -0.0002 | -0.0184 |
| ELA | 7 | 661935 | 1 | B-K | 2 | 6846 | 0.4944 | 0.4927 | 0.0914 | 0.3054 | 0.107 | 0.0023 | 0.4153 | 0.4156 | -0.2667 | -0.1307 | -0.2215 | -0.0359 |
| ELA | 7 | 661936 | 1 | B-V | 2 | 6860 | 0.7309 | 0.0949 | 0.7298 | 0.0741 | 0.0997 | 0.001 | 0.501 | -0.2316 | 0.5018 | -0.2279 | -0.3129 | -0.0302 |
| ELA | 7 | 664166 | 1 | B-V | 2 | 6847 | 0.5919 | 0.0913 | 0.59 | 0.1581 | 0.1574 | 0.0026 | 0.1458 | -0.2031 | 0.1472 | -0.0393 | 0.0061 | -0.0266 |
| ELA | 7 | 630226 | 1 | D | 1 | 6847 | 0.6838 | 0.0889 | 0.6815 | 0.1156 | 0.1106 | 0.0019 | 0.4895 | -0.182 | 0.4903 | -0.2859 | -0.2626 | -0.0218 |
| ELA | 7 | 663479 | 1 | D | 2 | 13541 | 0.7586 | 0.0939 | 0.7549 | 0.0708 | 0.0755 | 0.0045 | 0.515 | -0.2997 | 0.5167 | -0.2231 | -0.277 | -0.0572 |
| ELA | 7 | 663533 | 1 | D | 2 | 6849 | 0.3199 | 0.3713 | 0.0774 | 0.2293 | 0.3189 | 0.0025 | 0.0809 | 0.0765 | -0.1397 | -0.0844 | 0.0823 | -0.0349 |
| ELA | 7 | 658519 | 2 | B-C | 3 | 6721 | 0.1396 | 0.512 | 0.1334 | 0.1389 | 0.211 | 0.0034 | -0.124 | 0.2184 | -0.3033 | -0.1222 | 0.0971 | -0.0444 |
| ELA | 7 | 658520 | 2 | B-C | 2 | 6738 | 0.5278 | 0.1918 | 0.1397 | 0.5267 | 0.1398 | 0.0018 | 0.405 | -0.1132 | -0.2232 | 0.4063 | -0.2263 | -0.0467 |
| ELA | 7 | 658521 | 2 | B-C | 2 | 6741 | 0.4148 | 0.1324 | 0.4141 | 0.2741 | 0.1777 | 0.0015 | 0.133 | -0.186 | 0.1344 | 0.1218 | -0.1451 | -0.0466 |
| ELA | 7 | 658523 | 2 | B-K | 3 | 6720 | 0.4923 | 0.1979 | 0.4899 | 0.2142 | 0.0933 | 0.0025 | 0.2745 | -0.048 | 0.2759 | -0.1614 | -0.1707 | -0.052 |
| ELA | 7 | 658525 | 2 | B-K | 2 | 6703 | 0.4962 | 0.1293 | 0.4926 | 0.1561 | 0.2148 | 0.0065 | 0.3112 | -0.1589 | 0.3122 | -0.1829 | -0.08 | -0.0397 |
| ELA | 7 | 658526 | 2 | B-K | 2 | 6664 | 0.5389 | 0.5318 | 0.1665 | 0.1798 | 0.1089 | 0.0126 | 0.4511 | 0.4509 | -0.1749 | -0.2497 | -0.1859 | -0.0514 |
| ELA | 7 | 658527 | 2 | B-K | 2 | 6742 | 0.2136 | 0.4491 | 0.2105 | 0.1257 | 0.2133 | 0.0012 | 0.0668 | 0.1714 | -0.0614 | -0.2619 | 0.0673 | -0.0168 |
| ELA | 7 | 658528 | 2 | B-V | 2 | 6722 | 0.4509 | 0.0567 | 0.0502 | 0.4489 | 0.4397 | 0.0031 | 0.3598 | -0.1737 | -0.2111 | 0.3611 | -0.1811 | -0.0393 |
| ELA | 7 | 630230 | 2 | D | 1 | 6740 | 0.5482 | 0.1363 | 0.08 | 0.5472 | 0.2347 | 0.0013 | 0.3254 | -0.179 | -0.2039 | 0.3264 | -0.1038 | -0.0457 |
| ELA | 7 | 663480 | 2 | D | 2 | 6715 | 0.7284 | 0.0564 | 0.7244 | 0.0855 | 0.1283 | 0.0052 | 0.3018 | -0.2101 | 0.3051 | -0.1893 | -0.0914 | -0.0542 |
| ELA | 7 | 663526 | 2 | D | 2 | 6740 | 0.5702 | 0.0986 | 0.0994 | 0.5692 | 0.231 | 0.0015 | 0.3988 | -0.116 | -0.2618 | 0.3987 | -0.1988 | -0.0188 |
| ELA | 7 | 662344 | 3 | B-C | 2 | 6723 | 0.573 | 0.1359 | 0.0736 | 0.5667 | 0.2129 | 0.0081 | 0.3801 | -0.2322 | -0.2826 | 0.3827 | -0.0715 | -0.0732 |
| ELA | 7 | 662345 | 3 | B-C | 3 | 6779 | 0.4279 | 0.2881 | 0.4268 | 0.0958 | 0.1867 | 0.0021 | 0.397 | -0.2089 | 0.3974 | -0.2727 | -0.0507 | -0.0305 |
| ELA | 7 | 662346 | 3 | B-C | 3 | 6764 | 0.4976 | 0.1326 | 0.1484 | 0.2189 | 0.4952 | 0.0037 | 0.4726 | -0.2614 | -0.2308 | -0.1486 | 0.4745 | -0.0621 |
| ELA | 7 | 663918 | 3 | B-C | 2 | 6767 | 0.7222 | 0.719 | 0.0637 | 0.1099 | 0.103 | 0.0022 | 0.5388 | 0.5416 | -0.2952 | -0.2635 | -0.2751 | -0.0619 |
| ELA | 7 | 662348 | 3 | B-K | 3 | 6777 | 0.454 | 0.4527 | 0.2013 | 0.0705 | 0.2726 | 0.0024 | 0.2618 | 0.2632 | -0.2181 | -0.2167 | 0.0328 | -0.0476 |
| ELA | 7 | 662349 | 3 | B-K | 3 | 6714 | 0.6151 | 0.6076 | 0.1402 | 0.1454 | 0.0946 | 0.0121 | 0.4081 | 0.4119 | -0.1691 | -0.1462 | -0.28 | -0.0791 |
| ELA | 7 | 662351 | 3 | B-K | 2 | 6761 | 0.3983 | 0.3104 | 0.117 | 0.3962 | 0.1711 | 0.0044 | 0.0665 | 0.0786 | -0.1776 | 0.0685 | -0.0264 | -0.0311 |
| ELA | 7 | 662352 | 3 | B-V | 2 | 6786 | 0.5722 | 0.1221 | 0.2701 | 0.0349 | 0.5713 | 0.0012 | 0.4397 | -0.2459 | -0.2035 | -0.2451 | 0.4408 | -0.0407 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 7 | 630219 | 3 | D | 2 | 6760 | 0.7568 | 0.7527 | 0.0834 | 0.0956 | 0.0628 | 0.0022 | 0.4291 | 0.4336 | -0.2707 | -0.1985 | -0.1978 | -0.0616 |
| ELA | 7 | 663481 | 3 | D | 2 | 6739 | 0.6347 | 0.1208 | 0.6292 | 0.0945 | 0.147 | 0.0075 | 0.515 | -0.2431 | 0.5181 | -0.2636 | -0.2413 | -0.0857 |
| ELA | 7 | 663527 | 3 | D | 2 | 6770 | 0.5496 | 0.1031 | 0.0937 | 0.2517 | 0.5474 | 0.0025 | 0.4359 | -0.1669 | -0.1629 | -0.267 | 0.4373 | -0.0366 |
| ELA | 8 | 497064 | 0 | A-C | 3 | 81646 | 0.6963 | 0.6936 | 0.0904 | 0.0747 | 0.1374 | 0.0035 | 0.4319 | 0.4356 | -0.2237 | -0.2924 | -0.1587 | -0.0787 |
| ELA | 8 | 497065 | 0 | A-C | 2 | 81511 | 0.8246 | 0.0467 | 0.0505 | 0.82 | 0.0772 | 0.0049 | 0.474 | -0.2785 | -0.2574 | 0.4793 | -0.2334 | -0.0853 |
| ELA | 8 | 578080 | 0 | A-C | 3 | 81646 | 0.468 | 0.2106 | 0.2391 | 0.0802 | 0.4661 | 0.0032 | 0.2655 | -0.0753 | -0.0512 | -0.2854 | 0.2672 | -0.0435 |
| ELA | 8 | 497069 | 0 | A-K | 2 | 81553 | 0.3428 | 0.4004 | 0.096 | 0.1575 | 0.341 | 0.0045 | 0.2732 | 0.0126 | -0.2742 | -0.1376 | 0.2755 | -0.077 |
| ELA | 8 | 578066 | 0 | A-K | 2 | 81783 | 0.8076 | 0.8057 | 0.0641 | 0.0605 | 0.0674 | 0.0018 | 0.5262 | 0.5277 | -0.2712 | -0.2944 | -0.2777 | -0.045 |
| ELA | 8 | 578069 | 0 | A-K | 2 | 81443 | 0.7461 | 0.0767 | 0.0871 | 0.7413 | 0.0884 | 0.0058 | 0.5619 | -0.2517 | -0.3342 | 0.5628 | -0.2813 | -0.0608 |
| ELA | 8 | 497068 | 0 | A-V | 2 | 81650 | 0.7 | 0.0643 | 0.6973 | 0.0483 | 0.1862 | 0.0034 | 0.4733 | -0.219 | 0.4765 | -0.2395 | -0.2797 | -0.0755 |
| ELA | 8 | 497072 | 0 | A-V | 2 | 81503 | 0.5623 | 0.3072 | 0.0684 | 0.0597 | 0.5591 | 0.0051 | 0.3583 | -0.0682 | -0.3112 | -0.2678 | 0.3618 | -0.077 |
| ELA | 8 | 578086 | 0 | A-V | 2 | 81729 | 0.762 | 0.1264 | 0.0569 | 0.7598 | 0.0541 | 0.0024 | 0.4602 | -0.261 | -0.2548 | 0.4625 | -0.2149 | -0.0527 |
| ELA | 8 | 578088 | 0 | A-V | 2 | 81539 | 0.6953 | 0.6917 | 0.1141 | 0.0573 | 0.1317 | 0.0037 | 0.3574 | 0.3605 | -0.1542 | -0.2118 | -0.1885 | -0.0571 |
| ELA | 8 | 494397 | 0 | B-C | 2 | 81686 | 0.7742 | 0.7715 | 0.0787 | 0.1069 | 0.0394 | 0.0027 | 0.4847 | 0.4882 | -0.2613 | -0.265 | -0.2471 | -0.0713 |
| ELA | 8 | 494399 | 0 | B-C | 3 | 81727 | 0.3971 | 0.3372 | 0.1486 | 0.1153 | 0.3959 | 0.0025 | 0.3493 | -0.0868 | -0.1594 | -0.2198 | 0.3506 | -0.062 |
| ELA | 8 | 495116 | 0 | B-C | 3 | 81288 | 0.47 | 0.4661 | 0.1282 | 0.1733 | 0.224 | 0.0078 | 0.2976 | 0.3019 | -0.1839 | -0.095 | -0.1082 | -0.0828 |
| ELA | 8 | 495118 | 0 | B-C | 3 | 81636 | 0.3919 | 0.1366 | 0.2462 | 0.2228 | 0.3903 | 0.0036 | 0.3854 | -0.1773 | -0.1203 | -0.1712 | 0.387 | -0.0723 |
| ELA | 8 | 495119 | 0 | B-C | 3 | 81465 | 0.5607 | 0.0879 | 0.2238 | 0.5573 | 0.1249 | 0.0054 | 0.475 | -0.2828 | -0.2677 | 0.4772 | -0.1188 | -0.0714 |
| ELA | 8 | 494401 | 0 | B-K | 2 | 81520 | 0.5094 | 0.1831 | 0.172 | 0.5067 | 0.1327 | 0.0048 | 0.5012 | -0.1837 | -0.2954 | 0.5024 | -0.1874 | -0.0643 |
| ELA | 8 | 494403 | 0 | B-K | 2 | 81639 | 0.8231 | 0.8198 | 0.0749 | 0.0556 | 0.0457 | 0.0036 | 0.5453 | 0.5468 | -0.3335 | -0.2708 | -0.2694 | -0.061 |
| ELA | 8 | 495120 | 0 | B-K | 2 | 81551 | 0.5328 | 0.5301 | 0.1928 | 0.1802 | 0.0918 | 0.0043 | 0.417 | 0.4192 | -0.1956 | -0.1584 | -0.2289 | -0.065 |
| ELA | 8 | 494398 | 0 | B-V | 2 | 81587 | 0.641 | 0.0938 | 0.1231 | 0.1404 | 0.638 | 0.004 | 0.5799 | -0.2787 | -0.3172 | -0.2554 | 0.5817 | -0.0707 |
| ELA | 8 | 494400 | 0 | B-V | 2 | 81734 | 0.6299 | 0.0853 | 0.6281 | 0.0661 | 0.2177 | 0.0023 | 0.4457 | -0.2527 | 0.4478 | -0.2831 | -0.1739 | -0.0674 |
| ELA | 8 | 494405 | 0 | B-V | 2 | 81675 | 0.5181 | 0.1946 | 0.5163 | 0.1431 | 0.1424 | 0.0031 | 0.4762 | -0.2007 | 0.478 | -0.1818 | -0.2608 | -0.0725 |
| ELA | 8 | 495117 | 0 | B-V | 2 | 81528 | 0.7407 | 0.0956 | 0.0672 | 0.0951 | 0.7367 | 0.0037 | 0.4804 | -0.29 | -0.2962 | -0.1631 | 0.484 | -0.0784 |
| ELA | 8 | 495123 | 0 | B-V | 2 | 81689 | 0.4435 | 0.2353 | 0.442 | 0.1762 | 0.1431 | 0.0028 | 0.4264 | -0.1393 | 0.4278 | -0.2263 | -0.1797 | -0.0661 |
| ELA | 8 | 341018 | 0 | D | 2 | 81775 | 0.3573 | 0.3564 | 0.3435 | 0.0757 | 0.2221 | 0.0014 | 0.4032 | 0.4039 | -0.1048 | -0.2238 | -0.1969 | -0.0412 |
| ELA | 8 | 503804 | 0 | D | 2 | 81812 | 0.5026 | 0.1115 | 0.2164 | 0.5017 | 0.1686 | 0.0011 | 0.3644 | -0.2428 | -0.0748 | 0.3655 | -0.1957 | -0.0351 |
| ELA | 8 | 503806 | 0 | D | 3 | 81740 | 0.631 | 0.1513 | 0.1143 | 0.6293 | 0.1023 | 0.0025 | 0.4736 | -0.2559 | -0.2633 | 0.4747 | -0.1685 | -0.0441 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|------------|
| ELA | 8 | 503808 | 0 | D | 3 | 81854 | 0.747 | 0.0987 | 0.746 | 0.094 | 0.0599 | 0.0009 | 0.4801 | -0.2085 | 0.4814 | -0.3126 | -0.2289 | -0.0365 |
| ELA | 8 | 503810 | 0 | D | 2 | 81662 | 0.4898 | 0.4879 | 0.1556 | 0.2514 | 0.1013 | 0.0029 | 0.3491 | 0.351 | -0.2357 | -0.0619 | -0.1967 | -0.0523 |
| ELA | 8 | 503814 | 0 | D | 2 | 81672 | 0.4545 | 0.2094 | 0.4529 | 0.1116 | 0.2226 | 0.0031 | 0.3715 | -0.0831 | 0.3731 | -0.273 | -0.1495 | -0.0566 |
| ELA | 8 | 584082 | 0 | D | 2 | 81790 | 0.4429 | 0.1031 | 0.3778 | 0.4419 | 0.0749 | 0.0013 | 0.3095 | -0.25 | -0.0269 | 0.3108 | -0.2381 | -0.0377 |
| ELA | 8 | 584083 | 0 | D | 2 | 81685 | 0.549 | 0.1584 | 0.1516 | 0.1395 | 0.547 | 0.0028 | 0.4318 | -0.1331 | -0.2849 | -0.1774 | 0.4332 | -0.0527 |
| ELA | 8 | 584101 | 0 | D | 1 | 81670 | 0.4633 | 0.2048 | 0.2021 | 0.4616 | 0.1279 | 0.0026 | 0.388 | -0.2536 | -0.094 | 0.3897 | -0.1502 | -0.0525 |
| ELA | 8 | 626313 | 1 | A-C | 2 | 40895 | 0.5677 | 0.5669 | 0.2261 | 0.1263 | 0.0793 | 0.0011 | 0.3718 | 0.3725 | -0.1615 | -0.232 | -0.1427 | -0.029 |
| ELA | 8 | 623084 | 1 | A-K | 2 | 40831 | 0.4526 | 0.153 | 0.1228 | 0.27 | 0.4512 | 0.0024 | 0.278 | -0.2444 | -0.1899 | 0.032 | 0.2797 | -0.0504 |
| ELA | 8 | 623085 | 1 | A-K | 2 | 40832 | 0.6603 | 0.0834 | 0.6583 | 0.1336 | 0.1216 | 0.0023 | 0.4285 | -0.1796 | 0.4303 | -0.2511 | -0.2017 | -0.0424 |
| ELA | 8 | 623087 | 1 | A-K | 2 | 40866 | 0.8083 | 0.0863 | 0.0516 | 0.0533 | 0.8065 | 0.0015 | 0.4546 | -0.1902 | -0.2898 | -0.2687 | 0.4562 | -0.0434 |
| ELA | 8 | 623092 | 1 | A-K | 3 | 40842 | 0.6426 | 0.1589 | 0.1415 | 0.6408 | 0.056 | 0.0023 | 0.4436 | -0.2222 | -0.1972 | 0.4443 | -0.266 | -0.0335 |
| ELA | 8 | 623086 | 1 | A-V | 2 | 40824 | 0.6633 | 0.1307 | 0.1459 | 0.6611 | 0.059 | 0.0025 | 0.3694 | -0.212 | -0.1263 | 0.3716 | -0.2403 | -0.0478 |
| ELA | 8 | 662308 | 1 | B-C | 2 | 6899 | 0.3628 | 0.0825 | 0.3405 | 0.3614 | 0.2118 | 0.003 | 0.1496 | -0.2227 | 0.0778 | 0.1516 | -0.11 | -0.0508 |
| ELA | 8 | 662309 | 1 | B-C | 2 | 6902 | 0.4054 | 0.2595 | 0.404 | 0.2049 | 0.1282 | 0.003 | 0.306 | -0.1761 | 0.3072 | 0.0033 | -0.2143 | -0.0528 |
| ELA | 8 | 662310 | 1 | B-C | 2 | 6917 | 0.5417 | 0.2253 | 0.1765 | 0.056 | 0.5411 | 0.001 | 0.4679 | -0.2733 | -0.1506 | -0.2637 | 0.4682 | -0.0249 |
| ELA | 8 | 662312 | 1 | B-C | 2 | 6910 | 0.4027 | 0.4019 | 0.2195 | 0.1264 | 0.2501 | 0.0022 | 0.278 | 0.2788 | -0.1159 | -0.1773 | -0.0641 | -0.0437 |
| ELA | 8 | 662313 | 1 | B-K | 2 | 6901 | 0.1319 | 0.1314 | 0.1571 | 0.631 | 0.077 | 0.0027 | -0.0556 | -0.0538 | -0.0901 | 0.2413 | -0.231 | -0.0514 |
| ELA | 8 | 662314 | 1 | B-K | 3 | 6861 | 0.6124 | 0.0682 | 0.6068 | 0.1675 | 0.1483 | 0.0087 | 0.4653 | -0.2758 | 0.4669 | -0.199 | -0.218 | -0.0683 |
| ELA | 8 | 662315 | 1 | B-K | 2 | 6879 | 0.7453 | 0.077 | 0.1103 | 0.0657 | 0.7404 | 0.0055 | 0.4583 | -0.2707 | -0.1867 | -0.2686 | 0.4584 | -0.0517 |
| ELA | 8 | 664163 | 1 | B-V | 2 | 6911 | 0.638 | 0.1918 | 0.6367 | 0.0934 | 0.0761 | 0.0014 | 0.4349 | -0.1758 | 0.4368 | -0.256 | -0.2394 | -0.0552 |
| ELA | 8 | 630371 | 1 | D | 1 | 6907 | 0.5534 | 0.2466 | 0.5519 | 0.1324 | 0.0664 | 0.0019 | 0.1879 | -0.0562 | 0.1907 | -0.096 | -0.1394 | -0.051 |
| ELA | 8 | 663373 | 1 | D | 3 | 6885 | 0.4815 | 0.3474 | 0.4787 | 0.0637 | 0.1044 | 0.0051 | 0.3001 | -0.1009 | 0.3025 | -0.2363 | -0.1327 | -0.0545 |
| ELA | 8 | 663468 | 1 | D | 2 | 6899 | 0.297 | 0.1921 | 0.1583 | 0.2959 | 0.35 | 0.003 | 0.1673 | -0.1642 | -0.0187 | 0.1688 | -0.0044 | -0.0407 |
| ELA | 8 | 661115 | 2 | B-C | 2 | 6847 | 0.293 | 0.2569 | 0.2923 | 0.1603 | 0.2883 | 0.0017 | 0.0621 | -0.0942 | 0.0632 | -0.2222 | 0.2114 | -0.0272 |
| ELA | 8 | 661117 | 2 | B-C | 2 | 6846 | 0.3804 | 0.2343 | 0.1725 | 0.3795 | 0.2113 | 0.0023 | 0.2769 | -0.1832 | -0.1543 | 0.2782 | 0.0087 | -0.0553 |
| ELA | 8 | 661119 | 2 | B-C | 2 | 6796 | 0.2031 | 0.1161 | 0.3512 | 0.2011 | 0.3219 | 0.0089 | -0.076 | -0.2265 | 0.0601 | -0.0717 | 0.171 | -0.0687 |
| ELA | 8 | 661133 | 2 | B-C | 2 | 6847 | 0.7682 | 0.7665 | 0.0565 | 0.1156 | 0.0592 | 0.002 | 0.5271 | 0.5284 | -0.2884 | -0.278 | -0.2787 | -0.0469 |
| ELA | 8 | 661124 | 2 | B-K | 3 | 6817 | 0.4261 | 0.4233 | 0.0635 | 0.3582 | 0.1484 | 0.0057 | 0.3098 | 0.3103 | -0.2718 | 0.0073 | -0.2453 | -0.0439 |
| ELA | 8 | 661126 | 2 | B-K | 3 | 6839 | 0.1559 | 0.5 | 0.1553 | 0.2748 | 0.0665 | 0.0032 | -0.1563 | 0.2668 | -0.1542 | -0.0175 | -0.2644 | -0.0633 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| ELA | 8 | 661128 | 2 | B-K | 2 | 6832 | 0.5793 | 0.2077 | 0.136 | 0.0752 | 0.5768 | 0.0035 | 0.529 | -0.2195 | -0.2748 | -0.2842 | 0.5298 | -0.0508 |
| ELA | 8 | 663382 | 2 | B-V | 2 | 6806 | 0.2493 | 0.1861 | 0.2473 | 0.1523 | 0.4061 | 0.0077 | 0.2578 | -0.1585 | 0.2594 | -0.2239 | 0.0751 | -0.0688 |
| ELA | 8 | 630372 | 2 | D | 2 | 6845 | 0.5392 | 0.1006 | 0.1377 | 0.2214 | 0.5379 | 0.001 | 0.3507 | -0.1837 | -0.1532 | -0.1563 | 0.3521 | -0.0113 |
| ELA | 8 | 663374 | 2 | D | 2 | 6833 | 0.8673 | 0.8636 | 0.0341 | 0.0481 | 0.05 | 0.0038 | 0.4155 | 0.4181 | -0.2331 | -0.2185 | -0.2314 | -0.0604 |
| ELA | 8 | 663469 | 2 | D | 2 | 6849 | 0.6275 | 0.1277 | 0.1119 | 0.1322 | 0.6263 | 0.0013 | 0.4457 | -0.2475 | -0.183 | -0.2191 | 0.4461 | -0.0149 |
| ELA | 8 | 660325 | 3 | B-C | 2 | 6737 | 0.6237 | 0.2406 | 0.6183 | 0.0731 | 0.0593 | 0.0077 | 0.3877 | -0.1142 | 0.3897 | -0.2973 | -0.2421 | -0.0611 |
| ELA | 8 | 660326 | 3 | B-C | 2 | 6771 | 0.4634 | 0.225 | 0.4617 | 0.1551 | 0.1545 | 0.0029 | 0.3616 | -0.0867 | 0.3625 | -0.2059 | -0.1853 | -0.0363 |
| ELA | 8 | 660327 | 3 | B-C | 2 | 6764 | 0.509 | 0.0587 | 0.0786 | 0.3514 | 0.5066 | 0.0035 | 0.3219 | -0.2627 | -0.2914 | -0.0366 | 0.3243 | -0.049 |
| ELA | 8 | 660328 | 3 | B-C | 2 | 6785 | 0.5761 | 0.5752 | 0.1307 | 0.1494 | 0.1432 | 0.001 | 0.2895 | 0.291 | -0.1828 | -0.1372 | -0.089 | -0.0425 |
| ELA | 8 | 660331 | 3 | B-K | 3 | 6766 | 0.5355 | 0.0834 | 0.1118 | 0.2672 | 0.5331 | 0.0025 | 0.3219 | -0.262 | -0.2396 | -0.022 | 0.3238 | -0.0612 |
| ELA | 8 | 660332 | 3 | B-K | 2 | 6751 | 0.6476 | 0.1878 | 0.1026 | 0.6433 | 0.0597 | 0.0063 | 0.336 | -0.0188 | -0.276 | 0.3402 | -0.2772 | -0.0687 |
| ELA | 8 | 660334 | 3 | B-V | 2 | 6775 | 0.7686 | 0.7662 | 0.0831 | 0.0584 | 0.0892 | 0.0019 | 0.3628 | 0.3654 | -0.2088 | -0.2307 | -0.1398 | -0.0484 |
| ELA | 8 | 662809 | 3 | B-V | 2 | 6783 | 0.6835 | 0.0621 | 0.6822 | 0.2148 | 0.039 | 0.0016 | 0.3854 | -0.2672 | 0.3873 | -0.1727 | -0.219 | -0.0459 |
| ELA | 8 | 630369 | 3 | D | 2 | 6783 | 0.8039 | 0.0455 | 0.8024 | 0.1012 | 0.049 | 0.0015 | 0.4601 | -0.2668 | 0.4618 | -0.2531 | -0.2299 | -0.042 |
| ELA | 8 | 663375 | 3 | D | 2 | 6767 | 0.5808 | 0.1436 | 0.0873 | 0.1866 | 0.5783 | 0.0037 | 0.4901 | -0.2612 | -0.2927 | -0.1669 | 0.4905 | -0.041 |
| ELA | 8 | 663470 | 3 | D | 2 | 6786 | 0.7897 | 0.1093 | 0.7886 | 0.0592 | 0.0415 | 0.0013 | 0.5107 | -0.2909 | 0.5105 | -0.2826 | -0.2504 | -0.0164 |
| MATH | 3 | 313276 | 0 | A-F | 2 | 87708 | 0.3621 | 0.355 | 0.1266 | 0.3064 | 0.1923 | 0.0189 | 0.4078 | 0.4097 | -0.1427 | -0.175 | -0.142 | -0.0816 |
| MATH | 3 | 313468 | 0 | A-F | 1 | 88135 | 0.689 | 0.056 | 0.6787 | 0.2139 | 0.0364 | 0.0143 | 0.4908 | -0.1586 | 0.4944 | -0.3761 | -0.1543 | -0.0897 |
| MATH | 3 | 313750 | 0 | A-F | 2 | 86945 | 0.4624 | 0.4493 | 0.1873 | 0.1785 | 0.1566 | 0.0192 | 0.3567 | 0.3664 | -0.1703 | -0.1797 | -0.0649 | -0.0952 |
| MATH | 3 | 314241 | 0 | A-F | 1 | 87753 | 0.5667 | 0.2824 | 0.5558 | 0.0522 | 0.0904 | 0.0188 | 0.5544 | -0.3573 | 0.5564 | -0.1976 | -0.2011 | -0.1002 |
| MATH | 3 | 408673 | 0 | A-F | 1 | 88290 | 0.6056 | 0.5976 | 0.1895 | 0.0868 | 0.1128 | 0.0127 | 0.419 | 0.4237 | -0.1372 | -0.1956 | -0.2798 | -0.0876 |
| MATH | 3 | 408674 | 0 | A-F | 1 | 87554 | 0.4877 | 0.0869 | 0.4773 | 0.1439 | 0.2706 | 0.0194 | 0.5529 | -0.255 | 0.5551 | -0.2627 | -0.2182 | -0.0988 |
| MATH | 3 | 408844 | 0 | A-F | 1 | 87783 | 0.3354 | 0.329 | 0.1714 | 0.1983 | 0.2825 | 0.0184 | 0.4475 | 0.4491 | -0.0616 | -0.1322 | -0.2714 | -0.0917 |
| MATH | 3 | 479164 | 0 | A-F | 1 | 79602 | 0.537 | 0.4778 | 0.1621 | 0.1086 | 0.1413 | 0.0188 | 0.3698 | 0.2993 | -0.2274 | -0.2159 | -0.0796 | -0.092 |
| MATH | 3 | 394377 | 0 | A-T | 1 | 87669 | 0.7158 | 0.0712 | 0.0647 | 0.1425 | 0.7014 | 0.0197 | 0.5403 | -0.2195 | -0.2951 | -0.302 | 0.5394 | -0.0844 |
| MATH | 3 | 408664 | 0 | A-T | 2 | 87472 | 0.4794 | 0.0825 | 0.1945 | 0.232 | 0.4687 | 0.0211 | 0.4298 | -0.2324 | -0.291 | -0.0553 | 0.4324 | -0.0916 |
| MATH | 3 | 493222 | 0 | A-T | 1 | 88350 | 0.8496 | 0.8389 | 0.0585 | 0.0418 | 0.0483 | 0.0117 | 0.4534 | 0.4568 | -0.2608 | -0.2454 | -0.2231 | -0.0815 |
| MATH | 3 | 493230 | 0 | A-T | 1 | 88438 | 0.7563 | 0.0676 | 0.0765 | 0.0968 | 0.7476 | 0.0112 | 0.4958 | -0.2825 | -0.2768 | -0.2135 | 0.4994 | -0.0842 |
| MATH | 3 | 313562 | 0 | B-O | 2 | 87647 | 0.5444 | 0.1462 | 0.1223 | 0.5333 | 0.1779 | 0.0197 | 0.4468 | -0.2429 | -0.2264 | 0.4473 | -0.139 | -0.0675 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 3 | 314248 | 0 | B-O | 2 | 88013 | 0.736 | 0.0389 | 0.1684 | 0.724 | 0.0524 | 0.016 | 0.6127 | -0.2318 | -0.4537 | 0.6125 | -0.2107 | -0.0951 |
| MATH | 3 | 314411 | 0 | B-O | 1 | 88249 | 0.7421 | 0.1697 | 0.0514 | 0.0333 | 0.732 | 0.0122 | 0.6033 | -0.4517 | -0.2285 | -0.2079 | 0.6027 | -0.0722 |
| MATH | 3 | 314720 | 0 | B-O | 2 | 87769 | 0.601 | 0.0799 | 0.072 | 0.5896 | 0.2396 | 0.0187 | 0.602 | -0.2604 | -0.0994 | 0.6004 | -0.4398 | -0.0813 |
| MATH | 3 | 314970 | 0 | B-O | 1 | 86663 | 0.597 | 0.1048 | 0.0529 | 0.5782 | 0.2327 | 0.0308 | 0.3559 | -0.3166 | -0.218 | 0.361 | -0.0386 | -0.091 |
| MATH | 3 | 408681 | 0 | B-O | 2 | 87533 | 0.6018 | 0.5888 | 0.1431 | 0.0961 | 0.1503 | 0.0213 | 0.4998 | 0.5022 | -0.194 | -0.1875 | -0.3078 | -0.0943 |
| MATH | 3 | 408686 | 0 | B-O | 2 | 87861 | 0.602 | 0.0985 | 0.5912 | 0.1667 | 0.1256 | 0.0172 | 0.5467 | -0.282 | 0.5482 | -0.2004 | -0.2973 | -0.0889 |
| MATH | 3 | 408704 | 0 | B-O | 2 | 87904 | 0.542 | 0.1213 | 0.2098 | 0.5325 | 0.1189 | 0.0167 | 0.4714 | -0.2946 | -0.1042 | 0.4744 | -0.2656 | -0.09 |
| MATH | 3 | 495210 | 0 | B-O | 1 | 87581 | 0.7637 | 0.7476 | 0.113 | 0.078 | 0.0403 | 0.0207 | 0.5185 | 0.5185 | -0.2646 | -0.2975 | -0.245 | -0.0921 |
| MATH | 3 | 495214 | 0 | B-O | 2 | 87725 | 0.433 | 0.4245 | 0.2059 | 0.234 | 0.116 | 0.0188 | 0.2829 | 0.2889 | -0.136 | -0.1183 | -0.0764 | -0.0948 |
| MATH | 3 | 497737 | 0 | B-O | 2 | 86810 | 0.5181 | 0.5027 | 0.28 | 0.1154 | 0.0722 | 0.0288 | 0.3549 | 0.3642 | -0.0829 | -0.2136 | -0.2162 | -0.1183 |
| MATH | 3 | 497739 | 0 | B-O | 2 | 88239 | 0.5796 | 0.0876 | 0.1787 | 0.5716 | 0.1483 | 0.0135 | 0.5666 | -0.2566 | -0.3071 | 0.5683 | -0.2261 | -0.0896 |
| MATH | 3 | 497744 | 0 | B-O | 2 | 87648 | 0.6057 | 0.1153 | 0.1028 | 0.1682 | 0.5933 | 0.0198 | 0.582 | -0.2832 | -0.2878 | -0.2486 | 0.585 | -0.1146 |
| MATH | 3 | 579642 | 0 | B-O | 1 | 86824 | 0.5408 | 0.1487 | 0.5248 | 0.0978 | 0.1991 | 0.0291 | 0.3101 | -0.191 | 0.318 | -0.1049 | -0.106 | -0.1006 |
| MATH | 3 | 312912 | 0 | C-G | 1 | 86662 | 0.3582 | 0.1346 | 0.2216 | 0.3469 | 0.2655 | 0.0305 | 0.3745 | -0.1138 | -0.2471 | 0.3803 | -0.039 | -0.1258 |
| MATH | 3 | 313475 | 0 | C-G | 1 | 87497 | 0.539 | 0.1105 | 0.5271 | 0.245 | 0.0954 | 0.0122 | 0.5244 | -0.1502 | 0.5274 | -0.2491 | -0.3205 | -0.086 |
| MATH | 3 | 313560 | 0 | C-G | 2 | 87859 | 0.6743 | 0.6622 | 0.0617 | 0.1968 | 0.0614 | 0.0159 | 0.4799 | 0.4852 | -0.2202 | -0.2672 | -0.2339 | -0.0939 |
| MATH | 3 | 565996 | 0 | C-G | 2 | 88289 | 0.4266 | 0.3459 | 0.421 | 0.1497 | 0.0703 | 0.013 | 0.4284 | -0.2261 | 0.4308 | -0.1135 | -0.2149 | -0.084 |
| MATH | 3 | 314244 | 0 | D-M | 1 | 88178 | 0.4095 | 0.209 | 0.4036 | 0.3158 | 0.0572 | 0.0141 | 0.4857 | -0.4245 | 0.4871 | -0.0812 | -0.0795 | -0.0835 |
| MATH | 3 | 314728 | 0 | D-M | 1 | 88746 | 0.8008 | 0.0794 | 0.0442 | 0.7943 | 0.074 | 0.0079 | 0.4189 | -0.1835 | -0.2314 | 0.4232 | -0.2563 | -0.0736 |
| MATH | 3 | 316238 | 0 | D-M | 1 | 88392 | 0.5575 | 0.2305 | 0.5508 | 0.1039 | 0.1028 | 0.0115 | 0.4212 | -0.1929 | 0.4251 | -0.2278 | -0.1687 | -0.0827 |
| MATH | 3 | 408723 | 0 | D-M | 1 | 88270 | 0.4682 | 0.2317 | 0.4619 | 0.1737 | 0.1193 | 0.012 | 0.4512 | -0.1637 | 0.4538 | -0.2672 | -0.1417 | -0.0777 |
| MATH | 3 | 408729 | 0 | D-M | 1 | 88371 | 0.45 | 0.4445 | 0.1151 | 0.1673 | 0.2609 | 0.0106 | 0.4594 | 0.4614 | -0.178 | -0.1643 | -0.2321 | -0.0735 |
| MATH | 3 | 493223 | 0 | D-M | 1 | 87348 | 0.5853 | 0.0857 | 0.1649 | 0.1543 | 0.5714 | 0.0232 | 0.3987 | -0.1891 | -0.1667 | -0.1881 | 0.4087 | -0.1259 |
| MATH | 3 | 493236 | 0 | D-M | 2 | 88504 | 0.4743 | 0.2077 | 0.189 | 0.1233 | 0.4692 | 0.0086 | 0.4508 | -0.2228 | -0.2377 | -0.1049 | 0.4526 | -0.0693 |
| MATH | 3 | 493241 | 0 | D-M | 1 | 87754 | 0.7787 | 0.0494 | 0.1179 | 0.7638 | 0.0498 | 0.0188 | 0.3358 | -0.1953 | -0.168 | 0.3433 | -0.1708 | -0.0864 |
| MATH | 3 | 579661 | 0 | D-M | 2 | 88477 | 0.7725 | 0.0489 | 0.764 | 0.0456 | 0.1304 | 0.009 | 0.5942 | -0.2134 | 0.5972 | -0.2167 | -0.4508 | -0.0827 |
| MATH | 3 | 579663 | 0 | D-M | 2 | 88177 | 0.5452 | 0.1269 | 0.5373 | 0.0952 | 0.2262 | 0.0121 | 0.4143 | -0.2632 | 0.4196 | -0.2107 | -0.1144 | -0.0805 |
| MATH | 3 | 617236 | 1 | A-F | 2 | 10266 | 0.4348 | 0.2524 | 0.4284 | 0.1611 | 0.1434 | 0.0132 | 0.3529 | -0.2441 | 0.3581 | -0.1581 | -0.0018 | -0.0929 |
| MATH | 3 | 657723 | 1 | A-T | 2 | 10254 | 0.3559 | 0.2496 | 0.2275 | 0.3502 | 0.1568 | 0.0155 | 0.0275 | 0.1875 | -0.0978 | 0.0341 | -0.1292 | -0.076 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|------------|
| MATH | 3 | 565994 | 1 | B-O | 1 | 10188 | 0.4106 | 0.0878 | 0.4015 | 0.3994 | 0.0892 | 0.0219 | 0.2575 | -0.2862 | 0.2604 | 0.0233 | -0.1704 | -0.0625 |
| MATH | 3 | 659904 | 1 | B-O | 1 | 10151 | 0.5164 | 0.1256 | 0.1901 | 0.1554 | 0.5031 | 0.0251 | 0.5674 | -0.3532 | -0.2213 | -0.1759 | 0.5682 | -0.1019 |
| MATH | 3 | 659911 | 1 | B-O | 1 | 10236 | 0.6895 | 0.6774 | 0.0853 | 0.1368 | 0.0829 | 0.0165 | 0.3891 | 0.391 | -0.2786 | -0.1916 | -0.1075 | -0.0719 |
| MATH | 3 | 622969 | 1 | C-G | 1 | 10176 | 0.4003 | 0.0531 | 0.2073 | 0.3909 | 0.3254 | 0.023 | 0.4556 | -0.1334 | 0.0145 | 0.4582 | -0.3919 | -0.1031 |
| MATH | 3 | 662415 | 1 | D-M | 2 | 10270 | 0.5421 | 0.2017 | 0.5343 | 0.1207 | 0.129 | 0.0137 | 0.4712 | -0.2208 | 0.4742 | -0.2276 | -0.19 | -0.0805 |
| MATH | 3 | 662422 | 1 | D-M | 2 | 10168 | 0.7018 | 0.6849 | 0.1164 | 0.0695 | 0.1051 | 0.0239 | 0.2542 | 0.2676 | -0.1237 | -0.1282 | -0.1181 | -0.102 |
| MATH | 3 | 657711 | 2 | A-F | 2 | 9712 | 0.3174 | 0.1859 | 0.2732 | 0.2126 | 0.3124 | 0.0153 | 0.3694 | -0.197 | -0.0215 | -0.1812 | 0.3726 | -0.0955 |
| MATH | 3 | 617237 | 2 | A-T | 1 | 9720 | 0.547 | 0.2684 | 0.1071 | 0.5388 | 0.0706 | 0.0148 | 0.6304 | -0.4556 | -0.1923 | 0.6267 | -0.1697 | -0.0601 |
| MATH | 3 | 659909 | 2 | B-O | 2 | 9745 | 0.6475 | 0.1147 | 0.6394 | 0.1123 | 0.1211 | 0.012 | 0.5062 | -0.2081 | 0.5076 | -0.2671 | -0.2584 | -0.0744 |
| MATH | 3 | 659916 | 2 | B-O | 2 | 9653 | 0.21 | 0.3758 | 0.2054 | 0.2993 | 0.0976 | 0.0215 | -0.0407 | -0.1425 | -0.0327 | 0.2598 | -0.0765 | -0.094 |
| MATH | 3 | 617228 | 2 | C-G | 1 | 9714 | 0.5083 | 0.1483 | 0.1449 | 0.5004 | 0.1907 | 0.0148 | 0.4026 | -0.2448 | -0.166 | 0.4065 | -0.1189 | -0.0882 |
| MATH | 3 | 659922 | 2 | C-G | 1 | 9695 | 0.6983 | 0.686 | 0.1457 | 0.0918 | 0.0589 | 0.0171 | 0.211 | 0.2198 | -0.1277 | -0.0886 | -0.0903 | -0.0726 |
| MATH | 3 | 622961 | 2 | D-M | 1 | 9679 | 0.3532 | 0.1999 | 0.2133 | 0.3464 | 0.2211 | 0.0187 | 0.3759 | -0.1285 | -0.0134 | 0.3789 | -0.2669 | -0.0909 |
| MATH | 3 | 662426 | 2 | D-M | 2 | 9675 | 0.224 | 0.2463 | 0.2428 | 0.2196 | 0.2717 | 0.0188 | -0.0097 | -0.0475 | -0.1099 | -0.0031 | 0.1816 | -0.0795 |
| MATH | 3 | 657716 | 3 | A-F | 2 | 9688 | 0.5214 | 0.2079 | 0.5108 | 0.1725 | 0.0885 | 0.0186 | 0.4156 | -0.1677 | 0.4196 | -0.1668 | -0.2297 | -0.0894 |
| MATH | 3 | 621398 | 3 | A-T | 2 | 9739 | 0.5312 | 0.5232 | 0.1371 | 0.2068 | 0.1178 | 0.0149 | 0.4365 | 0.4369 | -0.1408 | -0.2158 | -0.2308 | -0.0643 |
| MATH | 3 | 657718 | 3 | A-T | 3 | 9683 | 0.391 | 0.1146 | 0.3235 | 0.1583 | 0.3829 | 0.0192 | 0.1829 | -0.2346 | 0.1016 | -0.1416 | 0.1904 | -0.0997 |
| MATH | 3 | 624787 | 3 | B-O | 1 | 9615 | 0.4966 | 0.1397 | 0.178 | 0.1718 | 0.4829 | 0.0271 | 0.3588 | -0.1895 | -0.0994 | -0.1634 | 0.3651 | -0.1012 |
| MATH | 3 | 659906 | 3 | B-O | 2 | 9669 | 0.7653 | 0.104 | 0.7484 | 0.0747 | 0.0508 | 0.022 | 0.5017 | -0.2534 | 0.5009 | -0.2825 | -0.2411 | -0.0872 |
| MATH | 3 | 659919 | 3 | C-G | 1 | 9615 | 0.7381 | 0.1291 | 0.0618 | 0.7177 | 0.0637 | 0.0215 | 0.392 | -0.2092 | -0.1791 | 0.397 | -0.2026 | -0.0701 |
| MATH | 3 | 579660 | 3 | D-M | 1 | 9757 | 0.6697 | 0.0805 | 0.6608 | 0.159 | 0.0865 | 0.012 | 0.5529 | -0.2104 | 0.5537 | -0.2617 | -0.3558 | -0.0721 |
| MATH | 3 | 662425 | 3 | D-M | 2 | 9693 | 0.4501 | 0.2191 | 0.1726 | 0.1474 | 0.4412 | 0.0183 | 0.4669 | -0.1839 | -0.1721 | -0.2277 | 0.4666 | -0.0798 |
| MATH | 4 | 313261 | 0 | A-F | 1 | 87250 | 0.6478 | 0.229 | 0.0802 | 0.6448 | 0.0414 | 0.0036 | 0.3413 | -0.1347 | -0.2522 | 0.3441 | -0.1785 | -0.0495 |
| MATH | 4 | 314656 | 0 | A-F | 2 | 86841 | 0.5571 | 0.1376 | 0.1847 | 0.1165 | 0.552 | 0.0072 | 0.6006 | -0.2835 | -0.2742 | -0.2695 | 0.6031 | -0.0893 |
| MATH | 4 | 408553 | 0 | A-F | 1 | 87003 | 0.4981 | 0.0894 | 0.1418 | 0.2669 | 0.4944 | 0.0055 | 0.5058 | -0.1661 | -0.2895 | -0.2227 | 0.5078 | -0.0686 |
| MATH | 4 | 408560 | 0 | A-F | 2 | 87028 | 0.6684 | 0.6636 | 0.0898 | 0.1016 | 0.1378 | 0.0043 | 0.3653 | 0.3707 | -0.1513 | -0.1854 | -0.1993 | -0.0709 |
| MATH | 4 | 408563 | 0 | A-F | 1 | 86804 | 0.5176 | 0.5126 | 0.1734 | 0.2019 | 0.1024 | 0.0077 | 0.5656 | 0.5676 | -0.2642 | -0.3487 | -0.1148 | -0.0816 |
| MATH | 4 | 408635 | 0 | A-F | 1 | 87010 | 0.7776 | 0.107 | 0.7719 | 0.0617 | 0.0521 | 0.0056 | 0.4115 | -0.2358 | 0.417 | -0.2235 | -0.1855 | -0.0706 |
| MATH | 4 | 408639 | 0 | A-F | 2 | 87123 | 0.485 | 0.0799 | 0.3618 | 0.4821 | 0.0702 | 0.0045 | 0.4431 | -0.2424 | -0.2014 | 0.4451 | -0.2125 | -0.0565 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 4 | 408641 | 0 | A-F | 2 | 87053 | 0.3909 | 0.3276 | 0.3882 | 0.1031 | 0.1743 | 0.0051 | 0.3069 | -0.0293 | 0.31 | -0.2212 | -0.1668 | -0.0707 |
| MATH | 4 | 479188 | 0 | A-F | 1 | 86861 | 0.4699 | 0.1094 | 0.2568 | 0.4657 | 0.1591 | 0.0073 | 0.4898 | -0.23 | -0.2384 | 0.4925 | -0.1667 | -0.0812 |
| MATH | 4 | 493258 | 0 | A-F | 1 | 87289 | 0.6596 | 0.0957 | 0.6568 | 0.1119 | 0.1314 | 0.0033 | 0.4927 | -0.1957 | 0.4941 | -0.1632 | -0.3609 | -0.0477 |
| MATH | 4 | 575742 | 0 | A-F | 2 | 87012 | 0.5649 | 0.138 | 0.1791 | 0.1148 | 0.5608 | 0.0056 | 0.3982 | -0.1988 | -0.1174 | -0.247 | 0.4023 | -0.0757 |
| MATH | 4 | 313455 | 0 | A-T | 2 | 86783 | 0.4316 | 0.2389 | 0.1726 | 0.1513 | 0.4273 | 0.0078 | 0.5049 | -0.1733 | -0.212 | -0.2441 | 0.5073 | -0.0896 |
| MATH | 4 | 313456 | 0 | A-T | 2 | 87033 | 0.4713 | 0.176 | 0.4679 | 0.1594 | 0.1896 | 0.0055 | 0.457 | -0.1904 | 0.4593 | -0.2239 | -0.1734 | -0.0694 |
| MATH | 4 | 314196 | 0 | A-T | 1 | 86928 | 0.8179 | 0.0697 | 0.0604 | 0.0505 | 0.8111 | 0.0043 | 0.4822 | -0.266 | -0.2568 | -0.246 | 0.4865 | -0.0712 |
| MATH | 4 | 408574 | 0 | A-T | 1 | 87166 | 0.7487 | 0.0669 | 0.1032 | 0.0798 | 0.7445 | 0.0036 | 0.4977 | -0.287 | -0.2497 | -0.241 | 0.5002 | -0.055 |
| MATH | 4 | 479174 | 0 | A-T | 2 | 86817 | 0.3508 | 0.154 | 0.3474 | 0.1725 | 0.3165 | 0.0075 | 0.2599 | -0.181 | 0.264 | -0.1416 | 0.0048 | -0.0816 |
| MATH | 4 | 495206 | 0 | A-T | 1 | 87219 | 0.5519 | 0.0924 | 0.1651 | 0.1884 | 0.5491 | 0.004 | 0.4198 | -0.1877 | -0.1782 | -0.2178 | 0.4215 | -0.0526 |
| MATH | 4 | 313459 | 0 | B-O | 2 | 87048 | 0.6884 | 0.0951 | 0.0703 | 0.6836 | 0.1441 | 0.0047 | 0.5247 | -0.3019 | -0.2838 | 0.5283 | -0.2204 | -0.0725 |
| MATH | 4 | 313738 | 0 | B-O | 2 | 87138 | 0.692 | 0.688 | 0.1475 | 0.0756 | 0.0831 | 0.0047 | 0.5503 | 0.5531 | -0.3094 | -0.259 | -0.2608 | -0.0719 |
| MATH | 4 | 314189 | 0 | B-O | 2 | 87063 | 0.527 | 0.5234 | 0.0875 | 0.2089 | 0.1734 | 0.0048 | 0.5531 | 0.5543 | -0.2127 | -0.2103 | -0.3317 | -0.0564 |
| MATH | 4 | 314193 | 0 | B-O | 2 | 86890 | 0.6363 | 0.1862 | 0.0655 | 0.1088 | 0.6308 | 0.0062 | 0.5015 | -0.1792 | -0.2594 | -0.3257 | 0.5058 | -0.0796 |
| MATH | 4 | 314216 | 0 | B-O | 2 | 87255 | 0.6857 | 0.0959 | 0.0682 | 0.6826 | 0.1488 | 0.0031 | 0.4353 | -0.2765 | -0.2473 | 0.4378 | -0.1569 | -0.0476 |
| MATH | 4 | 314659 | 0 | B-O | 2 | 87025 | 0.6202 | 0.0991 | 0.1396 | 0.6157 | 0.1384 | 0.0058 | 0.4839 | -0.1526 | -0.2357 | 0.487 | -0.2977 | -0.0714 |
| MATH | 4 | 408742 | 0 | B-O | 2 | 86768 | 0.416 | 0.4118 | 0.2923 | 0.1872 | 0.0986 | 0.008 | 0.412 | 0.4155 | -0.2275 | -0.1426 | -0.119 | -0.0899 |
| MATH | 4 | 493280 | 0 | B-O | 1 | 86572 | 0.4637 | 0.2265 | 0.1586 | 0.4579 | 0.1446 | 0.0057 | 0.3587 | -0.1864 | -0.1336 | 0.3626 | -0.127 | -0.0668 |
| MATH | 4 | 495235 | 0 | B-O | 2 | 87058 | 0.7518 | 0.0808 | 0.7467 | 0.0861 | 0.0796 | 0.005 | 0.4678 | -0.2045 | 0.4728 | -0.2806 | -0.2362 | -0.0731 |
| MATH | 4 | 313075 | 0 | C-G | 2 | 86647 | 0.7291 | 0.7207 | 0.142 | 0.0571 | 0.0687 | 0.0078 | 0.4254 | 0.433 | -0.2108 | -0.23 | -0.2232 | -0.0937 |
| MATH | 4 | 314148 | 0 | C-G | 2 | 86964 | 0.4475 | 0.1404 | 0.1663 | 0.2414 | 0.444 | 0.0057 | 0.3402 | -0.1406 | -0.1595 | -0.1292 | 0.3434 | -0.0703 |
| MATH | 4 | 314171 | 0 | C-G | 1 | 86804 | 0.3526 | 0.25 | 0.2674 | 0.1238 | 0.3491 | 0.0075 | 0.4628 | -0.1976 | -0.1697 | -0.1573 | 0.4647 | -0.0813 |
| MATH | 4 | 314175 | 0 | C-G | 1 | 86985 | 0.604 | 0.5994 | 0.1498 | 0.1496 | 0.0936 | 0.0054 | 0.4556 | 0.4588 | -0.2542 | -0.1793 | -0.2171 | -0.0661 |
| MATH | 4 | 314534 | 0 | C-G | 2 | 86966 | 0.5793 | 0.2155 | 0.5747 | 0.1253 | 0.0766 | 0.0041 | 0.4458 | -0.2848 | 0.4492 | -0.1167 | -0.2226 | -0.0595 |
| MATH | 4 | 315522 | 0 | C-G | 1 | 87024 | 0.6415 | 0.6369 | 0.089 | 0.1318 | 0.1351 | 0.0056 | 0.4933 | 0.4968 | -0.2598 | -0.2787 | -0.1858 | -0.0796 |
| MATH | 4 | 497759 | 0 | C-G | 1 | 86776 | 0.7147 | 0.1096 | 0.0699 | 0.7075 | 0.103 | 0.0076 | 0.4746 | -0.2736 | -0.2444 | 0.48 | -0.2008 | -0.0831 |
| MATH | 4 | 315530 | 0 | D-M | 2 | 87059 | 0.4977 | 0.4943 | 0.208 | 0.2027 | 0.0882 | 0.0052 | 0.5277 | 0.5299 | -0.2078 | -0.2752 | -0.222 | -0.074 |
| MATH | 4 | 408781 | 0 | D-M | 2 | 86802 | 0.4112 | 0.2421 | 0.2102 | 0.4072 | 0.1308 | 0.0065 | 0.4263 | -0.1855 | -0.1717 | 0.4288 | -0.1569 | -0.0792 |
| MATH | 4 | 408789 | 0 | D-M | 2 | 87148 | 0.8217 | 0.0594 | 0.817 | 0.0596 | 0.0582 | 0.0042 | 0.4624 | -0.217 | 0.4653 | -0.2882 | -0.2359 | -0.0531 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|------------|
| MATH | 4 | 495220 | 0 | D-M | 1 | 87041 | 0.4561 | 0.2029 | 0.1469 | 0.4529 | 0.1903 | 0.0055 | 0.3794 | -0.1278 | -0.2412 | 0.3826 | -0.1185 | -0.0772 |
| MATH | 4 | 495229 | 0 | D-M | 2 | 87088 | 0.3979 | 0.2333 | 0.1721 | 0.1929 | 0.3953 | 0.0043 | 0.4297 | -0.2469 | -0.1823 | -0.0812 | 0.4312 | -0.0571 |
| MATH | 4 | 497740 | 0 | D-M | 1 | 86762 | 0.6643 | 0.1434 | 0.6576 | 0.1061 | 0.0827 | 0.0086 | 0.4387 | -0.196 | 0.4443 | -0.2707 | -0.1786 | -0.0848 |
| MATH | 4 | 575723 | 0 | D-M | 2 | 87054 | 0.3918 | 0.4061 | 0.0657 | 0.3891 | 0.1322 | 0.0052 | 0.5439 | -0.2533 | -0.2156 | 0.545 | -0.2393 | -0.0738 |
| MATH | 4 | 575739 | 1 | A-F | 2 | 10229 | 0.3828 | 0.3014 | 0.2331 | 0.3784 | 0.0756 | 0.0093 | 0.4615 | -0.1192 | -0.2585 | 0.4637 | -0.1936 | -0.0734 |
| MATH | 4 | 621385 | 1 | A-T | 1 | 10277 | 0.5976 | 0.1314 | 0.1546 | 0.1135 | 0.5935 | 0.0046 | 0.4935 | -0.2944 | -0.2368 | -0.1655 | 0.496 | -0.0574 |
| MATH | 4 | 662438 | 1 | A-T | 1 | 10202 | 0.6183 | 0.6095 | 0.098 | 0.0717 | 0.2066 | 0.0086 | 0.373 | 0.3809 | -0.2357 | -0.2392 | -0.1025 | -0.0912 |
| MATH | 4 | 657726 | 1 | B-O | 2 | 10202 | 0.5324 | 0.1675 | 0.0842 | 0.2093 | 0.5249 | 0.0115 | 0.5159 | -0.2622 | -0.257 | -0.1914 | 0.5195 | -0.0998 |
| MATH | 4 | 657738 | 1 | B-O | 1 | 10040 | 0.4364 | 0.4233 | 0.218 | 0.1745 | 0.1543 | 0.029 | 0.4024 | 0.4004 | -0.1507 | -0.1193 | -0.2223 | -0.0578 |
| MATH | 4 | 621362 | 1 | C-G | 1 | 10043 | 0.4006 | 0.0833 | 0.1303 | 0.3682 | 0.3887 | 0.0257 | 0.3 | -0.2469 | -0.248 | 0.0361 | 0.3035 | -0.0771 |
| MATH | 4 | 575722 | 1 | D-M | 2 | 10209 | 0.1842 | 0.5412 | 0.1817 | 0.141 | 0.1226 | 0.0122 | -0.1534 | 0.3904 | -0.1474 | -0.2128 | -0.1661 | -0.0714 |
| MATH | 4 | 659934 | 1 | D-M | 2 | 10194 | 0.3568 | 0.1967 | 0.2916 | 0.3514 | 0.1452 | 0.0117 | 0.4059 | -0.0759 | -0.2976 | 0.4093 | -0.0497 | -0.0916 |
| MATH | 4 | 617226 | 2 | A-F | 1 | 9573 | 0.6888 | 0.0704 | 0.199 | 0.6853 | 0.0402 | 0.0042 | 0.3352 | -0.2546 | -0.1204 | 0.3389 | -0.2005 | -0.0596 |
| MATH | 4 | 662435 | 2 | A-F | 2 | 9519 | 0.5938 | 0.5874 | 0.1673 | 0.1594 | 0.0751 | 0.0088 | 0.4379 | 0.4435 | -0.2148 | -0.1918 | -0.2183 | -0.0939 |
| MATH | 4 | 621390 | 2 | A-T | 2 | 9513 | 0.3648 | 0.2573 | 0.1443 | 0.3606 | 0.2265 | 0.009 | 0.2197 | 0.1157 | -0.1657 | 0.2236 | -0.2185 | -0.0835 |
| MATH | 4 | 653740 | 2 | B-O | 2 | 9433 | 0.3453 | 0.1907 | 0.3385 | 0.1755 | 0.2756 | 0.0193 | 0.1743 | -0.1345 | 0.1789 | -0.113 | 0.0478 | -0.0724 |
| MATH | 4 | 657739 | 2 | B-O | 2 | 9519 | 0.3966 | 0.1642 | 0.1879 | 0.3923 | 0.2449 | 0.0083 | 0.2725 | -0.2382 | -0.1119 | 0.2767 | 0.0136 | -0.0831 |
| MATH | 4 | 653742 | 2 | C-G | 2 | 9529 | 0.2799 | 0.2772 | 0.1453 | 0.4529 | 0.1149 | 0.0072 | 0.2732 | 0.2758 | -0.0809 | -0.0534 | -0.1888 | -0.0745 |
| MATH | 4 | 653743 | 2 | C-G | 2 | 9390 | 0.3115 | 0.1516 | 0.283 | 0.304 | 0.2373 | 0.0236 | 0.1281 | -0.1329 | 0.0227 | 0.1339 | -0.0282 | -0.0763 |
| MATH | 4 | 621372 | 2 | D-M | 2 | 9506 | 0.3178 | 0.1356 | 0.373 | 0.1654 | 0.314 | 0.0107 | 0.4444 | -0.2545 | -0.1218 | -0.1372 | 0.4458 | -0.0911 |
| MATH | 4 | 622938 | 3 | A-F | 2 | 9331 | 0.3399 | 0.1588 | 0.2252 | 0.3291 | 0.2549 | 0.0294 | 0.3472 | -0.0909 | -0.1434 | 0.3499 | -0.1272 | -0.09 |
| MATH | 4 | 622944 | 3 | A-F | 1 | 9578 | 0.6231 | 0.0659 | 0.2543 | 0.0544 | 0.6192 | 0.0038 | 0.3817 | -0.2337 | -0.1643 | -0.2327 | 0.3822 | -0.047 |
| MATH | 4 | 653738 | 3 | A-T | 2 | 9517 | 0.3642 | 0.298 | 0.1403 | 0.3596 | 0.1895 | 0.0104 | 0.3353 | -0.1522 | -0.1257 | 0.3392 | -0.0983 | -0.0885 |
| MATH | 4 | 574165 | 3 | B-O | 2 | 9363 | 0.7314 | 0.7104 | 0.0886 | 0.0768 | 0.0955 | 0.0281 | 0.4697 | 0.4571 | -0.2658 | -0.2517 | -0.1938 | -0.0466 |
| MATH | 4 | 657725 | 3 | B-O | 1 | 9507 | 0.6551 | 0.0638 | 0.0806 | 0.1958 | 0.6461 | 0.012 | 0.477 | -0.2349 | -0.2431 | -0.2423 | 0.4795 | -0.0839 |
| MATH | 4 | 659929 | 3 | C-G | 2 | 9522 | 0.4908 | 0.094 | 0.4848 | 0.1289 | 0.2802 | 0.0099 | 0.2628 | -0.2241 | 0.2689 | -0.248 | 0.0541 | -0.0825 |
| MATH | 4 | 575724 | 3 | D-M | 2 | 9487 | 0.2658 | 0.2616 | 0.2473 | 0.2544 | 0.2209 | 0.0131 | 0.1901 | 0.1951 | -0.0039 | -0.0105 | -0.1605 | -0.0963 |
| MATH | 4 | 659937 | 3 | D-M | 1 | 9485 | 0.4516 | 0.1874 | 0.1714 | 0.4443 | 0.1809 | 0.0141 | 0.344 | -0.0841 | -0.1971 | 0.3506 | -0.1382 | -0.1052 |
| MATH | 5 | 313760 | 0 | A-F | 1 | 85447 | 0.4821 | 0.2572 | 0.1276 | 0.1311 | 0.4803 | 0.0029 | 0.617 | -0.3756 | -0.233 | -0.1884 | 0.6175 | -0.0434 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 5 | 313917 | 0 | A-F | 2 | 85211 | 0.4729 | 0.1296 | 0.4698 | 0.2972 | 0.0969 | 0.0052 | 0.5435 | -0.1965 | 0.545 | -0.3037 | -0.208 | -0.0633 |
| MATH | 5 | 314501 | 0 | A-F | 2 | 85380 | 0.4833 | 0.2701 | 0.1477 | 0.0967 | 0.4811 | 0.003 | 0.4028 | -0.1154 | -0.1925 | -0.2663 | 0.4046 | -0.0504 |
| MATH | 5 | 314766 | 0 | A-F | 2 | 85229 | 0.4772 | 0.148 | 0.4742 | 0.1399 | 0.2317 | 0.0047 | 0.3913 | -0.0892 | 0.3941 | -0.2801 | -0.1477 | -0.0638 |
| MATH | 5 | 408587 | 0 | A-F | 2 | 85302 | 0.3663 | 0.1764 | 0.1969 | 0.2569 | 0.3643 | 0.0039 | 0.4136 | -0.234 | -0.1947 | -0.0652 | 0.4151 | -0.0561 |
| MATH | 5 | 408589 | 0 | A-F | 2 | 85170 | 0.4816 | 0.4782 | 0.2338 | 0.1461 | 0.135 | 0.0057 | 0.5597 | 0.5612 | -0.2971 | -0.2204 | -0.2075 | -0.0645 |
| MATH | 5 | 408591 | 0 | A-F | 1 | 85439 | 0.4286 | 0.2862 | 0.1821 | 0.4269 | 0.1009 | 0.0025 | 0.4642 | -0.2653 | -0.1136 | 0.4652 | -0.2099 | -0.0397 |
| MATH | 5 | 408592 | 0 | A-F | 1 | 85389 | 0.3592 | 0.3576 | 0.1814 | 0.3677 | 0.0889 | 0.0035 | 0.3758 | 0.3769 | -0.2018 | -0.1655 | -0.069 | -0.0479 |
| MATH | 5 | 495242 | 0 | A-F | 2 | 85235 | 0.4447 | 0.442 | 0.2001 | 0.1253 | 0.2264 | 0.0044 | 0.2369 | 0.2399 | -0.1523 | -0.1087 | -0.041 | -0.057 |
| MATH | 5 | 495255 | 0 | A-F | 2 | 85361 | 0.5081 | 0.1245 | 0.5057 | 0.2265 | 0.1387 | 0.0036 | 0.4267 | -0.173 | 0.4285 | -0.2895 | -0.0922 | -0.0517 |
| MATH | 5 | 313319 | 0 | A-T | 2 | 85116 | 0.6804 | 0.1324 | 0.108 | 0.0768 | 0.6752 | 0.0056 | 0.5373 | -0.2847 | -0.2774 | -0.2399 | 0.5399 | -0.064 |
| MATH | 5 | 313905 | 0 | A-T | 1 | 85438 | 0.6587 | 0.1137 | 0.6562 | 0.1226 | 0.1038 | 0.0031 | 0.4948 | -0.2458 | 0.4964 | -0.2348 | -0.2541 | -0.0453 |
| MATH | 5 | 314394 | 0 | A-T | 2 | 85152 | 0.3354 | 0.1695 | 0.1286 | 0.333 | 0.3617 | 0.0054 | 0.2869 | -0.0615 | -0.1463 | 0.2897 | -0.1209 | -0.0659 |
| MATH | 5 | 314761 | 0 | A-T | 1 | 85251 | 0.6757 | 0.0764 | 0.1301 | 0.1159 | 0.6716 | 0.0041 | 0.4919 | -0.2406 | -0.2694 | -0.227 | 0.4937 | -0.0584 |
| MATH | 5 | 408602 | 0 | A-T | 1 | 85265 | 0.4274 | 0.1632 | 0.4249 | 0.2075 | 0.1986 | 0.0045 | 0.376 | -0.1543 | 0.3779 | -0.1849 | -0.1257 | -0.0537 |
| MATH | 5 | 408605 | 0 | A-T | 2 | 85306 | 0.4732 | 0.1219 | 0.2456 | 0.4707 | 0.1565 | 0.0043 | 0.417 | -0.1871 | -0.1808 | 0.4186 | -0.1809 | -0.051 |
| MATH | 5 | 408608 | 0 | A-T | 1 | 85186 | 0.3441 | 0.2174 | 0.1896 | 0.3418 | 0.2444 | 0.0057 | 0.3958 | -0.1041 | -0.1629 | 0.397 | -0.1792 | -0.0459 |
| MATH | 5 | 408630 | 0 | A-T | 1 | 85274 | 0.6173 | 0.6137 | 0.1027 | 0.0809 | 0.197 | 0.0039 | 0.5646 | 0.5662 | -0.2554 | -0.2074 | -0.3438 | -0.0544 |
| MATH | 5 | 408647 | 0 | A-T | 1 | 85353 | 0.4762 | 0.1574 | 0.4739 | 0.3176 | 0.0462 | 0.0035 | 0.506 | -0.2127 | 0.5076 | -0.2897 | -0.1741 | -0.0587 |
| MATH | 5 | 408648 | 0 | A-T | 1 | 85492 | 0.592 | 0.1475 | 0.0915 | 0.1677 | 0.5901 | 0.0022 | 0.4468 | -0.221 | -0.2321 | -0.194 | 0.4481 | -0.0394 |
| MATH | 5 | 493287 | 0 | A-T | 1 | 85493 | 0.5913 | 0.5894 | 0.0832 | 0.2652 | 0.059 | 0.0023 | 0.4982 | 0.4994 | -0.2199 | -0.2892 | -0.2316 | -0.0412 |
| MATH | 5 | 566348 | 0 | A-T | 1 | 85307 | 0.3067 | 0.2074 | 0.3294 | 0.1528 | 0.305 | 0.0036 | 0.3689 | -0.1023 | -0.1986 | -0.0875 | 0.37 | -0.0504 |
| MATH | 5 | 574137 | 0 | A-T | 2 | 85406 | 0.3963 | 0.3947 | 0.2211 | 0.181 | 0.199 | 0.003 | 0.3348 | 0.336 | -0.075 | -0.1726 | -0.1595 | -0.0404 |
| MATH | 5 | 313325 | 0 | B-O | 2 | 85362 | 0.4387 | 0.2065 | 0.4366 | 0.1238 | 0.2284 | 0.0031 | 0.4041 | -0.2143 | 0.406 | -0.2295 | -0.0825 | -0.0506 |
| MATH | 5 | 313924 | 0 | B-O | 2 | 85330 | 0.4164 | 0.1809 | 0.1669 | 0.4142 | 0.2328 | 0.0037 | 0.4152 | -0.2529 | -0.2713 | 0.4168 | -0.006 | -0.0524 |
| MATH | 5 | 314020 | 0 | B-O | 2 | 85345 | 0.4635 | 0.1967 | 0.116 | 0.2211 | 0.4612 | 0.0039 | 0.4911 | -0.2119 | -0.1512 | -0.2616 | 0.4925 | -0.0591 |
| MATH | 5 | 408790 | 0 | B-O | 2 | 85344 | 0.3504 | 0.3487 | 0.3481 | 0.1706 | 0.1277 | 0.0035 | 0.3985 | 0.3998 | -0.1185 | -0.16 | -0.2095 | -0.0512 |
| MATH | 5 | 313768 | 0 | C-G | 2 | 85177 | 0.5021 | 0.0841 | 0.2525 | 0.1578 | 0.4987 | 0.0051 | 0.5035 | -0.2097 | -0.2277 | -0.246 | 0.5057 | -0.0639 |
| MATH | 5 | 314909 | 0 | C-G | 1 | 85308 | 0.6281 | 0.6247 | 0.1877 | 0.1212 | 0.061 | 0.0039 | 0.4356 | 0.4387 | -0.2457 | -0.1939 | -0.2015 | -0.0578 |
| MATH | 5 | 408805 | 0 | C-G | 2 | 85345 | 0.4561 | 0.2094 | 0.4539 | 0.1517 | 0.1801 | 0.0032 | 0.3006 | -0.0599 | 0.3026 | -0.2256 | -0.1083 | -0.0412 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 5 | 408806 | 0 | C-G | 2 | 85218 | 0.4125 | 0.2538 | 0.1715 | 0.1585 | 0.4099 | 0.0047 | 0.3896 | -0.0899 | -0.1874 | -0.212 | 0.3918 | -0.063 |
| MATH | 5 | 408811 | 0 | C-G | 1 | 85089 | 0.5342 | 0.1661 | 0.1297 | 0.53 | 0.1664 | 0.0048 | 0.4407 | -0.1599 | -0.1702 | 0.4429 | -0.2646 | -0.0637 |
| MATH | 5 | 408812 | 0 | C-G | 1 | 85307 | 0.6499 | 0.0995 | 0.1002 | 0.1486 | 0.6464 | 0.0032 | 0.3864 | -0.2346 | -0.1315 | -0.2022 | 0.3896 | -0.0506 |
| MATH | 5 | 495261 | 0 | C-G | 2 | 85128 | 0.3761 | 0.1978 | 0.1936 | 0.3733 | 0.2279 | 0.0046 | 0.3578 | -0.1481 | -0.1946 | 0.3589 | -0.0795 | -0.057 |
| MATH | 5 | 495265 | 0 | C-G | 2 | 85470 | 0.4755 | 0.1979 | 0.1806 | 0.4738 | 0.1441 | 0.0023 | 0.5119 | -0.2617 | -0.2702 | 0.5129 | -0.1278 | -0.0405 |
| MATH | 5 | 314024 | 0 | D-M | 2 | 85386 | 0.4001 | 0.3142 | 0.3983 | 0.1758 | 0.1073 | 0.0031 | 0.5385 | -0.4107 | 0.5392 | -0.095 | -0.1084 | -0.0458 |
| MATH | 5 | 408854 | 0 | D-M | 2 | 85243 | 0.3524 | 0.2301 | 0.3502 | 0.1916 | 0.222 | 0.0047 | 0.4495 | -0.1479 | 0.4508 | -0.1849 | -0.1808 | -0.0535 |
| MATH | 5 | 497774 | 0 | D-M | 2 | 85258 | 0.2862 | 0.3048 | 0.2921 | 0.2845 | 0.1127 | 0.0045 | 0.2818 | -0.045 | -0.1274 | 0.2836 | -0.1403 | -0.0578 |
| MATH | 5 | 574151 | 0 | D-M | 2 | 85401 | 0.3788 | 0.145 | 0.1631 | 0.3104 | 0.3772 | 0.003 | 0.4469 | -0.2051 | -0.2276 | -0.1243 | 0.4477 | -0.0427 |
| MATH | 5 | 575709 | 0 | D-M | 2 | 85347 | 0.3914 | 0.0651 | 0.2068 | 0.3895 | 0.3337 | 0.0035 | 0.3853 | -0.1034 | -0.2141 | 0.387 | -0.1531 | -0.0547 |
| MATH | 5 | 622928 | 1 | A-F | 1 | 9978 | 0.5429 | 0.1113 | 0.2365 | 0.54 | 0.107 | 0.0045 | 0.4292 | -0.186 | -0.2861 | 0.4315 | -0.0988 | -0.0575 |
| MATH | 5 | 642399 | 1 | A-F | 2 | 9885 | 0.4675 | 0.4607 | 0.2275 | 0.1662 | 0.1311 | 0.0141 | 0.5009 | 0.5017 | -0.1899 | -0.2489 | -0.2081 | -0.0624 |
| MATH | 5 | 662457 | 1 | A-F | 2 | 9959 | 0.2153 | 0.2837 | 0.3598 | 0.1356 | 0.2137 | 0.0063 | 0.4346 | -0.0848 | -0.1724 | -0.1518 | 0.4354 | -0.0577 |
| MATH | 5 | 659939 | 1 | A-T | 1 | 9900 | 0.5114 | 0.1573 | 0.5047 | 0.1952 | 0.1297 | 0.0127 | 0.4933 | -0.2582 | 0.494 | -0.1529 | -0.2543 | -0.0604 |
| MATH | 5 | 657741 | 1 | B-O | 1 | 9955 | 0.7103 | 0.1147 | 0.108 | 0.7049 | 0.0648 | 0.0057 | 0.4235 | -0.2223 | -0.2145 | 0.427 | -0.2092 | -0.0568 |
| MATH | 5 | 657747 | 1 | C-G | 2 | 9955 | 0.3249 | 0.3505 | 0.1707 | 0.1488 | 0.3224 | 0.0059 | 0.2481 | 0.0191 | -0.1542 | -0.1755 | 0.2506 | -0.063 |
| MATH | 5 | 575711 | 1 | D-M | 2 | 9957 | 0.3892 | 0.3477 | 0.3863 | 0.1249 | 0.1337 | 0.006 | 0.2644 | -0.0121 | 0.267 | -0.2482 | -0.1081 | -0.0553 |
| MATH | 5 | 624808 | 1 | D-M | 2 | 9935 | 0.2723 | 0.3444 | 0.2697 | 0.214 | 0.1623 | 0.0082 | 0.2758 | 0.0132 | 0.2779 | -0.1704 | -0.1444 | -0.0644 |
| MATH | 5 | 617245 | 2 | A-F | 1 | 9446 | 0.4166 | 0.415 | 0.3183 | 0.1431 | 0.1198 | 0.0027 | 0.3608 | 0.3625 | -0.2037 | -0.1473 | -0.0881 | -0.0496 |
| MATH | 5 | 662460 | 2 | A-F | 2 | 9407 | 0.3021 | 0.2997 | 0.1598 | 0.2197 | 0.3129 | 0.0064 | 0.2688 | 0.2715 | -0.2126 | -0.0043 | -0.0825 | -0.0673 |
| MATH | 5 | 622929 | 2 | A-T | 2 | 9398 | 0.2603 | 0.15 | 0.4109 | 0.258 | 0.1723 | 0.0073 | 0.1085 | -0.1398 | 0.0475 | 0.1113 | -0.0432 | -0.0522 |
| MATH | 5 | 659945 | 2 | A-T | 1 | 9405 | 0.4738 | 0.1408 | 0.3046 | 0.4699 | 0.0766 | 0.0072 | 0.4953 | -0.1439 | -0.3652 | 0.496 | -0.0921 | -0.047 |
| MATH | 5 | 657746 | 2 | B-O | 2 | 9339 | 0.3859 | 0.245 | 0.3801 | 0.2226 | 0.1372 | 0.0143 | 0.1977 | -0.0251 | 0.2013 | -0.0786 | -0.1366 | -0.0549 |
| MATH | 5 | 617242 | 2 | C-G | 2 | 9320 | 0.4285 | 0.2147 | 0.2007 | 0.1463 | 0.4212 | 0.0156 | 0.2212 | -0.0104 | -0.0869 | -0.1847 | 0.2235 | -0.0423 |
| MATH | 5 | 657754 | 2 | D-M | 2 | 9405 | 0.2753 | 0.1061 | 0.273 | 0.2989 | 0.3139 | 0.0063 | 0.3336 | -0.2118 | 0.3354 | -0.0762 | -0.0935 | -0.0584 |
| MATH | 5 | 657758 | 2 | D-M | 1 | 9415 | 0.67 | 0.1561 | 0.057 | 0.6653 | 0.1146 | 0.0055 | 0.529 | -0.3776 | -0.2039 | 0.531 | -0.1909 | -0.0548 |
| MATH | 5 | 621363 | 3 | A-F | 2 | 9386 | 0.6093 | 0.6033 | 0.1441 | 0.1378 | 0.105 | 0.0086 | 0.4058 | 0.4095 | -0.2339 | -0.1863 | -0.1517 | -0.0756 |
| MATH | 5 | 662456 | 3 | A-F | 2 | 9395 | 0.3456 | 0.3425 | 0.1622 | 0.2181 | 0.2681 | 0.0073 | 0.3623 | 0.3649 | -0.2028 | -0.108 | -0.1042 | -0.0773 |
| MATH | 5 | 622925 | 3 | A-T | 1 | 9422 | 0.6616 | 0.6576 | 0.128 | 0.0849 | 0.1234 | 0.0039 | 0.4833 | 0.4856 | -0.25 | -0.2136 | -0.2499 | -0.053 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 5 | 653728 | 3 | A-T | 2 | 9346 | 0.2919 | 0.2617 | 0.1947 | 0.2878 | 0.2417 | 0.0136 | 0.0337 | 0.0159 | -0.1145 | 0.038 | 0.0659 | -0.0607 |
| MATH | 5 | 659950 | 3 | A-T | 2 | 9301 | 0.5549 | 0.109 | 0.1476 | 0.5444 | 0.1802 | 0.0185 | 0.4763 | -0.2101 | -0.2362 | 0.4736 | -0.2083 | -0.0469 |
| MATH | 5 | 621368 | 3 | B-O | 2 | 9390 | 0.4562 | 0.1369 | 0.2454 | 0.1563 | 0.4519 | 0.0077 | 0.5279 | -0.2698 | -0.2419 | -0.1622 | 0.53 | -0.0733 |
| MATH | 5 | 657749 | 3 | C-G | 2 | 9372 | 0.3785 | 0.1456 | 0.212 | 0.2569 | 0.3742 | 0.0082 | 0.2235 | -0.0961 | -0.1029 | -0.0575 | 0.2288 | -0.0831 |
| MATH | 5 | 657757 | 3 | D-M | 2 | 9400 | 0.3545 | 0.2323 | 0.3515 | 0.1699 | 0.2379 | 0.007 | 0.1998 | -0.1282 | 0.2038 | -0.0499 | -0.0399 | -0.0743 |
| MATH | 6 | 319298 | 0 | A-N | 1 | 81845 | 0.5788 | 0.1405 | 0.1637 | 0.5766 | 0.1154 | 0.0031 | 0.4225 | -0.2689 | -0.2041 | 0.4241 | -0.1168 | -0.0482 |
| MATH | 6 | 319302 | 0 | A-N | 1 | 81879 | 0.4351 | 0.0816 | 0.4336 | 0.3408 | 0.1406 | 0.003 | 0.4486 | -0.16 | 0.4495 | -0.2782 | -0.1274 | -0.0438 |
| MATH | 6 | 404808 | 0 | A-N | 2 | 81649 | 0.411 | 0.4085 | 0.2313 | 0.2203 | 0.1337 | 0.0048 | 0.465 | 0.4669 | -0.047 | -0.2742 | -0.265 | -0.0655 |
| MATH | 6 | 412555 | 0 | A-N | 2 | 81550 | 0.6282 | 0.6236 | 0.1267 | 0.1197 | 0.1227 | 0.0058 | 0.5365 | 0.5396 | -0.2796 | -0.2796 | -0.215 | -0.078 |
| MATH | 6 | 417165 | 0 | A-N | 1 | 81710 | 0.7493 | 0.7453 | 0.1839 | 0.0331 | 0.0324 | 0.0036 | 0.4601 | 0.4633 | -0.3261 | -0.2036 | -0.1929 | -0.0573 |
| MATH | 6 | 479634 | 0 | A-N | 1 | 81874 | 0.8037 | 0.019 | 0.1133 | 0.0633 | 0.801 | 0.0028 | 0.3876 | -0.1302 | -0.2335 | -0.2505 | 0.3895 | -0.0432 |
| MATH | 6 | 312500 | 0 | A-R | 2 | 81639 | 0.4414 | 0.1782 | 0.2866 | 0.4386 | 0.0903 | 0.005 | 0.5058 | -0.117 | -0.2866 | 0.5078 | -0.2492 | -0.0687 |
| MATH | 6 | 319255 | 0 | A-R | 2 | 81746 | 0.4498 | 0.1109 | 0.2323 | 0.4476 | 0.2043 | 0.0038 | 0.4257 | -0.2424 | -0.2237 | 0.4276 | -0.0927 | -0.0595 |
| MATH | 6 | 401317 | 0 | A-R | 2 | 81716 | 0.454 | 0.1733 | 0.4515 | 0.1819 | 0.1879 | 0.0043 | 0.3603 | -0.1679 | 0.3625 | -0.2669 | -0.0231 | -0.0585 |
| MATH | 6 | 412895 | 0 | A-R | 2 | 81525 | 0.4735 | 0.2697 | 0.4699 | 0.1511 | 0.1017 | 0.0064 | 0.5262 | -0.2409 | 0.5285 | -0.2198 | -0.2342 | -0.0767 |
| MATH | 6 | 491897 | 0 | A-R | 2 | 81701 | 0.4426 | 0.1216 | 0.2366 | 0.1962 | 0.4401 | 0.0046 | 0.4222 | -0.211 | -0.2061 | -0.1228 | 0.4244 | -0.0661 |
| MATH | 6 | 496607 | 0 | A-R | 2 | 81740 | 0.4555 | 0.0701 | 0.4532 | 0.3925 | 0.0791 | 0.0037 | 0.4518 | -0.1732 | 0.4539 | -0.2336 | -0.2315 | -0.062 |
| MATH | 6 | 560214 | 0 | A-R | 2 | 81775 | 0.5683 | 0.1179 | 0.1822 | 0.5656 | 0.1296 | 0.0036 | 0.5126 | -0.2263 | -0.2507 | 0.5145 | -0.2405 | -0.061 |
| MATH | 6 | 567155 | 0 | A-R | 2 | 81857 | 0.3511 | 0.106 | 0.3844 | 0.3499 | 0.1561 | 0.0027 | 0.4136 | -0.1272 | -0.2552 | 0.4147 | -0.0853 | -0.05 |
| MATH | 6 | 574779 | 0 | A-R | 2 | 81794 | 0.5659 | 0.3401 | 0.0462 | 0.046 | 0.5634 | 0.0029 | 0.4415 | -0.2894 | -0.1997 | -0.1753 | 0.4439 | -0.0565 |
| MATH | 6 | 314863 | 0 | B-E | 2 | 81736 | 0.5719 | 0.569 | 0.1047 | 0.134 | 0.1872 | 0.0037 | 0.485 | 0.4874 | -0.2102 | -0.2471 | -0.225 | -0.0615 |
| MATH | 6 | 314894 | 0 | B-E | 2 | 81777 | 0.555 | 0.5524 | 0.2004 | 0.1854 | 0.0572 | 0.0032 | 0.5244 | 0.5261 | -0.238 | -0.2935 | -0.2058 | -0.0606 |
| MATH | 6 | 319258 | 0 | B-E | 1 | 81865 | 0.5197 | 0.1079 | 0.0974 | 0.2733 | 0.5179 | 0.0027 | 0.5729 | -0.2997 | -0.2569 | -0.2561 | 0.574 | -0.0528 |
| MATH | 6 | 319283 | 0 | B-E | 1 | 81881 | 0.674 | 0.0576 | 0.1437 | 0.1237 | 0.6717 | 0.0023 | 0.4497 | -0.2307 | -0.1776 | -0.2821 | 0.4517 | -0.0457 |
| MATH | 6 | 412554 | 0 | B-E | 2 | 81672 | 0.5968 | 0.5933 | 0.1628 | 0.1682 | 0.0699 | 0.0039 | 0.522 | 0.5239 | -0.266 | -0.2685 | -0.2104 | -0.0643 |
| MATH | 6 | 417167 | 0 | B-E | 2 | 81766 | 0.615 | 0.2017 | 0.0905 | 0.6121 | 0.091 | 0.0037 | 0.5523 | -0.2851 | -0.2856 | 0.5543 | -0.2402 | -0.06 |
| MATH | 6 | 491798 | 0 | B-E | 2 | 81859 | 0.6996 | 0.1331 | 0.6971 | 0.0912 | 0.075 | 0.0027 | 0.4988 | -0.2514 | 0.5011 | -0.2782 | -0.2316 | -0.0536 |
| MATH | 6 | 496957 | 0 | B-E | 2 | 81821 | 0.7346 | 0.7316 | 0.135 | 0.0778 | 0.0515 | 0.0029 | 0.4788 | 0.4811 | -0.2382 | -0.2899 | -0.2274 | -0.0553 |
| MATH | 6 | 496958 | 0 | B-E | 2 | 81612 | 0.5969 | 0.1339 | 0.593 | 0.1653 | 0.1012 | 0.0054 | 0.4844 | -0.256 | 0.4877 | -0.2235 | -0.2085 | -0.0734 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 6 | 501162 | 0 | B-E | 1 | 81615 | 0.6392 | 0.1334 | 0.1135 | 0.1115 | 0.635 | 0.0053 | 0.5498 | -0.2832 | -0.2614 | -0.255 | 0.5527 | -0.0751 |
| MATH | 6 | 574297 | 0 | B-E | 2 | 81694 | 0.4988 | 0.1343 | 0.496 | 0.1487 | 0.2154 | 0.0045 | 0.4987 | -0.2709 | 0.5008 | -0.2945 | -0.116 | -0.0673 |
| MATH | 6 | 314817 | 0 | C-G | 2 | 81739 | 0.4868 | 0.1843 | 0.1785 | 0.1478 | 0.4843 | 0.004 | 0.5439 | -0.2694 | -0.2316 | -0.21 | 0.5454 | -0.0631 |
| MATH | 6 | 401320 | 0 | C-G | 2 | 81782 | 0.5179 | 0.5156 | 0.2306 | 0.1894 | 0.0599 | 0.0033 | 0.4363 | 0.4382 | -0.2681 | -0.1482 | -0.1848 | -0.0511 |
| MATH | 6 | 411369 | 0 | C-G | 2 | 81740 | 0.3555 | 0.3108 | 0.1811 | 0.1494 | 0.3537 | 0.0039 | 0.4371 | -0.2173 | -0.1621 | -0.1182 | 0.4381 | -0.0556 |
| MATH | 6 | 416042 | 0 | C-G | 2 | 81661 | 0.4855 | 0.4826 | 0.2054 | 0.1908 | 0.1152 | 0.0045 | 0.4252 | 0.4279 | -0.2098 | -0.133 | -0.2219 | -0.0671 |
| MATH | 6 | 478722 | 0 | C-G | 2 | 81766 | 0.4796 | 0.4773 | 0.1905 | 0.1755 | 0.1519 | 0.0038 | 0.394 | 0.3961 | -0.214 | -0.1395 | -0.1568 | -0.0605 |
| MATH | 6 | 492467 | 0 | C-G | 2 | 81503 | 0.4707 | 0.0914 | 0.1745 | 0.4669 | 0.2593 | 0.0066 | 0.4268 | -0.2084 | -0.2218 | 0.4299 | -0.1437 | -0.074 |
| MATH | 6 | 496953 | 0 | C-G | 1 | 81811 | 0.5445 | 0.5423 | 0.1922 | 0.1752 | 0.0861 | 0.0031 | 0.5837 | 0.5848 | -0.319 | -0.2734 | -0.2064 | -0.0507 |
| MATH | 6 | 497312 | 0 | C-G | 2 | 81736 | 0.3705 | 0.2579 | 0.2429 | 0.1254 | 0.3686 | 0.0039 | 0.5119 | -0.1535 | -0.2788 | -0.1703 | 0.5127 | -0.0505 |
| MATH | 6 | 319261 | 0 | D-S | 2 | 81667 | 0.4816 | 0.3011 | 0.1286 | 0.0857 | 0.4787 | 0.0043 | 0.4079 | -0.1219 | -0.2193 | -0.2511 | 0.4101 | -0.0606 |
| MATH | 6 | 399249 | 0 | D-S | 2 | 81780 | 0.6197 | 0.1048 | 0.0746 | 0.6169 | 0.1992 | 0.0036 | 0.461 | -0.1359 | -0.2392 | 0.4638 | -0.2908 | -0.0666 |
| MATH | 6 | 401985 | 0 | D-S | 2 | 81549 | 0.5869 | 0.1291 | 0.1233 | 0.5826 | 0.1577 | 0.0059 | 0.4441 | -0.201 | -0.231 | 0.4483 | -0.1928 | -0.0776 |
| MATH | 6 | 492468 | 0 | D-S | 2 | 81676 | 0.4859 | 0.1586 | 0.1317 | 0.2208 | 0.483 | 0.0045 | 0.4767 | -0.203 | -0.1758 | -0.2412 | 0.4788 | -0.0663 |
| MATH | 6 | 500237 | 0 | D-S | 2 | 81904 | 0.5685 | 0.2935 | 0.0806 | 0.5667 | 0.0561 | 0.0022 | 0.4642 | -0.2366 | -0.2654 | 0.4656 | -0.2078 | -0.0451 |
| MATH | 6 | 574853 | 0 | D-S | 1 | 81797 | 0.3563 | 0.0486 | 0.276 | 0.3548 | 0.3162 | 0.003 | 0.4527 | -0.1911 | -0.2692 | 0.454 | -0.1106 | -0.0545 |
| MATH | 6 | 617052 | 1 | A-N | 1 | 9765 | 0.5754 | 0.116 | 0.1312 | 0.5723 | 0.1751 | 0.0043 | 0.3906 | -0.2251 | -0.2382 | 0.3929 | -0.0994 | -0.0519 |
| MATH | 6 | 624475 | 1 | A-N | 2 | 9727 | 0.3133 | 0.2361 | 0.3103 | 0.1514 | 0.2929 | 0.0072 | 0.1209 | -0.2489 | 0.1244 | -0.1678 | 0.2526 | -0.0544 |
| MATH | 6 | 653194 | 1 | A-R | 1 | 9735 | 0.4625 | 0.4585 | 0.1221 | 0.1258 | 0.2851 | 0.0066 | 0.3553 | 0.3598 | -0.2071 | -0.1854 | -0.0922 | -0.0808 |
| MATH | 6 | 615357 | 1 | B-E | 2 | 9666 | 0.4641 | 0.4569 | 0.2261 | 0.1813 | 0.1202 | 0.0145 | 0.4267 | 0.4291 | -0.0671 | -0.2658 | -0.2264 | -0.0717 |
| MATH | 6 | 653195 | 1 | B-E | 1 | 9723 | 0.2026 | 0.0893 | 0.315 | 0.2007 | 0.3853 | 0.0074 | 0.1833 | -0.0822 | -0.2153 | 0.1864 | 0.1182 | -0.0796 |
| MATH | 6 | 658872 | 1 | B-E | 2 | 9731 | 0.4316 | 0.1217 | 0.2116 | 0.2301 | 0.4278 | 0.008 | 0.3876 | -0.1969 | -0.1521 | -0.1411 | 0.3906 | -0.0747 |
| MATH | 6 | 614784 | 1 | C-G | 1 | 9724 | 0.558 | 0.1587 | 0.5527 | 0.1384 | 0.1407 | 0.0077 | 0.3599 | -0.2076 | 0.3655 | -0.2192 | -0.0607 | -0.0839 |
| MATH | 6 | 625245 | 1 | D-S | 2 | 9691 | 0.3124 | 0.1393 | 0.1943 | 0.3451 | 0.3083 | 0.0122 | 0.4066 | -0.1543 | -0.1262 | -0.1634 | 0.4075 | -0.0607 |
| MATH | 6 | 617304 | 2 | A-N | 1 | 9014 | 0.4203 | 0.0829 | 0.1082 | 0.4182 | 0.3856 | 0.0033 | 0.4456 | -0.1777 | -0.1885 | 0.447 | -0.2227 | -0.0453 |
| MATH | 6 | 658869 | 2 | A-N | 1 | 8941 | 0.2961 | 0.126 | 0.2921 | 0.1182 | 0.4504 | 0.0128 | 0.1501 | -0.1257 | 0.1532 | -0.2292 | 0.1071 | -0.0611 |
| MATH | 6 | 654778 | 2 | A-R | 2 | 8984 | 0.6153 | 0.6101 | 0.1474 | 0.1615 | 0.0725 | 0.0065 | 0.4972 | 0.5017 | -0.2475 | -0.2553 | -0.2084 | -0.0915 |
| MATH | 6 | 574784 | 2 | B-E | 2 | 8937 | 0.3068 | 0.1935 | 0.3026 | 0.2812 | 0.209 | 0.013 | 0.2804 | -0.0573 | 0.2833 | -0.1833 | -0.0385 | -0.0762 |
| MATH | 6 | 654994 | 2 | B-E | 1 | 8981 | 0.5872 | 0.1285 | 0.1438 | 0.5821 | 0.1369 | 0.0073 | 0.4626 | -0.1496 | -0.1694 | 0.4668 | -0.3265 | -0.0837 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 6 | 658116 | 2 | C-G | 2 | 8974 | 0.1895 | 0.2674 | 0.206 | 0.3292 | 0.1877 | 0.0075 | 0.2887 | -0.101 | -0.2048 | 0.0475 | 0.2905 | -0.0762 |
| MATH | 6 | 581338 | 2 | D-S | 2 | 8983 | 0.5176 | 0.5132 | 0.1522 | 0.1622 | 0.1638 | 0.0067 | 0.4138 | 0.4176 | -0.1409 | -0.2682 | -0.1387 | -0.0743 |
| MATH | 6 | 657506 | 2 | D-S | 2 | 8993 | 0.533 | 0.1242 | 0.529 | 0.128 | 0.2113 | 0.0062 | 0.449 | -0.1514 | 0.4524 | -0.2835 | -0.1806 | -0.0766 |
| MATH | 6 | 617503 | 3 | A-N | 1 | 9003 | 0.4989 | 0.1801 | 0.131 | 0.1876 | 0.4967 | 0.0034 | 0.4795 | -0.244 | -0.2307 | -0.1661 | 0.4812 | -0.0534 |
| MATH | 6 | 614778 | 3 | A-R | 1 | 8960 | 0.7613 | 0.7542 | 0.084 | 0.0776 | 0.0749 | 0.0075 | 0.4736 | 0.4807 | -0.2793 | -0.2678 | -0.1829 | -0.0947 |
| MATH | 6 | 657501 | 3 | A-R | 2 | 8935 | 0.4145 | 0.2865 | 0.1019 | 0.19 | 0.4096 | 0.0111 | 0.3502 | 0.0218 | -0.2321 | -0.2642 | 0.3547 | -0.0903 |
| MATH | 6 | 615361 | 3 | B-E | 1 | 8960 | 0.6519 | 0.127 | 0.6458 | 0.0784 | 0.1394 | 0.0067 | 0.3429 | -0.2581 | 0.3495 | -0.2569 | -0.0106 | -0.0737 |
| MATH | 6 | 652197 | 3 | B-E | 2 | 8927 | 0.3326 | 0.1626 | 0.2329 | 0.2633 | 0.3283 | 0.0128 | 0.3428 | -0.1936 | -0.1129 | -0.0762 | 0.3459 | -0.0853 |
| MATH | 6 | 614777 | 3 | C-G | 2 | 8961 | 0.2294 | 0.1902 | 0.2443 | 0.2273 | 0.3291 | 0.0076 | 0.1148 | -0.0836 | -0.0713 | 0.1184 | 0.0471 | -0.0751 |
| MATH | 6 | 652199 | 3 | D-S | 1 | 8961 | 0.6624 | 0.6563 | 0.0962 | 0.1638 | 0.0745 | 0.0077 | 0.4311 | 0.4353 | -0.2083 | -0.2468 | -0.1767 | -0.0698 |
| MATH | 6 | 654784 | 3 | D-S | 2 | 8957 | 0.6387 | 0.1036 | 0.6326 | 0.1391 | 0.1151 | 0.0077 | 0.4425 | -0.2152 | 0.4496 | -0.2207 | -0.2015 | -0.1 |
| MATH | 7 | 335226 | 0 | A-N | 1 | 82131 | 0.6103 | 0.1975 | 0.6085 | 0.0557 | 0.1353 | 0.0026 | 0.4577 | -0.3312 | 0.4587 | -0.1781 | -0.1429 | -0.0379 |
| MATH | 7 | 335228 | 0 | A-N | 1 | 82091 | 0.4709 | 0.4692 | 0.2209 | 0.1483 | 0.1581 | 0.0029 | 0.3922 | 0.3931 | -0.161 | -0.2326 | -0.1217 | -0.0385 |
| MATH | 7 | 335237 | 0 | A-N | 2 | 82060 | 0.3946 | 0.225 | 0.1499 | 0.2282 | 0.393 | 0.0028 | 0.3909 | -0.0904 | -0.1993 | -0.1883 | 0.3924 | -0.0529 |
| MATH | 7 | 415638 | 0 | A-N | 2 | 81963 | 0.5049 | 0.5023 | 0.1396 | 0.2191 | 0.1339 | 0.0037 | 0.513 | 0.5148 | -0.2731 | -0.2215 | -0.1956 | -0.0568 |
| MATH | 7 | 480243 | 0 | A-N | 2 | 81862 | 0.5193 | 0.1953 | 0.5161 | 0.1702 | 0.1121 | 0.005 | 0.4641 | -0.2231 | 0.4662 | -0.2159 | -0.1845 | -0.0566 |
| MATH | 7 | 490716 | 0 | A-N | 1 | 82088 | 0.489 | 0.1341 | 0.2518 | 0.4873 | 0.1232 | 0.003 | 0.3152 | -0.0472 | -0.1848 | 0.3167 | -0.1805 | -0.0402 |
| MATH | 7 | 496115 | 0 | A-N | 1 | 82134 | 0.6077 | 0.305 | 0.6058 | 0.048 | 0.0381 | 0.0019 | 0.5123 | -0.3837 | 0.5136 | -0.188 | -0.164 | -0.0396 |
| MATH | 7 | 565300 | 0 | A-N | 1 | 81950 | 0.7624 | 0.7584 | 0.0712 | 0.0683 | 0.0969 | 0.0035 | 0.3888 | 0.3918 | -0.2139 | -0.2101 | -0.1881 | -0.0505 |
| MATH | 7 | 319340 | 0 | A-R | 2 | 82099 | 0.3395 | 0.2482 | 0.3383 | 0.2941 | 0.1159 | 0.0025 | 0.4359 | -0.1299 | 0.4368 | -0.1897 | -0.1907 | -0.0413 |
| MATH | 7 | 335233 | 0 | A-R | 2 | 81897 | 0.3715 | 0.3569 | 0.1781 | 0.3693 | 0.0897 | 0.0046 | 0.4299 | -0.1758 | -0.1615 | 0.4315 | -0.2006 | -0.054 |
| MATH | 7 | 335234 | 0 | A-R | 2 | 82080 | 0.4622 | 0.4606 | 0.1581 | 0.1585 | 0.2192 | 0.0024 | 0.364 | 0.3654 | -0.0262 | -0.2734 | -0.1688 | -0.04 |
| MATH | 7 | 335236 | 0 | A-R | 2 | 82062 | 0.6355 | 0.117 | 0.6331 | 0.1241 | 0.122 | 0.0029 | 0.5021 | -0.2366 | 0.5039 | -0.2652 | -0.2317 | -0.0493 |
| MATH | 7 | 335238 | 0 | A-R | 2 | 81896 | 0.4504 | 0.1623 | 0.1801 | 0.204 | 0.4478 | 0.0046 | 0.4975 | -0.1821 | -0.2368 | -0.2118 | 0.4989 | -0.0533 |
| MATH | 7 | 413355 | 0 | A-R | 1 | 82059 | 0.4002 | 0.0851 | 0.3987 | 0.1349 | 0.3774 | 0.0029 | 0.4764 | -0.1805 | 0.4776 | -0.2168 | -0.2185 | -0.047 |
| MATH | 7 | 417798 | 0 | A-R | 2 | 81976 | 0.364 | 0.2423 | 0.2075 | 0.3623 | 0.183 | 0.0038 | 0.4313 | -0.0742 | -0.2152 | 0.4327 | -0.2191 | -0.0528 |
| MATH | 7 | 496114 | 0 | A-R | 2 | 82011 | 0.5629 | 0.1156 | 0.5603 | 0.2563 | 0.0633 | 0.0034 | 0.4087 | -0.2304 | 0.4111 | -0.1668 | -0.2195 | -0.0512 |
| MATH | 7 | 500367 | 0 | A-R | 2 | 82132 | 0.512 | 0.5104 | 0.1905 | 0.1297 | 0.1664 | 0.0018 | 0.4762 | 0.477 | -0.282 | -0.1991 | -0.1572 | -0.0349 |
| MATH | 7 | 314897 | 0 | B-E | 1 | 81929 | 0.3733 | 0.3712 | 0.2807 | 0.1259 | 0.2167 | 0.004 | 0.4775 | 0.4789 | -0.2161 | -0.1976 | -0.1557 | -0.0547 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 7 | 319290 | 0 | B-E | 1 | 81789 | 0.3716 | 0.369 | 0.2214 | 0.2256 | 0.1768 | 0.0035 | 0.4115 | 0.4128 | -0.1737 | -0.1619 | -0.1438 | -0.0438 |
| MATH | 7 | 401981 | 0 | B-E | 2 | 82118 | 0.596 | 0.1302 | 0.1575 | 0.5941 | 0.1149 | 0.0027 | 0.3907 | -0.1105 | -0.2379 | 0.392 | -0.2078 | -0.0358 |
| MATH | 7 | 404813 | 0 | B-E | 2 | 81885 | 0.506 | 0.1934 | 0.5029 | 0.1879 | 0.1099 | 0.0045 | 0.5051 | -0.2648 | 0.5071 | -0.2196 | -0.1854 | -0.0589 |
| MATH | 7 | 412663 | 0 | B-E | 2 | 82173 | 0.7 | 0.1198 | 0.6982 | 0.0778 | 0.1016 | 0.0018 | 0.4886 | -0.2915 | 0.4902 | -0.226 | -0.2227 | -0.044 |
| MATH | 7 | 415641 | 0 | B-E | 2 | 82050 | 0.6281 | 0.1443 | 0.6256 | 0.0985 | 0.1276 | 0.0031 | 0.5284 | -0.3084 | 0.53 | -0.234 | -0.2242 | -0.0505 |
| MATH | 7 | 415662 | 0 | B-E | 2 | 82048 | 0.4903 | 0.4883 | 0.1645 | 0.1897 | 0.1535 | 0.003 | 0.4414 | 0.443 | -0.2087 | -0.171 | -0.2035 | -0.0504 |
| MATH | 7 | 565885 | 0 | B-E | 2 | 81903 | 0.4672 | 0.118 | 0.1268 | 0.2849 | 0.4644 | 0.0043 | 0.4037 | -0.236 | -0.1962 | -0.1244 | 0.4058 | -0.0568 |
| MATH | 7 | 567233 | 0 | B-E | 1 | 81925 | 0.5272 | 0.1388 | 0.1743 | 0.1571 | 0.5243 | 0.0043 | 0.539 | -0.2703 | -0.2396 | -0.2228 | 0.5404 | -0.0538 |
| MATH | 7 | 314813 | 0 | C-G | 1 | 82070 | 0.379 | 0.1689 | 0.1907 | 0.3775 | 0.2592 | 0.003 | 0.4027 | -0.1593 | -0.1895 | 0.4038 | -0.1333 | -0.0483 |
| MATH | 7 | 412775 | 0 | C-G | 2 | 82121 | 0.5465 | 0.1276 | 0.1097 | 0.2148 | 0.5448 | 0.0021 | 0.45 | -0.1941 | -0.241 | -0.1998 | 0.4513 | -0.0416 |
| MATH | 7 | 412776 | 0 | C-G | 1 | 81950 | 0.1831 | 0.1828 | 0.3704 | 0.2595 | 0.1821 | 0.0041 | 0.3198 | -0.0822 | -0.0079 | -0.1907 | 0.3208 | -0.0575 |
| MATH | 7 | 477770 | 0 | C-G | 2 | 82060 | 0.3873 | 0.188 | 0.2675 | 0.3858 | 0.1548 | 0.003 | 0.4272 | -0.2357 | -0.2033 | 0.428 | -0.0646 | -0.038 |
| MATH | 7 | 478171 | 0 | C-G | 2 | 81920 | 0.4042 | 0.267 | 0.2261 | 0.4019 | 0.0994 | 0.0044 | 0.485 | -0.1349 | -0.28 | 0.4866 | -0.1904 | -0.0556 |
| MATH | 7 | 560209 | 0 | C-G | 1 | 81941 | 0.4949 | 0.1426 | 0.4922 | 0.1698 | 0.19 | 0.0043 | 0.4932 | -0.1956 | 0.495 | -0.2508 | -0.2043 | -0.0592 |
| MATH | 7 | 567235 | 0 | C-G | 1 | 82008 | 0.4271 | 0.1131 | 0.1683 | 0.2889 | 0.4252 | 0.0034 | 0.4111 | -0.2564 | -0.2191 | -0.0816 | 0.4127 | -0.051 |
| MATH | 7 | 567236 | 0 | C-G | 1 | 82170 | 0.5056 | 0.117 | 0.2435 | 0.5044 | 0.1326 | 0.0018 | 0.4927 | -0.2539 | -0.3222 | 0.4932 | -0.0733 | -0.0314 |
| MATH | 7 | 575224 | 0 | C-G | 2 | 82062 | 0.4227 | 0.2278 | 0.1718 | 0.4211 | 0.1755 | 0.003 | 0.4389 | -0.2822 | -0.1464 | 0.4401 | -0.1062 | -0.0473 |
| MATH | 7 | 576068 | 0 | C-G | 2 | 82134 | 0.6175 | 0.1333 | 0.1396 | 0.6157 | 0.1084 | 0.0024 | 0.38 | -0.1699 | -0.2311 | 0.3818 | -0.1452 | -0.0446 |
| MATH | 7 | 314824 | 0 | D-S | 2 | 82104 | 0.4829 | 0.1205 | 0.169 | 0.2258 | 0.4813 | 0.0024 | 0.355 | -0.1297 | -0.1228 | -0.2083 | 0.3564 | -0.0404 |
| MATH | 7 | 314870 | 0 | D-S | 2 | 81939 | 0.5123 | 0.0775 | 0.5096 | 0.2847 | 0.1228 | 0.0042 | 0.403 | -0.1952 | 0.4055 | -0.233 | -0.1239 | -0.0562 |
| MATH | 7 | 319265 | 0 | D-S | 2 | 81958 | 0.4442 | 0.1677 | 0.1748 | 0.4419 | 0.2105 | 0.004 | 0.3836 | -0.1213 | -0.191 | 0.3855 | -0.1703 | -0.0502 |
| MATH | 7 | 565889 | 0 | D-S | 2 | 82099 | 0.5422 | 0.1267 | 0.2278 | 0.5403 | 0.1018 | 0.0029 | 0.3216 | -0.1956 | -0.1252 | 0.3236 | -0.1345 | -0.0471 |
| MATH | 7 | 617138 | 1 | A-N | 1 | 9845 | 0.3379 | 0.091 | 0.3367 | 0.2747 | 0.294 | 0.0026 | 0.5149 | -0.1097 | 0.5157 | -0.2843 | -0.1803 | -0.0465 |
| MATH | 7 | 656009 | 1 | A-R | 2 | 9796 | 0.2962 | 0.3663 | 0.2937 | 0.215 | 0.1165 | 0.0075 | 0.2852 | 0.0573 | 0.2872 | -0.2349 | -0.1741 | -0.0545 |
| MATH | 7 | 659597 | 1 | A-R | 2 | 9800 | 0.3945 | 0.2296 | 0.3913 | 0.212 | 0.1589 | 0.0071 | 0.2245 | 0.0318 | 0.2281 | -0.1601 | -0.1445 | -0.0659 |
| MATH | 7 | 630681 | 1 | B-E | 2 | 9797 | 0.4443 | 0.2469 | 0.1358 | 0.1682 | 0.4405 | 0.0063 | 0.4579 | -0.1415 | -0.2381 | -0.2111 | 0.4604 | -0.0677 |
| MATH | 7 | 656011 | 1 | B-E | 2 | 9748 | 0.3585 | 0.3537 | 0.2495 | 0.2089 | 0.1745 | 0.0122 | 0.3311 | 0.3323 | -0.0331 | -0.1717 | -0.1799 | -0.048 |
| MATH | 7 | 659602 | 1 | C-G | 2 | 9799 | 0.2364 | 0.2548 | 0.23 | 0.2344 | 0.2724 | 0.0061 | 0.1976 | 0.0665 | -0.1505 | 0.2004 | -0.0981 | -0.0662 |
| MATH | 7 | 613071 | 1 | D-S | 2 | 9774 | 0.2879 | 0.2003 | 0.242 | 0.2621 | 0.2848 | 0.0102 | 0.3475 | -0.136 | -0.1613 | -0.0642 | 0.3485 | -0.0499 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 7 | 617913 | 1 | D-S | 2 | 9789 | 0.5331 | 0.1288 | 0.1624 | 0.5282 | 0.1712 | 0.0076 | 0.5122 | -0.2271 | -0.2116 | 0.5143 | -0.2551 | -0.0593 |
| MATH | 7 | 617364 | 2 | A-N | 1 | 9021 | 0.3001 | 0.2994 | 0.2252 | 0.2549 | 0.2184 | 0.0013 | 0.2073 | 0.208 | -0.0748 | -0.0938 | -0.052 | -0.038 |
| MATH | 7 | 629172 | 2 | A-N | 1 | 8976 | 0.6002 | 0.5959 | 0.1927 | 0.1184 | 0.086 | 0.0054 | 0.5143 | 0.5164 | -0.2483 | -0.259 | -0.2369 | -0.0535 |
| MATH | 7 | 617914 | 2 | A-R | 2 | 8993 | 0.2929 | 0.3129 | 0.2697 | 0.1208 | 0.2914 | 0.005 | 0.2906 | -0.0017 | -0.1606 | -0.1756 | 0.2915 | -0.0479 |
| MATH | 7 | 655928 | 2 | A-R | 2 | 8930 | 0.4269 | 0.1021 | 0.4217 | 0.2162 | 0.2479 | 0.0117 | 0.3535 | -0.1664 | 0.3549 | -0.0721 | -0.2063 | -0.0571 |
| MATH | 7 | 659600 | 2 | B-E | 2 | 8950 | 0.3247 | 0.1365 | 0.1405 | 0.3916 | 0.3215 | 0.0096 | 0.2361 | -0.2259 | -0.2463 | 0.1177 | 0.2384 | -0.0608 |
| MATH | 7 | 613069 | 2 | C-G | 2 | 8977 | 0.3907 | 0.3956 | 0.3879 | 0.1195 | 0.09 | 0.0058 | 0.3429 | -0.1835 | 0.3457 | -0.1694 | -0.0617 | -0.0679 |
| MATH | 7 | 656013 | 2 | C-G | 1 | 8970 | 0.5236 | 0.1957 | 0.1834 | 0.5196 | 0.0936 | 0.0059 | 0.4751 | -0.2799 | -0.2203 | 0.4783 | -0.123 | -0.0695 |
| MATH | 7 | 659604 | 2 | D-S | 2 | 8973 | 0.2353 | 0.2335 | 0.2576 | 0.2674 | 0.2341 | 0.006 | 0.0615 | 0.0637 | -0.001 | -0.0614 | 0.012 | -0.0534 |
| MATH | 7 | 617255 | 3 | A-N | 1 | 9028 | 0.4029 | 0.1927 | 0.1465 | 0.4017 | 0.2561 | 0.0025 | 0.3817 | -0.237 | -0.1049 | 0.3829 | -0.125 | -0.0425 |
| MATH | 7 | 630757 | 3 | A-R | 2 | 8993 | 0.4056 | 0.4029 | 0.2629 | 0.2351 | 0.0922 | 0.0055 | 0.4816 | 0.4836 | -0.1957 | -0.192 | -0.2198 | -0.0666 |
| MATH | 7 | 651114 | 3 | A-R | 2 | 8997 | 0.5346 | 0.5312 | 0.12 | 0.2382 | 0.1041 | 0.0052 | 0.2847 | 0.2873 | -0.2287 | -0.0415 | -0.1547 | -0.0419 |
| MATH | 7 | 632829 | 3 | B-E | 2 | 8982 | 0.3185 | 0.1829 | 0.316 | 0.3338 | 0.1592 | 0.0078 | 0.1869 | -0.0752 | 0.1885 | -0.0251 | -0.1176 | -0.0388 |
| MATH | 7 | 659601 | 3 | B-E | 2 | 8993 | 0.4279 | 0.1494 | 0.255 | 0.425 | 0.1638 | 0.0054 | 0.4089 | -0.187 | -0.0959 | 0.4102 | -0.2429 | -0.0471 |
| MATH | 7 | 565888 | 3 | C-G | 2 | 8985 | 0.4726 | 0.1352 | 0.1337 | 0.4689 | 0.2544 | 0.0067 | 0.2744 | -0.2044 | -0.1665 | 0.2782 | -0.0137 | -0.0629 |
| MATH | 7 | 651115 | 3 | C-G | 1 | 8997 | 0.3622 | 0.274 | 0.2514 | 0.1083 | 0.3599 | 0.005 | 0.3453 | -0.1244 | -0.1528 | -0.1319 | 0.3463 | -0.0413 |
| MATH | 7 | 613068 | 3 | D-S | 2 | 8970 | 0.4412 | 0.1273 | 0.2738 | 0.1524 | 0.4371 | 0.0087 | 0.3843 | -0.2758 | -0.0049 | -0.2563 | 0.3854 | -0.0468 |
| MATH | 8 | 335243 | 0 | A-N | 1 | 82645 | 0.5715 | 0.2 | 0.5699 | 0.1167 | 0.1106 | 0.002 | 0.4726 | -0.2 | 0.474 | -0.2453 | -0.2332 | -0.0414 |
| MATH | 8 | 335255 | 0 | A-N | 2 | 82458 | 0.3865 | 0.3845 | 0.3336 | 0.1434 | 0.1334 | 0.004 | 0.4831 | 0.4847 | -0.1127 | -0.2702 | -0.2443 | -0.0606 |
| MATH | 8 | 415804 | 0 | A-N | 1 | 82674 | 0.483 | 0.3842 | 0.4818 | 0.0345 | 0.0969 | 0.0015 | 0.5669 | -0.3423 | 0.5678 | -0.1457 | -0.2978 | -0.0401 |
| MATH | 8 | 416599 | 0 | A-N | 2 | 82473 | 0.6194 | 0.1136 | 0.1227 | 0.1424 | 0.6163 | 0.0036 | 0.5189 | -0.2422 | -0.2473 | -0.2598 | 0.5211 | -0.06 |
| MATH | 8 | 493096 | 0 | A-N | 2 | 82540 | 0.3197 | 0.1772 | 0.3184 | 0.2774 | 0.2229 | 0.0031 | 0.3349 | -0.1626 | 0.3364 | -0.1532 | -0.0531 | -0.0543 |
| MATH | 8 | 494637 | 0 | A-N | 1 | 82610 | 0.502 | 0.1377 | 0.2356 | 0.5004 | 0.1231 | 0.0026 | 0.4124 | -0.1775 | -0.1325 | 0.4138 | -0.2635 | -0.0472 |
| MATH | 8 | 499241 | 0 | A-N | 1 | 82511 | 0.3314 | 0.3828 | 0.1855 | 0.0972 | 0.33 | 0.0034 | 0.4548 | -0.3281 | 0.014 | -0.1898 | 0.4559 | -0.057 |
| MATH | 8 | 312494 | 0 | B-E | 1 | 82664 | 0.5507 | 0.5493 | 0.1462 | 0.1845 | 0.1174 | 0.0021 | 0.4269 | 0.4277 | -0.1737 | -0.2274 | -0.1904 | -0.034 |
| MATH | 8 | 314876 | 0 | B-E | 2 | 82656 | 0.4549 | 0.1562 | 0.4537 | 0.3218 | 0.0656 | 0.0019 | 0.424 | -0.1413 | 0.425 | -0.2223 | -0.2183 | -0.0352 |
| MATH | 8 | 314900 | 0 | B-E | 2 | 82638 | 0.7127 | 0.1308 | 0.0679 | 0.0878 | 0.7106 | 0.0021 | 0.4888 | -0.2722 | -0.2339 | -0.2438 | 0.4907 | -0.0485 |
| MATH | 8 | 314901 | 0 | B-E | 1 | 82634 | 0.3827 | 0.0612 | 0.3815 | 0.3085 | 0.2458 | 0.0025 | 0.268 | -0.1228 | 0.269 | -0.1704 | -0.0474 | -0.036 |
| MATH | 8 | 319312 | 0 | B-E | 2 | 82655 | 0.5349 | 0.1795 | 0.1342 | 0.5335 | 0.15 | 0.0022 | 0.3504 | -0.0677 | -0.1665 | 0.3515 | -0.2536 | -0.036 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 8 | 412781 | 0 | B-E | 2 | 82458 | 0.492 | 0.2267 | 0.1513 | 0.4895 | 0.1275 | 0.0041 | 0.4545 | -0.1397 | -0.246 | 0.4567 | -0.2303 | -0.0612 |
| MATH | 8 | 413598 | 0 | B-E | 2 | 82651 | 0.3475 | 0.3465 | 0.2472 | 0.1418 | 0.2617 | 0.0021 | 0.2717 | 0.273 | -0.1257 | -0.2319 | 0.018 | -0.0478 |
| MATH | 8 | 415801 | 0 | B-E | 2 | 82579 | 0.4504 | 0.1285 | 0.2259 | 0.1932 | 0.4487 | 0.0028 | 0.4609 | -0.2241 | -0.1152 | -0.2621 | 0.4621 | -0.0472 |
| MATH | 8 | 415803 | 0 | B-E | 2 | 82499 | 0.3375 | 0.3359 | 0.3004 | 0.1648 | 0.1943 | 0.0036 | 0.3833 | 0.3846 | -0.0621 | -0.2212 | -0.1697 | -0.0524 |
| MATH | 8 | 416363 | 0 | B-E | 2 | 82643 | 0.489 | 0.1246 | 0.2115 | 0.4876 | 0.1735 | 0.0021 | 0.4118 | -0.1737 | -0.1901 | 0.4131 | -0.1816 | -0.0422 |
| MATH | 8 | 416550 | 0 | B-E | 1 | 82473 | 0.5586 | 0.142 | 0.1593 | 0.5559 | 0.1378 | 0.004 | 0.4873 | -0.209 | -0.2436 | 0.4892 | -0.2224 | -0.0553 |
| MATH | 8 | 416558 | 0 | B-E | 2 | 82624 | 0.4808 | 0.116 | 0.2155 | 0.1861 | 0.4793 | 0.0022 | 0.4875 | -0.2497 | -0.1835 | -0.2205 | 0.4886 | -0.0477 |
| MATH | 8 | 416559 | 0 | B-E | 1 | 82557 | 0.4617 | 0.182 | 0.1494 | 0.2048 | 0.4599 | 0.0031 | 0.5105 | -0.1551 | -0.2352 | -0.2673 | 0.5117 | -0.0496 |
| MATH | 8 | 503512 | 0 | B-E | 2 | 82473 | 0.5856 | 0.1538 | 0.1763 | 0.5827 | 0.0824 | 0.0038 | 0.5518 | -0.233 | -0.3162 | 0.5542 | -0.2317 | -0.0638 |
| MATH | 8 | 565842 | 0 | B-E | 1 | 82587 | 0.5153 | 0.2388 | 0.1373 | 0.5135 | 0.1068 | 0.0027 | 0.5206 | -0.1927 | -0.3017 | 0.5219 | -0.2316 | -0.049 |
| MATH | 8 | 575469 | 0 | B-E | 1 | 82511 | 0.4349 | 0.2248 | 0.1959 | 0.433 | 0.1419 | 0.0036 | 0.3426 | -0.043 | -0.1894 | 0.3446 | -0.2111 | -0.0532 |
| MATH | 8 | 314892 | 0 | B-F | 2 | 82701 | 0.6484 | 0.0467 | 0.074 | 0.647 | 0.2301 | 0.0016 | 0.531 | -0.2074 | -0.2768 | 0.5322 | -0.3229 | -0.0398 |
| MATH | 8 | 404826 | 0 | B-F | 1 | 82519 | 0.5283 | 0.1594 | 0.526 | 0.1299 | 0.1804 | 0.0034 | 0.4436 | -0.2278 | 0.4456 | -0.2356 | -0.1453 | -0.0529 |
| MATH | 8 | 404827 | 0 | B-F | 2 | 82447 | 0.5787 | 0.5757 | 0.154 | 0.1281 | 0.1371 | 0.0041 | 0.4804 | 0.4828 | -0.201 | -0.2496 | -0.2264 | -0.0568 |
| MATH | 8 | 413332 | 0 | B-F | 2 | 82559 | 0.444 | 0.116 | 0.3312 | 0.1067 | 0.4422 | 0.0029 | 0.5308 | -0.2737 | -0.2418 | -0.1913 | 0.532 | -0.0542 |
| MATH | 8 | 415806 | 0 | B-F | 2 | 82639 | 0.6833 | 0.0517 | 0.0548 | 0.6813 | 0.2093 | 0.002 | 0.4492 | -0.2115 | -0.2211 | 0.4512 | -0.271 | -0.0459 |
| MATH | 8 | 416594 | 0 | B-F | 2 | 82460 | 0.4531 | 0.4508 | 0.1768 | 0.2522 | 0.1152 | 0.0038 | 0.504 | 0.5057 | -0.2582 | -0.1829 | -0.2163 | -0.0585 |
| MATH | 8 | 416600 | 0 | B-F | 2 | 82631 | 0.5092 | 0.5077 | 0.1052 | 0.2659 | 0.1182 | 0.0021 | 0.4485 | 0.4497 | -0.2474 | -0.1653 | -0.2266 | -0.0421 |
| MATH | 8 | 575464 | 0 | B-F | 2 | 82674 | 0.5192 | 0.518 | 0.2193 | 0.1483 | 0.1119 | 0.0018 | 0.477 | 0.4779 | -0.2116 | -0.2516 | -0.1892 | -0.037 |
| MATH | 8 | 319332 | 0 | C-G | 1 | 82602 | 0.2919 | 0.2106 | 0.3566 | 0.291 | 0.1385 | 0.0026 | 0.3577 | -0.2528 | -0.064 | 0.3581 | -0.0777 | -0.0294 |
| MATH | 8 | 404815 | 0 | C-G | 2 | 82605 | 0.357 | 0.3558 | 0.3279 | 0.1755 | 0.1375 | 0.0024 | 0.4226 | 0.4236 | -0.058 | -0.1941 | -0.2867 | -0.0463 |
| MATH | 8 | 412790 | 0 | C-G | 2 | 82646 | 0.3267 | 0.1867 | 0.3084 | 0.1763 | 0.3258 | 0.0022 | 0.2946 | -0.1379 | -0.0346 | -0.1743 | 0.2955 | -0.039 |
| MATH | 8 | 416369 | 0 | C-G | 2 | 82618 | 0.4467 | 0.1653 | 0.4452 | 0.1669 | 0.2194 | 0.0024 | 0.3563 | -0.1963 | 0.3577 | -0.1948 | -0.0709 | -0.0465 |
| MATH | 8 | 488718 | 0 | C-G | 2 | 82506 | 0.4925 | 0.2771 | 0.4903 | 0.1297 | 0.0984 | 0.0032 | 0.3409 | -0.0612 | 0.3436 | -0.2458 | -0.1924 | -0.0584 |
| MATH | 8 | 314841 | 0 | D-S | 2 | 82538 | 0.4713 | 0.1726 | 0.2023 | 0.1516 | 0.4694 | 0.002 | 0.4633 | -0.1859 | -0.2037 | -0.2128 | 0.4648 | -0.0424 |
| MATH | 8 | 502455 | 0 | D-S | 2 | 82538 | 0.582 | 0.1154 | 0.5796 | 0.1489 | 0.1519 | 0.0032 | 0.3708 | -0.2084 | 0.3732 | -0.2065 | -0.1127 | -0.0509 |
| MATH | 8 | 569264 | 0 | D-S | 1 | 82531 | 0.6038 | 0.0892 | 0.1792 | 0.6012 | 0.1262 | 0.0032 | 0.4241 | -0.2695 | -0.2169 | 0.4268 | -0.1348 | -0.0577 |
| MATH | 8 | 569270 | 0 | D-S | 1 | 82621 | 0.5112 | 0.0982 | 0.2173 | 0.1718 | 0.5096 | 0.0024 | 0.5665 | -0.2416 | -0.2469 | -0.2833 | 0.5676 | -0.0492 |
| MATH | 8 | 574587 | 1 | B-E | 1 | 9835 | 0.3516 | 0.2376 | 0.3489 | 0.2131 | 0.1927 | 0.0061 | 0.2832 | -0.0743 | 0.2864 | -0.1874 | -0.0541 | -0.0736 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| MATH | 8 | 617261 | 1 | B-E | 1 | 9874 | 0.334 | 0.1255 | 0.4333 | 0.3327 | 0.1046 | 0.0034 | 0.3635 | -0.1613 | -0.1047 | 0.3645 | -0.2074 | -0.0454 |
| MATH | 8 | 625322 | 1 | B-E | 2 | 9802 | 0.3275 | 0.2156 | 0.3238 | 0.1828 | 0.2666 | 0.0079 | 0.3956 | -0.0412 | 0.3981 | -0.2142 | -0.1777 | -0.0662 |
| MATH | 8 | 569261 | 1 | B-F | 2 | 9827 | 0.6914 | 0.0766 | 0.1643 | 0.6854 | 0.0651 | 0.008 | 0.4966 | -0.2025 | -0.3195 | 0.5001 | -0.2149 | -0.0711 |
| MATH | 8 | 658904 | 1 | B-F | 2 | 9828 | 0.5829 | 0.1478 | 0.578 | 0.1713 | 0.0944 | 0.0053 | 0.4159 | -0.2428 | 0.4191 | -0.1403 | -0.2117 | -0.065 |
| MATH | 8 | 651121 | 1 | C-G | 1 | 9840 | 0.4029 | 0.1304 | 0.242 | 0.2202 | 0.4 | 0.0058 | 0.4836 | -0.2017 | -0.1735 | -0.216 | 0.4855 | -0.0629 |
| MATH | 8 | 655109 | 1 | C-G | 2 | 9843 | 0.287 | 0.2073 | 0.2275 | 0.2732 | 0.285 | 0.0055 | 0.2644 | -0.0999 | -0.1048 | -0.0684 | 0.2665 | -0.0604 |
| MATH | 8 | 565840 | 1 | D-S | 2 | 9836 | 0.5682 | 0.0859 | 0.2024 | 0.5639 | 0.1402 | 0.0065 | 0.4515 | -0.192 | -0.2054 | 0.455 | -0.238 | -0.0686 |
| MATH | 8 | 617468 | 2 | A-N | 1 | 9100 | 0.3349 | 0.3337 | 0.2723 | 0.2117 | 0.1786 | 0.0028 | 0.5146 | 0.5147 | -0.2036 | -0.1472 | -0.2335 | -0.0337 |
| MATH | 8 | 654310 | 2 | A-N | 2 | 9070 | 0.6077 | 0.121 | 0.6035 | 0.1231 | 0.1455 | 0.006 | 0.5153 | -0.2694 | 0.5163 | -0.2141 | -0.2544 | -0.0532 |
| MATH | 8 | 574468 | 2 | B-E | 1 | 9077 | 0.4362 | 0.2161 | 0.4334 | 0.2151 | 0.1291 | 0.0054 | 0.3445 | -0.0611 | 0.347 | -0.2206 | -0.152 | -0.0631 |
| MATH | 8 | 575468 | 2 | B-E | 1 | 9052 | 0.3127 | 0.3099 | 0.2694 | 0.162 | 0.2496 | 0.0081 | 0.3038 | 0.3054 | -0.0917 | -0.1962 | -0.0529 | -0.0519 |
| MATH | 8 | 655107 | 2 | B-F | 2 | 9058 | 0.2686 | 0.3339 | 0.2138 | 0.2664 | 0.1776 | 0.0066 | 0.1389 | 0.0873 | -0.1608 | 0.1427 | -0.0808 | -0.075 |
| MATH | 8 | 615375 | 2 | C-G | 2 | 9087 | 0.505 | 0.5024 | 0.1984 | 0.1668 | 0.1272 | 0.0047 | 0.4465 | 0.4489 | -0.183 | -0.1851 | -0.2328 | -0.0655 |
| MATH | 8 | 618329 | 2 | C-G | 2 | 9070 | 0.5553 | 0.1655 | 0.1535 | 0.5515 | 0.1225 | 0.0065 | 0.4239 | -0.2014 | -0.1979 | 0.4265 | -0.1845 | -0.0628 |
| MATH | 8 | 623657 | 2 | D-S | 2 | 9075 | 0.5523 | 0.0887 | 0.2529 | 0.1032 | 0.5487 | 0.0057 | 0.5351 | -0.2745 | -0.2506 | -0.2453 | 0.5374 | -0.0678 |
| MATH | 8 | 655969 | 3 | A-N | 2 | 9077 | 0.3674 | 0.3655 | 0.2391 | 0.2125 | 0.1777 | 0.0042 | 0.2684 | 0.2702 | 0.0109 | -0.1526 | -0.1791 | -0.0496 |
| MATH | 8 | 574946 | 3 | B-E | 2 | 9053 | 0.3276 | 0.2637 | 0.1587 | 0.3251 | 0.2447 | 0.0075 | 0.086 | -0.0263 | -0.1232 | 0.0879 | 0.0438 | -0.0353 |
| MATH | 8 | 617475 | 3 | B-E | 1 | 9093 | 0.2366 | 0.1181 | 0.4391 | 0.2358 | 0.2036 | 0.0022 | 0.2422 | -0.1968 | -0.039 | 0.2429 | -0.0449 | -0.0247 |
| MATH | 8 | 621941 | 3 | B-F | 2 | 9071 | 0.3618 | 0.1917 | 0.292 | 0.3597 | 0.1508 | 0.0046 | 0.2233 | -0.093 | 0.0063 | 0.226 | -0.1946 | -0.0583 |
| MATH | 8 | 655975 | 3 | B-F | 2 | 9076 | 0.2825 | 0.281 | 0.2798 | 0.24 | 0.1939 | 0.0044 | 0.1634 | 0.1657 | 0.0304 | -0.1346 | -0.0657 | -0.0569 |
| MATH | 8 | 625321 | 3 | C-G | 2 | 9068 | 0.3786 | 0.1241 | 0.3326 | 0.1609 | 0.3763 | 0.0058 | 0.3897 | -0.2384 | -0.0937 | -0.1691 | 0.3916 | -0.0597 |
| MATH | 8 | 662581 | 3 | C-G | 2 | 9080 | 0.5445 | 0.1425 | 0.5419 | 0.1794 | 0.1314 | 0.0037 | 0.3998 | -0.1717 | 0.4024 | -0.1859 | -0.1915 | -0.0553 |
| MATH | 8 | 656984 | 3 | D-S | 2 | 9066 | 0.4512 | 0.2148 | 0.4484 | 0.1552 | 0.1753 | 0.0054 | 0.3516 | -0.1217 | 0.3546 | -0.1961 | -0.1301 | -0.0669 |
| SCIENCE | 4 | 301023 | 0 | A | 2 | 85789 | 0.4742 | 0.1921 | 0.4718 | 0.1525 | 0.1785 | 0.004 | 0.3633 | -0.1514 | 0.3658 | -0.1843 | -0.134 | -0.0674 |
| SCIENCE | 4 | 304895 | 0 | A | 2 | 85884 | 0.5931 | 0.2144 | 0.1007 | 0.5907 | 0.0902 | 0.0026 | 0.546 | -0.3125 | -0.2082 | 0.5476 | -0.2583 | -0.0535 |
| SCIENCE | 4 | 304914 | 0 | A | 2 | 85363 | 0.6208 | 0.0983 | 0.6145 | 0.0889 | 0.1882 | 0.005 | 0.4735 | -0.2427 | 0.4771 | -0.2742 | -0.1871 | -0.0777 |
| SCIENCE | 4 | 401659 | 0 | A | 2 | 85539 | 0.5935 | 0.1777 | 0.1326 | 0.0929 | 0.5887 | 0.0058 | 0.5179 | -0.2017 | -0.2695 | -0.2753 | 0.5206 | -0.0741 |
| SCIENCE | 4 | 408840 | 0 | A | 2 | 85689 | 0.6112 | 0.0953 | 0.1463 | 0.6073 | 0.1448 | 0.0047 | 0.4954 | -0.274 | -0.2224 | 0.4983 | -0.2212 | -0.0678 |
| SCIENCE | 4 | 409062 | 0 | A | 2 | 85625 | 0.5648 | 0.0959 | 0.1917 | 0.5608 | 0.1446 | 0.0051 | 0.5148 | -0.2439 | -0.1943 | 0.5176 | -0.2875 | -0.0762 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| SCIENCE | 4 | 410859 | 0 | A | 2 | 85640 | 0.5397 | 0.536 | 0.2582 | 0.1174 | 0.0816 | 0.0044 | 0.4689 | 0.4716 | -0.218 | -0.2338 | -0.2107 | -0.0697 |
| SCIENCE | 4 | 411189 | 0 | A | 2 | 85736 | 0.4426 | 0.1281 | 0.3357 | 0.0904 | 0.4401 | 0.0038 | 0.3719 | -0.216 | -0.0918 | -0.2259 | 0.374 | -0.0581 |
| SCIENCE | 4 | 411272 | 0 | A | 2 | 85884 | 0.611 | 0.1423 | 0.6085 | 0.168 | 0.0772 | 0.0026 | 0.4197 | -0.203 | 0.4216 | -0.1832 | -0.2345 | -0.0423 |
| SCIENCE | 4 | 411597 | 0 | A | 2 | 85802 | 0.6821 | 0.6787 | 0.0565 | 0.1179 | 0.1419 | 0.0035 | 0.4348 | 0.4383 | -0.2629 | -0.217 | -0.1965 | -0.0669 |
| SCIENCE | 4 | 494804 | 0 | A | 2 | 85801 | 0.4696 | 0.1784 | 0.4672 | 0.207 | 0.1424 | 0.0039 | 0.3974 | -0.1667 | 0.3996 | -0.1058 | -0.2501 | -0.0625 |
| SCIENCE | 4 | 494808 | 0 | A | 2 | 85735 | 0.5169 | 0.0713 | 0.0935 | 0.5139 | 0.3154 | 0.0036 | 0.3548 | -0.1927 | -0.1382 | 0.3579 | -0.179 | -0.0567 |
| SCIENCE | 4 | 494813 | 0 | A | 2 | 85915 | 0.569 | 0.064 | 0.1143 | 0.2511 | 0.5669 | 0.0026 | 0.5515 | -0.2683 | -0.2113 | -0.3163 | 0.5526 | -0.0494 |
| SCIENCE | 4 | 494819 | 0 | A | 2 | 85827 | 0.7146 | 0.7112 | 0.1229 | 0.1063 | 0.0549 | 0.0032 | 0.5195 | 0.5217 | -0.3378 | -0.1889 | -0.2747 | -0.0585 |
| SCIENCE | 4 | 494837 | 0 | A | 2 | 85843 | 0.5884 | 0.1499 | 0.1059 | 0.5858 | 0.1539 | 0.0029 | 0.5423 | -0.2588 | -0.242 | 0.5439 | -0.2674 | -0.0466 |
| SCIENCE | 4 | 495279 | 0 | A | 2 | 85734 | 0.4393 | 0.1247 | 0.128 | 0.3048 | 0.4367 | 0.0037 | 0.3075 | -0.209 | -0.1699 | -0.0492 | 0.31 | -0.0592 |
| SCIENCE | 4 | 496499 | 0 | A | 2 | 85645 | 0.3992 | 0.3965 | 0.0807 | 0.1489 | 0.367 | 0.0041 | 0.4384 | 0.4399 | -0.2405 | -0.2483 | -0.1146 | -0.059 |
| SCIENCE | 4 | 496516 | 0 | A | 2 | 85591 | 0.4401 | 0.2033 | 0.2498 | 0.1027 | 0.4368 | 0.0048 | 0.3139 | -0.0863 | -0.0743 | -0.275 | 0.3172 | -0.0682 |
| SCIENCE | 4 | 565987 | 0 | A | 2 | 85740 | 0.5553 | 0.1002 | 0.5521 | 0.1965 | 0.1454 | 0.004 | 0.4199 | -0.1473 | 0.4225 | -0.2302 | -0.1951 | -0.0585 |
| SCIENCE | 4 | 574816 | 0 | A | 2 | 85866 | 0.6009 | 0.5984 | 0.0926 | 0.1885 | 0.1163 | 0.0033 | 0.4477 | 0.4495 | -0.2976 | -0.1374 | -0.2379 | -0.0574 |
| SCIENCE | 4 | 335265 | 0 | B | 2 | 85738 | 0.5437 | 0.1161 | 0.2451 | 0.5406 | 0.0925 | 0.004 | 0.4287 | -0.2554 | -0.1462 | 0.4309 | -0.2232 | -0.0548 |
| SCIENCE | 4 | 336960 | 0 | B | 2 | 85817 | 0.3375 | 0.2662 | 0.1745 | 0.3358 | 0.2187 | 0.0039 | 0.2415 | -0.0187 | -0.0932 | 0.2433 | -0.1616 | -0.0572 |
| SCIENCE | 4 | 409067 | 0 | B | 2 | 85725 | 0.6396 | 0.1604 | 0.6358 | 0.065 | 0.1329 | 0.004 | 0.4452 | -0.3089 | 0.4487 | -0.2433 | -0.1072 | -0.0638 |
| SCIENCE | 4 | 479683 | 0 | B | 2 | 85764 | 0.6397 | 0.1256 | 0.6363 | 0.0793 | 0.1534 | 0.0035 | 0.4826 | -0.2276 | 0.4855 | -0.2371 | -0.245 | -0.0628 |
| SCIENCE | 4 | 498448 | 0 | B | 3 | 85815 | 0.569 | 0.136 | 0.1312 | 0.1618 | 0.5662 | 0.0039 | 0.5548 | -0.2677 | -0.2591 | -0.2482 | 0.5562 | -0.0639 |
| SCIENCE | 4 | 579552 | 0 | B | 2 | 85662 | 0.4847 | 0.1363 | 0.2145 | 0.161 | 0.4815 | 0.0049 | 0.3946 | -0.1843 | -0.1938 | -0.1331 | 0.3977 | -0.0791 |
| SCIENCE | 4 | 272655 | 0 | C | 2 | 85826 | 0.3825 | 0.1813 | 0.2534 | 0.1798 | 0.3807 | 0.0038 | 0.4493 | -0.2721 | -0.0656 | -0.2102 | 0.4502 | -0.0592 |
| SCIENCE | 4 | 337529 | 0 | C | 2 | 85886 | 0.5543 | 0.0937 | 0.5521 | 0.277 | 0.0731 | 0.0031 | 0.4272 | -0.2239 | 0.4294 | -0.2093 | -0.1929 | -0.0568 |
| SCIENCE | 4 | 409093 | 0 | C | 2 | 85690 | 0.3717 | 0.1572 | 0.1619 | 0.3054 | 0.3693 | 0.0043 | 0.2833 | -0.1597 | -0.1114 | -0.0708 | 0.2861 | -0.067 |
| SCIENCE | 4 | 496501 | 0 | C | 2 | 85715 | 0.5091 | 0.1999 | 0.1657 | 0.506 | 0.1223 | 0.0039 | 0.3737 | -0.1802 | -0.1205 | 0.3769 | -0.1995 | -0.0635 |
| SCIENCE | 4 | 496502 | 0 | C | 2 | 85912 | 0.8323 | 0.8292 | 0.0513 | 0.0694 | 0.0464 | 0.0024 | 0.4641 | 0.4656 | -0.2775 | -0.2486 | -0.2264 | -0.0424 |
| SCIENCE | 4 | 579555 | 0 | C | 2 | 85797 | 0.6959 | 0.0907 | 0.1009 | 0.6923 | 0.1109 | 0.0042 | 0.531 | -0.2942 | -0.2617 | 0.5332 | -0.247 | -0.0658 |
| SCIENCE | 4 | 304994 | 0 | D | 2 | 85614 | 0.4638 | 0.4605 | 0.1543 | 0.1562 | 0.2219 | 0.005 | 0.3984 | 0.4009 | -0.2108 | -0.1782 | -0.1257 | -0.0709 |
| SCIENCE | 4 | 336966 | 0 | D | 2 | 85605 | 0.6858 | 0.6808 | 0.1623 | 0.0807 | 0.0689 | 0.005 | 0.4877 | 0.492 | -0.2128 | -0.2932 | -0.2499 | -0.08 |
| SCIENCE | 4 | 410858 | 0 | D | 2 | 85662 | 0.6171 | 0.1673 | 0.613 | 0.1138 | 0.0993 | 0.0043 | 0.4969 | -0.1901 | 0.4995 | -0.2555 | -0.2838 | -0.0633 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| SCIENCE | 4 | 410863 | 0 | D | 2 | 85620 | 0.6161 | 0.1803 | 0.6117 | 0.1048 | 0.096 | 0.0051 | 0.4271 | -0.2049 | 0.4308 | -0.2045 | -0.2091 | -0.071 |
| SCIENCE | 4 | 565986 | 0 | D | 2 | 85871 | 0.4064 | 0.2409 | 0.1026 | 0.2476 | 0.4047 | 0.0028 | 0.3507 | -0.1312 | -0.242 | -0.0914 | 0.352 | -0.0485 |
| SCIENCE | 4 | 579540 | 0 | D | 2 | 85607 | 0.3599 | 0.1356 | 0.1829 | 0.3573 | 0.317 | 0.0049 | 0.3043 | -0.1762 | -0.1782 | 0.307 | -0.0232 | -0.0705 |
| SCIENCE | 4 | 622821 | 1 | A | 2 | 7642 | 0.4655 | 0.2178 | 0.1073 | 0.4571 | 0.1998 | 0.0172 | 0.3704 | -0.0792 | -0.2264 | 0.3702 | -0.1879 | -0.0462 |
| SCIENCE | 4 | 657814 | 1 | A | 2 | 7705 | 0.5968 | 0.1594 | 0.1004 | 0.5909 | 0.1396 | 0.0078 | 0.5402 | -0.2684 | -0.2382 | 0.5433 | -0.256 | -0.0749 |
| SCIENCE | 4 | 657980 | 1 | A | 2 | 7696 | 0.6366 | 0.1234 | 0.6296 | 0.1252 | 0.1109 | 0.0086 | 0.5438 | -0.2798 | 0.5468 | -0.2499 | -0.2541 | -0.0823 |
| SCIENCE | 4 | 657827 | 1 | B | 2 | 7694 | 0.6578 | 0.6504 | 0.122 | 0.1141 | 0.1023 | 0.0096 | 0.4582 | 0.4608 | -0.2326 | -0.2547 | -0.1811 | -0.0606 |
| SCIENCE | 4 | 662319 | 1 | B | 2 | 7699 | 0.609 | 0.0996 | 0.2252 | 0.0621 | 0.6026 | 0.0066 | 0.2815 | -0.2672 | 0.0032 | -0.2225 | 0.2877 | -0.0678 |
| SCIENCE | 4 | 661169 | 1 | C | 2 | 7711 | 0.4005 | 0.2465 | 0.3969 | 0.1722 | 0.1754 | 0.0066 | 0.1964 | -0.0286 | 0.2 | -0.1712 | -0.0375 | -0.0582 |
| SCIENCE | 4 | 623205 | 1 | D | 2 | 7683 | 0.5676 | 0.1452 | 0.2226 | 0.0591 | 0.5605 | 0.0104 | 0.4393 | -0.1719 | -0.2255 | -0.2414 | 0.44 | -0.0524 |
| SCIENCE | 4 | 624053 | 1 | D | 2 | 7634 | 0.5874 | 0.111 | 0.5763 | 0.161 | 0.1328 | 0.018 | 0.526 | -0.2457 | 0.5216 | -0.2387 | -0.2539 | -0.0427 |
| SCIENCE | 4 | 622357 | 2 | A | 1 | 7021 | 0.7912 | 0.7833 | 0.1221 | 0.054 | 0.0306 | 0.0075 | 0.2759 | 0.2867 | -0.0861 | -0.2042 | -0.1988 | -0.0832 |
| SCIENCE | 4 | 657812 | 2 | A | 2 | 7029 | 0.6994 | 0.1211 | 0.0987 | 0.6932 | 0.0781 | 0.0075 | 0.4302 | -0.2015 | -0.2175 | 0.4366 | -0.2285 | -0.0897 |
| SCIENCE | 4 | 657978 | 2 | A | 2 | 7012 | 0.5434 | 0.1273 | 0.1537 | 0.1705 | 0.5372 | 0.0086 | 0.4812 | -0.2285 | -0.2126 | -0.21 | 0.4835 | -0.0776 |
| SCIENCE | 4 | 622352 | 2 | B | 2 | 6994 | 0.679 | 0.0629 | 0.0888 | 0.6696 | 0.1648 | 0.0133 | 0.4849 | -0.2644 | -0.2718 | 0.4897 | -0.2081 | -0.0945 |
| SCIENCE | 4 | 661161 | 2 | B | 2 | 7035 | 0.7485 | 0.0888 | 0.7425 | 0.0921 | 0.0685 | 0.0068 | 0.522 | -0.2694 | 0.5265 | -0.2734 | -0.2616 | -0.0801 |
| SCIENCE | 4 | 624015 | 2 | C | 2 | 6986 | 0.4762 | 0.3067 | 0.0974 | 0.1118 | 0.4691 | 0.0148 | 0.3669 | -0.1327 | -0.1691 | -0.2021 | 0.3692 | -0.0747 |
| SCIENCE | 4 | 661167 | 2 | C | 2 | 7028 | 0.4612 | 0.457 | 0.1495 | 0.099 | 0.2855 | 0.0071 | 0.0818 | 0.0887 | -0.1178 | -0.2543 | 0.1822 | -0.0849 |
| SCIENCE | 4 | 661186 | 2 | D | 2 | 7016 | 0.7175 | 0.1062 | 0.7098 | 0.1045 | 0.0688 | 0.0102 | 0.5027 | -0.2787 | 0.5054 | -0.2527 | -0.2262 | -0.0853 |
| SCIENCE | 4 | 620953 | 3 | A | 2 | 6993 | 0.6664 | 0.1006 | 0.1177 | 0.6539 | 0.109 | 0.0185 | 0.5068 | -0.3348 | -0.1892 | 0.5052 | -0.2195 | -0.0743 |
| SCIENCE | 4 | 653785 | 3 | A | 2 | 7073 | 0.6457 | 0.6409 | 0.1309 | 0.1038 | 0.1169 | 0.0059 | 0.5439 | 0.5454 | -0.2728 | -0.2655 | -0.256 | -0.0582 |
| SCIENCE | 4 | 653786 | 3 | A | 2 | 7071 | 0.7426 | 0.0791 | 0.7369 | 0.1024 | 0.0738 | 0.0072 | 0.5129 | -0.2745 | 0.5143 | -0.2772 | -0.2382 | -0.0605 |
| SCIENCE | 4 | 653791 | 3 | A | 2 | 7057 | 0.6584 | 0.0582 | 0.0834 | 0.652 | 0.1967 | 0.0084 | 0.3939 | -0.2584 | -0.2824 | 0.3982 | -0.1076 | -0.0751 |
| SCIENCE | 4 | 579534 | 3 | B | 1 | 7063 | 0.8189 | 0.0575 | 0.8117 | 0.0839 | 0.038 | 0.007 | 0.3678 | -0.222 | 0.376 | -0.1693 | -0.2081 | -0.072 |
| SCIENCE | 4 | 661200 | 3 | C | 2 | 7050 | 0.5955 | 0.5891 | 0.1116 | 0.2115 | 0.0772 | 0.0086 | 0.3596 | 0.3649 | -0.2366 | -0.1047 | -0.1981 | -0.0838 |
| SCIENCE | 4 | 624054 | 3 | D | 2 | 7005 | 0.4408 | 0.2276 | 0.1509 | 0.1712 | 0.4333 | 0.0161 | 0.2798 | -0.1267 | -0.0862 | -0.1313 | 0.28 | -0.0369 |
| SCIENCE | 4 | 661188 | 3 | D | 2 | 7059 | 0.4818 | 0.0908 | 0.2171 | 0.4773 | 0.2054 | 0.0072 | 0.2923 | -0.2142 | -0.0308 | 0.2985 | -0.1594 | -0.092 |
| SCIENCE | 8 | 303675 | 0 | A | 2 | 80554 | 0.619 | 0.0847 | 0.1234 | 0.1719 | 0.6174 | 0.0018 | 0.5149 | -0.2776 | -0.2543 | -0.2306 | 0.5165 | -0.0523 |
| SCIENCE | 8 | 305069 | 0 | A | 2 | 80479 | 0.389 | 0.3876 | 0.2578 | 0.1519 | 0.1992 | 0.0025 | 0.342 | 0.3435 | -0.0843 | -0.2205 | -0.1194 | -0.0494 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| SCIENCE | 8 | 313619 | 0 | A | 2 | 80655 | 0.4267 | 0.4261 | 0.16 | 0.1263 | 0.2862 | 0.0009 | 0.4264 | 0.4269 | -0.1701 | -0.23 | -0.1566 | -0.0338 |
| SCIENCE | 8 | 313643 | 0 | A | 2 | 80544 | 0.3173 | 0.4008 | 0.3165 | 0.1813 | 0.0987 | 0.0019 | 0.2828 | 0.0193 | 0.2841 | -0.1944 | -0.2128 | -0.0533 |
| SCIENCE | 8 | 401706 | 0 | A | 1 | 80561 | 0.6462 | 0.0722 | 0.0614 | 0.6446 | 0.2193 | 0.0015 | 0.3923 | -0.2574 | -0.2857 | 0.3944 | -0.1225 | -0.0485 |
| SCIENCE | 8 | 401720 | 0 | A | 2 | 80594 | 0.406 | 0.1201 | 0.1918 | 0.2808 | 0.4052 | 0.0014 | 0.3614 | -0.195 | -0.1987 | -0.075 | 0.3626 | -0.0471 |
| SCIENCE | 8 | 410880 | 0 | A | 2 | 80618 | 0.6463 | 0.0755 | 0.0777 | 0.1999 | 0.6452 | 0.0012 | 0.4263 | -0.2035 | -0.2193 | -0.2253 | 0.4277 | -0.0383 |
| SCIENCE | 8 | 412137 | 0 | A | 2 | 80649 | 0.5128 | 0.0727 | 0.5121 | 0.2926 | 0.1212 | 0.0009 | 0.2903 | -0.2621 | 0.2913 | -0.0476 | -0.1664 | -0.0323 |
| SCIENCE | 8 | 412141 | 0 | A | 2 | 80492 | 0.6266 | 0.1224 | 0.6245 | 0.1307 | 0.119 | 0.0024 | 0.4897 | -0.2654 | 0.4918 | -0.264 | -0.1799 | -0.06 |
| SCIENCE | 8 | 412150 | 0 | A | 2 | 80627 | 0.4006 | 0.1384 | 0.2837 | 0.4 | 0.1762 | 0.0011 | 0.3174 | -0.1485 | -0.0378 | 0.3182 | -0.2251 | -0.0318 |
| SCIENCE | 8 | 493907 | 0 | A | 2 | 80608 | 0.629 | 0.179 | 0.0715 | 0.6278 | 0.1197 | 0.0013 | 0.4493 | -0.205 | -0.2917 | 0.4506 | -0.1906 | -0.0383 |
| SCIENCE | 8 | 493917 | 0 | A | 2 | 80595 | 0.7041 | 0.7027 | 0.1252 | 0.1017 | 0.0683 | 0.0013 | 0.4887 | 0.4899 | -0.2583 | -0.241 | -0.2514 | -0.0413 |
| SCIENCE | 8 | 494531 | 0 | A | 2 | 80588 | 0.7607 | 0.759 | 0.0777 | 0.0762 | 0.0849 | 0.0012 | 0.4945 | 0.4962 | -0.2856 | -0.266 | -0.2253 | -0.0398 |
| SCIENCE | 8 | 561248 | 0 | A | 2 | 80437 | 0.5356 | 0.156 | 0.191 | 0.5334 | 0.1156 | 0.003 | 0.4996 | -0.2056 | -0.2465 | 0.5012 | -0.2324 | -0.06 |
| SCIENCE | 8 | 566177 | 0 | A | 2 | 80592 | 0.3669 | 0.2545 | 0.3661 | 0.1039 | 0.2734 | 0.0015 | 0.2888 | -0.0913 | 0.2897 | -0.2258 | -0.0645 | -0.0376 |
| SCIENCE | 8 | 566178 | 0 | A | 2 | 80522 | 0.5834 | 0.0861 | 0.207 | 0.1223 | 0.5816 | 0.002 | 0.507 | -0.2663 | -0.1978 | -0.2824 | 0.5088 | -0.0543 |
| SCIENCE | 8 | 566925 | 0 | A | 2 | 80510 | 0.403 | 0.1439 | 0.1318 | 0.3194 | 0.4017 | 0.0026 | 0.4042 | -0.2597 | -0.2395 | -0.05 | 0.4053 | -0.0521 |
| SCIENCE | 8 | 579570 | 0 | A | 2 | 80520 | 0.7472 | 0.7449 | 0.0792 | 0.0921 | 0.0806 | 0.0022 | 0.5148 | 0.5169 | -0.2692 | -0.2577 | -0.2744 | -0.0531 |
| SCIENCE | 8 | 401734 | 0 | B | 2 | 80495 | 0.5916 | 0.5896 | 0.1347 | 0.1416 | 0.1307 | 0.0021 | 0.5132 | 0.5148 | -0.22 | -0.2974 | -0.21 | -0.052 |
| SCIENCE | 8 | 411602 | 0 | B | 2 | 80448 | 0.478 | 0.1575 | 0.1113 | 0.4761 | 0.2512 | 0.0029 | 0.4174 | -0.224 | -0.2613 | 0.4195 | -0.0951 | -0.0626 |
| SCIENCE | 8 | 412167 | 0 | B | 2 | 80494 | 0.6386 | 0.1391 | 0.1248 | 0.0963 | 0.6364 | 0.0021 | 0.5208 | -0.1676 | -0.3033 | -0.303 | 0.5227 | -0.0546 |
| SCIENCE | 8 | 577687 | 0 | B | 2 | 80668 | 0.6928 | 0.0601 | 0.692 | 0.1139 | 0.1328 | 0.0007 | 0.5474 | -0.2418 | 0.5482 | -0.284 | -0.3062 | -0.0317 |
| SCIENCE | 8 | 577688 | 0 | B | 3 | 80576 | 0.6847 | 0.6831 | 0.1215 | 0.0982 | 0.0949 | 0.0016 | 0.587 | 0.5879 | -0.3282 | -0.259 | -0.2959 | -0.0446 |
| SCIENCE | 8 | 579922 | 0 | B | 2 | 80673 | 0.51 | 0.5095 | 0.0901 | 0.336 | 0.0633 | 0.0007 | 0.3618 | 0.3625 | -0.2852 | -0.0973 | -0.2147 | -0.0326 |
| SCIENCE | 8 | 303367 | 0 | C | 2 | 80482 | 0.5704 | 0.1497 | 0.1382 | 0.5684 | 0.1401 | 0.0025 | 0.5028 | -0.2511 | -0.2481 | 0.5047 | -0.2038 | -0.0573 |
| SCIENCE | 8 | 337536 | 0 | C | 2 | 80598 | 0.5319 | 0.1936 | 0.1333 | 0.1402 | 0.5309 | 0.0013 | 0.5191 | -0.3147 | -0.2011 | -0.1853 | 0.5201 | -0.0446 |
| SCIENCE | 8 | 340479 | 0 | C | 2 | 80663 | 0.5164 | 0.1022 | 0.1796 | 0.2011 | 0.5158 | 0.0008 | 0.3561 | -0.2068 | -0.1946 | -0.0993 | 0.3568 | -0.025 |
| SCIENCE | 8 | 479414 | 0 | C | 2 | 80592 | 0.6718 | 0.1048 | 0.6704 | 0.1399 | 0.0828 | 0.0017 | 0.5795 | -0.2978 | 0.5807 | -0.3249 | -0.2416 | -0.0466 |
| SCIENCE | 8 | 496014 | 0 | C | 3 | 80557 | 0.7352 | 0.7334 | 0.0905 | 0.1141 | 0.0595 | 0.0016 | 0.555 | 0.5568 | -0.3198 | -0.2866 | -0.2548 | -0.0519 |
| SCIENCE | 8 | 561263 | 0 | C | 2 | 80409 | 0.5868 | 0.1378 | 0.1252 | 0.5842 | 0.1484 | 0.0032 | 0.5486 | -0.2782 | -0.233 | 0.5507 | -0.2628 | -0.0656 |
| SCIENCE | 8 | 339838 | 0 | D | 2 | 80536 | 0.4448 | 0.1792 | 0.2028 | 0.1717 | 0.4435 | 0.0022 | 0.4505 | -0.1142 | -0.2296 | -0.2255 | 0.4518 | -0.055 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| SCIENCE | 8 | 401762 | 0 | D | 2 | 80548 | 0.642 | 0.0816 | 0.1955 | 0.0799 | 0.6403 | 0.0018 | 0.4729 | -0.2605 | -0.209 | -0.2607 | 0.4744 | -0.0489 |
| SCIENCE | 8 | 401768 | 0 | D | 2 | 80537 | 0.4234 | 0.2378 | 0.4222 | 0.2483 | 0.0889 | 0.002 | 0.314 | -0.1752 | 0.3157 | -0.0281 | -0.2319 | -0.0535 |
| SCIENCE | 8 | 413214 | 0 | D | 3 | 80606 | 0.3885 | 0.3877 | 0.3523 | 0.1637 | 0.0944 | 0.0012 | 0.3681 | 0.3689 | -0.1325 | -0.1388 | -0.2155 | -0.0353 |
| SCIENCE | 8 | 496016 | 0 | D | 2 | 80681 | 0.8992 | 0.0445 | 0.0314 | 0.8982 | 0.0249 | 0.0006 | 0.3826 | -0.2468 | -0.2057 | 0.3843 | -0.1809 | -0.0298 |
| SCIENCE | 8 | 498860 | 0 | D | 2 | 80502 | 0.5083 | 0.5066 | 0.2101 | 0.1727 | 0.1073 | 0.0024 | 0.3104 | 0.3125 | -0.0529 | -0.1846 | -0.1987 | -0.0511 |
| SCIENCE | 8 | 561262 | 0 | D | 2 | 80412 | 0.3735 | 0.3719 | 0.2409 | 0.2704 | 0.1125 | 0.0032 | 0.3161 | 0.3181 | -0.0776 | -0.0953 | -0.2327 | -0.0627 |
| SCIENCE | 8 | 561264 | 0 | D | 2 | 80398 | 0.4445 | 0.2285 | 0.4425 | 0.1541 | 0.1704 | 0.0032 | 0.3374 | -0.0524 | 0.3401 | -0.2631 | -0.1243 | -0.0659 |
| SCIENCE | 8 | 622822 | 1 | A | 2 | 7424 | 0.5323 | 0.1359 | 0.5293 | 0.1641 | 0.165 | 0.0055 | 0.5069 | -0.2424 | 0.5082 | -0.2398 | -0.2083 | -0.057 |
| SCIENCE | 8 | 657841 | 1 | A | 2 | 7428 | 0.6272 | 0.6239 | 0.1279 | 0.178 | 0.065 | 0.0046 | 0.3686 | 0.3721 | -0.14 | -0.2074 | -0.1996 | -0.0631 |
| SCIENCE | 8 | 663515 | 1 | A | 2 | 7433 | 0.3966 | 0.1162 | 0.1596 | 0.3948 | 0.3248 | 0.0032 | 0.3111 | -0.2215 | -0.1661 | 0.3138 | -0.0346 | -0.0731 |
| SCIENCE | 8 | 663516 | 1 | A | 2 | 7434 | 0.6886 | 0.6855 | 0.1179 | 0.114 | 0.0782 | 0.0031 | 0.4645 | 0.4683 | -0.2702 | -0.1964 | -0.2334 | -0.0638 |
| SCIENCE | 8 | 617343 | 1 | B | 2 | 7414 | 0.5031 | 0.4995 | 0.2558 | 0.1225 | 0.115 | 0.0067 | 0.4598 | 0.4608 | -0.1748 | -0.2829 | -0.1771 | -0.0528 |
| SCIENCE | 8 | 623861 | 1 | B | 2 | 7434 | 0.407 | 0.1086 | 0.1298 | 0.3519 | 0.4052 | 0.0035 | 0.313 | -0.2451 | -0.2426 | 0.0171 | 0.3155 | -0.0672 |
| SCIENCE | 8 | 663519 | 1 | B | 2 | 7426 | 0.5043 | 0.1736 | 0.1319 | 0.5015 | 0.1875 | 0.004 | 0.3557 | -0.1599 | -0.2118 | 0.3592 | -0.1057 | -0.0709 |
| SCIENCE | 8 | 663521 | 1 | B | 2 | 7439 | 0.4491 | 0.1192 | 0.4474 | 0.2692 | 0.1604 | 0.0025 | 0.2617 | -0.2055 | 0.2642 | -0.0955 | -0.0501 | -0.0535 |
| SCIENCE | 8 | 566210 | 1 | C | 2 | 7426 | 0.5458 | 0.0995 | 0.5428 | 0.1547 | 0.1975 | 0.0044 | 0.2498 | -0.2276 | 0.2548 | -0.0209 | -0.1124 | -0.079 |
| SCIENCE | 8 | 654771 | 1 | C | 2 | 7429 | 0.4671 | 0.2234 | 0.4647 | 0.1555 | 0.1513 | 0.0042 | 0.3818 | -0.1642 | 0.3846 | -0.2001 | -0.1264 | -0.0736 |
| SCIENCE | 8 | 617355 | 2 | A | 3 | 6635 | 0.4014 | 0.1888 | 0.218 | 0.1879 | 0.3987 | 0.0066 | 0.3522 | -0.1885 | -0.1915 | -0.0417 | 0.3531 | -0.0457 |
| SCIENCE | 8 | 657847 | 2 | A | 2 | 6650 | 0.3821 | 0.3804 | 0.1325 | 0.277 | 0.2057 | 0.0037 | 0.3053 | 0.3075 | -0.2405 | -0.136 | -0.0059 | -0.0653 |
| SCIENCE | 8 | 657854 | 2 | A | 2 | 6644 | 0.3826 | 0.3806 | 0.0996 | 0.3617 | 0.1529 | 0.0039 | 0.2157 | 0.2182 | -0.2544 | 0.1012 | -0.2048 | -0.0619 |
| SCIENCE | 8 | 657855 | 2 | A | 2 | 6648 | 0.6047 | 0.1346 | 0.1452 | 0.6019 | 0.1136 | 0.0034 | 0.4142 | -0.2205 | -0.1975 | 0.4162 | -0.1725 | -0.0486 |
| SCIENCE | 8 | 659833 | 2 | A | 2 | 6660 | 0.3524 | 0.3514 | 0.2369 | 0.2057 | 0.2032 | 0.0025 | 0.2582 | 0.2598 | -0.1274 | -0.0966 | -0.0688 | -0.0529 |
| SCIENCE | 8 | 659834 | 2 | A | 2 | 6660 | 0.5751 | 0.2192 | 0.5734 | 0.1499 | 0.0546 | 0.0025 | 0.3959 | -0.1153 | 0.3979 | -0.2595 | -0.2348 | -0.0526 |
| SCIENCE | 8 | 659836 | 2 | A | 2 | 6648 | 0.4656 | 0.4634 | 0.118 | 0.1488 | 0.2652 | 0.0034 | 0.3995 | 0.4013 | -0.2687 | -0.2586 | -0.0389 | -0.0493 |
| SCIENCE | 8 | 623847 | 2 | C | 3 | 6642 | 0.4074 | 0.3063 | 0.4052 | 0.1023 | 0.1807 | 0.0046 | 0.418 | -0.1646 | 0.4183 | -0.2103 | -0.1614 | -0.0452 |
| SCIENCE | 8 | 661201 | 2 | C | 2 | 6649 | 0.6766 | 0.128 | 0.0948 | 0.6736 | 0.0991 | 0.0039 | 0.4184 | -0.1999 | -0.1945 | 0.4202 | -0.2335 | -0.0464 |
| SCIENCE | 8 | 659840 | 2 | D | 2 | 6659 | 0.7019 | 0.0726 | 0.1487 | 0.0759 | 0.6998 | 0.0022 | 0.4785 | -0.2611 | -0.2115 | -0.2809 | 0.4795 | -0.0432 |
| SCIENCE | 8 | 622819 | 3 | A | 2 | 6590 | 0.5243 | 0.5218 | 0.1278 | 0.1986 | 0.1471 | 0.0041 | 0.5087 | 0.51 | -0.2382 | -0.2081 | -0.2477 | -0.0582 |
| SCIENCE | 8 | 657853 | 3 | A | 2 | 6591 | 0.381 | 0.2463 | 0.3792 | 0.1982 | 0.1717 | 0.0029 | 0.2214 | -0.0037 | 0.2246 | -0.1702 | -0.0894 | -0.0723 |

| Content | Grade | PubID | Form | Stand | Depth | N | PValue | P(A) | P(B) | P(C) | P(D) | P(OMIT) | PtBis | Corr(A) | Corr(B) | Corr(C) | Corr(D) | Corr(OMIT) |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|------------|
| SCIENCE | 8 | 660669 | 3 | A | 2 | 6598 | 0.2928 | 0.1954 | 0.3762 | 0.2918 | 0.1331 | 0.0027 | 0.1432 | -0.1979 | 0.1101 | 0.1451 | -0.1091 | -0.0622 |
| SCIENCE | 8 | 660675 | 3 | A | 2 | 6593 | 0.4714 | 0.4694 | 0.2013 | 0.1538 | 0.1713 | 0.0032 | 0.4195 | 0.4219 | -0.1436 | -0.1495 | -0.2494 | -0.0685 |
| SCIENCE | 8 | 660673 | 3 | B | 2 | 6596 | 0.3161 | 0.2013 | 0.2259 | 0.254 | 0.3149 | 0.0032 | 0.2244 | -0.0969 | -0.0669 | -0.0772 | 0.2266 | -0.0701 |
| SCIENCE | 8 | 660674 | 3 | B | 2 | 6601 | 0.6226 | 0.1587 | 0.1281 | 0.0894 | 0.6208 | 0.002 | 0.4733 | -0.2381 | -0.1795 | -0.2804 | 0.4756 | -0.0619 |
| SCIENCE | 8 | 661199 | 3 | C | 2 | 6591 | 0.3884 | 0.329 | 0.3866 | 0.1713 | 0.1086 | 0.0036 | 0.2022 | 0.1079 | 0.2054 | -0.2282 | -0.1905 | -0.0754 |
| SCIENCE | 8 | 661202 | 3 | C | 2 | 6592 | 0.243 | 0.132 | 0.1982 | 0.242 | 0.4235 | 0.0035 | 0.0778 | -0.222 | -0.1597 | 0.0806 | 0.2228 | -0.0859 |
| SCIENCE | 8 | 623844 | 3 | D | 2 | 6570 | 0.4443 | 0.4409 | 0.2196 | 0.1409 | 0.1909 | 0.0066 | 0.3144 | 0.3166 | -0.1515 | -0.1744 | -0.0729 | -0.0487 |
| SCIENCE | 8 | 661207 | 3 | D | 2 | 6591 | 0.4002 | 0.2803 | 0.3984 | 0.2116 | 0.1051 | 0.0038 | 0.3491 | -0.169 | 0.3512 | -0.0501 | -0.2295 | -0.0704 |

Evidence-Based Selected-Response Paper/Pencil Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| Mean | Mean Score |
| P(0) | Proportion 0 Points |
| P(1) | Proportion 1 Point |
| P(2) | Proportion 2 Points |
| P(3) | Proportion 3 Points |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(0) | Correlation 0 Points |
| Corr(1) | Correlation 1 Point |
| Corr(2) | Correlation 2 Points |
| Corr(3) | Correlation 3 Points |
| Corr(INV) | Correlation Invalid Responses |
| Final | IRT Difficulty Estimate |
| Final Err | IRT Difficulty Error |
| Infit-Z | Infit Z-Standardized |
| Infit-MS | Infit Mean Square |
| Outfit-Z | Outfit Z-Standardized |
| Outfit-MS | Outfit Mean Square |
| M/F | Male/Female DIF Code |
| W/B | White/Black DIF Code |
| W/H | White/Hispanic DIF Code |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 3 | 578117 | 0 | A-C | 3 | 87654 | 0.9771 | 0.3269 | 0.3528 | 0.3044 | | 0.0159 | 0.564 | -0.3968 | -0.1159 | 0.5571 | | -0.1184 | 0.782 | 0.0209 | 5.0411 | 1.0539 | 5.9811 | 1.0754 | A- | A+ | A+ |
| ELA | 3 | 578122 | 0 | A-K | 3 | 87602 | 1.3957 | 0.2126 | 0.3289 | 0.2824 | 0.1597 | 0.0164 | 0.5501 | -0.2616 | -0.3046 | 0.211 | 0.4668 | -0.1246 | 0.8385 | 0.0229 | 9.9012 | 1.1716 | 9.9012 | 1.2169 | A+ | A+ | A+ |
| ELA | 3 | 493320 | 0 | B-K | 3 | 88382 | 1.5344 | 0.1038 | 0.2544 | 0.6341 | | 0.0077 | 0.5479 | -0.3464 | -0.3498 | 0.5508 | | -0.0837 | -0.4286 | 0.0273 | -9.8991 | 0.8833 | -8.1391 | 0.8706 | A- | A- | A- |
| ELA | 3 | 579126 | 0 | B-K | 3 | 88268 | 1.8441 | 0.1144 | 0.2608 | 0.281 | 0.335 | 0.009 | 0.6314 | -0.2928 | -0.3846 | -0.0161 | 0.5905 | -0.0998 | -0.1679 | 0.0311 | 7.1411 | 1.0862 | 9.9012 | 1.1788 | A- | A- | A- |
| ELA | 3 | 658483 | 1 | A-K | 3 | 7407 | 1.1249 | 0.3113 | 0.3637 | 0.2025 | 0.1165 | 0.006 | 0.3494 | -0.1287 | -0.2179 | 0.1493 | 0.3462 | -0.0861 | 1.2111 | 0.0749 | 9.2114 | 1.423 | 8.8214 | 1.4279 | A+ | A- | A- |
| ELA | 3 | 658485 | 1 | A-K | 2 | 7389 | 1.1265 | 0.217 | 0.4321 | 0.3425 | | 0.0085 | 0.4702 | -0.4117 | 0.0036 | 0.3694 | | -0.0805 | 0.3106 | 0.0792 | 1.9011 | 1.0702 | 2.0111 | 1.0789 | A+ | A- | A- |
| ELA | 3 | 660243 | 2 | A-K | 3 | 7375 | 1.3439 | 0.222 | 0.3523 | 0.2768 | 0.1436 | 0.0053 | 0.4614 | -0.2436 | -0.2307 | 0.1891 | 0.3777 | -0.0781 | 0.9894 | 0.077 | 5.0312 | 1.2092 | 4.8612 | 1.2073 | A+ | A- | A- |
| ELA | 3 | 661318 | 2 | A-K | 3 | 7315 | 0.8021 | 0.4389 | 0.3042 | 0.2436 | | 0.0134 | 0.3468 | -0.2492 | -0.0378 | 0.3496 | | -0.0787 | 1.0368 | 0.0702 | 5.9512 | 1.2435 | 6.3513 | 1.3297 | A- | A+ | A+ |
| ELA | 3 | 659168 | 3 | A-K | 3 | 7350 | 1.249 | 0.1937 | 0.4412 | 0.2713 | 0.0845 | 0.0093 | 0.2892 | -0.1655 | -0.0812 | 0.0908 | 0.2578 | -0.0664 | 1.1693 | 0.0809 | 9.9015 | 1.4666 | 9.9015 | 1.4678 | A- | A- | A- |
| ELA | 3 | 659170 | 3 | A-K | 3 | 7350 | 1.1245 | 0.2851 | 0.2972 | 0.4084 | | 0.0093 | 0.4209 | -0.2574 | -0.2323 | 0.4659 | | -0.0693 | 0.2825 | 0.0776 | 6.0112 | 1.2318 | 7.2014 | 1.3563 | A+ | A+ | A+ |
| ELA | 3 | 660242 | 4 | A-K | 3 | 7359 | 1.4325 | 0.1643 | 0.3711 | 0.3209 | 0.1364 | 0.0074 | 0.496 | -0.2352 | -0.2977 | 0.2273 | 0.3829 | -0.0759 | 0.7037 | 0.0893 | 3.2911 | 1.1328 | 3.3511 | 1.1356 | A+ | A- | A- |
| ELA | 3 | 661319 | 4 | A-K | 3 | 7335 | 0.6106 | 0.5758 | 0.223 | 0.1906 | | 0.0107 | 0.2179 | -0.0739 | -0.2011 | 0.3299 | | -0.091 | 1.4359 | 0.0722 | 9.9015 | 1.4609 | 9.8418 | 1.7612 | A- | A+ | A+ |
| ELA | 3 | 658531 | 5 | A-C | 3 | 7306 | 0.977 | 0.3193 | 0.3739 | 0.2966 | | 0.0102 | 0.4929 | -0.3678 | -0.0589 | 0.4631 | | -0.1149 | 0.6347 | 0.0746 | 2.1811 | 1.0799 | 2.7511 | 1.1147 | A- | A- | A- |
| ELA | 3 | 658537 | 5 | A-K | 2 | 7309 | 1.511 | 0.1722 | 0.307 | 0.3439 | 0.1672 | 0.0098 | 0.3815 | -0.1731 | -0.2237 | 0.1014 | 0.3411 | -0.0702 | 0.5946 | 0.0903 | 8.2314 | 1.3518 | 8.6214 | 1.3789 | A- | A- | A- |
| ELA | 3 | 663137 | 6 | B-K | 2 | 7333 | 0.8379 | 0.4325 | 0.285 | 0.2721 | | 0.0104 | 0.0873 | 0.0424 | -0.2292 | 0.2045 | | -0.0846 | 0.9221 | 0.0713 | 9.9017 | 1.7458 | 9.902 | 1.9923 | A- | A+ | A- |
| ELA | 3 | 663140 | 6 | B-K | 3 | 7360 | 1.5531 | 0.1575 | 0.3378 | 0.2891 | 0.2089 | 0.0067 | 0.4765 | -0.178 | -0.317 | 0.0829 | 0.4557 | -0.0985 | 0.4507 | 0.0919 | 5.1312 | 1.2099 | 5.0012 | 1.2146 | A- | A- | A- |
| ELA | 3 | 661050 | 7 | B-K | 2 | 7366 | 0.4844 | 0.5795 | 0.3421 | 0.0688 | | 0.0095 | 0.0422 | -0.0042 | -0.0177 | 0.0764 | | -0.0911 | 2.0283 | 0.0693 | 9.1714 | 1.4398 | 9.9018 | 1.8459 | A- | A+ | A+ |
| ELA | 3 | 662013 | 7 | B-K | 2 | 7362 | 1.451 | 0.1288 | 0.3663 | 0.4144 | 0.0804 | 0.0101 | 0.2837 | -0.1872 | -0.1495 | 0.2389 | 0.0974 | -0.0946 | 0.7799 | 0.0952 | 9.3014 | 1.4143 | 9.2314 | 1.4136 | A+ | A- | A- |
| ELA | 3 | 661043 | 8 | B-C | 3 | 7408 | 1.4478 | 0.1838 | 0.3712 | 0.2466 | 0.1908 | 0.0076 | 0.4955 | -0.2375 | -0.2417 | 0.0711 | 0.4728 | -0.0876 | 0.6345 | 0.0865 | 4.3012 | 1.1773 | 4.4812 | 1.1947 | A- | A- | A- |
| ELA | 3 | 662041 | 8 | B-C | 3 | 7405 | 0.7849 | 0.4251 | 0.3553 | 0.2117 | | 0.008 | 0.3604 | -0.2507 | -0.0373 | 0.3662 | | -0.0872 | 1.1219 | 0.0711 | 4.9712 | 1.1977 | 6.7113 | 1.3285 | A- | A- | A- |
| ELA | 3 | 663637 | 9 | B-C | 3 | 7396 | 1.6636 | 0.1323 | 0.2771 | 0.3764 | 0.2075 | 0.0067 | 0.5656 | -0.3303 | -0.342 | 0.2426 | 0.381 | -0.0871 | 0.3098 | 0.0981 | 0.671 | 1.0258 | 0.871 | 1.0347 | A- | A- | A- |
| ELA | 3 | 663190 | 9 | B-K | 2 | 7373 | 0.6711 | 0.5142 | 0.2874 | 0.1886 | | 0.0098 | 0.3422 | -0.2121 | -0.0806 | 0.3903 | | -0.1037 | 1.3237 | 0.0709 | 7.1313 | 1.3047 | 7.8415 | 1.4805 | A+ | A- | A- |
| ELA | 3 | 622416 | 10 | A-K | 3 | 7401 | 0.8991 | 0.3986 | 0.2931 | 0.2987 | | 0.0096 | 0.4199 | -0.2604 | -0.1832 | 0.4755 | | -0.069 | 0.8217 | 0.0724 | 3.6811 | 1.1427 | 4.8312 | 1.2439 | A+ | A+ | A+ |
| ELA | 3 | 622420 | 10 | A-K | 3 | 7419 | 1.4762 | 0.1638 | 0.3588 | 0.3039 | 0.1663 | 0.0072 | 0.5401 | -0.2954 | -0.2706 | 0.1906 | 0.4273 | -0.0907 | 0.6209 | 0.0888 | 0.101 | 1.0034 | 0.751 | 1.0294 | A+ | A+ | A- |
| ELA | 3 | 625449 | 11 | B-K | 3 | 7354 | 1.4364 | 0.1399 | 0.4082 | 0.3166 | 0.1283 | 0.007 | 0.4221 | -0.1638 | -0.262 | 0.1397 | 0.3763 | -0.0629 | 0.6769 | 0.0943 | 7.4113 | 1.3197 | 7.4613 | 1.3216 | A+ | A- | A+ |
| ELA | 3 | 625453 | 11 | B-K | 3 | 7338 | 1.3406 | 0.2306 | 0.1921 | 0.5681 | | 0.0092 | 0.5754 | -0.3962 | -0.3421 | 0.6214 | | -0.0642 | -0.1248 | 0.0843 | -2.2491 | 0.9119 | -2.0691 | 0.8633 | A+ | A- | A- |
| ELA | 3 | 623659 | 12 | B-C | 3 | 7300 | 1.3677 | 0.1644 | 0.3712 | 0.3859 | 0.0718 | 0.0068 | 0.4293 | -0.2959 | -0.1622 | 0.2802 | 0.2207 | -0.0653 | 0.9948 | 0.0896 | 6.4513 | 1.2765 | 6.5313 | 1.2827 | A- | A+ | A- |
| ELA | 3 | 630320 | 12 | B-K | 2 | 7281 | 1.0739 | 0.3914 | 0.1346 | 0.4646 | | 0.0094 | 0.4198 | -0.2789 | -0.3128 | 0.4997 | | -0.0662 | 0.4594 | 0.0777 | 8.9814 | 1.4034 | 9.9019 | 1.8712 | A+ | B- | A- |
| ELA | 4 | 409582 | 0 | A-K | 3 | 87016 | 1.2096 | 0.2013 | 0.3844 | 0.41 | | 0.0043 | 0.5224 | -0.4823 | 0.0012 | 0.4048 | | -0.097 | 0.2398 | 0.0203 | 9.9012 | 1.2046 | 9.9013 | 1.2645 | A+ | A+ | A+ |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 4 | 579109 | 0 | A-K | 3 | 86715 | 0.938 | 0.3829 | 0.288 | 0.3214 | | 0.0077 | 0.4953 | -0.3347 | -0.1656 | 0.5297 | | -0.1103 | 0.6983 | 0.0185 | 9.9013 | 1.3006 | 9.9016 | 1.567 | A+ | A+ | A+ |
| ELA | 4 | 579343 | 0 | A-K | 3 | 86804 | 1.6394 | 0.1532 | 0.2768 | 0.3383 | 0.225 | 0.0067 | 0.5818 | -0.2991 | -0.3569 | 0.1733 | 0.4654 | -0.109 | 0.0655 | 0.0241 | 9.9013 | 1.2749 | 9.9016 | 1.5994 | A+ | A- | A+ |
| ELA | 4 | 493329 | 0 | B-C | 3 | 86917 | 0.8594 | 0.3884 | 0.3576 | 0.2486 | | 0.0054 | 0.4701 | -0.3709 | 0.0105 | 0.4263 | | -0.1161 | 0.9668 | 0.018 | 9.9013 | 1.2617 | 9.9015 | 1.5346 | A- | A+ | A+ |
| ELA | 4 | 579409 | 0 | B-C | 3 | 86749 | 1.8027 | 0.1106 | 0.2673 | 0.322 | 0.2927 | 0.0073 | 0.5925 | -0.2968 | -0.3624 | 0.0632 | 0.5057 | -0.0723 | 0.2451 | 0.0239 | 9.9012 | 1.2344 | 9.9013 | 1.2863 | A+ | A- | A- |
| ELA | 4 | 493331 | 0 | B-K | 3 | 86945 | 1.8387 | 0.081 | 0.2119 | 0.4886 | 0.2135 | 0.0051 | 0.6499 | -0.3366 | -0.4486 | 0.2056 | 0.44 | -0.1108 | -0.1618 | 0.0289 | -8.4691 | 0.9167 | -4.199 | 0.9566 | A- | A- | A+ |
| ELA | 4 | 658463 | 1 | A-K | 3 | 7271 | 1.1683 | 0.2934 | 0.2411 | 0.461 | | 0.0044 | 0.3559 | -0.1814 | -0.3126 | 0.442 | | -0.0608 | -0.0337 | 0.0697 | 9.9016 | 1.5559 | 9.9023 | 2.2899 | A- | A- | A- |
| ELA | 4 | 658466 | 1 | A-K | 2 | 7295 | 1.7367 | 0.1502 | 0.2292 | 0.3529 | 0.2666 | 0.0011 | 0.5367 | -0.2084 | -0.4213 | 0.0743 | 0.4912 | -0.0358 | 0.1219 | 0.0814 | 7.1413 | 1.2634 | 7.2713 | 1.2866 | A- | A- | A- |
| ELA | 4 | 658492 | 2 | A-K | 3 | 7215 | 0.9265 | 0.4524 | 0.1625 | 0.3794 | | 0.0058 | 0.476 | -0.3016 | -0.3373 | 0.5762 | | -0.0661 | 0.7341 | 0.0651 | 6.7512 | 1.2387 | 8.7816 | 1.6348 | A+ | A+ | A+ |
| ELA | 4 | 659974 | 2 | A-K | 3 | 7225 | 0.9787 | 0.4065 | 0.3182 | 0.1565 | 0.1144 | 0.0044 | 0.2175 | 0.0334 | -0.2985 | 0.0465 | 0.3429 | -0.0519 | 1.3148 | 0.0636 | 9.902 | 2.0468 | 9.9026 | 2.5731 | A+ | A- | A+ |
| ELA | 4 | 660259 | 3 | A-K | 3 | 7268 | 0.8639 | 0.3995 | 0.3322 | 0.264 | | 0.0044 | 0.3754 | -0.2782 | -0.0487 | 0.3708 | | -0.0641 | 0.893 | 0.0627 | 8.9513 | 1.3159 | 9.9015 | 1.5217 | A- | A- | A+ |
| ELA | 4 | 661321 | 3 | A-K | 2 | 7276 | 1.0176 | 0.4285 | 0.2736 | 0.1433 | 0.1514 | 0.0033 | 0.2768 | -0.0544 | -0.231 | -0.0129 | 0.3861 | -0.0699 | 1.22 | 0.0642 | 9.9019 | 1.8804 | 9.9026 | 2.5804 | A+ | A- | A- |
| ELA | 4 | 661072 | 4 | A-K | 3 | 7238 | 1.6369 | 0.1676 | 0.2503 | 0.3551 | 0.2236 | 0.0033 | 0.5562 | -0.3411 | -0.2975 | 0.1857 | 0.4131 | -0.082 | 0.2958 | 0.0818 | 6.4412 | 1.236 | 6.3313 | 1.2501 | A+ | A- | A- |
| ELA | 4 | 661076 | 4 | A-K | 2 | 7241 | 1.15 | 0.2638 | 0.3199 | 0.4134 | | 0.0029 | 0.3544 | -0.2027 | -0.224 | 0.4003 | | -0.0612 | 0.1443 | 0.07 | 9.9014 | 1.4168 | 9.9018 | 1.8194 | A+ | A+ | A+ |
| ELA | 4 | 661063 | 5 | A-C | 3 | 7207 | 0.9788 | 0.3182 | 0.3814 | 0.2971 | | 0.0033 | 0.4496 | -0.341 | -0.0635 | 0.4214 | | -0.0507 | 0.5311 | 0.0662 | 6.8712 | 1.2355 | 8.8714 | 1.3633 | A+ | A+ | A+ |
| ELA | 4 | 661064 | 5 | A-C | 3 | 7182 | 1.8225 | 0.1406 | 0.2354 | 0.2769 | 0.3403 | 0.0068 | 0.6222 | -0.3326 | -0.3557 | 0.0027 | 0.5676 | -0.0448 | -0.0377 | 0.0858 | 0.641 | 1.0225 | 1.6311 | 1.0696 | A+ | A+ | A+ |
| ELA | 4 | 663145 | 6 | B-C | 3 | 7218 | 1.1014 | 0.2687 | 0.3578 | 0.3698 | | 0.0037 | 0.4181 | -0.2548 | -0.2068 | 0.4499 | | -0.0834 | 0.2613 | 0.0687 | 9.3613 | 1.329 | 9.9017 | 1.7171 | A+ | A- | A- |
| ELA | 4 | 663150 | 6 | B-K | 3 | 7194 | 1.1138 | 0.2727 | 0.4262 | 0.2022 | 0.0918 | 0.007 | 0.3457 | -0.1123 | -0.2312 | 0.1887 | 0.3246 | -0.0616 | 1.1714 | 0.0674 | 9.9015 | 1.4677 | 9.9016 | 1.5625 | A+ | A- | A- |
| ELA | 4 | 658451 | 7 | B-C | 2 | 7231 | 1.6649 | 0.1237 | 0.2927 | 0.3703 | 0.2071 | 0.0062 | 0.5158 | -0.2279 | -0.3472 | 0.1411 | 0.4233 | -0.0844 | 0.2374 | 0.0872 | 6.1412 | 1.2218 | 7.0113 | 1.2636 | A- | A- | A- |
| ELA | 4 | 658455 | 7 | B-K | 3 | 7250 | 0.9163 | 0.3844 | 0.311 | 0.301 | | 0.0036 | 0.4977 | -0.3685 | -0.0979 | 0.4987 | | -0.0693 | 0.7174 | 0.0641 | 2.7811 | 1.0914 | 4.6212 | 1.2073 | A+ | A- | A- |
| ELA | 4 | 659190 | 8 | B-C | 3 | 7263 | 1.4607 | 0.2005 | 0.3517 | 0.2304 | 0.2148 | 0.0026 | 0.4452 | -0.1925 | -0.257 | 0.0444 | 0.4463 | -0.0423 | 0.5363 | 0.0742 | 8.9713 | 1.3309 | 9.9014 | 1.4168 | A+ | A- | A- |
| ELA | 4 | 659187 | 8 | B-K | 3 | 7237 | 0.9211 | 0.3962 | 0.2799 | 0.3178 | | 0.0062 | 0.3522 | -0.1994 | -0.2046 | 0.4217 | | -0.0893 | 0.7139 | 0.0629 | 9.9015 | 1.473 | 9.9018 | 1.8223 | A+ | A+ | A+ |
| ELA | 4 | 660266 | 9 | B-C | 3 | 7269 | 1.3948 | 0.225 | 0.346 | 0.2327 | 0.1929 | 0.0034 | 0.4924 | -0.2529 | -0.2435 | 0.1107 | 0.453 | -0.0697 | 0.6533 | 0.0731 | 6.3612 | 1.2285 | 7.0013 | 1.2769 | A- | A- | A- |
| ELA | 4 | 660273 | 9 | B-K | 3 | 7266 | 0.9615 | 0.3349 | 0.3647 | 0.2965 | | 0.0038 | 0.3805 | -0.2844 | -0.0571 | 0.364 | | -0.0731 | 0.6217 | 0.0647 | 9.3813 | 1.3209 | 9.9016 | 1.5874 | A- | A- | A- |
| ELA | 4 | 623670 | 10 | A-K | 3 | 7285 | 1.3956 | 0.2191 | 0.1643 | 0.6134 | | 0.0031 | 0.5539 | -0.3915 | -0.3438 | 0.6027 | | -0.0748 | -0.3607 | 0.0784 | 2.5411 | 1.1018 | 4.7914 | 1.4021 | A- | A- | A- |
| ELA | 4 | 623676 | 10 | A-K | 3 | 7255 | 1.5286 | 0.1539 | 0.3458 | 0.3073 | 0.1857 | 0.0073 | 0.5254 | -0.2409 | -0.338 | 0.1809 | 0.4302 | -0.0357 | 0.4405 | 0.0827 | 6.1512 | 1.2204 | 7.3613 | 1.2781 | A- | A- | A- |
| ELA | 4 | 625471 | 11 | B-C | 3 | 7261 | 1.6197 | 0.1035 | 0.3285 | 0.4082 | 0.1565 | 0.0033 | 0.5662 | -0.2994 | -0.3873 | 0.3121 | 0.3411 | -0.0738 | 0.2865 | 0.093 | 0.101 | 1.0029 | -0.199 | 0.9928 | A+ | A- | A- |
| ELA | 4 | 625472 | 11 | B-K | 2 | 7218 | 1.0166 | 0.2965 | 0.3813 | 0.313 | | 0.0092 | 0.4445 | -0.357 | -0.0226 | 0.3909 | | -0.0759 | 0.489 | 0.0667 | 7.3413 | 1.2516 | 9.0714 | 1.3718 | A- | A+ | A+ |
| ELA | 4 | 621488 | 12 | B-C | 3 | 7316 | 0.6886 | 0.5815 | 0.1429 | 0.2714 | | 0.0042 | 0.1711 | -0.0431 | -0.2885 | 0.2832 | | -0.057 | 1.1411 | 0.0649 | 9.9019 | 1.9113 | 9.9032 | 3.2278 | A+ | A- | A+ |
| ELA | 4 | 621472 | 12 | B-K | 3 | 7305 | 1.3726 | 0.2421 | 0.3072 | 0.2773 | 0.1677 | 0.0057 | 0.4183 | -0.11 | -0.3698 | 0.1383 | 0.4277 | -0.0522 | 0.7244 | 0.071 | 9.9015 | 1.4552 | 9.9016 | 1.5791 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 566398 | 0 | A-C | 3 | 85232 | 1.5294 | 0.1277 | 0.3779 | 0.3267 | 0.1643 | 0.0035 | 0.564 | -0.2889 | -0.3403 | 0.2442 | 0.4101 | -0.0858 | 0.2862 | 0.0255 | 9.9012 | 1.1815 | 9.9012 | 1.2269 | A- | A- | A- |
| ELA | 5 | 566390 | 0 | A-K | 3 | 85224 | 1.1872 | 0.2369 | 0.3361 | 0.4235 | | 0.0036 | 0.5497 | -0.3936 | -0.1984 | 0.5389 | | -0.0872 | 0.1248 | 0.0204 | 9.9011 | 1.1192 | 9.9013 | 1.2943 | A+ | A+ | A+ |
| ELA | 5 | 580587 | 0 | A-K | 3 | 85354 | 2.1924 | 0.0807 | 0.1331 | 0.2976 | 0.4865 | 0.0021 | 0.6848 | -0.3782 | -0.4086 | -0.1356 | 0.6121 | -0.0467 | -0.4395 | 0.0309 | -7.4491 | 0.9232 | -9.8991 | 0.8671 | A+ | A- | A- |
| ELA | 5 | 493355 | 0 | B-C | 3 | 85127 | 0.9886 | 0.2872 | 0.4322 | 0.2759 | | 0.0047 | 0.584 | -0.4779 | 0.0071 | 0.4906 | | -0.0962 | 0.4726 | 0.0192 | -3.459 | 0.969 | 2.711 | 1.0282 | A- | A- | A+ |
| ELA | 5 | 580463 | 0 | B-K | 3 | 85365 | 1.6641 | 0.1356 | 0.3102 | 0.3062 | 0.2461 | 0.0019 | 0.6288 | -0.3552 | -0.3254 | 0.1016 | 0.5294 | -0.0625 | 0.2025 | 0.0245 | 8.9211 | 1.0887 | 9.9011 | 1.1382 | A+ | A- | A+ |
| ELA | 5 | 582425 | 0 | B-K | 3 | 85289 | 1.3173 | 0.2295 | 0.2218 | 0.5459 | | 0.0028 | 0.614 | -0.4264 | -0.3405 | 0.652 | | -0.0733 | -0.0148 | 0.0207 | 3.781 | 1.0377 | 3.7111 | 1.0566 | A- | A+ | A+ |
| ELA | 5 | 653721 | 1 | B-K | 3 | 7136 | 1.3785 | 0.1424 | 0.4007 | 0.3869 | 0.0663 | 0.0036 | 0.5316 | -0.3647 | -0.2319 | 0.388 | 0.2266 | -0.0709 | 0.831 | 0.084 | 2.5911 | 1.0918 | 2.7311 | 1.0965 | A+ | A- | A- |
| ELA | 5 | 653722 | 1 | B-K | 3 | 7141 | 1.3141 | 0.218 | 0.248 | 0.5311 | | 0.0029 | 0.6775 | -0.5022 | -0.2956 | 0.678 | | -0.062 | -0.1896 | 0.0738 | -5.4892 | 0.8233 | -5.6692 | 0.7515 | A+ | A+ | A+ |
| ELA | 5 | 660286 | 2 | B-C | 2 | 7111 | 1.422 | 0.1308 | 0.3924 | 0.3963 | 0.0777 | 0.0028 | 0.4696 | -0.2513 | -0.2844 | 0.314 | 0.2674 | -0.0296 | 0.8081 | 0.0813 | 3.7811 | 1.1335 | 3.9811 | 1.1417 | A- | A- | A- |
| ELA | 5 | 660289 | 2 | B-K | 3 | 7119 | 1.3408 | 0.2349 | 0.1883 | 0.5751 | | 0.0017 | 0.605 | -0.4609 | -0.2841 | 0.6239 | | -0.0479 | -0.221 | 0.0727 | -0.299 | 0.9893 | -0.359 | 0.9773 | A+ | A- | A- |
| ELA | 5 | 658539 | 3 | B-C | 3 | 7101 | 2.082 | 0.0699 | 0.1717 | 0.3599 | 0.3929 | 0.0056 | 0.644 | -0.3115 | -0.4612 | 0.0069 | 0.5203 | -0.0552 | -0.4205 | 0.111 | -2.6891 | 0.9058 | -1.6791 | 0.9349 | A- | A- | A- |
| ELA | 5 | 658544 | 3 | B-K | 3 | 7127 | 0.8562 | 0.4609 | 0.2199 | 0.3173 | | 0.002 | 0.2284 | -0.1055 | -0.2199 | 0.3128 | | -0.0434 | 0.8856 | 0.0628 | 9.9017 | 1.7217 | 9.9025 | 2.4582 | A- | A- | A- |
| ELA | 5 | 659284 | 4 | B-C | 2 | 7109 | 1.2652 | 0.2109 | 0.3117 | 0.4755 | | 0.002 | 0.6052 | -0.4077 | -0.3033 | 0.6179 | | -0.0402 | -0.1121 | 0.0748 | 0.011 | 1.0001 | -0.919 | 0.9584 | A+ | A+ | A+ |
| ELA | 5 | 659208 | 4 | B-K | 3 | 7076 | 1.583 | 0.0934 | 0.3768 | 0.374 | 0.1492 | 0.0066 | 0.5245 | -0.3035 | -0.2958 | 0.2321 | 0.3464 | -0.0502 | 0.3249 | 0.0956 | 2.3211 | 1.0802 | 2.8111 | 1.0982 | A+ | A- | A- |
| ELA | 5 | 659196 | 5 | B-C | 3 | 7047 | 1.6589 | 0.157 | 0.3021 | 0.2578 | 0.277 | 0.0062 | 0.5672 | -0.338 | -0.2492 | 0.03 | 0.5102 | -0.0519 | 0.2467 | 0.0799 | 4.4712 | 1.1594 | 4.4912 | 1.1804 | A+ | A- | A- |
| ELA | 5 | 659200 | 5 | B-C | 3 | 7064 | 0.6778 | 0.5748 | 0.1675 | 0.2538 | | 0.0038 | 0.394 | -0.2452 | -0.2325 | 0.487 | | -0.0641 | 1.203 | 0.0645 | 7.8913 | 1.2996 | 9.1917 | 1.7141 | A- | A+ | A- |
| ELA | 5 | 661096 | 6 | A-K | 3 | 7101 | 1.6243 | 0.1105 | 0.3166 | 0.4073 | 0.1629 | 0.0027 | 0.5084 | -0.339 | -0.2553 | 0.2298 | 0.3125 | -0.0632 | 0.3416 | 0.0948 | 4.3912 | 1.1561 | 4.9912 | 1.1788 | A+ | A- | A- |
| ELA | 5 | 661100 | 6 | A-K | 3 | 7106 | 0.9657 | 0.4367 | 0.159 | 0.4024 | | 0.002 | 0.3561 | -0.2372 | -0.2389 | 0.423 | | -0.0556 | 0.6433 | 0.0653 | 9.9015 | 1.4659 | 9.9021 | 2.0621 | A- | A- | A+ |
| ELA | 5 | 663167 | 7 | A-K | 3 | 7127 | 1.1348 | 0.2419 | 0.3799 | 0.3766 | | 0.0015 | 0.5412 | -0.3724 | -0.2008 | 0.535 | | -0.0584 | 0.2008 | 0.0695 | 0.691 | 1.0216 | 1.171 | 1.0429 | A- | A+ | A+ |
| ELA | 5 | 663169 | 7 | A-K | 3 | 7111 | 1.3961 | 0.1308 | 0.392 | 0.4213 | 0.0521 | 0.0038 | 0.4102 | -0.2273 | -0.257 | 0.3457 | 0.1621 | -0.0749 | 0.9228 | 0.0836 | 5.9512 | 1.2188 | 6.0312 | 1.2255 | A- | A- | A+ |
| ELA | 5 | 660276 | 8 | A-C | 3 | 7141 | 1.9104 | 0.1031 | 0.2334 | 0.3108 | 0.3502 | 0.0024 | 0.6121 | -0.2974 | -0.4135 | 0.0382 | 0.5254 | -0.0612 | -0.1263 | 0.0958 | 0.711 | 1.0246 | 1.101 | 1.0436 | A- | A- | A+ |
| ELA | 5 | 660282 | 8 | A-K | 2 | 7113 | 1.1052 | 0.3349 | 0.2195 | 0.4394 | | 0.0063 | 0.3815 | -0.2407 | -0.2462 | 0.4401 | | -0.037 | 0.3562 | 0.0671 | 9.9014 | 1.4315 | 9.9018 | 1.7661 | A- | A+ | A+ |
| ELA | 5 | 662355 | 9 | A-C | 3 | 7126 | 0.8894 | 0.3441 | 0.4193 | 0.2338 | | 0.0028 | 0.2164 | -0.1312 | -0.0704 | 0.2356 | | -0.0501 | 0.8285 | 0.0634 | 9.9016 | 1.5929 | 9.9018 | 1.7783 | A+ | A+ | A- |
| ELA | 5 | 662359 | 9 | A-K | 3 | 7124 | 1.3091 | 0.1569 | 0.3988 | 0.4174 | 0.0238 | 0.0031 | 0.4413 | -0.3098 | -0.1891 | 0.3939 | 0.09 | -0.0484 | 1.3145 | 0.0806 | 4.2412 | 1.1507 | 4.1412 | 1.1539 | A+ | A- | A- |
| ELA | 5 | 622451 | 10 | A-K | 3 | 7073 | 0.9658 | 0.2825 | 0.462 | 0.2485 | | 0.007 | 0.3236 | -0.3263 | 0.1299 | 0.2015 | | -0.0593 | 0.6357 | 0.0658 | 8.2513 | 1.2817 | 9.7514 | 1.356 | A+ | A- | A+ |
| ELA | 5 | 622452 | 10 | A-K | 3 | 7111 | 1.6989 | 0.1588 | 0.2343 | 0.3539 | 0.2513 | 0.0017 | 0.5045 | -0.241 | -0.3378 | 0.0843 | 0.4424 | -0.0262 | 0.2357 | 0.0827 | 5.2112 | 1.1881 | 6.9313 | 1.2734 | A+ | C- | A- |
| ELA | 5 | 623037 | 11 | A-K | 3 | 7062 | 1.2737 | 0.1835 | 0.3564 | 0.4561 | | 0.0039 | 0.3623 | -0.2931 | -0.0856 | 0.3195 | | -0.0751 | -0.1094 | 0.0766 | 8.9713 | 1.3252 | 9.9015 | 1.5342 | A+ | A+ | A+ |
| ELA | 5 | 623038 | 11 | A-K | 3 | 7079 | 1.9569 | 0.133 | 0.2016 | 0.2394 | 0.4245 | 0.0016 | 0.6044 | -0.2972 | -0.4266 | -0.0066 | 0.5588 | -0.034 | -0.1349 | 0.0898 | 2.0311 | 1.0749 | 1.9211 | 1.0943 | A+ | A- | A- |
| ELA | 5 | 623678 | 12 | B-C | 3 | 7061 | 0.9619 | 0.412 | 0.2074 | 0.3741 | | 0.0065 | 0.3417 | -0.2068 | -0.2327 | 0.4119 | | -0.0395 | 0.6431 | 0.0652 | 9.9015 | 1.5353 | 9.902 | 2.0002 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 5 | 623686 | 12 | B-K | 3 | 7097 | 1.373 | 0.1983 | 0.3809 | 0.2682 | 0.1513 | 0.0014 | 0.4865 | -0.2877 | -0.2103 | 0.1831 | 0.3823 | -0.0341 | 0.7326 | 0.0764 | 6.1912 | 1.2218 | 7.7913 | 1.293 | A+ | A- | A- |
| ELA | 6 | 496316 | 0 | A-C | 3 | 81313 | 1.3619 | 0.1729 | 0.2906 | 0.5338 | | 0.0027 | 0.5263 | -0.4295 | -0.1551 | 0.4748 | | -0.077 | 0.1234 | 0.0217 | 7.4911 | 1.0723 | 9.9011 | 1.1335 | A- | A+ | A+ |
| ELA | 6 | 495893 | 0 | A-K | 3 | 81142 | 1.7549 | 0.0804 | 0.2778 | 0.4424 | 0.1946 | 0.0048 | 0.5881 | -0.3373 | -0.3306 | 0.1597 | 0.4227 | -0.1001 | 0.2166 | 0.0321 | 8.7311 | 1.09 | 9.2511 | 1.0956 | A+ | A- | A- |
| ELA | 6 | 496310 | 0 | A-K | 3 | 81357 | 1.9518 | 0.072 | 0.2149 | 0.4001 | 0.3108 | 0.0022 | 0.6676 | -0.3442 | -0.4221 | 0.0363 | 0.5357 | -0.0729 | 0.0749 | 0.0296 | -9.8991 | 0.873 | -9.8991 | 0.8823 | A+ | A+ | A+ |
| ELA | 6 | 495086 | 0 | B-C | 3 | 81249 | 1.3826 | 0.1494 | 0.4389 | 0.2858 | 0.1225 | 0.0035 | 0.5297 | -0.3216 | -0.1873 | 0.1624 | 0.4258 | -0.0899 | 1.0759 | 0.0227 | 9.9012 | 1.1831 | 9.9012 | 1.2025 | A- | A- | A- |
| ELA | 6 | 578625 | 0 | B-C | 3 | 81370 | 1.0026 | 0.2824 | 0.4305 | 0.285 | | 0.002 | 0.417 | -0.3203 | -0.046 | 0.3749 | | -0.05 | 1.0489 | 0.0181 | 9.9013 | 1.2964 | 9.9014 | 1.3716 | A+ | A+ | A+ |
| ELA | 6 | 500480 | 0 | B-K | 3 | 81231 | 1.2325 | 0.2155 | 0.3337 | 0.4471 | | 0.0037 | 0.6358 | -0.45 | -0.2525 | 0.6229 | | -0.093 | 0.2809 | 0.0207 | -9.5391 | 0.915 | -9.6791 | 0.8906 | A- | A+ | A- |
| ELA | 6 | 659218 | 1 | B-C | 3 | 6832 | 1.304 | 0.2282 | 0.3805 | 0.2486 | 0.1417 | 0.001 | 0.4058 | -0.2268 | -0.1643 | 0.1199 | 0.3565 | -0.0368 | 1.1068 | 0.0688 | 6.5512 | 1.2354 | 8.8013 | 1.3362 | A- | A- | A- |
| ELA | 6 | 659213 | 1 | B-K | 3 | 6810 | 0.5931 | 0.5755 | 0.2499 | 0.1703 | | 0.0042 | 0.1317 | 0.0536 | -0.339 | 0.3316 | | -0.067 | 1.5765 | 0.0598 | 9.9015 | 1.5399 | 9.9019 | 1.8994 | A- | A+ | A- |
| ELA | 6 | 662386 | 2 | B-C | 3 | 6779 | 0.6433 | 0.4968 | 0.3594 | 0.1411 | | 0.0026 | 0.1558 | -0.072 | -0.0721 | 0.2122 | | -0.0636 | 1.6387 | 0.0588 | 9.9014 | 1.4422 | 9.9016 | 1.6203 | A- | A- | A- |
| ELA | 6 | 662939 | 2 | B-C | 3 | 6775 | 1.293 | 0.2813 | 0.3232 | 0.2111 | 0.1811 | 0.0032 | 0.2915 | -0.1041 | -0.1583 | -0.0329 | 0.3593 | -0.0716 | 1.0481 | 0.0668 | 9.9016 | 1.634 | 9.9018 | 1.7833 | A- | A- | A- |
| ELA | 6 | 660308 | 3 | B-C | 3 | 6764 | 0.7912 | 0.4556 | 0.2919 | 0.2478 | | 0.0047 | 0.3371 | -0.2365 | -0.0718 | 0.3573 | | -0.0558 | 1.336 | 0.0602 | 8.6413 | 1.2929 | 9.3614 | 1.4211 | B- | A- | A- |
| ELA | 6 | 660312 | 3 | B-K | 2 | 6781 | 1.6937 | 0.1015 | 0.3031 | 0.3926 | 0.2006 | 0.0022 | 0.5606 | -0.3262 | -0.3335 | 0.2054 | 0.3849 | -0.0561 | 0.5223 | 0.094 | -0.059 | 0.9978 | 0.351 | 1.0116 | A- | A- | A- |
| ELA | 6 | 659212 | 4 | B-C | 3 | 6751 | 1.1792 | 0.2387 | 0.4084 | 0.2773 | 0.0698 | 0.0057 | 0.2186 | -0.0115 | -0.2524 | 0.1834 | 0.2038 | -0.0676 | 1.4567 | 0.0679 | 9.9016 | 1.5699 | 9.9016 | 1.6161 | A- | A- | A- |
| ELA | 6 | 659214 | 4 | B-C | 3 | 6777 | 0.7698 | 0.4278 | 0.3722 | 0.1981 | | 0.0019 | 0.1864 | -0.1424 | 0.0059 | 0.1753 | | -0.0516 | 1.3865 | 0.0596 | 9.9015 | 1.462 | 9.9016 | 1.6247 | A- | A- | A- |
| ELA | 6 | 658509 | 5 | B-C | 3 | 6728 | 1.2044 | 0.1984 | 0.3946 | 0.4017 | | 0.0052 | 0.5364 | -0.4504 | -0.0781 | 0.4498 | | -0.0373 | 0.3696 | 0.0709 | -1.489 | 0.9541 | 0.201 | 1.0067 | A- | A+ | A+ |
| ELA | 6 | 658511 | 5 | B-C | 3 | 6753 | 1.5752 | 0.172 | 0.2873 | 0.3322 | 0.207 | 0.0015 | 0.4767 | -0.29 | -0.2137 | 0.1014 | 0.3948 | -0.0406 | 0.7459 | 0.0762 | 4.6912 | 1.1629 | 5.3712 | 1.1975 | A- | A- | A- |
| ELA | 6 | 660298 | 6 | A-K | 2 | 6771 | 1.0396 | 0.3796 | 0.1991 | 0.4191 | | 0.0022 | 0.3477 | -0.2039 | -0.2736 | 0.4273 | | -0.0556 | 0.7844 | 0.0642 | 9.9015 | 1.4715 | 9.9017 | 1.7077 | A- | A+ | A- |
| ELA | 6 | 660300 | 6 | A-K | 3 | 6770 | 2.0232 | 0.0729 | 0.1973 | 0.361 | 0.3663 | 0.0024 | 0.6804 | -0.3357 | -0.4716 | 0.0263 | 0.5508 | -0.063 | -0.0128 | 0.1068 | -6.6992 | 0.7825 | -6.6792 | 0.7605 | A+ | A- | A- |
| ELA | 6 | 663177 | 7 | A-K | 3 | 6766 | 0.6871 | 0.4366 | 0.4361 | 0.1245 | | 0.0028 | 0.2457 | -0.1708 | 0.0141 | 0.2454 | | -0.0628 | 1.7026 | 0.0589 | 8.0313 | 1.282 | 9.8214 | 1.388 | A- | A- | A- |
| ELA | 6 | 663180 | 7 | A-K | 2 | 6774 | 1.6825 | 0.1919 | 0.236 | 0.2678 | 0.3027 | 0.0016 | 0.4983 | -0.2836 | -0.2582 | 0.0229 | 0.4631 | -0.0398 | 0.5988 | 0.0775 | 3.7111 | 1.1298 | 6.0913 | 1.2627 | A+ | A- | A- |
| ELA | 6 | 662365 | 8 | A-C | 3 | 6739 | 0.911 | 0.359 | 0.3671 | 0.2703 | | 0.0037 | 0.3325 | -0.2429 | -0.0482 | 0.3245 | | -0.0719 | 1.0592 | 0.0623 | 7.4312 | 1.2443 | 9.6614 | 1.3897 | A+ | A+ | A+ |
| ELA | 6 | 662381 | 8 | A-K | 3 | 6750 | 1.4033 | 0.2345 | 0.2457 | 0.3986 | 0.1192 | 0.0021 | 0.3738 | -0.1562 | -0.2959 | 0.1922 | 0.3145 | -0.0531 | 1.1321 | 0.0719 | 9.9014 | 1.3911 | 9.9015 | 1.489 | A+ | A- | A- |
| ELA | 6 | 658473 | 9 | A-C | 3 | 6777 | 1.5483 | 0.1502 | 0.359 | 0.2784 | 0.2091 | 0.0032 | 0.4197 | -0.2012 | -0.2389 | 0.0851 | 0.372 | -0.0529 | 0.7201 | 0.0805 | 9.9014 | 1.3682 | 9.9014 | 1.3886 | A- | A- | A- |
| ELA | 6 | 658469 | 9 | A-K | 3 | 6792 | 1.5018 | 0.1525 | 0.1927 | 0.6538 | | 0.001 | 0.549 | -0.3976 | -0.3096 | 0.559 | | -0.0278 | -0.2419 | 0.0826 | -1.189 | 0.9548 | -1.1691 | 0.9237 | A+ | A+ | A+ |
| ELA | 6 | 623707 | 10 | A-K | 2 | 6796 | 1.1851 | 0.3359 | 0.1416 | 0.5207 | | 0.0018 | 0.4855 | -0.4086 | -0.1473 | 0.4938 | | -0.0552 | 0.4929 | 0.0671 | 5.1912 | 1.1804 | 5.4514 | 1.3643 | A- | A- | A- |
| ELA | 6 | 623708 | 10 | A-K | 2 | 6784 | 1.9018 | 0.085 | 0.2303 | 0.3785 | 0.3026 | 0.0035 | 0.649 | -0.3569 | -0.4024 | 0.0839 | 0.5051 | -0.0632 | 0.1657 | 0.1013 | -3.3591 | 0.8889 | -3.4691 | 0.8792 | A- | A- | A- |
| ELA | 6 | 625497 | 11 | B-C | 2 | 6818 | 1.8767 | 0.114 | 0.2112 | 0.3561 | 0.3161 | 0.0026 | 0.5051 | -0.2608 | -0.2893 | -0.0143 | 0.4539 | -0.063 | 0.2618 | 0.0908 | 4.3112 | 1.1553 | 5.2112 | 1.2078 | A- | A- | A- |
| ELA | 6 | 625494 | 11 | B-K | 3 | 6821 | 0.8379 | 0.3568 | 0.446 | 0.195 | | 0.0022 | 0.41 | -0.2688 | -0.0723 | 0.4223 | | -0.0547 | 1.2488 | 0.0613 | 2.4011 | 1.0766 | 3.0711 | 1.1055 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 6 | 623048 | 12 | A-K | 2 | 6759 | 1.6445 | 0.148 | 0.2806 | 0.3479 | 0.2216 | 0.0019 | 0.494 | -0.2776 | -0.2496 | 0.0784 | 0.4221 | -0.0446 | 0.5908 | 0.083 | 5.9512 | 1.2118 | 6.2912 | 1.2355 | A- | A- | B- |
| ELA | 6 | 623053 | 12 | A-K | 2 | 6755 | 0.693 | 0.4589 | 0.3859 | 0.1527 | | 0.0025 | 0.2723 | -0.1909 | -0.005 | 0.2771 | | -0.0423 | 1.5916 | 0.0595 | 9.5413 | 1.3409 | 9.9015 | 1.5383 | A+ | A- | A- |
| ELA | 7 | 495927 | 0 | A-K | 3 | 81091 | 0.6816 | 0.5211 | 0.2721 | 0.2037 | | 0.0032 | 0.4661 | -0.3455 | -0.0342 | 0.4777 | | -0.0819 | 1.5249 | 0.0176 | 9.9012 | 1.1809 | 9.9015 | 1.4852 | A+ | A+ | A+ |
| ELA | 7 | 580606 | 0 | A-K | 3 | 81192 | 2.0372 | 0.0828 | 0.1857 | 0.3411 | 0.3884 | 0.0019 | 0.6684 | -0.3586 | -0.4026 | -0.0477 | 0.5747 | -0.0479 | 0.0476 | 0.0271 | -9.8991 | 0.9018 | -7.9491 | 0.9068 | A+ | A- | A- |
| ELA | 7 | 580608 | 0 | A-K | 3 | 81156 | 1.1385 | 0.1728 | 0.5138 | 0.311 | | 0.0024 | 0.5455 | -0.4464 | -0.0616 | 0.4373 | | -0.0587 | 0.3776 | 0.0212 | -3.489 | 0.9685 | 0.691 | 1.0067 | A+ | A+ | A+ |
| ELA | 7 | 494383 | 0 | B-K | 3 | 81213 | 1.7567 | 0.0654 | 0.313 | 0.419 | 0.2009 | 0.0017 | 0.5336 | -0.3494 | -0.276 | 0.1377 | 0.3721 | -0.0644 | 0.0125 | 0.0326 | 9.9011 | 1.149 | 9.9013 | 1.2797 | A+ | A+ | A+ |
| ELA | 7 | 497161 | 0 | B-K | 3 | 81117 | 1.9845 | 0.0814 | 0.2011 | 0.3661 | 0.3485 | 0.0029 | 0.6844 | -0.3891 | -0.3896 | -0.0039 | 0.5639 | -0.08 | -0.4181 | 0.0337 | 8.9911 | 1.1018 | 9.9012 | 1.2424 | A- | A- | A- |
| ELA | 7 | 497162 | 0 | B-V | 3 | 81038 | 1.4932 | 0.1446 | 0.2158 | 0.6358 | | 0.0038 | 0.496 | -0.3987 | -0.191 | 0.4666 | | -0.0928 | -0.5147 | 0.0256 | 9.9012 | 1.1974 | 9.9019 | 1.8676 | A- | A+ | A+ |
| ELA | 7 | 661930 | 1 | B-C | 2 | 6861 | 1.4813 | 0.1771 | 0.1638 | 0.6578 | | 0.0013 | 0.4908 | -0.3344 | -0.3372 | 0.5349 | | -0.0373 | -0.2455 | 0.0769 | -1.4191 | 0.9495 | -1.6691 | 0.897 | A- | A+ | A+ |
| ELA | 7 | 661932 | 1 | B-K | 2 | 6847 | 1.7584 | 0.1447 | 0.2277 | 0.348 | 0.2763 | 0.0033 | 0.6447 | -0.3716 | -0.3731 | 0.1235 | 0.5183 | -0.0587 | 0.3252 | 0.0835 | -0.189 | 0.9933 | -0.469 | 0.9828 | A- | A- | A- |
| ELA | 7 | 658522 | 2 | B-C | 3 | 6742 | 1.0814 | 0.3069 | 0.3035 | 0.3882 | | 0.0015 | 0.5657 | -0.4162 | -0.1843 | 0.5685 | | -0.0094 | 0.5177 | 0.0658 | -0.719 | 0.9772 | 0.171 | 1.0068 | A- | A- | A- |
| ELA | 7 | 658524 | 2 | B-K | 3 | 6745 | 1.6179 | 0.0807 | 0.307 | 0.5244 | 0.0868 | 0.001 | 0.4904 | -0.2627 | -0.3373 | 0.3157 | 0.2518 | -0.0436 | 0.5969 | 0.1031 | 1.8011 | 1.0661 | 1.241 | 1.0467 | A- | A- | A- |
| ELA | 7 | 662347 | 3 | B-C | 2 | 6786 | 1.8009 | 0.1306 | 0.2051 | 0.395 | 0.2676 | 0.0016 | 0.6068 | -0.3203 | -0.373 | 0.0705 | 0.5094 | -0.036 | 0.2679 | 0.0872 | -0.239 | 0.9915 | 0.051 | 1.0013 | A- | A- | A+ |
| ELA | 7 | 662350 | 3 | B-K | 2 | 6786 | 0.8986 | 0.405 | 0.2895 | 0.3038 | | 0.0016 | 0.492 | -0.3986 | -0.0384 | 0.4669 | | -0.0403 | 1.0902 | 0.0614 | 4.0911 | 1.1365 | 7.1013 | 1.3345 | A- | A- | A- |
| ELA | 7 | 659238 | 4 | B-K | 2 | 6714 | 0.7584 | 0.3941 | 0.451 | 0.153 | | 0.0019 | 0.3524 | -0.351 | 0.2051 | 0.203 | | -0.0825 | 1.4048 | 0.06 | 4.5012 | 1.1498 | 6.6612 | 1.2439 | A- | A- | A- |
| ELA | 7 | 659247 | 4 | B-K | 2 | 6707 | 1.4236 | 0.1341 | 0.3988 | 0.3718 | 0.0923 | 0.003 | 0.3388 | -0.2461 | -0.1286 | 0.2103 | 0.1683 | -0.065 | 0.9321 | 0.0836 | 9.1413 | 1.3432 | 9.5014 | 1.356 | A+ | A- | A+ |
| ELA | 7 | 659237 | 5 | B-C | 3 | 6741 | 0.7785 | 0.3354 | 0.5495 | 0.1141 | | 0.001 | 0.408 | -0.3464 | 0.143 | 0.2955 | | -0.0481 | 1.4696 | 0.0609 | 2.6811 | 1.09 | 2.9411 | 1.0985 | A- | A- | A- |
| ELA | 7 | 659240 | 5 | B-K | 3 | 6735 | 1.3451 | 0.1562 | 0.4012 | 0.3809 | 0.0599 | 0.0019 | 0.3985 | -0.2609 | -0.1887 | 0.3091 | 0.1653 | -0.0478 | 1.1915 | 0.078 | 7.6913 | 1.2822 | 7.8313 | 1.289 | A- | A- | A- |
| ELA | 7 | 661104 | 6 | A-C | 2 | 6706 | 0.9934 | 0.2875 | 0.4268 | 0.2809 | | 0.0047 | 0.5069 | -0.3975 | -0.0352 | 0.4472 | | -0.0533 | 0.7958 | 0.066 | -0.569 | 0.9821 | 0.571 | 1.019 | A+ | A+ | A- |
| ELA | 7 | 661106 | 6 | A-K | 2 | 6733 | 1.9632 | 0.1008 | 0.1845 | 0.3648 | 0.3492 | 0.0007 | 0.627 | -0.317 | -0.3988 | -0.0191 | 0.5461 | -0.0381 | 0.0424 | 0.0997 | -1.6991 | 0.94 | -1.7291 | 0.9323 | A+ | A+ | A- |
| ELA | 7 | 663214 | 7 | A-C | 2 | 6791 | 1.765 | 0.1092 | 0.207 | 0.4907 | 0.1908 | 0.0024 | 0.589 | -0.3416 | -0.371 | 0.2076 | 0.3948 | -0.0436 | 0.394 | 0.0943 | 0.261 | 1.0087 | 0.221 | 1.0074 | A+ | A- | A- |
| ELA | 7 | 663219 | 7 | A-K | 2 | 6795 | 1.1573 | 0.2643 | 0.3126 | 0.4213 | | 0.0018 | 0.5281 | -0.416 | -0.1308 | 0.4972 | | -0.0344 | 0.404 | 0.0695 | 2.8511 | 1.0942 | 3.0411 | 1.1346 | A+ | A+ | A- |
| ELA | 7 | 662323 | 8 | A-C | 2 | 6764 | 0.8041 | 0.2595 | 0.6717 | 0.0645 | | 0.0043 | 0.3284 | -0.3903 | 0.366 | 0.0126 | | -0.0594 | 1.6137 | 0.0652 | 1.7111 | 1.0635 | 1.271 | 1.0491 | A+ | A+ | A- |
| ELA | 7 | 662330 | 8 | A-K | 3 | 6774 | 1.7322 | 0.1282 | 0.2551 | 0.3694 | 0.2445 | 0.0028 | 0.4878 | -0.2685 | -0.2941 | 0.1179 | 0.3803 | -0.0446 | 0.3822 | 0.0885 | 6.6412 | 1.2415 | 8.8813 | 1.346 | A- | A- | A- |
| ELA | 7 | 662322 | 9 | A-C | 2 | 6787 | 0.6265 | 0.6192 | 0.133 | 0.2463 | | 0.0015 | 0.3182 | -0.2118 | -0.1848 | 0.3882 | | -0.0427 | 1.4824 | 0.065 | 9.9014 | 1.4346 | 9.9023 | 2.2875 | A- | A- | A- |
| ELA | 7 | 662337 | 9 | A-K | 2 | 6778 | 1.4602 | 0.1304 | 0.3632 | 0.418 | 0.0856 | 0.0028 | 0.4589 | -0.2763 | -0.2518 | 0.3044 | 0.2424 | -0.072 | 0.9244 | 0.0854 | 5.8312 | 1.212 | 5.9812 | 1.2182 | A+ | A- | A- |
| ELA | 7 | 625544 | 10 | A-C | 2 | 6755 | 1.2416 | 0.2808 | 0.1943 | 0.5216 | | 0.0032 | 0.564 | -0.4596 | -0.177 | 0.5587 | | -0.0447 | 0.2801 | 0.0696 | -0.049 | 0.9979 | 0.601 | 1.0339 | A+ | A+ | A- |
| ELA | 7 | 625543 | 10 | A-K | 2 | 6766 | 1.9873 | 0.1077 | 0.1958 | 0.2963 | 0.3986 | 0.0016 | 0.4515 | -0.1755 | -0.2855 | -0.1406 | 0.478 | -0.0529 | 0.0086 | 0.0938 | 9.0914 | 1.3594 | 9.9016 | 1.6061 | A- | A- | A- |
| ELA | 7 | 623057 | 11 | B-K | 2 | 6742 | 0.9767 | 0.3568 | 0.3069 | 0.3335 | | 0.0028 | 0.3576 | -0.2637 | -0.0859 | 0.359 | | -0.063 | 0.7937 | 0.064 | 9.9014 | 1.3646 | 9.9016 | 1.5667 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 7 | 625091 | 11 | B-K | 3 | 6752 | 1.8015 | 0.0763 | 0.3034 | 0.3612 | 0.2578 | 0.0013 | 0.5674 | -0.3364 | -0.3089 | 0.0807 | 0.4436 | -0.0396 | 0.1402 | 0.106 | 0.911 | 1.0305 | 1.5211 | 1.0561 | A+ | A- | A- |
| ELA | 7 | 623066 | 12 | A-K | 3 | 6755 | 1.1199 | 0.1818 | 0.513 | 0.3012 | | 0.004 | 0.433 | -0.4229 | 0.066 | 0.2895 | | -0.0428 | 0.4451 | 0.0754 | 5.3112 | 1.1794 | 6.9513 | 1.2494 | A+ | A+ | A+ |
| ELA | 7 | 623070 | 12 | A-K | 2 | 6777 | 1.7984 | 0.0978 | 0.2334 | 0.4406 | 0.2275 | 0.0007 | 0.5396 | -0.2822 | -0.3566 | 0.1373 | 0.3987 | -0.0239 | 0.2872 | 0.0991 | 1.9311 | 1.0681 | 2.3111 | 1.084 | B+ | A- | A+ |
| ELA | 8 | 497067 | 0 | A-K | 3 | 81817 | 2.0809 | 0.0695 | 0.167 | 0.3747 | 0.3869 | 0.0019 | 0.6625 | -0.3563 | -0.3815 | -0.0854 | 0.5688 | -0.0649 | -0.4675 | 0.0312 | -8.5191 | 0.9126 | -0.109 | 0.9985 | A+ | A+ | A+ |
| ELA | 8 | 578070 | 0 | A-K | 3 | 81829 | 1.8612 | 0.1774 | 0.1649 | 0.2749 | 0.3811 | 0.0017 | 0.6246 | -0.3368 | -0.3826 | -0.0478 | 0.605 | -0.0434 | 0.136 | 0.0227 | 9.9012 | 1.1956 | 9.9013 | 1.3311 | A+ | A+ | A+ |
| ELA | 8 | 497070 | 0 | A-V | 3 | 81804 | 0.8059 | 0.4509 | 0.2899 | 0.2572 | | 0.002 | 0.361 | -0.2103 | -0.1799 | 0.4334 | | -0.0697 | 0.9131 | 0.0178 | 9.9015 | 1.4667 | 9.9017 | 1.7221 | A- | A+ | A- |
| ELA | 8 | 494396 | 0 | B-C | 3 | 81850 | 1.4036 | 0.1423 | 0.3109 | 0.5454 | | 0.0015 | 0.5496 | -0.4584 | -0.1637 | 0.4782 | | -0.0569 | -0.31 | 0.023 | 2.191 | 1.0213 | 5.2611 | 1.0693 | A- | A- | A+ |
| ELA | 8 | 494402 | 0 | B-K | 3 | 81886 | 2.1443 | 0.1059 | 0.1321 | 0.2729 | 0.4881 | 0.001 | 0.6974 | -0.3837 | -0.4399 | -0.1143 | 0.6392 | -0.0492 | -0.3021 | 0.0262 | -9.8991 | 0.8742 | -7.0491 | 0.8864 | A- | A- | A- |
| ELA | 8 | 495121 | 0 | B-K | 3 | 81742 | 1.3678 | 0.1857 | 0.2589 | 0.5526 | | 0.0028 | 0.6369 | -0.5128 | -0.2095 | 0.5931 | | -0.0706 | -0.3283 | 0.0223 | -6.2291 | 0.9381 | -2.309 | 0.9626 | A+ | A+ | A+ |
| ELA | 8 | 662311 | 1 | B-C | 3 | 6910 | 1.4834 | 0.1066 | 0.3424 | 0.5089 | 0.04 | 0.0022 | 0.368 | -0.289 | -0.1661 | 0.3149 | 0.0631 | -0.0384 | 0.8348 | 0.0927 | 6.2312 | 1.2346 | 6.1012 | 1.2416 | A- | A- | A- |
| ELA | 8 | 662317 | 1 | B-V | 2 | 6918 | 1.711 | 0.0905 | 0.1076 | 0.8009 | | 0.001 | 0.5488 | -0.4149 | -0.3301 | 0.5571 | | -0.0359 | -1.0689 | 0.0965 | -5.1092 | 0.7811 | -4.5494 | 0.6065 | A+ | A+ | A- |
| ELA | 8 | 661121 | 2 | B-C | 2 | 6853 | 0.9427 | 0.3665 | 0.3229 | 0.3092 | | 0.0013 | 0.3675 | -0.2443 | -0.1394 | 0.3969 | | -0.0149 | 0.6678 | 0.0633 | 9.4613 | 1.3217 | 9.9015 | 1.5038 | A- | A+ | A- |
| ELA | 8 | 661131 | 2 | B-K | 2 | 6850 | 1.5053 | 0.1054 | 0.3352 | 0.5057 | 0.052 | 0.0017 | 0.4327 | -0.3124 | -0.2323 | 0.3676 | 0.1026 | -0.0252 | 0.7227 | 0.0938 | 3.4011 | 1.126 | 2.9411 | 1.1134 | A+ | A- | A- |
| ELA | 8 | 660329 | 3 | B-C | 3 | 6779 | 0.6314 | 0.5805 | 0.2042 | 0.2128 | | 0.0025 | 0.3167 | -0.1875 | -0.1671 | 0.3972 | | -0.0535 | 1.2527 | 0.0621 | 9.2213 | 1.3487 | 9.9018 | 1.8193 | A- | A- | A- |
| ELA | 8 | 660333 | 3 | B-K | 2 | 6792 | 1.0682 | 0.2418 | 0.5266 | 0.1521 | 0.0789 | 0.0006 | 0.2684 | -0.158 | -0.0143 | -0.0169 | 0.3036 | -0.0401 | 1.2141 | 0.0682 | 9.9015 | 1.5055 | 9.9016 | 1.5689 | A- | A- | A- |
| ELA | 8 | 661125 | 4 | B-K | 3 | 6799 | 0.8831 | 0.3381 | 0.4396 | 0.2213 | | 0.001 | 0.3772 | -0.2955 | 0.0059 | 0.3329 | | -0.0406 | 0.8543 | 0.0626 | 8.6413 | 1.2966 | 9.0113 | 1.34 | A- | A- | A- |
| ELA | 8 | 661129 | 4 | B-K | 2 | 6794 | 1.7738 | 0.1563 | 0.2204 | 0.3143 | 0.3072 | 0.0018 | 0.6086 | -0.3571 | -0.3223 | 0.044 | 0.5298 | -0.0371 | 0.1461 | 0.082 | -0.339 | 0.9881 | -0.169 | 0.9929 | A- | A- | A- |
| ELA | 8 | 662466 | 5 | B-C | 3 | 6767 | 1.4353 | 0.1865 | 0.3961 | 0.2092 | 0.2058 | 0.0025 | 0.3532 | -0.1813 | -0.1213 | -0.0582 | 0.3854 | -0.0437 | 0.558 | 0.0746 | 9.9015 | 1.5368 | 9.9016 | 1.6402 | A+ | A- | A- |
| ELA | 8 | 662469 | 5 | B-K | 2 | 6770 | 1.1677 | 0.3013 | 0.228 | 0.4686 | | 0.0021 | 0.4777 | -0.3079 | -0.2984 | 0.5401 | | -0.0667 | 0.1931 | 0.0673 | 4.9512 | 1.1682 | 8.3315 | 1.4892 | A- | A- | A+ |
| ELA | 8 | 663195 | 6 | A-C | 3 | 6785 | 1.2942 | 0.2534 | 0.1975 | 0.5469 | | 0.0022 | 0.5084 | -0.3796 | -0.2438 | 0.5311 | | -0.0472 | -0.0703 | 0.0718 | 5.4712 | 1.2006 | 7.1215 | 1.4902 | A+ | A+ | A+ |
| ELA | 8 | 663209 | 6 | A-K | 2 | 6792 | 1.8124 | 0.096 | 0.2513 | 0.3954 | 0.256 | 0.0012 | 0.502 | -0.1971 | -0.3692 | 0.0659 | 0.4295 | -0.0413 | -0.0058 | 0.0972 | 4.6912 | 1.1685 | 5.9812 | 1.2285 | A+ | A+ | A+ |
| ELA | 8 | 659250 | 7 | A-C | 3 | 6836 | 1.0373 | 0.2921 | 0.3755 | 0.3293 | | 0.0032 | 0.4906 | -0.3812 | -0.0762 | 0.4514 | | -0.0341 | 0.438 | 0.0656 | 3.0811 | 1.0979 | 4.4212 | 1.1682 | A- | A+ | A- |
| ELA | 8 | 659256 | 7 | A-K | 3 | 6853 | 1.726 | 0.0954 | 0.2855 | 0.416 | 0.2024 | 0.0007 | 0.5891 | -0.3491 | -0.3291 | 0.1637 | 0.4254 | -0.0165 | 0.1195 | 0.0957 | -0.019 | 0.9991 | 0.331 | 1.0109 | A- | A- | A- |
| ELA | 8 | 660315 | 8 | A-C | 2 | 6813 | 1.4484 | 0.1422 | 0.3897 | 0.3438 | 0.1231 | 0.0012 | 0.4854 | -0.2278 | -0.3219 | 0.2659 | 0.3377 | -0.0213 | 0.6391 | 0.0814 | 3.2111 | 1.112 | 4.3912 | 1.1577 | A+ | A- | A- |
| ELA | 8 | 660323 | 8 | A-K | 2 | 6809 | 0.6061 | 0.5298 | 0.3318 | 0.1366 | | 0.0018 | 0.2117 | -0.1408 | -0.0183 | 0.2336 | | -0.0315 | 1.5411 | 0.0601 | 9.9015 | 1.5413 | 9.9019 | 1.8757 | A+ | A+ | A+ |
| ELA | 8 | 663200 | 9 | A-C | 3 | 6870 | 1.5311 | 0.1624 | 0.308 | 0.3637 | 0.1645 | 0.0015 | 0.4551 | -0.3175 | -0.1602 | 0.1475 | 0.3299 | -0.0589 | 0.4962 | 0.0799 | 6.7012 | 1.2396 | 7.0413 | 1.2579 | A+ | A- | A- |
| ELA | 8 | 663202 | 9 | A-K | 3 | 6876 | 1.1358 | 0.1599 | 0.5439 | 0.2956 | | 0.0006 | 0.4594 | -0.474 | 0.0891 | 0.2845 | | -0.0199 | 0.1084 | 0.0774 | -0.129 | 0.9953 | 1.111 | 1.0362 | A+ | A- | A- |
| ELA | 8 | 624740 | 10 | A-K | 2 | 6833 | 1.912 | 0.0915 | 0.2261 | 0.3599 | 0.3213 | 0.0012 | 0.6082 | -0.3461 | -0.3694 | 0.0664 | 0.4794 | -0.0408 | -0.1587 | 0.1003 | -0.409 | 0.9855 | 0.901 | 1.0342 | A+ | A- | A- |
| ELA | 8 | 624821 | 10 | A-K | 2 | 6826 | 1.1625 | 0.1773 | 0.4811 | 0.3394 | | 0.0022 | 0.4263 | -0.4345 | 0.0724 | 0.2794 | | -0.0544 | 0.0971 | 0.0758 | 3.8211 | 1.1268 | 6.0912 | 1.2226 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) | Final | Final Err | Infit-Z | Infit-MS | Outfit-Z | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|--------|-----------|---------|----------|----------|-----------|-----|-----|-----|
| ELA | 8 | 625573 | 11 | A-C | 2 | 6803 | 1.2417 | 0.2199 | 0.3175 | 0.4612 | | 0.0015 | 0.4536 | -0.3579 | -0.1295 | 0.42 | | -0.0217 | 0.001 | 0.0716 | 4.1111 | 1.1376 | 4.8612 | 1.225 | A- | A+ | A- |
| ELA | 8 | 625572 | 11 | A-K | 3 | 6800 | 1.6888 | 0.0911 | 0.3049 | 0.4255 | 0.1766 | 0.0019 | 0.5147 | -0.3223 | -0.2958 | 0.2167 | 0.3219 | -0.0219 | 0.2114 | 0.0968 | 2.8011 | 1.0981 | 4.1111 | 1.1468 | A- | A- | A- |
| ELA | 8 | 622500 | 12 | B-K | 3 | 6774 | 1.2821 | 0.17 | 0.377 | 0.4517 | | 0.0013 | 0.5318 | -0.4101 | -0.1684 | 0.4772 | | -0.0499 | -0.169 | 0.0776 | 0.491 | 1.0158 | 0.421 | 1.0167 | A- | A- | A+ |
| ELA | 8 | 624167 | 12 | B-K | 3 | 6761 | 1.8364 | 0.1751 | 0.1903 | 0.2537 | 0.3776 | 0.0032 | 0.5454 | -0.2485 | -0.3709 | -0.0665 | 0.5598 | -0.0424 | 0.0739 | 0.0813 | 6.3112 | 1.2421 | 8.8415 | 1.4677 | A+ | A- | A- |

Evidence-Based Selected-Response Computer-Based Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| Mean | Mean Score |
| P(0) | Proportion 0 Points |
| P(1) | Proportion 1 Point |
| P(2) | Proportion 2 Points |
| P(3) | Proportion 3 Points |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(0) | Correlation 0 Points |
| Corr(1) | Correlation 1 Point |
| Corr(2) | Correlation 2 Points |
| Corr(3) | Correlation 3 Points |
| Corr(INV) | Correlation Invalid Responses |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|
| ELA | 3 | 578117 | 0 | A-C | 3 | 87654 | 0.9771 | 0.3269 | 0.3528 | 0.3044 | | 0.0159 | 0.564 | -0.3968 | -0.1159 | 0.5571 | | -0.1184 |
| ELA | 3 | 578122 | 0 | A-K | 3 | 87602 | 1.3957 | 0.2126 | 0.3289 | 0.2824 | 0.1597 | 0.0164 | 0.5501 | -0.2616 | -0.3046 | 0.211 | 0.4668 | -0.1246 |
| ELA | 3 | 493320 | 0 | B-K | 3 | 88382 | 1.5344 | 0.1038 | 0.2544 | 0.6341 | | 0.0077 | 0.5479 | -0.3464 | -0.3498 | 0.5508 | | -0.0837 |
| ELA | 3 | 579126 | 0 | B-K | 3 | 88268 | 1.8441 | 0.1144 | 0.2608 | 0.281 | 0.335 | 0.009 | 0.6314 | -0.2928 | -0.3846 | -0.0161 | 0.5905 | -0.0998 |
| ELA | 3 | 658483 | 1 | A-K | 3 | 7407 | 1.1249 | 0.3113 | 0.3637 | 0.2025 | 0.1165 | 0.006 | 0.3494 | -0.1287 | -0.2179 | 0.1493 | 0.3462 | -0.0861 |
| ELA | 3 | 658485 | 1 | A-K | 2 | 7389 | 1.1265 | 0.217 | 0.4321 | 0.3425 | | 0.0085 | 0.4702 | -0.4117 | 0.0036 | 0.3694 | | -0.0805 |
| ELA | 3 | 660243 | 2 | A-K | 3 | 7375 | 1.3439 | 0.222 | 0.3523 | 0.2768 | 0.1436 | 0.0053 | 0.4614 | -0.2436 | -0.2307 | 0.1891 | 0.3777 | -0.0781 |
| ELA | 3 | 661318 | 2 | A-K | 3 | 7315 | 0.8021 | 0.4389 | 0.3042 | 0.2436 | | 0.0134 | 0.3468 | -0.2492 | -0.0378 | 0.3496 | | -0.0787 |
| ELA | 3 | 659168 | 3 | A-K | 3 | 7350 | 1.249 | 0.1937 | 0.4412 | 0.2713 | 0.0845 | 0.0093 | 0.2892 | -0.1655 | -0.0812 | 0.0908 | 0.2578 | -0.0664 |
| ELA | 3 | 659170 | 3 | A-K | 3 | 7350 | 1.1245 | 0.2851 | 0.2972 | 0.4084 | | 0.0093 | 0.4209 | -0.2574 | -0.2323 | 0.4659 | | -0.0693 |
| ELA | 4 | 409582 | 0 | A-K | 3 | 87016 | 1.2096 | 0.2013 | 0.3844 | 0.41 | | 0.0043 | 0.5224 | -0.4823 | 0.0012 | 0.4048 | | -0.097 |
| ELA | 4 | 579109 | 0 | A-K | 3 | 86715 | 0.938 | 0.3829 | 0.288 | 0.3214 | | 0.0077 | 0.4953 | -0.3347 | -0.1656 | 0.5297 | | -0.1103 |
| ELA | 4 | 579343 | 0 | A-K | 3 | 86804 | 1.6394 | 0.1532 | 0.2768 | 0.3383 | 0.225 | 0.0067 | 0.5818 | -0.2991 | -0.3569 | 0.1733 | 0.4654 | -0.109 |
| ELA | 4 | 493329 | 0 | B-C | 3 | 86917 | 0.8594 | 0.3884 | 0.3576 | 0.2486 | | 0.0054 | 0.4701 | -0.3709 | 0.0105 | 0.4263 | | -0.1161 |
| ELA | 4 | 579409 | 0 | B-C | 3 | 86749 | 1.8027 | 0.1106 | 0.2673 | 0.322 | 0.2927 | 0.0073 | 0.5925 | -0.2968 | -0.3624 | 0.0632 | 0.5057 | -0.0723 |
| ELA | 4 | 493331 | 0 | B-K | 3 | 86945 | 1.8387 | 0.081 | 0.2119 | 0.4886 | 0.2135 | 0.0051 | 0.6499 | -0.3366 | -0.4486 | 0.2056 | 0.44 | -0.1108 |
| ELA | 4 | 658463 | 1 | A-K | 3 | 7271 | 1.1683 | 0.2934 | 0.2411 | 0.461 | | 0.0044 | 0.3559 | -0.1814 | -0.3126 | 0.442 | | -0.0608 |
| ELA | 4 | 658466 | 1 | A-K | 2 | 7295 | 1.7367 | 0.1502 | 0.2292 | 0.3529 | 0.2666 | 0.0011 | 0.5367 | -0.2084 | -0.4213 | 0.0743 | 0.4912 | -0.0358 |
| ELA | 4 | 658492 | 2 | A-K | 3 | 7215 | 0.9265 | 0.4524 | 0.1625 | 0.3794 | | 0.0058 | 0.476 | -0.3016 | -0.3373 | 0.5762 | | -0.0661 |
| ELA | 4 | 659974 | 2 | A-K | 3 | 7225 | 0.9787 | 0.4065 | 0.3182 | 0.1565 | 0.1144 | 0.0044 | 0.2175 | 0.0334 | -0.2985 | 0.0465 | 0.3429 | -0.0519 |
| ELA | 4 | 660259 | 3 | A-K | 3 | 7268 | 0.8639 | 0.3995 | 0.3322 | 0.264 | | 0.0044 | 0.3754 | -0.2782 | -0.0487 | 0.3708 | | -0.0641 |
| ELA | 4 | 661321 | 3 | A-K | 2 | 7276 | 1.0176 | 0.4285 | 0.2736 | 0.1433 | 0.1514 | 0.0033 | 0.2768 | -0.0544 | -0.231 | -0.0129 | 0.3861 | -0.0699 |
| ELA | 5 | 566398 | 0 | A-C | 3 | 85232 | 1.5294 | 0.1277 | 0.3779 | 0.3267 | 0.1643 | 0.0035 | 0.564 | -0.2889 | -0.3403 | 0.2442 | 0.4101 | -0.0858 |
| ELA | 5 | 566390 | 0 | A-K | 3 | 85224 | 1.1872 | 0.2369 | 0.3361 | 0.4235 | | 0.0036 | 0.5497 | -0.3936 | -0.1984 | 0.5389 | | -0.0872 |
| ELA | 5 | 580587 | 0 | A-K | 3 | 85354 | 2.1924 | 0.0807 | 0.1331 | 0.2976 | 0.4865 | 0.0021 | 0.6848 | -0.3782 | -0.4086 | -0.1356 | 0.6121 | -0.0467 |
| ELA | 5 | 493355 | 0 | B-C | 3 | 85127 | 0.9886 | 0.2872 | 0.4322 | 0.2759 | | 0.0047 | 0.584 | -0.4779 | 0.0071 | 0.4906 | | -0.0962 |
| ELA | 5 | 580463 | 0 | B-K | 3 | 85365 | 1.6641 | 0.1356 | 0.3102 | 0.3062 | 0.2461 | 0.0019 | 0.6288 | -0.3552 | -0.3254 | 0.1016 | 0.5294 | -0.0625 |
| ELA | 5 | 582425 | 0 | B-K | 3 | 85289 | 1.3173 | 0.2295 | 0.2218 | 0.5459 | | 0.0028 | 0.614 | -0.4264 | -0.3405 | 0.652 | | -0.0733 |
| ELA | 5 | 653721 | 1 | B-K | 3 | 7136 | 1.3785 | 0.1424 | 0.4007 | 0.3869 | 0.0663 | 0.0036 | 0.5316 | -0.3647 | -0.2319 | 0.388 | 0.2266 | -0.0709 |
| ELA | 5 | 653722 | 1 | B-K | 3 | 7141 | 1.3141 | 0.218 | 0.248 | 0.5311 | | 0.0029 | 0.6775 | -0.5022 | -0.2956 | 0.678 | | -0.062 |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|
| ELA | 5 | 660286 | 2 | B-C | 2 | 7111 | 1.422 | 0.1308 | 0.3924 | 0.3963 | 0.0777 | 0.0028 | 0.4696 | -0.2513 | -0.2844 | 0.314 | 0.2674 | -0.0296 |
| ELA | 5 | 660289 | 2 | B-K | 3 | 7119 | 1.3408 | 0.2349 | 0.1883 | 0.5751 | | 0.0017 | 0.605 | -0.4609 | -0.2841 | 0.6239 | | -0.0479 |
| ELA | 5 | 658539 | 3 | B-C | 3 | 7101 | 2.082 | 0.0699 | 0.1717 | 0.3599 | 0.3929 | 0.0056 | 0.644 | -0.3115 | -0.4612 | 0.0069 | 0.5203 | -0.0552 |
| ELA | 5 | 658544 | 3 | B-K | 3 | 7127 | 0.8562 | 0.4609 | 0.2199 | 0.3173 | | 0.002 | 0.2284 | -0.1055 | -0.2199 | 0.3128 | | -0.0434 |
| ELA | 6 | 496316 | 0 | A-C | 3 | 81313 | 1.3619 | 0.1729 | 0.2906 | 0.5338 | | 0.0027 | 0.5263 | -0.4295 | -0.1551 | 0.4748 | | -0.077 |
| ELA | 6 | 495893 | 0 | A-K | 3 | 81142 | 1.7549 | 0.0804 | 0.2778 | 0.4424 | 0.1946 | 0.0048 | 0.5881 | -0.3373 | -0.3306 | 0.1597 | 0.4227 | -0.1001 |
| ELA | 6 | 496310 | 0 | A-K | 3 | 81357 | 1.9518 | 0.072 | 0.2149 | 0.4001 | 0.3108 | 0.0022 | 0.6676 | -0.3442 | -0.4221 | 0.0363 | 0.5357 | -0.0729 |
| ELA | 6 | 495086 | 0 | B-C | 3 | 81249 | 1.3826 | 0.1494 | 0.4389 | 0.2858 | 0.1225 | 0.0035 | 0.5297 | -0.3216 | -0.1873 | 0.1624 | 0.4258 | -0.0899 |
| ELA | 6 | 578625 | 0 | B-C | 3 | 81370 | 1.0026 | 0.2824 | 0.4305 | 0.285 | | 0.002 | 0.417 | -0.3203 | -0.046 | 0.3749 | | -0.05 |
| ELA | 6 | 500480 | 0 | B-K | 3 | 81231 | 1.2325 | 0.2155 | 0.3337 | 0.4471 | | 0.0037 | 0.6358 | -0.45 | -0.2525 | 0.6229 | | -0.093 |
| ELA | 6 | 659218 | 1 | B-C | 3 | 6832 | 1.304 | 0.2282 | 0.3805 | 0.2486 | 0.1417 | 0.001 | 0.4058 | -0.2268 | -0.1643 | 0.1199 | 0.3565 | -0.0368 |
| ELA | 6 | 659213 | 1 | B-K | 3 | 6810 | 0.5931 | 0.5755 | 0.2499 | 0.1703 | | 0.0042 | 0.1317 | 0.0536 | -0.339 | 0.3316 | | -0.067 |
| ELA | 6 | 662386 | 2 | B-C | 3 | 6779 | 0.6433 | 0.4968 | 0.3594 | 0.1411 | | 0.0026 | 0.1558 | -0.072 | -0.0721 | 0.2122 | | -0.0636 |
| ELA | 6 | 662939 | 2 | B-C | 3 | 6775 | 1.293 | 0.2813 | 0.3232 | 0.2111 | 0.1811 | 0.0032 | 0.2915 | -0.1041 | -0.1583 | -0.0329 | 0.3593 | -0.0716 |
| ELA | 6 | 660308 | 3 | B-C | 3 | 6764 | 0.7912 | 0.4556 | 0.2919 | 0.2478 | | 0.0047 | 0.3371 | -0.2365 | -0.0718 | 0.3573 | | -0.0558 |
| ELA | 6 | 660312 | 3 | B-K | 2 | 6781 | 1.6937 | 0.1015 | 0.3031 | 0.3926 | 0.2006 | 0.0022 | 0.5606 | -0.3262 | -0.3335 | 0.2054 | 0.3849 | -0.0561 |
| ELA | 7 | 495927 | 0 | A-K | 3 | 81091 | 0.6816 | 0.5211 | 0.2721 | 0.2037 | | 0.0032 | 0.4661 | -0.3455 | -0.0342 | 0.4777 | | -0.0819 |
| ELA | 7 | 580606 | 0 | A-K | 3 | 81192 | 2.0372 | 0.0828 | 0.1857 | 0.3411 | 0.3884 | 0.0019 | 0.6684 | -0.3586 | -0.4026 | -0.0477 | 0.5747 | -0.0479 |
| ELA | 7 | 580608 | 0 | A-K | 3 | 81156 | 1.1385 | 0.1728 | 0.5138 | 0.311 | | 0.0024 | 0.5455 | -0.4464 | -0.0616 | 0.4373 | | -0.0587 |
| ELA | 7 | 494383 | 0 | B-K | 3 | 81213 | 1.7567 | 0.0654 | 0.313 | 0.419 | 0.2009 | 0.0017 | 0.5336 | -0.3494 | -0.276 | 0.1377 | 0.3721 | -0.0644 |
| ELA | 7 | 497161 | 0 | B-K | 3 | 81117 | 1.9845 | 0.0814 | 0.2011 | 0.3661 | 0.3485 | 0.0029 | 0.6844 | -0.3891 | -0.3896 | -0.0039 | 0.5639 | -0.08 |
| ELA | 7 | 497162 | 0 | B-V | 3 | 81038 | 1.4932 | 0.1446 | 0.2158 | 0.6358 | | 0.0038 | 0.496 | -0.3987 | -0.191 | 0.4666 | | -0.0928 |
| ELA | 7 | 661930 | 1 | B-C | 2 | 6861 | 1.4813 | 0.1771 | 0.1638 | 0.6578 | | 0.0013 | 0.4908 | -0.3344 | -0.3372 | 0.5349 | | -0.0373 |
| ELA | 7 | 661932 | 1 | B-K | 2 | 6847 | 1.7584 | 0.1447 | 0.2277 | 0.348 | 0.2763 | 0.0033 | 0.6447 | -0.3716 | -0.3731 | 0.1235 | 0.5183 | -0.0587 |
| ELA | 7 | 658522 | 2 | B-C | 3 | 6742 | 1.0814 | 0.3069 | 0.3035 | 0.3882 | | 0.0015 | 0.5657 | -0.4162 | -0.1843 | 0.5685 | | -0.0094 |
| ELA | 7 | 658524 | 2 | B-K | 3 | 6745 | 1.6179 | 0.0807 | 0.307 | 0.5244 | 0.0868 | 0.001 | 0.4904 | -0.2627 | -0.3373 | 0.3157 | 0.2518 | -0.0436 |
| ELA | 7 | 662347 | 3 | B-C | 2 | 6786 | 1.8009 | 0.1306 | 0.2051 | 0.395 | 0.2676 | 0.0016 | 0.6068 | -0.3203 | -0.373 | 0.0705 | 0.5094 | -0.036 |
| ELA | 7 | 662350 | 3 | B-K | 2 | 6786 | 0.8986 | 0.405 | 0.2895 | 0.3038 | | 0.0016 | 0.492 | -0.3986 | -0.0384 | 0.4669 | | -0.0403 |
| ELA | 8 | 497067 | 0 | A-K | 3 | 81817 | 2.0809 | 0.0695 | 0.167 | 0.3747 | 0.3869 | 0.0019 | 0.6625 | -0.3563 | -0.3815 | -0.0854 | 0.5688 | -0.0649 |
| ELA | 8 | 578070 | 0 | A-K | 3 | 81829 | 1.8612 | 0.1774 | 0.1649 | 0.2749 | 0.3811 | 0.0017 | 0.6246 | -0.3368 | -0.3826 | -0.0478 | 0.605 | -0.0434 |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(INV) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|
| ELA | 8 | 497070 | 0 | A-V | 3 | 81804 | 0.8059 | 0.4509 | 0.2899 | 0.2572 | | 0.002 | 0.361 | -0.2103 | -0.1799 | 0.4334 | | -0.0697 |
| ELA | 8 | 494396 | 0 | B-C | 3 | 81850 | 1.4036 | 0.1423 | 0.3109 | 0.5454 | | 0.0015 | 0.5496 | -0.4584 | -0.1637 | 0.4782 | | -0.0569 |
| ELA | 8 | 494402 | 0 | B-K | 3 | 81886 | 2.1443 | 0.1059 | 0.1321 | 0.2729 | 0.4881 | 0.001 | 0.6974 | -0.3837 | -0.4399 | -0.1143 | 0.6392 | -0.0492 |
| ELA | 8 | 495121 | 0 | B-K | 3 | 81742 | 1.3678 | 0.1857 | 0.2589 | 0.5526 | | 0.0028 | 0.6369 | -0.5128 | -0.2095 | 0.5931 | | -0.0706 |
| ELA | 8 | 662311 | 1 | B-C | 3 | 6910 | 1.4834 | 0.1066 | 0.3424 | 0.5089 | 0.04 | 0.0022 | 0.368 | -0.289 | -0.1661 | 0.3149 | 0.0631 | -0.0384 |
| ELA | 8 | 662317 | 1 | B-V | 2 | 6918 | 1.711 | 0.0905 | 0.1076 | 0.8009 | | 0.001 | 0.5488 | -0.4149 | -0.3301 | 0.5571 | | -0.0359 |
| ELA | 8 | 661121 | 2 | B-C | 2 | 6853 | 0.9427 | 0.3665 | 0.3229 | 0.3092 | | 0.0013 | 0.3675 | -0.2443 | -0.1394 | 0.3969 | | -0.0149 |
| ELA | 8 | 661131 | 2 | B-K | 2 | 6850 | 1.5053 | 0.1054 | 0.3352 | 0.5057 | 0.052 | 0.0017 | 0.4327 | -0.3124 | -0.2323 | 0.3676 | 0.1026 | -0.0252 |
| ELA | 8 | 660329 | 3 | B-C | 3 | 6779 | 0.6314 | 0.5805 | 0.2042 | 0.2128 | | 0.0025 | 0.3167 | -0.1875 | -0.1671 | 0.3972 | | -0.0535 |
| ELA | 8 | 660333 | 3 | B-K | 2 | 6792 | 1.0682 | 0.2418 | 0.5266 | 0.1521 | 0.0789 | 0.0006 | 0.2684 | -0.158 | -0.0143 | -0.0169 | 0.3036 | -0.0401 |

Open-Ended Paper/Pencil Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| Mean | Mean Score |
| P(0) | Proportion 0 Points |
| P(1) | Proportion 1 Point |
| P(2) | Proportion 2 Points |
| P(3) | Proportion 3 Points |
| P(4) | Proportion 4 Points |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(0) | Correlation 0 Points |
| Corr(1) | Correlation 1 Point |
| Corr(2) | Correlation 2 Points |
| Corr(3) | Correlation 3 Points |
| Corr(4) | Correlation 4 Points |
| Corr(INV) | Correlation Invalid Responses |
| Final | IRT Difficulty Estimate |
| Final Err | IRT Difficulty Error |
| Infit | Infit Standardized |
| Infit-MS | Infit Mean Square |
| Outfit | Outfit Standardized |
| Outfit-MS | Outfit Mean Square |
| M/F | Male/Female DIF Code |
| W/B | White/Black DIF Code |
| W/H | White/Hispanic DIF Code |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-----------|--------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| ELA | 3 | 580001 | 0 | A-K | 3 | 81257 | 1.2446 | 0.2157 | 0.3233 | 0.3078 | 0.0656 | | 0.0877 | 0.6275 | -0.4031 | -0.0295 | 0.4396 | 0.2994 | | -0.3443 | 1.2436 | 0.0229 | 1.361 | 1.0154 | -0.719 | 0.9918 | A+ | A- | A+ |
| ELA | 3 | 581043 | 0 | B-K | 3 | 84538 | 1.0708 | 0.4225 | 0.1681 | 0.2274 | 0.1311 | | 0.0508 | 0.6224 | -0.4496 | 0.042 | 0.2889 | 0.4442 | | -0.2945 | 1.2957 | 0.0217 | 8.1911 | 1.1024 | 9.3012 | 1.1663 | A+ | A- | A+ |
| ELA | 3 | 660575 | 1 | A-K | 3 | 784 | 1.3278 | 0.1286 | 0.4381 | 0.3289 | 0.0558 | | 0.0485 | 0.5433 | -0.3482 | -0.125 | 0.3929 | 0.2407 | | -0.2852 | 1.2035 | 0.0851 | -1.9491 | 0.9238 | -2.1591 | 0.9163 | A+ | NA | NA |
| ELA | 3 | 661941 | 2 | A-K | 3 | 756 | 1.1257 | 0.2621 | 0.3374 | 0.2585 | 0.0595 | | 0.0825 | 0.5788 | -0.3472 | -0.0126 | 0.3922 | 0.3184 | | -0.321 | 1.408 | 0.0728 | -2.1791 | 0.9156 | -2.7891 | 0.888 | B+ | NA | NA |
| ELA | 3 | 660747 | 3 | A-K | 3 | 780 | 1.1628 | 0.1842 | 0.4642 | 0.2558 | 0.0412 | | 0.0545 | 0.5994 | -0.3838 | -0.0312 | 0.4196 | 0.2726 | | -0.321 | 1.47 | 0.0781 | -3.7391 | 0.8563 | -4.0092 | 0.8482 | B+ | NA | NA |
| ELA | 3 | 661982 | 4 | A-K | 3 | 1039 | 1.3465 | 0.1682 | 0.3545 | 0.3482 | 0.0736 | | 0.0555 | 0.6691 | -0.4453 | -0.158 | 0.4832 | 0.2966 | | -0.2862 | 1.0992 | 0.0823 | -6.7792 | 0.7587 | -6.9092 | 0.7515 | B+ | A- | NA |
| ELA | 3 | 660615 | 5 | A-C | 3 | 1035 | 1.0415 | 0.2155 | 0.4845 | 0.2273 | 0.0136 | | 0.0591 | 0.5741 | -0.4019 | 0.0753 | 0.434 | 0.1521 | | -0.3051 | 2.0087 | 0.0758 | -4.2292 | 0.8439 | -4.4892 | 0.8348 | A+ | A- | NA |
| ELA | 3 | 664223 | 6 | B-K | 3 | 1053 | 1.1567 | 0.1191 | 0.6027 | 0.2018 | 0.0336 | | 0.0427 | 0.4902 | -0.3346 | -0.031 | 0.3518 | 0.1829 | | -0.2505 | 1.3952 | 0.0886 | -1.3291 | 0.9414 | -1.4591 | 0.9354 | A+ | A- | NA |
| ELA | 3 | 663026 | 7 | B-K | 3 | 1022 | 1.3963 | 0.1153 | 0.4768 | 0.1889 | 0.1471 | | 0.0718 | 0.5603 | -0.2797 | -0.1351 | 0.2614 | 0.4146 | | -0.358 | 0.7637 | 0.0857 | -2.4391 | 0.905 | -2.4391 | 0.9008 | A+ | NA | NA |
| ELA | 3 | 663502 | 8 | B-K | 3 | 1045 | 1.2718 | 0.1765 | 0.4449 | 0.2238 | 0.1056 | | 0.0491 | 0.5473 | -0.337 | -0.0636 | 0.2646 | 0.3732 | | -0.3001 | 1.0496 | 0.0814 | -0.509 | 0.9791 | -0.759 | 0.9691 | A+ | A- | A- |
| ELA | 3 | 664276 | 9 | B-C | 3 | 1033 | 1.4918 | 0.11 | 0.3636 | 0.3591 | 0.1064 | | 0.0609 | 0.6239 | -0.3147 | -0.2742 | 0.4044 | 0.3621 | | -0.3148 | 0.7867 | 0.0901 | -5.2692 | 0.8072 | -5.4892 | 0.7995 | A+ | NA | NA |
| ELA | 3 | 624150 | 10 | A-K | 3 | 1048 | 1.0296 | 0.2991 | 0.3955 | 0.1891 | 0.0691 | | 0.0473 | 0.6363 | -0.447 | 0.0671 | 0.375 | 0.3501 | | -0.3006 | 1.4663 | 0.0732 | -4.8392 | 0.8128 | -5.3292 | 0.7895 | A+ | A- | NA |
| ELA | 3 | 633106 | 11 | B-K | 3 | 1032 | 1.5097 | 0.1164 | 0.3873 | 0.2745 | 0.16 | | 0.0618 | 0.6597 | -0.3191 | -0.2519 | 0.2931 | 0.4834 | | -0.3445 | 0.6801 | 0.0887 | -6.1692 | 0.7774 | -6.4392 | 0.7651 | A+ | B- | NA |
| ELA | 3 | 630480 | 12 | B-K | 3 | 998 | 1.3868 | 0.18 | 0.3464 | 0.2309 | 0.15 | | 0.0927 | 0.6605 | -0.4184 | -0.032 | 0.2634 | 0.4694 | | -0.3537 | 0.9536 | 0.0793 | -5.2792 | 0.8043 | -4.6192 | 0.8175 | A- | A- | NA |
| MATH | 3 | 565734 | 0 | A-T | 2 | 87413 | 1.995 | 0.1168 | 0.1939 | 0.3009 | 0.3082 | 0.0572 | 0.023 | 0.7715 | -0.467 | -0.3254 | -0.0209 | 0.5183 | 0.3368 | -0.1956 | 0.5117 | 0.0326 | -9.8993 | 0.6706 | -9.8993 | 0.7018 | A+ | A- | A- |
| MATH | 3 | 503236 | 0 | C-G | 2 | 87936 | 1.482 | 0.304 | 0.2334 | 0.1976 | 0.1635 | 0.0844 | 0.0171 | 0.7872 | -0.605 | -0.1244 | 0.2016 | 0.4209 | 0.4143 | -0.1552 | 1.298 | 0.0266 | -8.8391 | 0.8805 | -9.2791 | 0.8549 | A+ | A+ | A- |
| MATH | 3 | 495131 | 0 | D-M | 2 | 87442 | 1.6372 | 0.1243 | 0.3076 | 0.3864 | 0.1162 | 0.0428 | 0.0227 | 0.7261 | -0.4826 | -0.291 | 0.2629 | 0.3767 | 0.3008 | -0.1077 | 1.0711 | 0.0353 | -2.049 | 0.9717 | -1.659 | 0.9766 | A+ | A- | A- |
| MATH | 3 | 659259 | 1 | C-G | 3 | 779 | 1.3813 | 0.1539 | 0.4036 | 0.2727 | 0.1006 | 0.0133 | 0.0558 | 0.6581 | -0.4885 | -0.1667 | 0.3277 | 0.3183 | 0.1844 | -0.0207 | 1.7972 | 0.0831 | -1.219 | 0.9502 | -1.6291 | 0.9344 | A+ | NA | NA |
| MATH | 3 | 572792 | 2 | A-F | 2 | 779 | 1.5828 | 0.1954 | 0.2985 | 0.216 | 0.176 | 0.0595 | 0.0546 | 0.7351 | -0.4869 | -0.2428 | 0.1943 | 0.4343 | 0.3104 | -0.064 | 1.1533 | 0.0815 | -2.3591 | 0.9047 | -2.7991 | 0.8831 | A+ | NA | NA |
| MATH | 3 | 628160 | 3 | D-M | 2 | 776 | 1.8235 | 0.1259 | 0.2978 | 0.2409 | 0.1659 | 0.109 | 0.0605 | 0.7239 | -0.4664 | -0.3155 | 0.1421 | 0.3311 | 0.3901 | -0.0271 | 0.7845 | 0.0942 | 0.981 | 1.0406 | 0.321 | 1.0128 | A+ | NA | NA |
| MATH | 3 | 660691 | 4 | A-F | 3 | 1030 | 1.1058 | 0.3079 | 0.3288 | 0.2071 | 0.0754 | 0.0163 | 0.0645 | 0.7499 | -0.5873 | 0.0133 | 0.4277 | 0.3429 | 0.2034 | -0.1007 | 2.0396 | 0.0745 | -5.6392 | 0.7753 | -6.4093 | 0.732 | A+ | A- | NA |
| MATH | 3 | 623891 | 5 | C-G | 2 | 1040 | 1.4596 | 0.2309 | 0.3082 | 0.21 | 0.1336 | 0.0627 | 0.0545 | 0.6767 | -0.4775 | -0.1456 | 0.2215 | 0.3443 | 0.3338 | -0.0873 | 1.2512 | 0.0788 | 1.8511 | 1.0797 | 1.7011 | 1.076 | A+ | NA | A- |
| MATH | 3 | 577937 | 6 | B-O | 3 | 1031 | 1.5975 | 0.1827 | 0.2936 | 0.2382 | 0.1636 | 0.0591 | 0.0627 | 0.7414 | -0.5281 | -0.2309 | 0.2826 | 0.3664 | 0.3068 | -0.0785 | 1.2936 | 0.0837 | -1.029 | 0.9571 | -1.8391 | 0.9226 | A+ | NA | NA |
| MATH | 3 | 618096 | 7 | A-T | 2 | 1019 | 1.6094 | 0.2389 | 0.2398 | 0.1526 | 0.2325 | 0.0618 | 0.0745 | 0.7321 | -0.5325 | -0.1178 | 0.1335 | 0.4509 | 0.3099 | -0.1362 | 1.1743 | 0.0799 | -0.209 | 0.9905 | -0.599 | 0.9692 | A- | A- | NA |
| MATH | 3 | 659258 | 8 | A-F | 3 | 1030 | 0.9718 | 0.3055 | 0.4591 | 0.08 | 0.0764 | 0.0155 | 0.0636 | 0.6339 | -0.4486 | 0.077 | 0.265 | 0.3711 | 0.198 | -0.1091 | 2.1678 | 0.0723 | -1.2591 | 0.9396 | -2.2491 | 0.8965 | A- | A+ | NA |
| MATH | 3 | 658923 | 9 | C-G | 3 | 1043 | 1.6663 | 0.1615 | 0.2995 | 0.2459 | 0.1724 | 0.0672 | 0.0535 | 0.6771 | -0.4834 | -0.1538 | 0.1394 | 0.3623 | 0.3219 | -0.1292 | 1.0651 | 0.0863 | 0.521 | 1.021 | 0.321 | 1.0131 | A+ | A- | NA |
| MATH | 4 | 315525 | 0 | A-T | 3 | 86346 | 1.4111 | 0.0907 | 0.5473 | 0.2191 | 0.1074 | 0.0206 | 0.0149 | 0.7074 | -0.3911 | -0.3599 | 0.359 | 0.4135 | 0.2301 | -0.146 | 0.9821 | 0.0407 | 0.031 | 1.0004 | -0.489 | 0.9916 | A+ | A- | A- |
| MATH | 4 | 495133 | 0 | B-O | 2 | 82317 | 1.384 | 0.2124 | 0.347 | 0.221 | 0.1239 | 0.0348 | 0.0609 | 0.703 | -0.482 | -0.1406 | 0.2697 | 0.3883 | 0.2907 | -0.1214 | 0.8157 | 0.028 | 4.3311 | 1.0614 | 2.231 | 1.0315 | A+ | A- | A- |
| MATH | 4 | 503235 | 0 | D-M | 2 | 85636 | 1.1722 | 0.3109 | 0.3993 | 0.1165 | 0.088 | 0.0622 | 0.023 | 0.7426 | -0.5386 | -0.0362 | 0.2869 | 0.3625 | 0.4027 | -0.1665 | 1.0431 | 0.0251 | -7.4791 | 0.8908 | -9.8992 | 0.8366 | A- | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| MATH | 4 | 658860 | 1 | B-O | 3 | 793 | 0.8159 | 0.4073 | 0.3842 | 0.1297 | 0.0194 | 0.0206 | 0.0388 | 0.6987 | -0.5896 | 0.2606 | 0.3932 | 0.2236 | 0.244 | -0.1795 | 1.8255 | 0.0715 | -5.0792 | 0.7619 | -6.3993 | 0.7105 | A+ | NA | NA |
| MATH | 4 | 652780 | 2 | A-T | 3 | 798 | 1.0301 | 0.2966 | 0.3923 | 0.2361 | 0.0339 | 0.0073 | 0.0339 | 0.6846 | -0.5489 | 0.0398 | 0.4635 | 0.2485 | 0.1525 | -0.1298 | 1.8959 | 0.0743 | -4.2192 | 0.8348 | -4.6792 | 0.8157 | A+ | NA | NA |
| MATH | 4 | 659261 | 3 | B-O | 3 | 780 | 0.6333 | 0.5375 | 0.2676 | 0.092 | 0.0424 | 0.0048 | 0.0557 | 0.6073 | -0.4616 | 0.2313 | 0.3509 | 0.2999 | 0.1252 | -0.1866 | 2.3067 | 0.0727 | -0.759 | 0.9599 | -1.7591 | 0.8882 | A+ | NA | NA |
| MATH | 4 | 659260 | 4 | A-T | 3 | 1044 | 0.5661 | 0.6078 | 0.1965 | 0.101 | 0.0391 | 0.0055 | 0.05 | 0.645 | -0.5628 | 0.2865 | 0.3798 | 0.2867 | 0.1357 | -0.0875 | 2.371 | 0.0764 | -3.8392 | 0.8047 | -4.0993 | 0.7032 | A+ | A+ | NA |
| MATH | 4 | 624579 | 5 | D-M | 2 | 1047 | 1.1834 | 0.3518 | 0.3 | 0.1236 | 0.1264 | 0.05 | 0.0482 | 0.7745 | -0.5692 | -0.0452 | 0.2913 | 0.4582 | 0.3412 | -0.1398 | 1.0876 | 0.0739 | -7.3493 | 0.6996 | -7.6593 | 0.6512 | A+ | A- | A- |
| MATH | 4 | 655431 | 6 | C-G | 3 | 1054 | 0.9497 | 0.3982 | 0.3209 | 0.1482 | 0.0709 | 0.02 | 0.0418 | 0.6821 | -0.555 | 0.1244 | 0.3396 | 0.3408 | 0.2324 | -0.1351 | 1.5786 | 0.0725 | -2.5091 | 0.8877 | -3.0191 | 0.853 | A+ | A- | NA |
| MATH | 4 | 618095 | 7 | C-G | 3 | 1034 | 0.9768 | 0.46 | 0.2264 | 0.1 | 0.1227 | 0.0309 | 0.06 | 0.7233 | -0.5623 | 0.1387 | 0.2339 | 0.4543 | 0.2757 | -0.1884 | 1.521 | 0.0753 | -3.3492 | 0.8433 | -4.3993 | 0.7304 | A+ | A- | A- |
| MATH | 4 | 565865 | 8 | A-F | 2 | 1049 | 1.7178 | 0.2591 | 0.1773 | 0.2427 | 0.1227 | 0.1518 | 0.0464 | 0.6681 | -0.4915 | -0.1163 | 0.151 | 0.2094 | 0.4528 | -0.172 | 0.4149 | 0.0814 | 2.1911 | 1.0948 | 1.4711 | 1.0742 | A+ | NA | NA |
| MATH | 4 | 628158 | 9 | D-M | 2 | 1058 | 1.2892 | 0.2525 | 0.3769 | 0.1753 | 0.1135 | 0.0427 | 0.0391 | 0.7054 | -0.4595 | -0.1618 | 0.3136 | 0.3905 | 0.3099 | -0.143 | 1.0774 | 0.0771 | -3.7092 | 0.8464 | -4.0692 | 0.8289 | A- | B- | NA |
| MATH | 5 | 314504 | 0 | A-F | 2 | 83952 | 1.6032 | 0.219 | 0.2752 | 0.2435 | 0.1579 | 0.0834 | 0.0211 | 0.7623 | -0.4888 | -0.2478 | 0.1615 | 0.3704 | 0.4684 | -0.1464 | 0.5945 | 0.0287 | -3.9691 | 0.9477 | -4.2891 | 0.9429 | A+ | A- | A- |
| MATH | 5 | 413016 | 0 | B-O | 2 | 84367 | 1.431 | 0.1755 | 0.423 | 0.2038 | 0.1489 | 0.0326 | 0.0163 | 0.7082 | -0.4192 | -0.2582 | 0.2032 | 0.4767 | 0.2934 | -0.1318 | 0.9865 | 0.0278 | -2.069 | 0.9711 | -3.449 | 0.9518 | A+ | A- | A+ |
| MATH | 5 | 313770 | 0 | D-M | 2 | 80870 | 1.974 | 0.1875 | 0.1828 | 0.1958 | 0.2201 | 0.1566 | 0.0571 | 0.7432 | -0.473 | -0.2594 | 0.0067 | 0.3137 | 0.5003 | -0.1275 | -0.0413 | 0.0323 | 9.9011 | 1.1417 | 9.9012 | 1.2425 | A+ | A- | A- |
| MATH | 5 | 659263 | 1 | C-G | 3 | 784 | 0.6416 | 0.5218 | 0.2937 | 0.1007 | 0.0255 | 0.0097 | 0.0485 | 0.5956 | -0.4783 | 0.2147 | 0.3614 | 0.2267 | 0.1918 | -0.1032 | 2.2346 | 0.0717 | 0.191 | 1.0092 | -0.8491 | 0.95 | A+ | NA | NA |
| MATH | 5 | 623889 | 2 | D-M | 3 | 794 | 1.238 | 0.2715 | 0.4206 | 0.0691 | 0.1721 | 0.0291 | 0.0376 | 0.7359 | -0.4735 | -0.1093 | 0.1851 | 0.52 | 0.3175 | -0.1684 | 1.2265 | 0.074 | -4.2792 | 0.8159 | -4.3092 | 0.8012 | A+ | NA | NA |
| MATH | 5 | 654040 | 3 | A-F | 3 | 785 | 1.1987 | 0.4116 | 0.2119 | 0.092 | 0.1961 | 0.0387 | 0.0496 | 0.7297 | -0.5967 | 0.0512 | 0.1654 | 0.4454 | 0.3637 | -0.1018 | 1.1495 | 0.074 | -1.3791 | 0.9375 | -2.0791 | 0.8799 | A+ | NA | NA |
| MATH | 5 | 658862 | 4 | A-T | 3 | 1061 | 0.9746 | 0.3618 | 0.3136 | 0.2545 | 0.0209 | 0.0136 | 0.0355 | 0.7285 | -0.564 | 0.0371 | 0.5116 | 0.2481 | 0.2269 | -0.1669 | 1.8995 | 0.0724 | -6.7993 | 0.7401 | -6.8193 | 0.7214 | A- | A- | NA |
| MATH | 5 | 577938 | 5 | B-O | 2 | 1056 | 2.0417 | 0.162 | 0.202 | 0.1938 | 0.2402 | 0.1629 | 0.0391 | 0.6574 | -0.3931 | -0.2736 | -0.0365 | 0.3066 | 0.4338 | -0.1138 | 0.1464 | 0.0866 | 0.001 | 0.9994 | 1.4611 | 1.0654 | A+ | A- | NA |
| MATH | 5 | 661438 | 6 | A-T | 3 | 1055 | 0.8872 | 0.4355 | 0.3155 | 0.12 | 0.0573 | 0.0309 | 0.0409 | 0.6812 | -0.5561 | 0.1529 | 0.3389 | 0.3158 | 0.2854 | -0.1425 | 1.7536 | 0.0712 | -0.779 | 0.9617 | -2.3191 | 0.8825 | A+ | NA | NA |
| MATH | 5 | 658927 | 7 | A-F | 3 | 1050 | 1.3629 | 0.2555 | 0.3055 | 0.2282 | 0.1227 | 0.0427 | 0.0455 | 0.7481 | -0.5098 | -0.1321 | 0.2534 | 0.4515 | 0.3245 | -0.1774 | 1.1056 | 0.0762 | -5.4492 | 0.7893 | -5.6092 | 0.7777 | A+ | A- | A- |
| MATH | 5 | 660695 | 8 | C-G | 3 | 1058 | 1.1739 | 0.1891 | 0.5082 | 0.1891 | 0.0591 | 0.0164 | 0.0382 | 0.5911 | -0.4161 | -0.0439 | 0.2843 | 0.2923 | 0.2247 | -0.1246 | 1.4892 | 0.0787 | 0.681 | 1.0301 | 0.171 | 1.0066 | A+ | A- | NA |
| MATH | 5 | 614895 | 9 | D-M | 2 | 1038 | 0.6965 | 0.5355 | 0.2455 | 0.0991 | 0.0409 | 0.0227 | 0.0564 | 0.6825 | -0.5367 | 0.1879 | 0.3477 | 0.3384 | 0.2775 | -0.1103 | 1.949 | 0.0731 | -2.8791 | 0.8523 | -3.7592 | 0.7748 | A- | NA | NA |
| MATH | 6 | 313522 | 0 | A-N | 2 | 80720 | 1.6106 | 0.1767 | 0.2024 | 0.4742 | 0.0854 | 0.0439 | 0.0175 | 0.7006 | -0.4895 | -0.1725 | 0.1976 | 0.3695 | 0.3555 | -0.1436 | 0.7987 | 0.0316 | -6.4791 | 0.9158 | -6.7891 | 0.9057 | A+ | A- | A- |
| MATH | 6 | 566984 | 0 | B-E | 3 | 80238 | 1.1478 | 0.1509 | 0.5948 | 0.1762 | 0.0452 | 0.0095 | 0.0233 | 0.6598 | -0.4405 | -0.1113 | 0.3946 | 0.3243 | 0.1771 | -0.1498 | 1.6449 | 0.0272 | -9.8992 | 0.8224 | -9.8992 | 0.8347 | A+ | A- | A- |
| MATH | 6 | 577147 | 0 | D-S | 3 | 75721 | 1.0799 | 0.3292 | 0.3243 | 0.1605 | 0.0807 | 0.027 | 0.0783 | 0.7415 | -0.5271 | 0.0125 | 0.3399 | 0.3991 | 0.295 | -0.1469 | 1.2403 | 0.0258 | -2.179 | 0.9693 | -6.5791 | 0.9078 | A+ | A- | A- |
| MATH | 6 | 664283 | 1 | C-G | 3 | 791 | 0.9317 | 0.4153 | 0.3608 | 0.0678 | 0.0593 | 0.0545 | 0.0424 | 0.679 | -0.5555 | 0.1905 | 0.2336 | 0.2734 | 0.3903 | -0.147 | 1.6233 | 0.0717 | -1.4091 | 0.9267 | -2.2491 | 0.8815 | A- | NA | NA |
| MATH | 6 | 629880 | 2 | D-S | 2 | 785 | 0.786 | 0.3891 | 0.4182 | 0.103 | 0.0412 | | 0.0485 | 0.6562 | -0.4987 | 0.1931 | 0.3575 | 0.3524 | | -0.1436 | 2.9731 | 0.0705 | -4.2892 | 0.8201 | -5.2492 | 0.7857 | A+ | NA | NA |
| MATH | 6 | 661689 | 3 | B-E | 3 | 793 | 1.8335 | 0.0994 | 0.263 | 0.3467 | 0.2024 | 0.0497 | 0.0388 | 0.7069 | -0.4186 | -0.3306 | 0.1477 | 0.3937 | 0.3317 | -0.1542 | 0.7711 | 0.1005 | -4.1992 | 0.8402 | -4.0892 | 0.844 | C+ | NA | NA |
| MATH | 6 | 566983 | 4 | A-N | 2 | 1055 | 1.4009 | 0.2102 | 0.4213 | 0.1237 | 0.1429 | 0.0619 | 0.04 | 0.7094 | -0.5246 | -0.1125 | 0.2459 | 0.3618 | 0.3556 | -0.1221 | 1.0982 | 0.0794 | -0.219 | 0.9896 | -0.679 | 0.968 | A- | NA | NA |
| MATH | 6 | 664282 | 5 | B-E | 3 | 1022 | 0.771 | 0.4364 | 0.33 | 0.1127 | 0.0391 | 0.0109 | 0.0709 | 0.6964 | -0.5388 | 0.2023 | 0.4392 | 0.2874 | 0.1808 | -0.1608 | 2.2603 | 0.0715 | -4.5992 | 0.7904 | -5.3093 | 0.7472 | A+ | NA | NA |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-----------|--------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| MATH | 6 | 655434 | 6 | A-R | 3 | 1053 | 0.9487 | 0.4394 | 0.2789 | 0.113 | 0.1085 | 0.0201 | 0.0401 | 0.7287 | -0.6025 | 0.1563 | 0.2933 | 0.4418 | 0.2341 | -0.1741 | 1.8579 | 0.0739 | -3.3492 | 0.8474 | -4.6292 | 0.759 | A- | A- | NA |
| MATH | 6 | 661690 | 7 | C-G | 3 | 1028 | 0.9319 | 0.4355 | 0.2627 | 0.1327 | 0.0718 | 0.0318 | 0.0655 | 0.7528 | -0.5924 | 0.1387 | 0.3472 | 0.403 | 0.2894 | -0.1616 | 1.8058 | 0.074 | -4.3092 | 0.8035 | -5.6193 | 0.7102 | A+ | A- | NA |
| MATH | 6 | 658143 | 8 | A-R | 3 | 1047 | 1.3381 | 0.2327 | 0.3645 | 0.1936 | 0.1218 | 0.0391 | 0.0482 | 0.7376 | -0.4826 | -0.1607 | 0.3495 | 0.3941 | 0.3095 | -0.2134 | 1.3343 | 0.0783 | -5.0792 | 0.7976 | -5.6292 | 0.7743 | A- | A- | NA |
| MATH | 6 | 560077 | 9 | A-N | 2 | 1041 | 0.6609 | 0.5495 | 0.2498 | 0.0799 | 0.05 | 0.0163 | 0.0545 | 0.6481 | -0.5224 | 0.2609 | 0.339 | 0.322 | 0.2072 | -0.1824 | 2.2342 | 0.0748 | -2.1591 | 0.8853 | -4.3093 | 0.7336 | A+ | NA | NA |
| MATH | 7 | 503121 | 0 | A-R | 2 | 79851 | 1.0326 | 0.3837 | 0.3521 | 0.1138 | 0.0574 | 0.0623 | 0.0307 | 0.7962 | -0.5789 | 0.0299 | 0.3027 | 0.3596 | 0.475 | -0.1584 | 1.0155 | 0.0236 | -9.8992 | 0.7976 | -9.8992 | 0.761 | A- | A- | A- |
| MATH | 7 | 566985 | 0 | B-E | 2 | 79747 | 0.9277 | 0.4267 | 0.3093 | 0.1313 | 0.077 | 0.0238 | 0.032 | 0.7765 | -0.569 | 0.0505 | 0.3394 | 0.4626 | 0.3207 | -0.1635 | 1.2197 | 0.0241 | -9.8993 | 0.7053 | -9.8993 | 0.6672 | A- | A- | A- |
| MATH | 7 | 313528 | 0 | D-S | 2 | 74931 | 1.2811 | 0.2753 | 0.273 | 0.2337 | 0.0855 | 0.0421 | 0.0904 | 0.7401 | -0.4667 | -0.0828 | 0.2487 | 0.4148 | 0.3867 | -0.1865 | 0.9665 | 0.0247 | 2.451 | 1.0359 | 1.831 | 1.0269 | B+ | A- | A- |
| MATH | 7 | 655437 | 1 | C-G | 3 | 772 | 0.8744 | 0.4158 | 0.3515 | 0.0836 | 0.04 | 0.0448 | 0.0642 | 0.7153 | -0.528 | 0.152 | 0.3296 | 0.2932 | 0.3888 | -0.1695 | 1.4699 | 0.0692 | -2.1691 | 0.8863 | -4.0992 | 0.7976 | A+ | NA | NA |
| MATH | 7 | 655436 | 2 | B-E | 3 | 771 | 0.4397 | 0.6521 | 0.2036 | 0.0388 | 0.0303 | 0.0097 | 0.0655 | 0.6257 | -0.4455 | 0.3089 | 0.2774 | 0.3316 | 0.2199 | -0.1786 | 2.3134 | 0.0791 | -2.3792 | 0.8478 | -4.6293 | 0.6588 | A+ | NA | NA |
| MATH | 7 | 577142 | 3 | D-S | 2 | 764 | 0.7945 | 0.3629 | 0.4248 | 0.1104 | 0.0255 | 0.0036 | 0.0728 | 0.6623 | -0.473 | 0.195 | 0.3959 | 0.3081 | 0.1186 | -0.1877 | 2.4042 | 0.0686 | -3.9692 | 0.8345 | -4.8692 | 0.8035 | A+ | NA | NA |
| MATH | 7 | 664285 | 4 | A-R | 3 | 1036 | 0.7394 | 0.5173 | 0.2591 | 0.0845 | 0.0555 | 0.0255 | 0.0582 | 0.6517 | -0.4691 | 0.1192 | 0.3149 | 0.3741 | 0.2749 | -0.1467 | 1.6596 | 0.0722 | -0.269 | 0.9848 | -1.7491 | 0.8931 | A+ | A- | NA |
| MATH | 7 | 661692 | 5 | A-R | 3 | 1028 | 0.5934 | 0.6073 | 0.1936 | 0.0545 | 0.0645 | 0.0145 | 0.0655 | 0.6587 | -0.4754 | 0.1971 | 0.2845 | 0.4396 | 0.2107 | -0.176 | 2.0451 | 0.0777 | -1.0991 | 0.9336 | -2.6492 | 0.7959 | A+ | A- | NA |
| MATH | 7 | 653189 | 6 | B-E | 2 | 1019 | 0.7017 | 0.5046 | 0.2878 | 0.0729 | 0.0337 | 0.0291 | 0.0719 | 0.6758 | -0.4788 | 0.1992 | 0.3484 | 0.2938 | 0.3305 | -0.1933 | 1.6561 | 0.071 | -2.8292 | 0.8481 | -4.2192 | 0.7655 | A+ | NA | NA |
| MATH | 7 | 666684 | 7 | D-S | 3 | 1024 | 0.6377 | 0.5204 | 0.2707 | 0.0963 | 0.0409 | 0.0018 | 0.0699 | 0.6706 | -0.4767 | 0.181 | 0.4014 | 0.3775 | 0.1006 | -0.1556 | 2.4597 | 0.071 | -3.7492 | 0.8227 | -4.7893 | 0.7391 | A+ | A- | NA |
| MATH | 7 | 653190 | 8 | C-G | 3 | 1032 | 0.6705 | 0.6036 | 0.1691 | 0.0736 | 0.0545 | 0.0373 | 0.0618 | 0.7246 | -0.5878 | 0.2323 | 0.3685 | 0.3194 | 0.3635 | -0.1544 | 1.7053 | 0.0798 | -2.3791 | 0.8636 | -4.9394 | 0.6292 | A+ | A+ | NA |
| MATH | 7 | 661691 | 9 | A-R | 3 | 1034 | 1.0077 | 0.4959 | 0.1911 | 0.0874 | 0.0837 | 0.0828 | 0.0591 | 0.7524 | -0.5529 | 0.0381 | 0.2221 | 0.3563 | 0.4891 | -0.1471 | 1.066 | 0.0754 | -1.8991 | 0.9001 | -2.9992 | 0.7955 | A- | A- | NA |
| MATH | 8 | 313899 | 0 | B-F | 2 | 79100 | 1.1828 | 0.3659 | 0.2625 | 0.1562 | 0.1252 | 0.0446 | 0.0456 | 0.8091 | -0.5778 | -0.0612 | 0.3035 | 0.4782 | 0.3773 | -0.1969 | 0.6841 | 0.0249 | -9.8993 | 0.7336 | -9.8993 | 0.7044 | A+ | A- | A- |
| MATH | 8 | 494647 | 0 | C-G | 2 | 77029 | 1.3825 | 0.189 | 0.3847 | 0.2069 | 0.1088 | 0.04 | 0.0706 | 0.7317 | -0.4172 | -0.1768 | 0.2426 | 0.42 | 0.3764 | -0.2088 | 0.4512 | 0.0265 | -9.8992 | 0.8341 | -9.8992 | 0.8268 | A+ | A- | A- |
| MATH | 8 | 493897 | 0 | D-S | 2 | 80662 | 1.4483 | 0.332 | 0.2186 | 0.1668 | 0.166 | 0.0898 | 0.0268 | 0.7794 | -0.5607 | -0.1352 | 0.1549 | 0.4027 | 0.4806 | -0.1556 | 0.5677 | 0.025 | -0.949 | 0.9856 | -1.669 | 0.9695 | A- | A- | A- |
| MATH | 8 | 629624 | 1 | A-N | 2 | 780 | 1.0821 | 0.3018 | 0.3988 | 0.1333 | 0.0885 | 0.023 | 0.0545 | 0.7524 | -0.4914 | -0.0231 | 0.3452 | 0.4638 | 0.2674 | -0.2304 | 1.276 | 0.0712 | -7.0693 | 0.7085 | -7.5793 | 0.6873 | A+ | NA | NA |
| MATH | 8 | 664294 | 2 | D-S | 3 | 769 | 1.3043 | 0.0885 | 0.5976 | 0.1479 | 0.0703 | 0.0279 | 0.0679 | 0.682 | -0.2489 | -0.3131 | 0.3477 | 0.3925 | 0.3313 | -0.2151 | 0.9461 | 0.0889 | -4.5392 | 0.7946 | -5.0592 | 0.7711 | A+ | NA | NA |
| MATH | 8 | 658590 | 3 | B-E | 3 | 773 | 0.6675 | 0.5667 | 0.2318 | 0.0607 | 0.0425 | 0.0364 | 0.0619 | 0.7028 | -0.5437 | 0.3099 | 0.3584 | 0.2973 | 0.3211 | -0.278 | 1.3454 | 0.0736 | -4.3392 | 0.7678 | -6.4594 | 0.6018 | A- | NA | NA |
| MATH | 8 | 664293 | 4 | D-S | 3 | 1030 | 0.5621 | 0.5473 | 0.2909 | 0.0691 | 0.0191 | 0.01 | 0.0636 | 0.6524 | -0.4934 | 0.3216 | 0.3801 | 0.2371 | 0.2054 | -0.2037 | 2.1967 | 0.072 | -2.7891 | 0.856 | -4.8793 | 0.7377 | A+ | NA | NA |
| MATH | 8 | 658148 | 5 | B-F | 3 | 1016 | 0.6969 | 0.418 | 0.408 | 0.0674 | 0.0255 | 0.0064 | 0.0747 | 0.6961 | -0.5001 | 0.3097 | 0.4124 | 0.2756 | 0.1661 | -0.2497 | 2.1531 | 0.0686 | -5.7093 | 0.7458 | -7.1493 | 0.7051 | A- | A- | NA |
| MATH | 8 | 567436 | 6 | C-G | 2 | 1018 | 0.6896 | 0.4618 | 0.3509 | 0.0655 | 0.0327 | 0.0145 | 0.0745 | 0.646 | -0.46 | 0.2324 | 0.3345 | 0.2996 | 0.2347 | -0.1741 | 1.8288 | 0.0701 | -3.0092 | 0.8467 | -4.2292 | 0.7931 | A+ | A- | NA |
| MATH | 8 | 577151 | 7 | C-G | 3 | 1031 | 0.8341 | 0.4164 | 0.3773 | 0.0527 | 0.0645 | 0.0264 | 0.0627 | 0.7049 | -0.544 | 0.2446 | 0.2656 | 0.3498 | 0.3159 | -0.1911 | 1.3945 | 0.0695 | -3.4992 | 0.8255 | -4.7192 | 0.7708 | A+ | NA | NA |
| MATH | 8 | 658147 | 8 | B-E | 3 | 1004 | 0.9711 | 0.3791 | 0.3073 | 0.1145 | 0.0973 | 0.0145 | 0.0873 | 0.7286 | -0.4937 | 0.0377 | 0.3313 | 0.4651 | 0.2378 | -0.1761 | 1.3687 | 0.0703 | -5.0092 | 0.7818 | -5.8893 | 0.7188 | A+ | A+ | NA |
| MATH | 8 | 658591 | 9 | B-F | 3 | 1048 | 0.8397 | 0.4627 | 0.2678 | 0.1621 | 0.0383 | 0.0237 | 0.0455 | 0.7873 | -0.612 | 0.1251 | 0.5149 | 0.2991 | 0.2985 | -0.205 | 1.4872 | 0.0724 | -8.3694 | 0.6502 | -8.9294 | 0.5864 | A+ | NA | NA |
| SCIENCE | 4 | 492832 | 0 | A | 2 | 83296 | 0.9552 | 0.2685 | 0.4723 | 0.2252 | | | 0.0341 | 0.5983 | -0.4373 | 0.0732 | 0.4933 | | | -0.2691 | 1.121 | 0.0224 | -2.529 | 0.9732 | -3.449 | 0.9635 | A+ | A- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|------|------|--------|--------|---------|---------|---------|---------|---------|-----------|---------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| SCIENCE | 4 | 566544 | 0 | A | 2 | 83130 | 0.9998 | 0.1825 | 0.5992 | 0.1823 | | | 0.036 | 0.4912 | -0.4179 | 0.1734 | 0.3198 | | | -0.2526 | 1.2628 | 0.0228 | 2.191 | 1.0251 | 2.031 | 1.0232 | A+ | A- | A+ |
| SCIENCE | 4 | 398573 | 0 | B | 2 | 83025 | 1.4307 | 0.0979 | 0.3524 | 0.5125 | | | 0.0372 | 0.57 | -0.3898 | -0.2176 | 0.5255 | | | -0.2265 | -0.1848 | 0.0326 | 3.481 | 1.0407 | 4.9211 | 1.0692 | A+ | A- | A- |
| SCIENCE | 4 | 462648 | 0 | C | 2 | 84122 | 0.8302 | 0.3408 | 0.4595 | 0.1752 | | | 0.0245 | 0.3958 | -0.2994 | 0.11 | 0.3178 | | | -0.218 | 1.8433 | 0.02 | 9.9013 | 1.2723 | 9.9013 | 1.3092 | A+ | A- | A- |
| SCIENCE | 4 | 335278 | 0 | D | 2 | 83724 | 1.1958 | 0.1198 | 0.5411 | 0.31 | | | 0.0291 | 0.4311 | -0.3875 | 0.0507 | 0.3088 | | | -0.2516 | 0.5588 | 0.0257 | -1.589 | 0.983 | 0.291 | 1.0031 | A- | A- | A- |
| SCIENCE | 4 | 621211 | 1 | D | 3 | 786 | 0.9262 | 0.3168 | 0.3869 | 0.2467 | | | 0.0496 | 0.4885 | -0.3944 | 0.1423 | 0.3763 | | | -0.2211 | 1.2587 | 0.0718 | 1.3911 | 1.0508 | 0.571 | 1.0228 | A+ | NA | NA |
| SCIENCE | 4 | 663233 | 2 | B | 2 | 802 | 1.0362 | 0.3794 | 0.1782 | 0.4145 | | | 0.0279 | 0.528 | -0.4484 | 0.0227 | 0.4874 | | | -0.1898 | 0.9624 | 0.0756 | 1.111 | 1.0421 | 0.711 | 1.0409 | A+ | NA | NA |
| SCIENCE | 4 | 660756 | 3 | B | 2 | 604 | 0.2003 | 0.6029 | 0.1102 | 0.0182 | | | 0.2688 | 0.2732 | 0.1086 | 0.2472 | 0.1477 | | | -0.3389 | 3.7786 | 0.0948 | 0.431 | 1.032 | -0.5891 | 0.9181 | A- | NA | NA |
| SCIENCE | 4 | 659801 | 4 | D | 2 | 1056 | 0.6278 | 0.5082 | 0.3009 | 0.1509 | | | 0.04 | 0.3688 | -0.271 | 0.178 | 0.2876 | | | -0.2507 | 1.9752 | 0.0694 | 2.9211 | 1.1193 | 2.9212 | 1.1627 | A- | NA | B- |
| SCIENCE | 4 | 660655 | 5 | D | 2 | 1051 | 1.1522 | 0.1818 | 0.4464 | 0.3273 | | | 0.0445 | 0.3286 | -0.2906 | 0.1089 | 0.2436 | | | -0.2734 | 0.7885 | 0.0811 | 4.5012 | 1.1717 | 5.0812 | 1.2068 | A- | C- | NA |
| SCIENCE | 4 | 659842 | 6 | A | 2 | 1037 | 0.5227 | 0.5644 | 0.2613 | 0.1152 | | | 0.059 | 0.3949 | -0.2495 | 0.1722 | 0.3274 | | | -0.2398 | 2.2456 | 0.0715 | 1.2011 | 1.0526 | 3.8913 | 1.2767 | A- | A- | NA |
| SCIENCE | 4 | 663751 | 7 | C | 2 | 1064 | 1.0949 | 0.2691 | 0.3373 | 0.3609 | | | 0.0327 | 0.2923 | -0.1587 | -0.1058 | 0.3243 | | | -0.1985 | 0.9498 | 0.0756 | 7.9613 | 1.3088 | 7.4514 | 1.3521 | A+ | NA | NA |
| SCIENCE | 4 | 659843 | 8 | C | 2 | 1057 | 0.245 | 0.7518 | 0.1827 | 0.0264 | | | 0.0391 | 0.3581 | -0.2182 | 0.2915 | 0.1962 | | | -0.257 | 3.37 | 0.0808 | -0.719 | 0.9561 | -0.9691 | 0.912 | A+ | A- | NA |
| SCIENCE | 4 | 660579 | 9 | B | 2 | 1051 | 0.7079 | 0.3697 | 0.4941 | 0.0908 | | | 0.0454 | 0.4725 | -0.406 | 0.3486 | 0.2393 | | | -0.2262 | 2.0599 | 0.0692 | -0.709 | 0.9723 | -1.059 | 0.9582 | A+ | A- | NA |
| SCIENCE | 4 | 655950 | 10 | B | 3 | 1052 | 1.2205 | 0.1874 | 0.3712 | 0.3985 | | | 0.0428 | 0.5355 | -0.4146 | -0.0462 | 0.4622 | | | -0.2086 | 0.6212 | 0.0819 | -1.5291 | 0.9445 | -2.0691 | 0.9138 | A+ | C- | NA |
| SCIENCE | 4 | 660755 | 11 | A | 3 | 1043 | 0.9971 | 0.3182 | 0.3145 | 0.3155 | | | 0.0518 | 0.587 | -0.4517 | 0.0756 | 0.5003 | | | -0.2581 | 1.1214 | 0.0731 | -3.7991 | 0.87 | -4.1792 | 0.8281 | A+ | A- | NA |
| SCIENCE | 4 | 657284 | 12 | A | 2 | 1069 | 1.0355 | 0.2727 | 0.3918 | 0.3073 | | | 0.0282 | 0.5068 | -0.4164 | 0.0669 | 0.4095 | | | -0.2181 | 1.0681 | 0.0754 | 0.041 | 1.001 | -0.269 | 0.9886 | A+ | C- | A+ |
| SCIENCE | 8 | 279708 | 0 | A | 3 | 75101 | 0.7409 | 0.4367 | 0.2974 | 0.1958 | | | 0.0701 | 0.6166 | -0.4561 | 0.2181 | 0.4926 | | | -0.2701 | 0.9011 | 0.0207 | -9.8991 | 0.8811 | -9.8992 | 0.8412 | A- | A- | A- |
| SCIENCE | 8 | 565293 | 0 | A | 3 | 78744 | 0.5978 | 0.5016 | 0.3639 | 0.1095 | | | 0.025 | 0.4473 | -0.3634 | 0.2359 | 0.3188 | | | -0.2005 | 1.3517 | 0.0202 | 4.8411 | 1.0552 | 5.6811 | 1.0792 | A+ | A- | A- |
| SCIENCE | 8 | 578318 | 0 | A | 3 | 77502 | 1.2181 | 0.1941 | 0.3621 | 0.4034 | | | 0.0404 | 0.5254 | -0.4052 | -0.0324 | 0.4596 | | | -0.2523 | 0.0554 | 0.0239 | 4.141 | 1.0446 | 6.3611 | 1.0815 | A+ | B- | B- |
| SCIENCE | 8 | 566546 | 0 | B | 2 | 76958 | 0.9389 | 0.2483 | 0.5146 | 0.19 | | | 0.0471 | 0.6182 | -0.4533 | 0.129 | 0.4831 | | | -0.2745 | 0.6837 | 0.0225 | -7.2591 | 0.9226 | -7.7991 | 0.9176 | A- | A- | B- |
| SCIENCE | 8 | 413200 | 0 | C | 3 | 77385 | 0.7017 | 0.3799 | 0.4842 | 0.0941 | | | 0.0418 | 0.5752 | -0.4804 | 0.3566 | 0.3409 | | | -0.2224 | 1.4033 | 0.0201 | -9.8991 | 0.8669 | -9.8991 | 0.8645 | A- | A- | A- |
| SCIENCE | 8 | 658415 | 1 | A | 3 | 780 | 1.309 | 0.1685 | 0.3164 | 0.4606 | | | 0.0545 | 0.5475 | -0.4252 | -0.04 | 0.4854 | | | -0.2827 | -0.0242 | 0.0802 | -4.4092 | 0.8454 | -3.9892 | 0.8165 | B+ | NA | NA |
| SCIENCE | 8 | 660658 | 2 | A | 2 | 753 | 0.3293 | 0.6448 | 0.2352 | 0.0327 | | | 0.0873 | 0.4696 | -0.293 | 0.4372 | 0.1877 | | | -0.2784 | 2.7733 | 0.0774 | -0.859 | 0.9536 | -2.4692 | 0.8174 | A+ | NA | NA |
| SCIENCE | 8 | 660759 | 3 | D | 2 | 761 | 0.2602 | 0.7115 | 0.1818 | 0.0291 | | | 0.0776 | 0.3989 | -0.2025 | 0.3258 | 0.2235 | | | -0.2672 | 2.869 | 0.0817 | -0.8591 | 0.948 | -2.6492 | 0.7769 | A- | NA | NA |
| SCIENCE | 8 | 659841 | 4 | B | 2 | 1034 | 0.9787 | 0.2755 | 0.4091 | 0.2555 | | | 0.06 | 0.4496 | -0.3399 | 0.116 | 0.3608 | | | -0.2631 | 0.7137 | 0.0735 | 2.1211 | 1.0788 | 1.9411 | 1.078 | A+ | NA | NA |
| SCIENCE | 8 | 663523 | 5 | C | 2 | 1016 | 0.3573 | 0.6355 | 0.2464 | 0.0418 | | | 0.0764 | 0.4397 | -0.3179 | 0.3742 | 0.2026 | | | -0.1838 | 2.5567 | 0.0748 | -0.269 | 0.9855 | -0.509 | 0.9625 | A+ | A- | NA |
| SCIENCE | 8 | 660757 | 6 | A | 2 | 1042 | 0.5537 | 0.5118 | 0.3464 | 0.0891 | | | 0.0527 | 0.4359 | -0.3333 | 0.3253 | 0.2516 | | | -0.2678 | 1.8735 | 0.0693 | 0.631 | 1.0258 | 0.051 | 1.0018 | A+ | NA | NA |
| SCIENCE | 8 | 659844 | 7 | A | 3 | 1053 | 0.7597 | 0.4164 | 0.3545 | 0.1864 | | | 0.0427 | 0.5606 | -0.4194 | 0.1446 | 0.468 | | | -0.2208 | 1.2007 | 0.0708 | -1.6591 | 0.937 | -2.5291 | 0.8879 | A+ | NA | NA |
| SCIENCE | 8 | 659845 | 8 | C | 2 | 1013 | 0.8539 | 0.2827 | 0.49 | 0.1482 | | | 0.0791 | 0.4368 | -0.2829 | 0.1708 | 0.3426 | | | -0.2953 | 1.1616 | 0.0716 | 0.541 | 1.0201 | 0.341 | 1.0128 | A+ | NA | NA |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|------|------|--------|--------|---------|---------|---------|---------|---------|-----------|--------|-----------|--------|----------|--------|-----------|-----|-----|-----|
| SCIENCE | 8 | 660659 | 9 | B | 2 | 1050 | 0.9352 | 0.2827 | 0.4509 | 0.2209 | | | 0.0455 | 0.3705 | -0.2331 | 0.0309 | 0.3424 | | | -0.2517 | 0.7878 | 0.073 | 3.9311 | 1.1495 | 3.7011 | 1.1469 | B+ | NA | NA |
| SCIENCE | 8 | 659799 | 10 | C | 2 | 1037 | 0.5101 | 0.5582 | 0.2882 | 0.0964 | | | 0.0573 | 0.3614 | -0.245 | 0.2213 | 0.2609 | | | -0.239 | 1.8931 | 0.0716 | 3.0811 | 1.1403 | 3.9913 | 1.2606 | A+ | NA | NA |
| SCIENCE | 8 | 663356 | 11 | C | 2 | 1055 | 0.6218 | 0.49 | 0.3418 | 0.1273 | | | 0.0409 | 0.3898 | -0.2935 | 0.1575 | 0.3092 | | | -0.1567 | 1.592 | 0.0698 | 3.8412 | 1.162 | 3.6012 | 1.1889 | A+ | NA | NA |
| SCIENCE | 8 | 660657 | 12 | A | 2 | 1054 | 0.6831 | 0.3813 | 0.5005 | 0.0773 | | | 0.0409 | 0.4263 | -0.3292 | 0.2745 | 0.2659 | | | -0.2444 | 1.6596 | 0.0685 | -0.169 | 0.9928 | -0.529 | 0.9791 | A- | A- | NA |

Open-Ended Computer-Based Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| Mean | Mean Score |
| P(0) | Proportion 0 Points |
| P(1) | Proportion 1 Point |
| P(2) | Proportion 2 Points |
| P(3) | Proportion 3 Points |
| P(4) | Proportion 4 Points |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(0) | Correlation 0 Points |
| Corr(1) | Correlation 1 Point |
| Corr(2) | Correlation 2 Points |
| Corr(3) | Correlation 3 Points |
| Corr(4) | Correlation 4 Points |
| Corr(INV) | Correlation Invalid Responses |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-----------|
| ELA | 3 | 580001 | 0 | A-K | 3 | 81257 | 1.2446 | 0.2157 | 0.3233 | 0.3078 | 0.0656 | | 0.0877 | 0.6275 | -0.4031 | -0.0295 | 0.4396 | 0.2994 | | -0.3443 |
| ELA | 3 | 581043 | 0 | B-K | 3 | 84538 | 1.0708 | 0.4225 | 0.1681 | 0.2274 | 0.1311 | | 0.0508 | 0.6224 | -0.4496 | 0.042 | 0.2889 | 0.4442 | | -0.2945 |
| ELA | 3 | 660575 | 1 | A-K | 3 | 784 | 1.3278 | 0.1286 | 0.4381 | 0.3289 | 0.0558 | | 0.0485 | 0.5433 | -0.3482 | -0.125 | 0.3929 | 0.2407 | | -0.2852 |
| ELA | 3 | 661941 | 2 | A-K | 3 | 756 | 1.1257 | 0.2621 | 0.3374 | 0.2585 | 0.0595 | | 0.0825 | 0.5788 | -0.3472 | -0.0126 | 0.3922 | 0.3184 | | -0.321 |
| ELA | 3 | 660747 | 3 | A-K | 3 | 780 | 1.1628 | 0.1842 | 0.4642 | 0.2558 | 0.0412 | | 0.0545 | 0.5994 | -0.3838 | -0.0312 | 0.4196 | 0.2726 | | -0.321 |
| MATH | 3 | 565734 | 0 | A-T | 2 | 87413 | 1.995 | 0.1168 | 0.1939 | 0.3009 | 0.3082 | 0.0572 | 0.023 | 0.7715 | -0.467 | -0.3254 | -0.0209 | 0.5183 | 0.3368 | -0.1956 |
| MATH | 3 | 503236 | 0 | C-G | 2 | 87936 | 1.482 | 0.304 | 0.2334 | 0.1976 | 0.1635 | 0.0844 | 0.0171 | 0.7872 | -0.605 | -0.1244 | 0.2016 | 0.4209 | 0.4143 | -0.1552 |
| MATH | 3 | 495131 | 0 | D-M | 2 | 87442 | 1.6372 | 0.1243 | 0.3076 | 0.3864 | 0.1162 | 0.0428 | 0.0227 | 0.7261 | -0.4826 | -0.291 | 0.2629 | 0.3767 | 0.3008 | -0.1077 |
| MATH | 3 | 659259 | 1 | C-G | 3 | 779 | 1.3813 | 0.1539 | 0.4036 | 0.2727 | 0.1006 | 0.0133 | 0.0558 | 0.6581 | -0.4885 | -0.1667 | 0.3277 | 0.3183 | 0.1844 | -0.0207 |
| MATH | 3 | 572792 | 2 | A-F | 2 | 779 | 1.5828 | 0.1954 | 0.2985 | 0.216 | 0.176 | 0.0595 | 0.0546 | 0.7351 | -0.4869 | -0.2428 | 0.1943 | 0.4343 | 0.3104 | -0.064 |
| MATH | 3 | 628160 | 3 | D-M | 2 | 776 | 1.8235 | 0.1259 | 0.2978 | 0.2409 | 0.1659 | 0.109 | 0.0605 | 0.7239 | -0.4664 | -0.3155 | 0.1421 | 0.3311 | 0.3901 | -0.0271 |
| MATH | 4 | 315525 | 0 | A-T | 3 | 86346 | 1.4111 | 0.0907 | 0.5473 | 0.2191 | 0.1074 | 0.0206 | 0.0149 | 0.7074 | -0.3911 | -0.3599 | 0.359 | 0.4135 | 0.2301 | -0.146 |
| MATH | 4 | 495133 | 0 | B-O | 2 | 82317 | 1.384 | 0.2124 | 0.347 | 0.221 | 0.1239 | 0.0348 | 0.0609 | 0.703 | -0.482 | -0.1406 | 0.2697 | 0.3883 | 0.2907 | -0.1214 |
| MATH | 4 | 503235 | 0 | D-M | 2 | 85636 | 1.1722 | 0.3109 | 0.3993 | 0.1165 | 0.088 | 0.0622 | 0.023 | 0.7426 | -0.5386 | -0.0362 | 0.2869 | 0.3625 | 0.4027 | -0.1665 |
| MATH | 4 | 658860 | 1 | B-O | 3 | 793 | 0.8159 | 0.4073 | 0.3842 | 0.1297 | 0.0194 | 0.0206 | 0.0388 | 0.6987 | -0.5896 | 0.2606 | 0.3932 | 0.2236 | 0.244 | -0.1795 |
| MATH | 4 | 652780 | 2 | A-T | 3 | 798 | 1.0301 | 0.2966 | 0.3923 | 0.2361 | 0.0339 | 0.0073 | 0.0339 | 0.6846 | -0.5489 | 0.0398 | 0.4635 | 0.2485 | 0.1525 | -0.1298 |
| MATH | 4 | 659261 | 3 | B-O | 3 | 780 | 0.6333 | 0.5375 | 0.2676 | 0.092 | 0.0424 | 0.0048 | 0.0557 | 0.6073 | -0.4616 | 0.2313 | 0.3509 | 0.2999 | 0.1252 | -0.1866 |
| MATH | 5 | 314504 | 0 | A-F | 2 | 83952 | 1.6032 | 0.219 | 0.2752 | 0.2435 | 0.1579 | 0.0834 | 0.0211 | 0.7623 | -0.4888 | -0.2478 | 0.1615 | 0.3704 | 0.4684 | -0.1464 |
| MATH | 5 | 413016 | 0 | B-O | 2 | 84367 | 1.431 | 0.1755 | 0.423 | 0.2038 | 0.1489 | 0.0326 | 0.0163 | 0.7082 | -0.4192 | -0.2582 | 0.2032 | 0.4767 | 0.2934 | -0.1318 |
| MATH | 5 | 313770 | 0 | D-M | 2 | 80870 | 1.974 | 0.1875 | 0.1828 | 0.1958 | 0.2201 | 0.1566 | 0.0571 | 0.7432 | -0.473 | -0.2594 | 0.0067 | 0.3137 | 0.5003 | -0.1275 |
| MATH | 5 | 659263 | 1 | C-G | 3 | 784 | 0.6416 | 0.5218 | 0.2937 | 0.1007 | 0.0255 | 0.0097 | 0.0485 | 0.5956 | -0.4783 | 0.2147 | 0.3614 | 0.2267 | 0.1918 | -0.1032 |
| MATH | 5 | 623889 | 2 | D-M | 3 | 794 | 1.238 | 0.2715 | 0.4206 | 0.0691 | 0.1721 | 0.0291 | 0.0376 | 0.7359 | -0.4735 | -0.1093 | 0.1851 | 0.52 | 0.3175 | -0.1684 |
| MATH | 5 | 654040 | 3 | A-F | 3 | 785 | 1.1987 | 0.4116 | 0.2119 | 0.092 | 0.1961 | 0.0387 | 0.0496 | 0.7297 | -0.5967 | 0.0512 | 0.1654 | 0.4454 | 0.3637 | -0.1018 |
| MATH | 6 | 313522 | 0 | A-N | 2 | 80720 | 1.6106 | 0.1767 | 0.2024 | 0.4742 | 0.0854 | 0.0439 | 0.0175 | 0.7006 | -0.4895 | -0.1725 | 0.1976 | 0.3695 | 0.3555 | -0.1436 |
| MATH | 6 | 566984 | 0 | B-E | 3 | 80238 | 1.1478 | 0.1509 | 0.5948 | 0.1762 | 0.0452 | 0.0095 | 0.0233 | 0.6598 | -0.4405 | -0.1113 | 0.3946 | 0.3243 | 0.1771 | -0.1498 |
| MATH | 6 | 577147 | 0 | D-S | 3 | 75721 | 1.0799 | 0.3292 | 0.3243 | 0.1605 | 0.0807 | 0.027 | 0.0783 | 0.7415 | -0.5271 | 0.0125 | 0.3399 | 0.3991 | 0.295 | -0.1469 |
| MATH | 6 | 664283 | 1 | C-G | 3 | 791 | 0.9317 | 0.4153 | 0.3608 | 0.0678 | 0.0593 | 0.0545 | 0.0424 | 0.679 | -0.5555 | 0.1905 | 0.2336 | 0.2734 | 0.3903 | -0.147 |
| MATH | 6 | 629880 | 2 | D-S | 2 | 785 | 0.786 | 0.3891 | 0.4182 | 0.103 | 0.0412 | | 0.0485 | 0.6562 | -0.4987 | 0.1931 | 0.3575 | 0.3524 | | -0.1436 |
| MATH | 6 | 661689 | 3 | B-E | 3 | 793 | 1.8335 | 0.0994 | 0.263 | 0.3467 | 0.2024 | 0.0497 | 0.0388 | 0.7069 | -0.4186 | -0.3306 | 0.1477 | 0.3937 | 0.3317 | -0.1542 |
| MATH | 7 | 503121 | 0 | A-R | 2 | 79851 | 1.0326 | 0.3837 | 0.3521 | 0.1138 | 0.0574 | 0.0623 | 0.0307 | 0.7962 | -0.5789 | 0.0299 | 0.3027 | 0.3596 | 0.475 | -0.1584 |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(0) | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(0) | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|-----------|
| MATH | 7 | 566985 | 0 | B-E | 2 | 79747 | 0.9277 | 0.4267 | 0.3093 | 0.1313 | 0.077 | 0.0238 | 0.032 | 0.7765 | -0.569 | 0.0505 | 0.3394 | 0.4626 | 0.3207 | -0.1635 |
| MATH | 7 | 313528 | 0 | D-S | 2 | 74931 | 1.2811 | 0.2753 | 0.273 | 0.2337 | 0.0855 | 0.0421 | 0.0904 | 0.7401 | -0.4667 | -0.0828 | 0.2487 | 0.4148 | 0.3867 | -0.1865 |
| MATH | 7 | 655437 | 1 | C-G | 3 | 772 | 0.8744 | 0.4158 | 0.3515 | 0.0836 | 0.04 | 0.0448 | 0.0642 | 0.7153 | -0.528 | 0.152 | 0.3296 | 0.2932 | 0.3888 | -0.1695 |
| MATH | 7 | 655436 | 2 | B-E | 3 | 771 | 0.4397 | 0.6521 | 0.2036 | 0.0388 | 0.0303 | 0.0097 | 0.0655 | 0.6257 | -0.4455 | 0.3089 | 0.2774 | 0.3316 | 0.2199 | -0.1786 |
| MATH | 7 | 577142 | 3 | D-S | 2 | 764 | 0.7945 | 0.3629 | 0.4248 | 0.1104 | 0.0255 | 0.0036 | 0.0728 | 0.6623 | -0.473 | 0.195 | 0.3959 | 0.3081 | 0.1186 | -0.1877 |
| MATH | 8 | 313899 | 0 | B-F | 2 | 79100 | 1.1828 | 0.3659 | 0.2625 | 0.1562 | 0.1252 | 0.0446 | 0.0456 | 0.8091 | -0.5778 | -0.0612 | 0.3035 | 0.4782 | 0.3773 | -0.1969 |
| MATH | 8 | 494647 | 0 | C-G | 2 | 77029 | 1.3825 | 0.189 | 0.3847 | 0.2069 | 0.1088 | 0.04 | 0.0706 | 0.7317 | -0.4172 | -0.1768 | 0.2426 | 0.42 | 0.3764 | -0.2088 |
| MATH | 8 | 493897 | 0 | D-S | 2 | 80662 | 1.4483 | 0.332 | 0.2186 | 0.1668 | 0.166 | 0.0898 | 0.0268 | 0.7794 | -0.5607 | -0.1352 | 0.1549 | 0.4027 | 0.4806 | -0.1556 |
| MATH | 8 | 629624 | 1 | A-N | 2 | 780 | 1.0821 | 0.3018 | 0.3988 | 0.1333 | 0.0885 | 0.023 | 0.0545 | 0.7524 | -0.4914 | -0.0231 | 0.3452 | 0.4638 | 0.2674 | -0.2304 |
| MATH | 8 | 664294 | 2 | D-S | 3 | 769 | 1.3043 | 0.0885 | 0.5976 | 0.1479 | 0.0703 | 0.0279 | 0.0679 | 0.682 | -0.2489 | -0.3131 | 0.3477 | 0.3925 | 0.3313 | -0.2151 |
| MATH | 8 | 658590 | 3 | B-E | 3 | 773 | 0.6675 | 0.5667 | 0.2318 | 0.0607 | 0.0425 | 0.0364 | 0.0619 | 0.7028 | -0.5437 | 0.3099 | 0.3584 | 0.2973 | 0.3211 | -0.278 |
| SCIENCE | 4 | 492832 | 0 | A | 2 | 83296 | 0.9552 | 0.2685 | 0.4723 | 0.2252 | | | 0.0341 | 0.5983 | -0.4373 | 0.0732 | 0.4933 | | | -0.2691 |
| SCIENCE | 4 | 566544 | 0 | A | 2 | 83130 | 0.9998 | 0.1825 | 0.5992 | 0.1823 | | | 0.036 | 0.4912 | -0.4179 | 0.1734 | 0.3198 | | | -0.2526 |
| SCIENCE | 4 | 398573 | 0 | B | 2 | 83025 | 1.4307 | 0.0979 | 0.3524 | 0.5125 | | | 0.0372 | 0.57 | -0.3898 | -0.2176 | 0.5255 | | | -0.2265 |
| SCIENCE | 4 | 462648 | 0 | C | 2 | 84122 | 0.8302 | 0.3408 | 0.4595 | 0.1752 | | | 0.0245 | 0.3958 | -0.2994 | 0.11 | 0.3178 | | | -0.218 |
| SCIENCE | 4 | 335278 | 0 | D | 2 | 83724 | 1.1958 | 0.1198 | 0.5411 | 0.31 | | | 0.0291 | 0.4311 | -0.3875 | 0.0507 | 0.3088 | | | -0.2516 |
| SCIENCE | 4 | 621211 | 1 | D | 3 | 786 | 0.9262 | 0.3168 | 0.3869 | 0.2467 | | | 0.0496 | 0.4885 | -0.3944 | 0.1423 | 0.3763 | | | -0.2211 |
| SCIENCE | 4 | 663233 | 2 | B | 2 | 802 | 1.0362 | 0.3794 | 0.1782 | 0.4145 | | | 0.0279 | 0.528 | -0.4484 | 0.0227 | 0.4874 | | | -0.1898 |
| SCIENCE | 4 | 660756 | 3 | B | 2 | 604 | 0.2003 | 0.6029 | 0.1102 | 0.0182 | | | 0.2688 | 0.2732 | 0.1086 | 0.2472 | 0.1477 | | | -0.3389 |
| SCIENCE | 8 | 279708 | 0 | A | 3 | 75101 | 0.7409 | 0.4367 | 0.2974 | 0.1958 | | | 0.0701 | 0.6166 | -0.4561 | 0.2181 | 0.4926 | | | -0.2701 |
| SCIENCE | 8 | 565293 | 0 | A | 3 | 78744 | 0.5978 | 0.5016 | 0.3639 | 0.1095 | | | 0.025 | 0.4473 | -0.3634 | 0.2359 | 0.3188 | | | -0.2005 |
| SCIENCE | 8 | 578318 | 0 | A | 3 | 77502 | 1.2181 | 0.1941 | 0.3621 | 0.4034 | | | 0.0404 | 0.5254 | -0.4052 | -0.0324 | 0.4596 | | | -0.2523 |
| SCIENCE | 8 | 566546 | 0 | B | 2 | 76958 | 0.9389 | 0.2483 | 0.5146 | 0.19 | | | 0.0471 | 0.6182 | -0.4533 | 0.129 | 0.4831 | | | -0.2745 |
| SCIENCE | 8 | 413200 | 0 | C | 3 | 77385 | 0.7017 | 0.3799 | 0.4842 | 0.0941 | | | 0.0418 | 0.5752 | -0.4804 | 0.3566 | 0.3409 | | | -0.2224 |
| SCIENCE | 8 | 658415 | 1 | A | 3 | 780 | 1.309 | 0.1685 | 0.3164 | 0.4606 | | | 0.0545 | 0.5475 | -0.4252 | -0.04 | 0.4854 | | | -0.2827 |
| SCIENCE | 8 | 660658 | 2 | A | 2 | 753 | 0.3293 | 0.6448 | 0.2352 | 0.0327 | | | 0.0873 | 0.4696 | -0.293 | 0.4372 | 0.1877 | | | -0.2784 |
| SCIENCE | 8 | 660759 | 3 | D | 2 | 761 | 0.2602 | 0.7115 | 0.1818 | 0.0291 | | | 0.0776 | 0.3989 | -0.2025 | 0.3258 | 0.2235 | | | -0.2672 |

Text-Dependent Analysis Paper/Pencil Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| Mean | Mean Score |
| P(1) | Proportion 1 Point |
| P(2) | Proportion 2 Points |
| P(3) | Proportion 3 Points |
| P(4) | Proportion 4 Points |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(1) | Correlation 1 Point |
| Corr(2) | Correlation 2 Points |
| Corr(3) | Correlation 3 Points |
| Corr(4) | Correlation 4 Points |
| Corr(INV) | Correlation Invalid Responses |
| Final | IRT Difficulty Estimate |
| Final Err | IRT Difficulty Error |
| Infit | Infit Standardized |
| Infit-MS | Infit Mean Square |
| Outfit | Outfit Standardized |
| Outfit-MS | Outfit Mean Square |
| M/F | Male/Female DIF Code |
| W/B | White/Black DIF Code |
| W/H | White/Hispanic DIF Code |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|--------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| ELA | 4 | 582450 | 0 | E | 3 | 73304 | 1.8866 | 0.2862 | 0.3859 | 0.1425 | 0.0243 | 0.1612 | 0.5533 | -0.2543 | 0.2892 | 0.3659 | 0.194 | -0.4994 | 1.2302 | 0.0144 | -6.1691 | 0.9381 | -6.0891 | 0.9391 | A+ | A- | A- |
| ELA | 4 | 660448 | 1 | E | 3 | 986 | 1.9939 | 0.256 | 0.4027 | 0.1849 | 0.0329 | 0.1236 | 0.6031 | -0.3786 | 0.2192 | 0.3922 | 0.2195 | -0.4062 | 0.9959 | 0.0441 | -9.8993 | 0.6747 | -9.8993 | 0.6736 | A+ | A- | NA |
| ELA | 4 | 660494 | 2 | E | 3 | 997 | 1.8495 | 0.3129 | 0.4151 | 0.1369 | 0.0213 | 0.1138 | 0.5362 | -0.3139 | 0.2713 | 0.3432 | 0.1924 | -0.4217 | 1.1897 | 0.0469 | -9.3793 | 0.7 | -9.4393 | 0.6994 | A+ | A- | A- |
| ELA | 4 | 662028 | 3 | E | 3 | 955 | 1.9058 | 0.3191 | 0.3298 | 0.1609 | 0.0391 | 0.1511 | 0.6144 | -0.3282 | 0.257 | 0.4046 | 0.2413 | -0.456 | 1.1265 | 0.0435 | -9.8994 | 0.639 | -9.8994 | 0.6423 | A+ | A- | A- |
| ELA | 4 | 663257 | 4 | E | 3 | 1352 | 1.7848 | 0.3347 | 0.4347 | 0.1233 | 0.0087 | 0.0987 | 0.5461 | -0.3559 | 0.3354 | 0.3492 | 0.097 | -0.4097 | 1.4309 | 0.0483 | -9.3893 | 0.7013 | -9.3993 | 0.7009 | A+ | B- | A- |
| ELA | 4 | 663247 | 5 | E | 3 | 1356 | 1.9307 | 0.2827 | 0.4287 | 0.1653 | 0.0273 | 0.096 | 0.6094 | -0.4084 | 0.2683 | 0.3974 | 0.1868 | -0.4311 | 1.0269 | 0.0489 | -9.8994 | 0.6305 | -9.8994 | 0.6329 | A+ | A+ | A- |
| ELA | 4 | 664246 | 6 | E | 3 | 1316 | 1.7105 | 0.3773 | 0.39 | 0.0967 | 0.0133 | 0.1227 | 0.577 | -0.315 | 0.3553 | 0.3452 | 0.1717 | -0.4336 | 1.5094 | 0.0442 | -9.8993 | 0.6567 | -9.8993 | 0.6559 | A+ | A- | A- |
| ELA | 4 | 660225 | 7 | E | 3 | 1324 | 1.923 | 0.2658 | 0.441 | 0.1526 | 0.0227 | 0.1179 | 0.5396 | -0.3149 | 0.2529 | 0.3652 | 0.1681 | -0.4428 | 1.186 | 0.0456 | -8.9893 | 0.7125 | -8.8593 | 0.7132 | A+ | B- | C- |
| ELA | 4 | 660892 | 8 | E | 3 | 1354 | 1.8575 | 0.2787 | 0.4853 | 0.1273 | 0.0113 | 0.0973 | 0.5069 | -0.2883 | 0.2281 | 0.3651 | 0.124 | -0.4034 | 1.3095 | 0.0486 | -9.0693 | 0.7058 | -8.9293 | 0.7048 | B+ | B- | B- |
| ELA | 4 | 662148 | 9 | E | 3 | 1330 | 1.8579 | 0.2973 | 0.4413 | 0.1247 | 0.0233 | 0.1133 | 0.4896 | -0.2595 | 0.2623 | 0.3474 | 0.1343 | -0.4628 | 1.1946 | 0.0464 | -9.0893 | 0.7048 | -9.0093 | 0.7057 | A+ | B- | A- |
| ELA | 4 | 630497 | 10 | E | 3 | 1374 | 1.8377 | 0.316 | 0.4507 | 0.1313 | 0.018 | 0.084 | 0.5241 | -0.3582 | 0.2651 | 0.33 | 0.151 | -0.3494 | 1.208 | 0.0517 | -7.2292 | 0.7592 | -7.2292 | 0.7587 | A+ | A- | B- |
| ELA | 4 | 632866 | 11 | E | 3 | 1333 | 1.9137 | 0.3075 | 0.3869 | 0.1588 | 0.036 | 0.1107 | 0.5468 | -0.3274 | 0.2456 | 0.3431 | 0.2176 | -0.4284 | 1.0312 | 0.0465 | -9.0093 | 0.7128 | -9.0993 | 0.7122 | A+ | B- | A- |
| ELA | 4 | 622660 | 12 | E | 3 | 1341 | 1.8337 | 0.3047 | 0.448 | 0.1267 | 0.0147 | 0.106 | 0.4951 | -0.2677 | 0.2529 | 0.337 | 0.1586 | -0.4343 | 1.2814 | 0.047 | -8.5593 | 0.7228 | -8.4293 | 0.7248 | A+ | B- | B- |
| ELA | 5 | 583779 | 0 | E | 3 | 80249 | 1.9011 | 0.2764 | 0.4967 | 0.1466 | 0.0185 | 0.0617 | 0.5844 | -0.4239 | 0.2525 | 0.3705 | 0.1665 | -0.3747 | 1.0318 | 0.0183 | -9.8992 | 0.7828 | -9.8992 | 0.7821 | B+ | A- | A- |
| ELA | 5 | 654569 | 1 | E | 3 | 1065 | 2.1737 | 0.1822 | 0.464 | 0.2542 | 0.0462 | 0.0533 | 0.5888 | -0.4098 | 0.0119 | 0.396 | 0.2488 | -0.3223 | 0.5674 | 0.0596 | -9.8993 | 0.6662 | -9.8993 | 0.6703 | A+ | C- | NA |
| ELA | 5 | 662343 | 2 | E | 3 | 1080 | 2.0769 | 0.216 | 0.4907 | 0.2169 | 0.0364 | 0.04 | 0.542 | -0.4122 | 0.0477 | 0.3693 | 0.2014 | -0.2255 | 0.4678 | 0.0729 | -7.4192 | 0.7533 | -7.3992 | 0.7529 | A+ | NA | C- |
| ELA | 5 | 659820 | 3 | E | 3 | 1070 | 2.1252 | 0.1779 | 0.5098 | 0.2313 | 0.0329 | 0.048 | 0.5691 | -0.4259 | 0.0332 | 0.3898 | 0.1978 | -0.2496 | 0.5224 | 0.0683 | -8.9593 | 0.7042 | -8.7293 | 0.7075 | B+ | A- | NA |
| ELA | 5 | 661011 | 4 | E | 3 | 1431 | 2.1356 | 0.1842 | 0.498 | 0.2323 | 0.0407 | 0.0447 | 0.596 | -0.4498 | 0.0472 | 0.3906 | 0.2334 | -0.2919 | 0.5438 | 0.0675 | -9.6093 | 0.6862 | -9.4493 | 0.6871 | B+ | C- | B- |
| ELA | 5 | 661170 | 5 | E | 3 | 1415 | 2.1329 | 0.2173 | 0.424 | 0.2613 | 0.0407 | 0.0567 | 0.6128 | -0.4473 | 0.0108 | 0.4617 | 0.2 | -0.2735 | 0.6155 | 0.0604 | -9.5793 | 0.6972 | -9.4993 | 0.6994 | A+ | A- | B- |
| ELA | 5 | 663358 | 6 | E | 3 | 1441 | 2.1228 | 0.184 | 0.5127 | 0.226 | 0.038 | 0.0393 | 0.5953 | -0.4537 | 0.0592 | 0.3873 | 0.2249 | -0.3025 | 0.6109 | 0.0716 | -9.8993 | 0.6696 | -9.8993 | 0.6627 | A+ | A- | B- |
| ELA | 5 | 664800 | 7 | E | 3 | 1388 | 2.0893 | 0.202 | 0.4727 | 0.2167 | 0.034 | 0.0747 | 0.5862 | -0.4033 | 0.1057 | 0.422 | 0.1917 | -0.3784 | 0.7483 | 0.0545 | -9.8993 | 0.6573 | -9.8993 | 0.6592 | B+ | A- | A- |
| ELA | 5 | 662564 | 8 | E | 3 | 1427 | 2.0785 | 0.222 | 0.472 | 0.218 | 0.0393 | 0.0487 | 0.6086 | -0.4599 | 0.0858 | 0.4209 | 0.206 | -0.3045 | 0.6394 | 0.0649 | -9.8993 | 0.6571 | -9.8993 | 0.6567 | B+ | A- | B- |
| ELA | 5 | 663641 | 9 | E | 3 | 1426 | 2.0708 | 0.2245 | 0.4664 | 0.2265 | 0.0326 | 0.05 | 0.6095 | -0.457 | 0.0933 | 0.4122 | 0.2155 | -0.3059 | 0.7116 | 0.0639 | -9.8993 | 0.6637 | -9.8993 | 0.6654 | A+ | A- | A- |
| ELA | 5 | 625252 | 10 | E | 3 | 1427 | 1.9692 | 0.2687 | 0.4693 | 0.1873 | 0.026 | 0.0487 | 0.5952 | -0.4549 | 0.1563 | 0.4019 | 0.1896 | -0.2944 | 0.8062 | 0.0643 | -9.8993 | 0.6719 | -9.8993 | 0.6725 | B+ | A- | B- |
| ELA | 5 | 629590 | 11 | E | 3 | 1435 | 2.0467 | 0.2275 | 0.4803 | 0.2268 | 0.0227 | 0.0427 | 0.5911 | -0.4441 | 0.0821 | 0.43 | 0.1628 | -0.2926 | 0.7808 | 0.0685 | -9.8993 | 0.6745 | -9.8993 | 0.6767 | B+ | B- | A- |
| ELA | 5 | 630801 | 12 | E | 3 | 1428 | 1.9979 | 0.2733 | 0.4413 | 0.2033 | 0.034 | 0.048 | 0.5852 | -0.4502 | 0.1525 | 0.4024 | 0.1838 | -0.329 | 0.7794 | 0.065 | -9.8293 | 0.6875 | -9.8293 | 0.6879 | B+ | A- | A- |
| ELA | 6 | 579502 | 0 | E | 3 | 76856 | 2.0133 | 0.2017 | 0.5344 | 0.1989 | 0.0077 | 0.0574 | 0.5887 | -0.4125 | 0.138 | 0.4261 | 0.1212 | -0.3611 | 1.1746 | 0.0173 | -9.8994 | 0.6051 | -9.8994 | 0.6025 | B+ | A- | A- |
| ELA | 6 | 661285 | 1 | E | 3 | 1059 | 1.9216 | 0.2747 | 0.4818 | 0.1689 | 0.016 | 0.0587 | 0.5802 | -0.4254 | 0.1987 | 0.3824 | 0.1724 | -0.3163 | 1.3378 | 0.0551 | -9.8993 | 0.6619 | -9.8993 | 0.6626 | A+ | B- | NA |
| ELA | 6 | 663820 | 2 | E | 3 | 992 | 1.8589 | 0.3076 | 0.4089 | 0.1476 | 0.0178 | 0.1182 | 0.6032 | -0.3544 | 0.2894 | 0.4082 | 0.16 | -0.448 | 1.4775 | 0.0456 | -9.8994 | 0.6205 | -9.8994 | 0.6243 | A+ | B- | B- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|--------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| ELA | 6 | 662737 | 3 | E | 3 | 1035 | 1.9053 | 0.2827 | 0.4551 | 0.1689 | 0.0133 | 0.08 | 0.5825 | -0.3793 | 0.1962 | 0.4042 | 0.1748 | -0.3626 | 1.4817 | 0.0514 | -9.8993 | 0.6683 | -9.8993 | 0.6699 | B+ | A- | NA |
| ELA | 6 | 661493 | 4 | E | 3 | 1387 | 1.858 | 0.324 | 0.4287 | 0.1513 | 0.0207 | 0.0753 | 0.5345 | -0.3699 | 0.2282 | 0.3556 | 0.1677 | -0.3452 | 1.3172 | 0.0528 | -9.8993 | 0.6842 | -9.8993 | 0.685 | B+ | B- | B- |
| ELA | 6 | 659430 | 5 | E | 3 | 1376 | 1.9135 | 0.2835 | 0.4483 | 0.1681 | 0.018 | 0.0821 | 0.5556 | -0.373 | 0.223 | 0.3849 | 0.147 | -0.3873 | 1.3615 | 0.0512 | -9.8993 | 0.6721 | -9.8993 | 0.6746 | A+ | B- | B- |
| ELA | 6 | 662740 | 6 | E | 3 | 1412 | 1.9334 | 0.3035 | 0.4276 | 0.1808 | 0.03 | 0.058 | 0.6198 | -0.4604 | 0.1872 | 0.4005 | 0.2307 | -0.3184 | 1.1468 | 0.0591 | -9.8994 | 0.623 | -9.8994 | 0.6254 | A+ | B- | B- |
| ELA | 6 | 664279 | 7 | E | 3 | 1392 | 1.9698 | 0.2473 | 0.482 | 0.178 | 0.0207 | 0.072 | 0.5708 | -0.389 | 0.2054 | 0.3737 | 0.1753 | -0.3973 | 1.3262 | 0.0548 | -9.8994 | 0.6399 | -9.8994 | 0.6413 | A+ | C- | C- |
| ELA | 6 | 663743 | 8 | E | 3 | 1412 | 2.136 | 0.1776 | 0.502 | 0.2203 | 0.0427 | 0.0574 | 0.6167 | -0.4129 | 0.0378 | 0.4126 | 0.2578 | -0.3621 | 0.9474 | 0.0607 | -9.8994 | 0.5989 | -9.8994 | 0.5951 | B+ | C- | A- |
| ELA | 6 | 659893 | 9 | E | 3 | 1420 | 2.0725 | 0.2302 | 0.4603 | 0.2148 | 0.042 | 0.0527 | 0.5727 | -0.4204 | 0.0896 | 0.3744 | 0.2286 | -0.3012 | 0.9322 | 0.0623 | -9.8993 | 0.671 | -9.8993 | 0.6722 | C+ | A- | A- |
| ELA | 6 | 629676 | 10 | E | 3 | 1372 | 1.9854 | 0.2613 | 0.4273 | 0.204 | 0.022 | 0.0853 | 0.5837 | -0.3834 | 0.1457 | 0.4308 | 0.1594 | -0.3601 | 1.3132 | 0.051 | -9.8994 | 0.6476 | -9.8994 | 0.6485 | A+ | A- | B- |
| ELA | 6 | 633160 | 11 | E | 3 | 1343 | 2.0558 | 0.2267 | 0.4187 | 0.2233 | 0.0267 | 0.1047 | 0.5555 | -0.3071 | 0.1033 | 0.4181 | 0.2082 | -0.4248 | 1.2898 | 0.0474 | -9.8994 | 0.6497 | -9.8993 | 0.655 | A+ | B- | C- |
| ELA | 6 | 625442 | 12 | E | 3 | 1393 | 2.1012 | 0.212 | 0.446 | 0.2353 | 0.0353 | 0.0713 | 0.6139 | -0.4244 | 0.0808 | 0.4228 | 0.225 | -0.3403 | 1.059 | 0.0554 | -9.8994 | 0.6413 | -9.8994 | 0.6471 | B+ | B- | B- |
| ELA | 7 | 583806 | 0 | E | 3 | 75516 | 2.081 | 0.2476 | 0.4052 | 0.228 | 0.0474 | 0.0717 | 0.6452 | -0.4411 | 0.1153 | 0.422 | 0.2685 | -0.3889 | 1.2971 | 0.0145 | -9.8992 | 0.8098 | -9.8992 | 0.8229 | C+ | A- | A- |
| ELA | 7 | 664167 | 1 | E | 3 | 1056 | 1.9593 | 0.2716 | 0.4737 | 0.1567 | 0.0383 | 0.0597 | 0.5527 | -0.3983 | 0.1847 | 0.3187 | 0.2382 | -0.3235 | 0.9231 | 0.058 | -9.8993 | 0.6701 | -9.8993 | 0.6692 | C+ | A- | NA |
| ELA | 7 | 659374 | 2 | E | 3 | 1075 | 2.0958 | 0.2395 | 0.4399 | 0.2244 | 0.0534 | 0.0427 | 0.6099 | -0.4495 | 0.0539 | 0.3957 | 0.2681 | -0.2982 | 0.7303 | 0.0648 | -9.8994 | 0.6352 | -9.8994 | 0.636 | B+ | B- | NA |
| ELA | 7 | 663920 | 3 | E | 3 | 1087 | 2.0497 | 0.2373 | 0.4898 | 0.1929 | 0.0462 | 0.0338 | 0.5763 | -0.4366 | 0.0608 | 0.3722 | 0.2471 | -0.2402 | 0.7426 | 0.0703 | -9.5293 | 0.689 | -9.4693 | 0.6892 | C+ | A- | NA |
| ELA | 7 | 661660 | 4 | E | 3 | 1412 | 2.0085 | 0.2487 | 0.4747 | 0.1793 | 0.0387 | 0.0587 | 0.5592 | -0.4219 | 0.1744 | 0.3596 | 0.1933 | -0.34 | 0.9283 | 0.0595 | -9.8993 | 0.6735 | -9.8993 | 0.6743 | B+ | C- | B- |
| ELA | 7 | 661655 | 5 | E | 3 | 1439 | 2.0702 | 0.2113 | 0.5187 | 0.18 | 0.0493 | 0.0407 | 0.6007 | -0.4429 | 0.0701 | 0.3697 | 0.2684 | -0.2751 | 0.7279 | 0.0691 | -9.8994 | 0.6431 | -9.8994 | 0.6331 | A+ | A- | B- |
| ELA | 7 | 663379 | 6 | E | 3 | 1425 | 2.0933 | 0.222 | 0.4747 | 0.196 | 0.0573 | 0.05 | 0.6047 | -0.4525 | 0.0867 | 0.367 | 0.2677 | -0.2897 | 0.8295 | 0.0638 | -9.8994 | 0.6408 | -9.8994 | 0.6401 | C+ | B- | A- |
| ELA | 7 | 664292 | 7 | E | 3 | 1434 | 2.0502 | 0.218 | 0.51 | 0.19 | 0.038 | 0.044 | 0.588 | -0.4705 | 0.138 | 0.3634 | 0.2142 | -0.284 | 0.8959 | 0.0673 | -9.8993 | 0.675 | -9.8193 | 0.6734 | C+ | A- | B- |
| ELA | 7 | 663857 | 8 | E | 3 | 1433 | 2.0447 | 0.23 | 0.4907 | 0.1967 | 0.038 | 0.0447 | 0.6145 | -0.4691 | 0.1251 | 0.3938 | 0.2285 | -0.3163 | 0.8631 | 0.0669 | -9.8994 | 0.6159 | -9.8994 | 0.6152 | C+ | A- | B- |
| ELA | 7 | 663823 | 9 | E | 3 | 1422 | 2.0253 | 0.2562 | 0.4643 | 0.1761 | 0.052 | 0.0514 | 0.6272 | -0.4533 | 0.1118 | 0.3886 | 0.2824 | -0.3109 | 0.8668 | 0.0628 | -9.8994 | 0.6211 | -9.8994 | 0.6182 | B+ | B- | A- |
| ELA | 7 | 632530 | 10 | E | 3 | 1430 | 2.1189 | 0.1693 | 0.5427 | 0.2 | 0.0413 | 0.0467 | 0.5868 | -0.4357 | 0.0688 | 0.3625 | 0.2448 | -0.3063 | 0.7986 | 0.0662 | -9.8993 | 0.6511 | -9.8994 | 0.6423 | B+ | A- | B- |
| ELA | 7 | 625738 | 11 | E | 3 | 1445 | 2.1073 | 0.2113 | 0.4847 | 0.22 | 0.0473 | 0.0367 | 0.6128 | -0.4692 | 0.0506 | 0.3885 | 0.2577 | -0.2629 | 0.7493 | 0.0726 | -9.8993 | 0.6685 | -9.8993 | 0.6667 | B+ | A- | C- |
| ELA | 7 | 625815 | 12 | E | 3 | 1428 | 2.0602 | 0.2241 | 0.495 | 0.1855 | 0.048 | 0.0474 | 0.5936 | -0.4463 | 0.0982 | 0.3644 | 0.2504 | -0.2739 | 0.877 | 0.0656 | -9.7293 | 0.6808 | -9.6493 | 0.6795 | C+ | B- | B- |
| ELA | 8 | 578068 | 0 | E | 3 | 75039 | 2.1039 | 0.209 | 0.4479 | 0.213 | 0.0455 | 0.0845 | 0.6421 | -0.4203 | 0.1191 | 0.4156 | 0.266 | -0.4096 | 0.9427 | 0.0142 | -9.8994 | 0.6374 | -9.8994 | 0.6481 | B+ | A- | A- |
| ELA | 8 | 664165 | 1 | E | 3 | 1064 | 2.0996 | 0.2 | 0.4933 | 0.2107 | 0.0418 | 0.0542 | 0.5735 | -0.3855 | 0.026 | 0.3968 | 0.2378 | -0.3011 | 0.6502 | 0.0601 | -9.8993 | 0.6731 | -9.8993 | 0.6738 | B+ | A- | NA |
| ELA | 8 | 663403 | 2 | E | 3 | 1033 | 2.0813 | 0.1964 | 0.4898 | 0.1929 | 0.0391 | 0.0818 | 0.6147 | -0.3967 | 0.113 | 0.4035 | 0.2527 | -0.3907 | 0.7243 | 0.0549 | -9.8994 | 0.6104 | -9.8994 | 0.6074 | A+ | B- | NA |
| ELA | 8 | 662810 | 3 | E | 3 | 1055 | 2.1213 | 0.1947 | 0.4898 | 0.1982 | 0.0551 | 0.0622 | 0.5763 | -0.3465 | 0.0138 | 0.3856 | 0.2764 | -0.3581 | 0.5925 | 0.0598 | -9.5993 | 0.6867 | -9.4993 | 0.6849 | B+ | A- | NA |
| ELA | 8 | 663416 | 4 | E | 3 | 1416 | 2.0014 | 0.2435 | 0.4897 | 0.1781 | 0.0334 | 0.0554 | 0.612 | -0.4537 | 0.144 | 0.3854 | 0.2345 | -0.2922 | 0.7878 | 0.0608 | -9.8993 | 0.6544 | -9.8993 | 0.6524 | A+ | C- | B- |
| ELA | 8 | 664021 | 5 | E | 3 | 1396 | 2.1712 | 0.1728 | 0.479 | 0.2268 | 0.0527 | 0.0687 | 0.6235 | -0.405 | 0.0217 | 0.4077 | 0.2811 | -0.3608 | 0.6126 | 0.0564 | -9.8994 | 0.6081 | -9.8994 | 0.6012 | A+ | B- | A- |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) | Final | Final Err | Infit | Infit-MS | Outfit | Outfit-MS | M/F | W/B | W/H |
|---------|-------|--------|------|-------|-------|------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|--------|-----------|---------|----------|---------|-----------|-----|-----|-----|
| ELA | 8 | 664708 | 6 | E | 3 | 1418 | 2.1375 | 0.18 | 0.4973 | 0.226 | 0.042 | 0.0547 | 0.6231 | -0.4508 | 0.0396 | 0.4053 | 0.2538 | -0.2949 | 0.6323 | 0.0618 | -9.8994 | 0.6477 | -9.8994 | 0.647 | C+ | A- | B- |
| ELA | 8 | 661719 | 7 | E | 3 | 1398 | 2.0429 | 0.2047 | 0.5167 | 0.1767 | 0.034 | 0.068 | 0.6326 | -0.459 | 0.1547 | 0.3889 | 0.2441 | -0.3364 | 0.78 | 0.0562 | -9.8994 | 0.6228 | -9.8994 | 0.6172 | B+ | C- | B- |
| ELA | 8 | 662849 | 8 | E | 3 | 1402 | 2.0763 | 0.198 | 0.5067 | 0.1907 | 0.0393 | 0.0653 | 0.6273 | -0.4208 | 0.0865 | 0.403 | 0.2679 | -0.3479 | 0.7633 | 0.057 | -9.8994 | 0.6322 | -9.8994 | 0.6273 | C+ | A- | B- |
| ELA | 8 | 664459 | 9 | E | 3 | 1406 | 2.1266 | 0.1781 | 0.503 | 0.2168 | 0.04 | 0.062 | 0.611 | -0.4162 | 0.039 | 0.4092 | 0.2513 | -0.324 | 0.6664 | 0.0586 | -9.8994 | 0.6325 | -9.8994 | 0.6282 | B+ | A- | A- |
| ELA | 8 | 631619 | 10 | E | 3 | 1415 | 2.2049 | 0.1314 | 0.537 | 0.2262 | 0.0494 | 0.056 | 0.6356 | -0.4257 | -0.0297 | 0.4271 | 0.2703 | -0.3417 | 0.5549 | 0.0623 | -9.8994 | 0.6096 | -9.8994 | 0.598 | A+ | A+ | A- |
| ELA | 8 | 633097 | 11 | E | 3 | 1396 | 2.0831 | 0.1933 | 0.5027 | 0.1987 | 0.036 | 0.0693 | 0.6168 | -0.417 | 0.0883 | 0.4088 | 0.2378 | -0.3419 | 0.7833 | 0.056 | -9.8994 | 0.6346 | -9.8994 | 0.6308 | B+ | B- | B- |
| ELA | 8 | 625302 | 12 | E | 3 | 1407 | 2.167 | 0.1573 | 0.5107 | 0.226 | 0.044 | 0.062 | 0.5959 | -0.3985 | 0.0092 | 0.3825 | 0.2682 | -0.3088 | 0.6206 | 0.0593 | -9.8993 | 0.664 | -9.8993 | 0.6613 | C+ | A+ | A- |

Text-Dependent Analysis Computer-Based Item Statistics

| Column Heading | Definition |
|----------------|-------------------------------|
| Content | Content Area |
| Grade | Grade |
| PubID | Form ID |
| Form | Form Number |
| Stand | Standard |
| Depth | Depth of Knowledge |
| N | N |
| Mean | Mean Score |
| P(1) | Proportion 1 Point |
| P(2) | Proportion 2 Points |
| P(3) | Proportion 3 Points |
| P(4) | Proportion 4 Points |
| P(INV) | Proportion Invalid Responses |
| PtBis | Point Biserial |
| Corr(1) | Correlation 1 Point |
| Corr(2) | Correlation 2 Points |
| Corr(3) | Correlation 3 Points |
| Corr(4) | Correlation 4 Points |
| Corr(INV) | Correlation Invalid Responses |

| Content | Grade | PubID | Form | Stand | Depth | N | Mean | P(1) | P(2) | P(3) | P(4) | P(INV) | PtBis | Corr(1) | Corr(2) | Corr(3) | Corr(4) | Corr(INV) |
|---------|-------|--------|------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|-----------|
| ELA | 4 | 582450 | 0 | E | 3 | 73304 | 1.8866 | 0.2862 | 0.3859 | 0.1425 | 0.0243 | 0.1612 | 0.5533 | -0.2543 | 0.2892 | 0.3659 | 0.194 | -0.4994 |
| ELA | 4 | 660448 | 1 | E | 3 | 986 | 1.9939 | 0.256 | 0.4027 | 0.1849 | 0.0329 | 0.1236 | 0.6031 | -0.3786 | 0.2192 | 0.3922 | 0.2195 | -0.4062 |
| ELA | 4 | 660494 | 2 | E | 3 | 997 | 1.8495 | 0.3129 | 0.4151 | 0.1369 | 0.0213 | 0.1138 | 0.5362 | -0.3139 | 0.2713 | 0.3432 | 0.1924 | -0.4217 |
| ELA | 4 | 662028 | 3 | E | 3 | 955 | 1.9058 | 0.3191 | 0.3298 | 0.1609 | 0.0391 | 0.1511 | 0.6144 | -0.3282 | 0.257 | 0.4046 | 0.2413 | -0.456 |
| ELA | 5 | 583779 | 0 | E | 3 | 80249 | 1.9011 | 0.2764 | 0.4967 | 0.1466 | 0.0185 | 0.0617 | 0.5844 | -0.4239 | 0.2525 | 0.3705 | 0.1665 | -0.3747 |
| ELA | 5 | 654569 | 1 | E | 3 | 1065 | 2.1737 | 0.1822 | 0.464 | 0.2542 | 0.0462 | 0.0533 | 0.5888 | -0.4098 | 0.0119 | 0.396 | 0.2488 | -0.3223 |
| ELA | 5 | 662343 | 2 | E | 3 | 1080 | 2.0769 | 0.216 | 0.4907 | 0.2169 | 0.0364 | 0.04 | 0.542 | -0.4122 | 0.0477 | 0.3693 | 0.2014 | -0.2255 |
| ELA | 5 | 659820 | 3 | E | 3 | 1070 | 2.1252 | 0.1779 | 0.5098 | 0.2313 | 0.0329 | 0.048 | 0.5691 | -0.4259 | 0.0332 | 0.3898 | 0.1978 | -0.2496 |
| ELA | 6 | 579502 | 0 | E | 3 | 76856 | 2.0133 | 0.2017 | 0.5344 | 0.1989 | 0.0077 | 0.0574 | 0.5887 | -0.4125 | 0.138 | 0.4261 | 0.1212 | -0.3611 |
| ELA | 6 | 661285 | 1 | E | 3 | 1059 | 1.9216 | 0.2747 | 0.4818 | 0.1689 | 0.016 | 0.0587 | 0.5802 | -0.4254 | 0.1987 | 0.3824 | 0.1724 | -0.3163 |
| ELA | 6 | 663820 | 2 | E | 3 | 992 | 1.8589 | 0.3076 | 0.4089 | 0.1476 | 0.0178 | 0.1182 | 0.6032 | -0.3544 | 0.2894 | 0.4082 | 0.16 | -0.448 |
| ELA | 6 | 662737 | 3 | E | 3 | 1035 | 1.9053 | 0.2827 | 0.4551 | 0.1689 | 0.0133 | 0.08 | 0.5825 | -0.3793 | 0.1962 | 0.4042 | 0.1748 | -0.3626 |
| ELA | 7 | 583806 | 0 | E | 3 | 75516 | 2.081 | 0.2476 | 0.4052 | 0.228 | 0.0474 | 0.0717 | 0.6452 | -0.4411 | 0.1153 | 0.422 | 0.2685 | -0.3889 |
| ELA | 7 | 664167 | 1 | E | 3 | 1056 | 1.9593 | 0.2716 | 0.4737 | 0.1567 | 0.0383 | 0.0597 | 0.5527 | -0.3983 | 0.1847 | 0.3187 | 0.2382 | -0.3235 |
| ELA | 7 | 659374 | 2 | E | 3 | 1075 | 2.0958 | 0.2395 | 0.4399 | 0.2244 | 0.0534 | 0.0427 | 0.6099 | -0.4495 | 0.0539 | 0.3957 | 0.2681 | -0.2982 |
| ELA | 7 | 663920 | 3 | E | 3 | 1087 | 2.0497 | 0.2373 | 0.4898 | 0.1929 | 0.0462 | 0.0338 | 0.5763 | -0.4366 | 0.0608 | 0.3722 | 0.2471 | -0.2402 |
| ELA | 8 | 578068 | 0 | E | 3 | 75039 | 2.1039 | 0.209 | 0.4479 | 0.213 | 0.0455 | 0.0845 | 0.6421 | -0.4203 | 0.1191 | 0.4156 | 0.266 | -0.4096 |
| ELA | 8 | 664165 | 1 | E | 3 | 1064 | 2.0996 | 0.2 | 0.4933 | 0.2107 | 0.0418 | 0.0542 | 0.5735 | -0.3855 | 0.026 | 0.3968 | 0.2378 | -0.3011 |
| ELA | 8 | 663403 | 2 | E | 3 | 1033 | 2.0813 | 0.1964 | 0.4898 | 0.1929 | 0.0391 | 0.0818 | 0.6147 | -0.3967 | 0.113 | 0.4035 | 0.2527 | -0.3907 |
| ELA | 8 | 662810 | 3 | E | 3 | 1055 | 2.1213 | 0.1947 | 0.4898 | 0.1982 | 0.0551 | 0.0622 | 0.5763 | -0.3465 | 0.0138 | 0.3856 | 0.2764 | -0.3581 |

APPENDIX G: 2022 TEST BOOK SECTION LAYOUT PLANS

ENGLISH LANGUAGE ARTS TEST/ANSWER BOOKLET SECTION LAYOUT FOR GRADES 4, 5, 6, 7, AND 8

English Language Arts Core

| | |
|------------------------------------|-------------------|
| Core/common standalone MC items | 9 |
| Core/common passage-based MC items | 23 |
| 3 core 2 pt EBSR items | 6 |
| 3 core 3 pt EBSR items | 9 |
| 1 core 4 pt TDA | 16 (weighted x 4) |
| Total | 63 points |

The estimated testing time for English language arts is approximately 225–246 minutes (including placeholder items and embedded field-test items). [Timing assumes 30 min per TDA; 3 to 5 min per EBSR; 1½ to 2 min per MC, and 7 min per reading passage set.]

| Section | Content | Number of MC/EBSR | MC/EBSR Item Breakdown | Number of TDA | TDA Item Breakdown | Estimated Number of Passages | Section Time (in minutes) |
|---------|--|----------------------|--|---------------|--------------------|------------------------------|---------------------------|
| 1 | Conventions of Standard English (Writing) and Reading | 21–24 MC 4–5 EBSR | 4–5 core MC language items, 0–1 (EB) MC language item, 1 FT MC language item, 15–18 core MC reading items, 2–3 2pt EBSR reading items, 2–3 3pt EBSR reading items | 0 | N/A | 3 | 67–78 |
| 2 | Reading and Text-Dependent Analysis (Reading/Writing) | 14 MC 2 EBSR | 6 MC (EB) reading items, 8 FT MC reading items, 2 EBSR FT reading items | 1 | 1–field-test TDA | 2 | 88 |
| 3 | Conventions of Standard English (Writing), Reading and Text-Dependent Analysis (Reading/Writing) | 11–14 MC | 6–placeholder items, 10–field-test items | 1 | 1–field-test TDA | 2 | 70–80 |

Note. 1) There were nine forms per grade.

English Language Arts Test/Answer Booklet Section Layout for Grade 3

English Language Arts Core

| | |
|------------------------------------|------------------|
| Core/common standalone MC items | 9 |
| Core/common passage-based MC items | 20 |
| 2 core 2 pt EBSR items | 4 |
| 2 core 3 pt EBSR items | 6 |
| 2 core 3 pt SA items | 6 |
| Total | 45 points |

The estimated testing time for reading is approximately 134–166 minutes (including equating block items and embedded field-test items). [Timing assumes 5 to 10 min per SA, 3 to 5 min per EBSR, 1½ to 2 min per MC, and 7 min per reading passage set.]

| Section | Content | Nbr of MC/EBSR | MC/EBSR Item Breakdown | Nbr of SA | SA Item Breakdown | Estimated Nbr of Passages | Section Time (in min) |
|---------|---|----------------------|---|-----------|-------------------|---------------------------|-----------------------|
| 1 | Conventions of Standard English (Writing) and Reading | 14–18 MC 1–3 EBSR | 4–5 core MC language items, 0–1 (EB) MC language item, 1 FT MC language item, 8–12 core MC reading items, 0–2 2pt EBSR reading items, 0–2 3pt EBSR reading items | 1 | 1 core | 2 | 43–59 |
| 2 | Reading | 14 MC 2 EBSR | 12 (EB) MC reading items, 8 MC FT reading items, 2 EBSR FT reading items | 1 | 1 field-test | 2 | 48 |
| 3 | Conventions of Standard English (Writing) and Reading | 14–18 MC 1–3 EBSR | 4–5 core MC language items, 0–1 (EB) MC language item, 1 FT MC language item, 8–12 core MC reading items, 0–2 2pt EBSR reading items, 0–2 3pt EBSR reading items | 1 | 1 core | 2 | 43–59 |

Note. 1) There were nine forms per grade.

MATHEMATICS TEST/ANSWER BOOK SECTION LAYOUT FOR GRADES 3, 4, 5, 6, 7, AND 8

Mathematics Core

| | |
|----------------------|------------------|
| Core/common MC items | 40 |
| 3 core 4 pt OE items | 12 |
| Total | 52 points |

The estimated testing time for mathematics is approximately 156 minutes. [Timing assumes 5 to 10 min per OE and 1½ to 2 min per MC.]

| Section | Content | Number of MC | MC Item Breakdown | Number of OE | OE Item Breakdown | Section Time (in minutes) |
|---------|-------------|--------------|---|--------------|--|---------------------------|
| 1 | Mathematics | 24 | 20—common (core) items (includes 3 non—calc in Grades 4–8), 1 psychometric use/placeholder, 3—embedded field-test items | 2 | 2—common (core) items | 78 |
| 2 | Mathematics | 24 | 20—common (core) items, 1—psychometric use/placeholder, 3—embedded field-test items | 2 | 2—common (core) item, 1—embedded field-test item | 78 |

Notes. 1) There were nine forms per grade. 2) The ruler items in Grade 3 and the protractor items in Grade 4 may fall in Section 1, 2, or 3. 3) Calculators are not allowed on the Grade 3 test. In Grades 4–8, a portion of section 1 is considered “non—calc.”

SCIENCE TEST/ANSWER BOOK SECTION LAYOUT

General Information (see grade level page for specifics)

- Timing Key: MC = 1 to 1½ min; 2 pt OE = 5 min; 4 pt OE = 10 min; G8 Scenario stimulus = 3 min
- There are 12 forms per grade.
- Within a section at Grade 4, MC *most likely* will precede OE items.
- Within a section at Grade 8, non-scenario MC items *most likely* will precede scenario-based MC items which will precede OE items.
- Grade 4 and 8 will have both Test Booklets and scannable Answer Booklets.
- *Generally*, core items will precede equating block items, which will precede field-test items.

Science: Grade 4

| | |
|----------------------|----------------------|
| Core/common MC items | 38 (16 core linking) |
| 5 core 2 pt OE items | 5 (2 core linking) |
| Total | 48 points |

The estimated Grade 4 testing time for science is approximately 76 minutes. [Timing assumes 5 min per 2 pt OE and 1 min per MC.]

| Grade | Section | Number of MC | Estimated MC Item Breakdown | Number of OE | Estimated OE Item Breakdown | Testing Time |
|-------|---------|--------------|--|--------------|---|--------------|
| 4 | 1 | 23 | 19–core items, 1–equating block item, 3–embedded field-test items | 3 | 3–common (core) items | 38 |
| 4 | 2 | 23 | 29–common (core) items, 1–equating block item, 4–embedded field-test items | 3 | 2–common (core) items, 1–embedded field-test item | 38 |

Science: Grade 8

| | |
|----------------------|----------------------|
| Core/common MC items | 38 (16 core linking) |
| 5 core 2 pt OE items | 10 (2 core linking) |
| Total | 48 points |

The estimated grade 8 testing time is 90 minutes per grade for science. [Timing assumes 5 min per 2 pt OE, 1 min per MC, and 3 min per grade 8 scenario.]

| Grade | Section | Number of MC | Estimated MC Item Breakdown | Number of OE | Estimated OE Item Breakdown | Testing Time |
|-------|---------|--------------|--|--------------|--|--------------|
| 8 | 1 | 24 | 17–core items, 4–embedded field-test scenario-based items, 1–equating block item, 2–embedded field-test items | 3 | 3–common (core) items | 45 |
| 8 | 2 | 24 | 17–core items, 4–core scenario-based items, 1–equating block item, 2–embedded field-test items | 3 | 2–common (core) items, 1–embedded field-test item | 45 |

APPENDIX H: MEAN SCALED SCORES BY FORM

The tables provide the mode (All, paper, or CBT), form number (Form), the number of students (N), the minimum scaled score (Min), the maximum scaled score (Max), the median scaled score (Med), the mean scaled score (Mean), and the standard deviation (STD) of the scaled score. A value of 00 for form represents all forms.

Mathematics Grade 3 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|---------|--------|
| All | 00 | 114714 | 600 | 1553 | 999 | 1003.14 | 124.78 |
| All | 01 | 21951 | 600 | 1553 | 973 | 984.84 | 122.28 |
| All | 02 | 17137 | 673 | 1553 | 999 | 1008.64 | 122.32 |
| All | 03 | 17162 | 600 | 1553 | 999 | 1010.36 | 123.82 |
| All | 04 | 9752 | 600 | 1553 | 999 | 1004.42 | 126.07 |
| All | 05 | 9768 | 629 | 1553 | 999 | 1004.90 | 126.29 |
| All | 06 | 9723 | 629 | 1553 | 999 | 1009.07 | 125.47 |
| All | 07 | 9724 | 600 | 1553 | 999 | 1006.63 | 126.34 |
| All | 08 | 9727 | 600 | 1553 | 999 | 1005.14 | 125.67 |
| All | 09 | 9770 | 600 | 1553 | 999 | 1007.48 | 126.39 |
| Paper | 00 | 88092 | 600 | 1553 | 999 | 1004.92 | 126.22 |
| Paper | 01 | 10148 | 600 | 1553 | 991 | 996.26 | 125.81 |
| Paper | 02 | 9731 | 673 | 1553 | 999 | 1004.69 | 126.01 |
| Paper | 03 | 9749 | 600 | 1553 | 999 | 1006.09 | 127.54 |
| Paper | 04 | 9752 | 600 | 1553 | 999 | 1004.42 | 126.07 |
| Paper | 05 | 9768 | 629 | 1553 | 999 | 1004.90 | 126.29 |
| Paper | 06 | 9723 | 629 | 1553 | 999 | 1009.07 | 125.47 |
| Paper | 07 | 9724 | 600 | 1553 | 999 | 1006.63 | 126.34 |
| Paper | 08 | 9727 | 600 | 1553 | 999 | 1005.14 | 125.67 |
| Paper | 09 | 9770 | 600 | 1553 | 999 | 1007.48 | 126.39 |
| CBT | 00 | 26622 | 673 | 1553 | 991 | 997.22 | 119.67 |
| CBT | 01 | 11803 | 673 | 1553 | 964 | 975.03 | 118.29 |
| CBT | 02 | 7406 | 673 | 1553 | 1009 | 1013.82 | 117.09 |
| CBT | 03 | 7413 | 673 | 1553 | 1009 | 1015.97 | 118.51 |

Mathematics Grade 4 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|--------|--------|
| All | 00 | 114822 | 600 | 1561 | 972 | 980.37 | 122.74 |
| All | 01 | 22633 | 600 | 1561 | 953 | 964.20 | 122.50 |
| All | 02 | 17435 | 600 | 1561 | 982 | 988.54 | 121.24 |
| All | 03 | 17450 | 600 | 1561 | 982 | 989.08 | 119.80 |
| All | 04 | 9557 | 643 | 1561 | 972 | 981.03 | 122.42 |
| All | 05 | 9548 | 600 | 1561 | 972 | 979.30 | 122.16 |
| All | 06 | 9541 | 600 | 1431 | 972 | 978.71 | 122.76 |
| All | 07 | 9516 | 600 | 1561 | 972 | 985.58 | 124.96 |
| All | 08 | 9587 | 600 | 1561 | 972 | 981.30 | 124.74 |
| All | 09 | 9555 | 600 | 1561 | 972 | 983.86 | 124.20 |
| Paper | 00 | 86352 | 600 | 1561 | 972 | 981.23 | 124.19 |
| Paper | 01 | 10068 | 600 | 1561 | 963 | 976.55 | 125.88 |
| Paper | 02 | 9475 | 600 | 1561 | 972 | 982.99 | 126.31 |
| Paper | 03 | 9505 | 600 | 1561 | 972 | 982.02 | 123.93 |
| Paper | 04 | 9557 | 643 | 1561 | 972 | 981.03 | 122.42 |
| Paper | 05 | 9548 | 600 | 1561 | 972 | 979.30 | 122.16 |
| Paper | 06 | 9541 | 600 | 1431 | 972 | 978.71 | 122.76 |
| Paper | 07 | 9516 | 600 | 1561 | 972 | 985.58 | 124.96 |
| Paper | 08 | 9587 | 600 | 1561 | 972 | 981.30 | 124.74 |
| Paper | 09 | 9555 | 600 | 1561 | 972 | 983.86 | 124.20 |
| CBT | 00 | 28470 | 600 | 1561 | 972 | 977.78 | 118.19 |
| CBT | 01 | 12565 | 600 | 1561 | 943 | 954.31 | 118.81 |
| CBT | 02 | 7960 | 643 | 1561 | 992 | 995.14 | 114.56 |
| CBT | 03 | 7945 | 643 | 1561 | 992 | 997.52 | 114.10 |

Mathematics Grade 5 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|--------|--------|
| All | 00 | 116489 | 600 | 1541 | 950 | 968.80 | 113.29 |
| All | 01 | 23669 | 653 | 1541 | 932 | 950.89 | 110.54 |
| All | 02 | 18364 | 600 | 1541 | 959 | 974.04 | 111.34 |
| All | 03 | 18417 | 653 | 1541 | 959 | 974.93 | 112.46 |
| All | 04 | 9387 | 653 | 1541 | 959 | 972.87 | 114.16 |
| All | 05 | 9317 | 653 | 1541 | 950 | 971.62 | 116.20 |
| All | 06 | 9353 | 600 | 1541 | 959 | 974.32 | 114.62 |
| All | 07 | 9321 | 653 | 1541 | 959 | 972.37 | 114.27 |
| All | 08 | 9345 | 653 | 1541 | 959 | 972.33 | 113.91 |
| All | 09 | 9316 | 653 | 1541 | 959 | 972.31 | 114.22 |
| Paper | 00 | 84594 | 600 | 1541 | 950 | 971.49 | 114.75 |
| Paper | 01 | 9823 | 653 | 1541 | 941 | 963.50 | 113.71 |
| Paper | 02 | 9372 | 600 | 1541 | 950 | 971.81 | 114.41 |
| Paper | 03 | 9360 | 653 | 1541 | 950 | 972.65 | 116.94 |
| Paper | 04 | 9387 | 653 | 1541 | 959 | 972.87 | 114.16 |
| Paper | 05 | 9317 | 653 | 1541 | 950 | 971.62 | 116.20 |
| Paper | 06 | 9353 | 600 | 1541 | 959 | 974.32 | 114.62 |
| Paper | 07 | 9321 | 653 | 1541 | 959 | 972.37 | 114.27 |
| Paper | 08 | 9345 | 653 | 1541 | 959 | 972.33 | 113.91 |
| Paper | 09 | 9316 | 653 | 1541 | 959 | 972.31 | 114.22 |
| CBT | 00 | 31895 | 600 | 1541 | 941 | 961.69 | 108.98 |
| CBT | 01 | 13846 | 653 | 1541 | 923 | 941.94 | 107.34 |
| CBT | 02 | 8992 | 600 | 1541 | 959 | 976.37 | 108.01 |
| CBT | 03 | 9057 | 697 | 1541 | 967 | 977.30 | 107.58 |

Mathematics Grade 6 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|--------|--------|
| All | 00 | 115844 | 600 | 1521 | 932 | 953.33 | 122.93 |
| All | 01 | 24297 | 600 | 1521 | 914 | 936.87 | 120.83 |
| All | 02 | 18973 | 609 | 1521 | 942 | 959.45 | 122.08 |
| All | 03 | 18982 | 600 | 1521 | 942 | 959.10 | 123.60 |
| All | 04 | 8945 | 600 | 1521 | 942 | 956.02 | 122.82 |
| All | 05 | 8945 | 652 | 1521 | 932 | 954.18 | 120.88 |
| All | 06 | 8968 | 600 | 1521 | 942 | 955.69 | 124.05 |
| All | 07 | 8896 | 600 | 1521 | 942 | 956.47 | 125.14 |
| All | 08 | 8910 | 600 | 1521 | 942 | 958.37 | 123.45 |
| All | 09 | 8928 | 600 | 1521 | 942 | 958.75 | 123.30 |
| Paper | 00 | 80974 | 600 | 1521 | 942 | 955.25 | 122.83 |
| Paper | 01 | 9535 | 609 | 1521 | 932 | 948.38 | 120.28 |
| Paper | 02 | 8935 | 652 | 1521 | 942 | 956.11 | 122.15 |
| Paper | 03 | 8912 | 600 | 1521 | 942 | 953.72 | 123.18 |
| Paper | 04 | 8945 | 600 | 1521 | 942 | 956.02 | 122.82 |
| Paper | 05 | 8945 | 652 | 1521 | 932 | 954.18 | 120.88 |
| Paper | 06 | 8968 | 600 | 1521 | 942 | 955.69 | 124.05 |
| Paper | 07 | 8896 | 600 | 1521 | 942 | 956.47 | 125.14 |
| Paper | 08 | 8910 | 600 | 1521 | 942 | 958.37 | 123.45 |
| Paper | 09 | 8928 | 600 | 1521 | 942 | 958.75 | 123.30 |
| CBT | 00 | 34870 | 600 | 1521 | 932 | 948.87 | 123.05 |
| CBT | 01 | 14762 | 600 | 1521 | 904 | 929.43 | 120.61 |
| CBT | 02 | 10038 | 609 | 1521 | 951 | 962.42 | 121.95 |
| CBT | 03 | 10070 | 652 | 1521 | 951 | 963.86 | 123.78 |

Mathematics Grade 7 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|--------|--------|
| All | 00 | 118357 | 600 | 1513 | 919 | 945.50 | 110.97 |
| All | 01 | 24905 | 600 | 1513 | 909 | 930.23 | 107.06 |
| All | 02 | 19816 | 635 | 1513 | 928 | 950.04 | 108.54 |
| All | 03 | 19874 | 679 | 1513 | 928 | 949.55 | 108.50 |
| All | 04 | 8945 | 600 | 1513 | 928 | 949.94 | 112.19 |
| All | 05 | 8991 | 600 | 1513 | 928 | 951.39 | 113.64 |
| All | 06 | 8951 | 635 | 1513 | 928 | 949.55 | 113.69 |
| All | 07 | 9008 | 635 | 1513 | 928 | 948.41 | 114.17 |
| All | 08 | 8951 | 635 | 1513 | 928 | 949.34 | 116.13 |
| All | 09 | 8916 | 635 | 1513 | 928 | 947.82 | 113.40 |
| Paper | 00 | 81269 | 600 | 1513 | 928 | 948.97 | 113.77 |
| Paper | 01 | 9635 | 600 | 1513 | 919 | 941.68 | 113.53 |
| Paper | 02 | 8921 | 635 | 1513 | 928 | 952.04 | 113.95 |
| Paper | 03 | 8951 | 679 | 1513 | 928 | 951.15 | 112.84 |
| Paper | 04 | 8945 | 600 | 1513 | 928 | 949.94 | 112.19 |
| Paper | 05 | 8991 | 600 | 1513 | 928 | 951.39 | 113.64 |
| Paper | 06 | 8951 | 635 | 1513 | 928 | 949.55 | 113.69 |
| Paper | 07 | 9008 | 635 | 1513 | 928 | 948.41 | 114.17 |
| Paper | 08 | 8951 | 635 | 1513 | 928 | 949.34 | 116.13 |
| Paper | 09 | 8916 | 635 | 1513 | 928 | 947.82 | 113.40 |
| CBT | 00 | 37088 | 600 | 1513 | 919 | 937.89 | 104.17 |
| CBT | 01 | 15270 | 600 | 1513 | 900 | 923.00 | 102.10 |
| CBT | 02 | 10895 | 635 | 1513 | 928 | 948.39 | 103.87 |
| CBT | 03 | 10923 | 679 | 1513 | 928 | 948.24 | 104.79 |

Mathematics Grade 8 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------------|-------------|----------|------------|------------|---------------|-------------|------------|
| All | 00 | 119039 | 600 | 1479 | 898 | 922.00 | 112.90 |
| All | 01 | 24717 | 600 | 1479 | 881 | 908.09 | 109.42 |
| All | 02 | 20192 | 609 | 1479 | 907 | 926.34 | 112.40 |
| All | 03 | 20101 | 609 | 1479 | 907 | 923.24 | 110.72 |
| All | 04 | 8979 | 653 | 1479 | 907 | 925.73 | 115.12 |
| All | 05 | 9030 | 600 | 1479 | 915 | 929.03 | 115.64 |
| All | 06 | 9041 | 653 | 1479 | 907 | 925.48 | 113.50 |
| All | 07 | 8969 | 609 | 1479 | 907 | 926.78 | 115.50 |
| All | 08 | 9023 | 600 | 1479 | 907 | 924.44 | 113.73 |
| All | 09 | 8987 | 600 | 1479 | 907 | 926.24 | 116.00 |
| Paper | 00 | 81741 | 600 | 1479 | 907 | 925.67 | 115.52 |
| Paper | 01 | 9649 | 609 | 1479 | 898 | 920.79 | 116.48 |
| Paper | 02 | 9036 | 609 | 1479 | 907 | 928.08 | 117.20 |
| Paper | 03 | 9027 | 609 | 1479 | 907 | 924.81 | 116.16 |
| Paper | 04 | 8979 | 653 | 1479 | 907 | 925.73 | 115.12 |
| Paper | 05 | 9030 | 600 | 1479 | 915 | 929.03 | 115.64 |
| Paper | 06 | 9041 | 653 | 1479 | 907 | 925.48 | 113.50 |
| Paper | 07 | 8969 | 609 | 1479 | 907 | 926.78 | 115.50 |
| Paper | 08 | 9023 | 600 | 1479 | 907 | 924.44 | 113.73 |
| Paper | 09 | 8987 | 600 | 1479 | 907 | 926.24 | 116.00 |
| CBT | 00 | 37298 | 600 | 1479 | 890 | 913.97 | 106.49 |
| CBT | 01 | 15068 | 600 | 1479 | 871 | 899.96 | 103.83 |
| CBT | 02 | 11156 | 609 | 1479 | 907 | 924.94 | 108.33 |
| CBT | 03 | 11074 | 653 | 1479 | 907 | 921.97 | 106.06 |

ELA Grade 3 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------------|-------------|----------|------------|------------|---------------|-------------|------------|
| All | 00 | 114398 | 600 | 1537 | 1007 | 1014.86 | 108.85 |
| All | 01 | 18349 | 673 | 1537 | 987 | 998.26 | 107.24 |
| All | 02 | 15016 | 600 | 1537 | 1007 | 1015.26 | 105.19 |
| All | 03 | 15070 | 600 | 1537 | 1017 | 1016.11 | 104.95 |
| All | 04 | 7315 | 717 | 1537 | 1017 | 1018.68 | 109.89 |
| All | 05 | 7298 | 673 | 1537 | 1017 | 1018.42 | 110.78 |
| All | 06 | 7315 | 717 | 1537 | 1017 | 1018.03 | 109.26 |
| All | 07 | 7347 | 600 | 1537 | 1017 | 1018.06 | 109.68 |
| All | 08 | 7364 | 600 | 1537 | 1017 | 1021.03 | 112.37 |
| All | 09 | 7360 | 673 | 1537 | 1017 | 1016.83 | 110.71 |
| All | 10 | 7379 | 600 | 1537 | 1017 | 1020.88 | 110.38 |
| All | 11 | 7325 | 673 | 1537 | 1017 | 1019.20 | 110.48 |
| All | 12 | 7260 | 673 | 1537 | 1017 | 1020.77 | 111.21 |
| Paper | 00 | 87974 | 600 | 1537 | 1017 | 1018.69 | 110.54 |
| Paper | 01 | 7350 | 673 | 1537 | 1017 | 1017.37 | 110.78 |
| Paper | 02 | 7317 | 600 | 1537 | 1007 | 1016.68 | 110.63 |
| Paper | 03 | 7344 | 600 | 1537 | 1017 | 1018.33 | 110.18 |
| Paper | 04 | 7315 | 717 | 1537 | 1017 | 1018.68 | 109.89 |
| Paper | 05 | 7298 | 673 | 1537 | 1017 | 1018.42 | 110.78 |
| Paper | 06 | 7315 | 717 | 1537 | 1017 | 1018.03 | 109.26 |
| Paper | 07 | 7347 | 600 | 1537 | 1017 | 1018.06 | 109.68 |
| Paper | 08 | 7364 | 600 | 1537 | 1017 | 1021.03 | 112.37 |
| Paper | 09 | 7360 | 673 | 1537 | 1017 | 1016.83 | 110.71 |
| Paper | 10 | 7379 | 600 | 1537 | 1017 | 1020.88 | 110.38 |
| Paper | 11 | 7325 | 673 | 1537 | 1017 | 1019.20 | 110.48 |
| Paper | 12 | 7260 | 673 | 1537 | 1017 | 1020.77 | 111.21 |
| CBT | 00 | 26424 | 673 | 1537 | 997 | 1002.11 | 102.00 |
| CBT | 01 | 10999 | 717 | 1537 | 977 | 985.49 | 102.85 |
| CBT | 02 | 7699 | 673 | 1537 | 1007 | 1013.92 | 99.74 |
| CBT | 03 | 7726 | 673 | 1537 | 1007 | 1014.00 | 99.68 |

ELA Grade 4 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------------|-------------|----------|------------|------------|---------------|-------------|------------|
| All | 00 | 114533 | 600 | 1657 | 1007 | 1006.91 | 121.08 |
| All | 01 | 18990 | 600 | 1657 | 990 | 988.84 | 122.51 |
| All | 02 | 15404 | 600 | 1657 | 1015 | 1009.36 | 118.16 |
| All | 03 | 15438 | 638 | 1657 | 1015 | 1012.09 | 118.40 |
| All | 04 | 7176 | 638 | 1657 | 1015 | 1008.30 | 119.29 |
| All | 05 | 7144 | 600 | 1657 | 1007 | 1006.60 | 120.66 |
| All | 06 | 7169 | 600 | 1528 | 1015 | 1010.23 | 122.35 |
| All | 07 | 7183 | 638 | 1657 | 1015 | 1011.67 | 122.71 |
| All | 08 | 7182 | 638 | 1657 | 1015 | 1013.33 | 122.16 |
| All | 09 | 7195 | 600 | 1657 | 1015 | 1011.86 | 120.84 |
| All | 10 | 7213 | 600 | 1528 | 1015 | 1009.49 | 119.62 |
| All | 11 | 7200 | 600 | 1657 | 1015 | 1010.92 | 123.08 |
| All | 12 | 7239 | 600 | 1657 | 1015 | 1011.08 | 122.58 |
| Paper | 00 | 86321 | 600 | 1657 | 1015 | 1009.93 | 121.76 |
| Paper | 01 | 7220 | 600 | 1657 | 1015 | 1009.01 | 123.02 |
| Paper | 02 | 7182 | 600 | 1657 | 1015 | 1006.47 | 122.43 |
| Paper | 03 | 7218 | 638 | 1528 | 1015 | 1010.17 | 122.06 |
| Paper | 04 | 7176 | 638 | 1657 | 1015 | 1008.30 | 119.29 |
| Paper | 05 | 7144 | 600 | 1657 | 1007 | 1006.60 | 120.66 |
| Paper | 06 | 7169 | 600 | 1528 | 1015 | 1010.23 | 122.35 |
| Paper | 07 | 7183 | 638 | 1657 | 1015 | 1011.67 | 122.71 |
| Paper | 08 | 7182 | 638 | 1657 | 1015 | 1013.33 | 122.16 |
| Paper | 09 | 7195 | 600 | 1657 | 1015 | 1011.86 | 120.84 |
| Paper | 10 | 7213 | 600 | 1528 | 1015 | 1009.49 | 119.62 |
| Paper | 11 | 7200 | 600 | 1657 | 1015 | 1010.92 | 123.08 |
| Paper | 12 | 7239 | 600 | 1657 | 1015 | 1011.08 | 122.58 |
| CBT | 00 | 28212 | 638 | 1657 | 998 | 997.66 | 118.51 |
| CBT | 01 | 11770 | 638 | 1657 | 967 | 976.47 | 120.54 |
| CBT | 02 | 8222 | 695 | 1657 | 1015 | 1011.88 | 114.25 |
| CBT | 03 | 8220 | 695 | 1657 | 1015 | 1013.78 | 115.06 |

ELA Grade 5 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|---------|--------|
| All | 00 | 116274 | 600 | 1649 | 1015 | 1010.74 | 114.41 |
| All | 01 | 20205 | 600 | 1649 | 991 | 989.71 | 118.71 |
| All | 02 | 16343 | 600 | 1522 | 1015 | 1014.49 | 111.77 |
| All | 03 | 16330 | 636 | 1649 | 1023 | 1017.09 | 112.43 |
| All | 04 | 7045 | 669 | 1649 | 1015 | 1012.51 | 114.31 |
| All | 05 | 6998 | 669 | 1522 | 1015 | 1013.59 | 112.88 |
| All | 06 | 7044 | 600 | 1522 | 1023 | 1016.95 | 115.77 |
| All | 07 | 7064 | 669 | 1443 | 1015 | 1014.00 | 112.89 |
| All | 08 | 7087 | 600 | 1649 | 1023 | 1016.17 | 112.61 |
| All | 09 | 7087 | 636 | 1522 | 1015 | 1015.13 | 113.86 |
| All | 10 | 7037 | 636 | 1522 | 1015 | 1013.25 | 111.53 |
| All | 11 | 7005 | 669 | 1522 | 1023 | 1016.09 | 113.10 |
| All | 12 | 7029 | 600 | 1522 | 1023 | 1015.77 | 113.84 |
| Paper | 00 | 84554 | 600 | 1649 | 1015 | 1014.20 | 114.08 |
| Paper | 01 | 7080 | 600 | 1649 | 1015 | 1010.71 | 116.48 |
| Paper | 02 | 7036 | 600 | 1522 | 1015 | 1011.55 | 116.02 |
| Paper | 03 | 7042 | 636 | 1649 | 1023 | 1014.71 | 115.30 |
| Paper | 04 | 7045 | 669 | 1649 | 1015 | 1012.51 | 114.31 |
| Paper | 05 | 6998 | 669 | 1522 | 1015 | 1013.59 | 112.88 |
| Paper | 06 | 7044 | 600 | 1522 | 1023 | 1016.95 | 115.77 |
| Paper | 07 | 7064 | 669 | 1443 | 1015 | 1014.00 | 112.89 |
| Paper | 08 | 7087 | 600 | 1649 | 1023 | 1016.17 | 112.61 |
| Paper | 09 | 7087 | 636 | 1522 | 1015 | 1015.13 | 113.86 |
| Paper | 10 | 7037 | 636 | 1522 | 1015 | 1013.25 | 111.53 |
| Paper | 11 | 7005 | 669 | 1522 | 1023 | 1016.09 | 113.10 |
| Paper | 12 | 7029 | 600 | 1522 | 1023 | 1015.77 | 113.84 |
| CBT | 00 | 31720 | 636 | 1649 | 999 | 1001.50 | 114.78 |
| CBT | 01 | 13125 | 636 | 1522 | 974 | 978.39 | 118.36 |
| CBT | 02 | 9307 | 669 | 1522 | 1015 | 1016.72 | 108.38 |
| CBT | 03 | 9288 | 669 | 1649 | 1023 | 1018.90 | 110.16 |

ELA Grade 6 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------------|-------------|----------|------------|------------|---------------|-------------|------------|
| All | 00 | 115785 | 600 | 1643 | 1022 | 1018.97 | 105.42 |
| All | 01 | 21137 | 683 | 1643 | 998 | 1001.06 | 107.36 |
| All | 02 | 17134 | 683 | 1643 | 1014 | 1018.98 | 103.92 |
| All | 03 | 17143 | 609 | 1643 | 1022 | 1022.00 | 104.94 |
| All | 04 | 6710 | 652 | 1515 | 1031 | 1025.07 | 105.40 |
| All | 05 | 6689 | 708 | 1643 | 1022 | 1025.52 | 104.06 |
| All | 06 | 6701 | 652 | 1643 | 1022 | 1025.22 | 104.57 |
| All | 07 | 6698 | 683 | 1515 | 1022 | 1026.03 | 102.93 |
| All | 08 | 6684 | 683 | 1643 | 1022 | 1025.07 | 106.14 |
| All | 09 | 6727 | 708 | 1515 | 1022 | 1025.00 | 104.40 |
| All | 10 | 6731 | 600 | 1515 | 1022 | 1023.00 | 103.17 |
| All | 11 | 6744 | 600 | 1515 | 1022 | 1023.19 | 105.00 |
| All | 12 | 6687 | 652 | 1435 | 1022 | 1021.26 | 105.56 |
| Paper | 00 | 80589 | 600 | 1643 | 1022 | 1024.16 | 105.22 |
| Paper | 01 | 6760 | 683 | 1643 | 1022 | 1024.51 | 107.19 |
| Paper | 02 | 6727 | 683 | 1643 | 1022 | 1021.20 | 107.00 |
| Paper | 03 | 6731 | 609 | 1515 | 1022 | 1024.81 | 106.98 |
| Paper | 04 | 6710 | 652 | 1515 | 1031 | 1025.07 | 105.40 |
| Paper | 05 | 6689 | 708 | 1643 | 1022 | 1025.52 | 104.06 |
| Paper | 06 | 6701 | 652 | 1643 | 1022 | 1025.22 | 104.57 |
| Paper | 07 | 6698 | 683 | 1515 | 1022 | 1026.03 | 102.93 |
| Paper | 08 | 6684 | 683 | 1643 | 1022 | 1025.07 | 106.14 |
| Paper | 09 | 6727 | 708 | 1515 | 1022 | 1025.00 | 104.40 |
| Paper | 10 | 6731 | 600 | 1515 | 1022 | 1023.00 | 103.17 |
| Paper | 11 | 6744 | 600 | 1515 | 1022 | 1023.19 | 105.00 |
| Paper | 12 | 6687 | 652 | 1435 | 1022 | 1021.26 | 105.56 |
| CBT | 00 | 35196 | 683 | 1643 | 1006 | 1007.08 | 104.90 |
| CBT | 01 | 14377 | 683 | 1435 | 982 | 990.03 | 105.66 |
| CBT | 02 | 10407 | 683 | 1515 | 1014 | 1017.54 | 101.86 |
| CBT | 03 | 10412 | 708 | 1643 | 1022 | 1020.18 | 103.57 |

ELA Grade 7 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------------|-------------|----------|------------|------------|---------------|-------------|------------|
| All | 00 | 118352 | 652 | 1648 | 1016 | 1019.77 | 115.83 |
| All | 01 | 21805 | 708 | 1648 | 1000 | 1000.46 | 116.05 |
| All | 02 | 18105 | 708 | 1648 | 1016 | 1018.67 | 113.67 |
| All | 03 | 18211 | 652 | 1648 | 1016 | 1016.64 | 115.61 |
| All | 04 | 6666 | 652 | 1648 | 1024 | 1027.66 | 115.22 |
| All | 05 | 6673 | 683 | 1648 | 1032 | 1029.04 | 116.66 |
| All | 06 | 6663 | 708 | 1648 | 1024 | 1028.68 | 114.00 |
| All | 07 | 6717 | 708 | 1648 | 1024 | 1028.15 | 115.97 |
| All | 08 | 6693 | 683 | 1519 | 1024 | 1025.86 | 114.24 |
| All | 09 | 6737 | 683 | 1648 | 1024 | 1027.21 | 115.41 |
| All | 10 | 6695 | 683 | 1648 | 1032 | 1029.18 | 116.22 |
| All | 11 | 6680 | 652 | 1648 | 1024 | 1026.72 | 117.08 |
| All | 12 | 6707 | 652 | 1519 | 1032 | 1029.91 | 115.20 |
| Paper | 00 | 80424 | 652 | 1648 | 1024 | 1027.55 | 115.58 |
| Paper | 01 | 6809 | 729 | 1648 | 1024 | 1024.89 | 113.87 |
| Paper | 02 | 6679 | 729 | 1648 | 1024 | 1028.23 | 114.75 |
| Paper | 03 | 6705 | 652 | 1519 | 1024 | 1025.20 | 118.10 |
| Paper | 04 | 6666 | 652 | 1648 | 1024 | 1027.66 | 115.22 |
| Paper | 05 | 6673 | 683 | 1648 | 1032 | 1029.04 | 116.66 |
| Paper | 06 | 6663 | 708 | 1648 | 1024 | 1028.68 | 114.00 |
| Paper | 07 | 6717 | 708 | 1648 | 1024 | 1028.15 | 115.97 |
| Paper | 08 | 6693 | 683 | 1519 | 1024 | 1025.86 | 114.24 |
| Paper | 09 | 6737 | 683 | 1648 | 1024 | 1027.21 | 115.41 |
| Paper | 10 | 6695 | 683 | 1648 | 1032 | 1029.18 | 116.22 |
| Paper | 11 | 6680 | 652 | 1648 | 1024 | 1026.72 | 117.08 |
| Paper | 12 | 6707 | 652 | 1519 | 1032 | 1029.91 | 115.20 |
| CBT | 00 | 37928 | 708 | 1648 | 1000 | 1003.28 | 114.63 |
| CBT | 01 | 14996 | 708 | 1648 | 984 | 989.37 | 115.33 |
| CBT | 02 | 11426 | 708 | 1648 | 1008 | 1013.09 | 112.66 |
| CBT | 03 | 11506 | 708 | 1648 | 1008 | 1011.66 | 113.84 |

ELA Grade 8 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------------|-------------|----------|------------|------------|---------------|-------------|------------|
| All | 00 | 119366 | 600 | 1621 | 1016 | 1013.50 | 115.01 |
| All | 01 | 21850 | 659 | 1621 | 993 | 994.82 | 116.95 |
| All | 02 | 18468 | 690 | 1621 | 1016 | 1013.89 | 113.43 |
| All | 03 | 18337 | 600 | 1621 | 1016 | 1014.18 | 111.95 |
| All | 04 | 6736 | 690 | 1621 | 1016 | 1020.42 | 114.82 |
| All | 05 | 6697 | 659 | 1621 | 1016 | 1019.79 | 113.55 |
| All | 06 | 6733 | 690 | 1621 | 1016 | 1018.40 | 113.11 |
| All | 07 | 6776 | 616 | 1621 | 1016 | 1018.73 | 116.69 |
| All | 08 | 6739 | 690 | 1621 | 1016 | 1021.46 | 116.79 |
| All | 09 | 6805 | 659 | 1621 | 1016 | 1018.26 | 115.29 |
| All | 10 | 6777 | 659 | 1621 | 1016 | 1020.49 | 115.42 |
| All | 11 | 6743 | 690 | 1621 | 1024 | 1021.24 | 113.81 |
| All | 12 | 6705 | 690 | 1621 | 1024 | 1020.37 | 115.09 |
| Paper | 00 | 81071 | 600 | 1621 | 1016 | 1020.35 | 115.03 |
| Paper | 01 | 6849 | 690 | 1621 | 1024 | 1021.97 | 117.16 |
| Paper | 02 | 6782 | 714 | 1621 | 1024 | 1021.51 | 114.33 |
| Paper | 03 | 6729 | 600 | 1621 | 1024 | 1021.52 | 114.04 |
| Paper | 04 | 6736 | 690 | 1621 | 1016 | 1020.42 | 114.82 |
| Paper | 05 | 6697 | 659 | 1621 | 1016 | 1019.79 | 113.55 |
| Paper | 06 | 6733 | 690 | 1621 | 1016 | 1018.40 | 113.11 |
| Paper | 07 | 6776 | 616 | 1621 | 1016 | 1018.73 | 116.69 |
| Paper | 08 | 6739 | 690 | 1621 | 1016 | 1021.46 | 116.79 |
| Paper | 09 | 6805 | 659 | 1621 | 1016 | 1018.26 | 115.29 |
| Paper | 10 | 6777 | 659 | 1621 | 1016 | 1020.49 | 115.42 |
| Paper | 11 | 6743 | 690 | 1621 | 1024 | 1021.24 | 113.81 |
| Paper | 12 | 6705 | 690 | 1621 | 1024 | 1020.37 | 115.09 |
| CBT | 00 | 38295 | 659 | 1621 | 1000 | 999.02 | 113.62 |
| CBT | 01 | 15001 | 659 | 1621 | 978 | 982.43 | 114.74 |
| CBT | 02 | 11686 | 690 | 1621 | 1008 | 1009.47 | 112.67 |
| CBT | 03 | 11608 | 690 | 1493 | 1008 | 1009.92 | 110.50 |

Science Grade 4 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|------|------|--------|---------|--------|
| All | 00 | 114497 | 1050 | 2318 | 1420 | 1412.60 | 186.87 |
| All | 01 | 20472 | 1050 | 2318 | 1371 | 1385.01 | 188.05 |
| All | 02 | 15307 | 1050 | 2100 | 1437 | 1431.10 | 183.81 |
| All | 03 | 15347 | 1050 | 2318 | 1437 | 1429.13 | 186.96 |
| All | 04 | 7094 | 1050 | 2100 | 1420 | 1413.64 | 184.70 |
| All | 05 | 7094 | 1050 | 2318 | 1404 | 1413.56 | 188.26 |
| All | 06 | 7025 | 1050 | 2318 | 1420 | 1412.95 | 187.24 |
| All | 07 | 7065 | 1050 | 2100 | 1420 | 1414.80 | 184.65 |
| All | 08 | 7063 | 1050 | 2100 | 1420 | 1412.35 | 186.52 |
| All | 09 | 7039 | 1050 | 2100 | 1404 | 1411.81 | 188.05 |
| All | 10 | 6975 | 1050 | 2100 | 1420 | 1409.59 | 186.50 |
| All | 11 | 7015 | 1050 | 2318 | 1420 | 1413.09 | 184.48 |
| All | 12 | 7001 | 1050 | 2100 | 1420 | 1415.50 | 184.74 |
| Paper | 00 | 84943 | 1050 | 2318 | 1404 | 1410.80 | 186.83 |
| Paper | 01 | 7546 | 1050 | 2100 | 1387 | 1394.09 | 188.43 |
| Paper | 02 | 7000 | 1050 | 2100 | 1404 | 1408.44 | 187.04 |
| Paper | 03 | 7026 | 1050 | 2318 | 1404 | 1410.91 | 190.16 |
| Paper | 04 | 7094 | 1050 | 2100 | 1420 | 1413.64 | 184.70 |
| Paper | 05 | 7094 | 1050 | 2318 | 1404 | 1413.56 | 188.26 |
| Paper | 06 | 7025 | 1050 | 2318 | 1420 | 1412.95 | 187.24 |
| Paper | 07 | 7065 | 1050 | 2100 | 1420 | 1414.80 | 184.65 |
| Paper | 08 | 7063 | 1050 | 2100 | 1420 | 1412.35 | 186.52 |
| Paper | 09 | 7039 | 1050 | 2100 | 1404 | 1411.81 | 188.05 |
| Paper | 10 | 6975 | 1050 | 2100 | 1420 | 1409.59 | 186.50 |
| Paper | 11 | 7015 | 1050 | 2318 | 1420 | 1413.09 | 184.48 |
| Paper | 12 | 7001 | 1050 | 2100 | 1420 | 1415.50 | 184.74 |
| CBT | 00 | 29554 | 1050 | 2318 | 1420 | 1417.77 | 186.88 |
| CBT | 01 | 12926 | 1050 | 2318 | 1371 | 1379.71 | 187.62 |
| CBT | 02 | 8307 | 1050 | 2100 | 1454 | 1450.20 | 178.82 |
| CBT | 03 | 8321 | 1050 | 2318 | 1454 | 1444.52 | 182.80 |

Science Grade 8 Scaled Score Summary Statistics

| Mode | Form | N | Min | Max | Median | Mean | STD |
|-------|------|--------|-----|------|--------|---------|--------|
| All | 00 | 118412 | 925 | 2294 | 1286 | 1289.05 | 205.85 |
| All | 01 | 22854 | 925 | 2294 | 1250 | 1261.59 | 206.13 |
| All | 02 | 18117 | 925 | 2294 | 1286 | 1295.86 | 204.61 |
| All | 03 | 18154 | 925 | 2294 | 1286 | 1292.30 | 204.87 |
| All | 04 | 6565 | 925 | 2058 | 1304 | 1298.07 | 202.04 |
| All | 05 | 6581 | 925 | 2294 | 1286 | 1296.61 | 204.12 |
| All | 06 | 6573 | 925 | 2294 | 1286 | 1297.98 | 205.49 |
| All | 07 | 6619 | 925 | 2294 | 1286 | 1297.06 | 207.91 |
| All | 08 | 6619 | 925 | 2294 | 1286 | 1295.03 | 205.91 |
| All | 09 | 6615 | 925 | 2294 | 1286 | 1296.17 | 207.38 |
| All | 10 | 6586 | 925 | 2058 | 1286 | 1295.84 | 204.29 |
| All | 11 | 6598 | 925 | 2058 | 1286 | 1296.21 | 207.18 |
| All | 12 | 6531 | 925 | 2294 | 1304 | 1296.12 | 205.33 |
| Paper | 00 | 79645 | 925 | 2294 | 1286 | 1294.91 | 205.76 |
| Paper | 01 | 7231 | 925 | 2294 | 1268 | 1282.63 | 207.59 |
| Paper | 02 | 6596 | 925 | 2294 | 1286 | 1294.60 | 206.29 |
| Paper | 03 | 6531 | 925 | 2058 | 1286 | 1293.79 | 204.74 |
| Paper | 04 | 6565 | 925 | 2058 | 1304 | 1298.07 | 202.04 |
| Paper | 05 | 6581 | 925 | 2294 | 1286 | 1296.61 | 204.12 |
| Paper | 06 | 6573 | 925 | 2294 | 1286 | 1297.98 | 205.49 |
| Paper | 07 | 6619 | 925 | 2294 | 1286 | 1297.06 | 207.91 |
| Paper | 08 | 6619 | 925 | 2294 | 1286 | 1295.03 | 205.91 |
| Paper | 09 | 6615 | 925 | 2294 | 1286 | 1296.17 | 207.38 |
| Paper | 10 | 6586 | 925 | 2058 | 1286 | 1295.84 | 204.29 |
| Paper | 11 | 6598 | 925 | 2058 | 1286 | 1296.21 | 207.18 |
| Paper | 12 | 6531 | 925 | 2294 | 1304 | 1296.12 | 205.33 |
| CBT | 00 | 38767 | 925 | 2294 | 1268 | 1277.02 | 205.52 |
| CBT | 01 | 15623 | 925 | 2294 | 1232 | 1251.85 | 204.72 |
| CBT | 02 | 11521 | 925 | 2294 | 1286 | 1296.59 | 203.63 |
| CBT | 03 | 11623 | 925 | 2294 | 1286 | 1291.46 | 204.94 |

APPENDIX I: DEMOGRAPHIC CHARACTERISTICS OF STUDENTS

Demographic Characteristics of Students Taking the 2022 PSSA: English Language Arts

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Female (Number) | 43,085 | 13,015 | 56,100 | 42,427 | 13,802 | 56,229 | 41,755 | 15,408 | 57,163 | 39,470 | 17,025 | 56,495 | 39,324 | 18,503 | 57,827 | 39,100 | 18,456 | 57,556 |
| Female (Percent) | 49 | 49.3 | 49 | 49.2 | 48.9 | 49.1 | 49.4 | 48.6 | 49.2 | 49 | 48.4 | 48.8 | 48.9 | 48.8 | 48.9 | 48.2 | 48.2 | 48.2 |
| Male (Number) | 44,889 | 13,409 | 58,298 | 43,894 | 14,410 | 58,304 | 42,799 | 16,312 | 59,111 | 41,119 | 18,171 | 59,290 | 41,100 | 19,425 | 60,525 | 41,971 | 19,839 | 61,810 |
| Male (Percent) | 51 | 50.7 | 51 | 50.8 | 51.1 | 50.9 | 50.6 | 51.4 | 50.8 | 51 | 51.6 | 51.2 | 51.1 | 51.2 | 51.1 | 51.8 | 51.8 | 51.8 |
| American Indian/Alaskan Native (not Hispanic) (Number) | 129 | 44 | 173 | 114 | 63 | 177 | 122 | 70 | 192 | 101 | 64 | 165 | 126 | 62 | 188 | 116 | 65 | 181 |
| American Indian/Alaskan Native (not Hispanic) (Percent) | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Asian (not Hispanic) (Number) | 4,147 | 1,422 | 5,569 | 3,939 | 1,394 | 5,333 | 3,886 | 1,370 | 5,256 | 3,734 | 1,435 | 5,169 | 3,956 | 1,413 | 5,369 | 3,852 | 1,394 | 5,246 |
| Asian (not Hispanic) (Percent) | 4.7 | 5.4 | 4.9 | 4.6 | 4.9 | 4.7 | 4.6 | 4.3 | 4.5 | 4.6 | 4.1 | 4.5 | 4.9 | 3.7 | 4.5 | 4.8 | 3.6 | 4.4 |
| Black or African American (not Hispanic) (Number) | 12,723 | 3,669 | 16,392 | 12,511 | 3,711 | 16,222 | 12,646 | 4,137 | 16,783 | 11,740 | 4,660 | 16,400 | 11,910 | 4,865 | 16,775 | 11,843 | 5,092 | 16,935 |
| Black or African American (not Hispanic) (Percent) | 14.5 | 13.9 | 14.3 | 14.5 | 13.2 | 14.2 | 15 | 13 | 14.4 | 14.6 | 13.2 | 14.2 | 14.8 | 12.8 | 14.2 | 14.6 | 13.3 | 14.2 |
| Hispanic (any race) (Number) | 11,563 | 3,968 | 15,531 | 11,685 | 4,035 | 15,720 | 10,922 | 4,811 | 15,733 | 10,315 | 5,290 | 15,605 | 10,088 | 5,832 | 15,920 | 10,020 | 5,682 | 15,702 |
| Hispanic (any race) (Percent) | 13.1 | 15 | 13.6 | 13.5 | 14.3 | 13.7 | 12.9 | 15.2 | 13.5 | 12.8 | 15 | 13.5 | 12.5 | 15.4 | 13.5 | 12.4 | 14.8 | 13.2 |
| Multi-Racial (not Hispanic) (Number) | 4,568 | 1,624 | 6,192 | 4,194 | 1,592 | 5,786 | 4,237 | 1,630 | 5,867 | 4,001 | 1,714 | 5,715 | 3,672 | 1,834 | 5,506 | 3,630 | 1,673 | 5,303 |
| Multi-Racial (not Hispanic) (Percent) | 5.2 | 6.1 | 5.4 | 4.9 | 5.6 | 5.1 | 5 | 5.1 | 5 | 5 | 4.9 | 4.9 | 4.6 | 4.8 | 4.7 | 4.5 | 4.4 | 4.4 |
| White (not Hispanic) (Number) | 54,759 | 15,680 | 70,439 | 53,815 | 17,378 | 71,193 | 52,674 | 19,676 | 72,350 | 50,623 | 22,002 | 72,625 | 50,607 | 23,894 | 74,501 | 51,542 | 24,360 | 75,902 |
| White (not Hispanic) (Percent) | 62.2 | 59.3 | 61.6 | 62.3 | 61.6 | 62.2 | 62.3 | 62 | 62.2 | 62.8 | 62.5 | 62.7 | 62.9 | 63 | 62.9 | 63.6 | 63.6 | 63.6 |
| Native Hawaiian or Other Pacific Islander (not Hispanic) (Number) | 85 | 17 | 102 | 63 | 39 | 102 | 67 | 26 | 93 | 75 | 31 | 106 | 65 | 28 | 93 | 68 | 29 | 97 |
| Native Hawaiian or Other Pacific Islander (not Hispanic) (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| IEP (not gifted) (Number) | 15,240 | 5,038 | 20,278 | 15,651 | 5,499 | 21,150 | 15,455 | 6,280 | 21,735 | 14,186 | 7,125 | 21,311 | 13,811 | 7,512 | 21,323 | 13,926 | 7,513 | 21,439 |
| IEP (not gifted) (Percent) | 17.3 | 19.1 | 17.7 | 18.1 | 19.5 | 18.5 | 18.3 | 19.8 | 18.7 | 17.6 | 20.2 | 18.4 | 17.2 | 19.8 | 18 | 17.2 | 19.6 | 18 |

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Student exited IEP in last 2 years (Number) | 1,151 | 316 | 1,467 | 1,223 | 344 | 1,567 | 1,243 | 441 | 1,684 | 1,136 | 510 | 1,646 | 1,004 | 541 | 1,545 | 984 | 477 | 1,461 |
| Student exited IEP in last 2 years (Percent) | 1.3 | 1.2 | 1.3 | 1.4 | 1.2 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.2 | 1.4 | 1.3 | 1.2 | 1.2 | 1.2 |
| Title I (Number) | 49,562 | 15,127 | 64,689 | 49,152 | 15,086 | 64,238 | 44,806 | 15,347 | 60,153 | 33,847 | 13,936 | 47,783 | 28,118 | 12,601 | 40,719 | 26,697 | 12,481 | 39,178 |
| Title I (Percent) | 56.3 | 57.2 | 56.5 | 56.9 | 53.5 | 56.1 | 53 | 48.4 | 51.7 | 42 | 39.6 | 41.3 | 35 | 33.2 | 34.4 | 32.9 | 32.6 | 32.8 |
| Title III served (Number) | 4,432 | 1,347 | 5,779 | 4,386 | 1,320 | 5,706 | 3,884 | 1,296 | 5,180 | 3,328 | 1,214 | 4,542 | 3,144 | 1,181 | 4,325 | 3,235 | 1,131 | 4,366 |
| Title III served (Percent) | 5 | 5.1 | 5.1 | 5.1 | 4.7 | 5 | 4.6 | 4.1 | 4.5 | 4.1 | 3.4 | 3.9 | 3.9 | 3.1 | 3.7 | 4 | 3 | 3.7 |
| Title III not served (Number) | 10,827 | 2,542 | 13,369 | 10,508 | 2,853 | 13,361 | 10,673 | 3,284 | 13,957 | 10,082 | 3,848 | 13,930 | 9,646 | 4,677 | 14,323 | 9,783 | 4,757 | 14,540 |
| Title III not served (Percent) | 12.3 | 9.6 | 11.7 | 12.2 | 10.1 | 11.7 | 12.6 | 10.4 | 12 | 12.5 | 10.9 | 12 | 12 | 12.3 | 12.1 | 12.1 | 12.4 | 12.2 |
| Migrant student (Number) | 98 | 60 | 158 | 112 | 47 | 159 | 106 | 46 | 152 | 98 | 38 | 136 | 85 | 38 | 123 | 85 | 38 | 123 |
| Migrant student (Percent) | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| EL enrolled first year (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EL enrolled first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EL enrolled not first year (Number) | 4,702 | 1,474 | 6,176 | 4,653 | 1,437 | 6,090 | 4,075 | 1,392 | 5,467 | 3,478 | 1,320 | 4,798 | 3,283 | 1,273 | 4,556 | 3,337 | 1,215 | 4,552 |
| EL enrolled not first year (Percent) | 5.3 | 5.6 | 5.4 | 5.4 | 5.1 | 5.3 | 4.8 | 4.4 | 4.7 | 4.3 | 3.8 | 4.1 | 4.1 | 3.4 | 3.8 | 4.1 | 3.2 | 3.8 |
| Exited ESL/bilingual program and in first year of monitoring (Number) | 158 | 56 | 214 | 223 | 92 | 315 | 506 | 218 | 724 | 390 | 168 | 558 | 108 | 71 | 179 | 140 | 60 | 200 |
| Exited ESL/bilingual program and in first year of monitoring (Percent) | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.6 | 0.7 | 0.6 | 0.5 | 0.5 | 0.5 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Exited ESL/bilingual program and in 2nd year of monitoring (Number) | 74 | 32 | 106 | 215 | 82 | 297 | 325 | 122 | 447 | 714 | 339 | 1,053 | 550 | 291 | 841 | 154 | 91 | 245 |
| Exited ESL/bilingual program and in 2nd year of monitoring (Percent) | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.9 | 1 | 0.9 | 0.7 | 0.8 | 0.7 | 0.2 | 0.2 | 0.2 |
| Former EL no longer monitored (Number) | 9 | 3 | 12 | 9 | 5 | 14 | 35 | 28 | 63 | 125 | 118 | 243 | 320 | 266 | 586 | 727 | 416 | 1,143 |
| Former EL no longer monitored (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 | 0.4 | 0.7 | 0.5 | 0.9 | 1.1 | 1 |
| LIFE first year (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIFE first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIFE not first year (Number) | 8 | 8 | 16 | 6 | 10 | 16 | 21 | 17 | 38 | 17 | 13 | 30 | 18 | 17 | 35 | 34 | 23 | 57 |
| LIFE not first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 |

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Former EL exited and in 3rd year of monitoring (Number) | 73 | 33 | 106 | 103 | 63 | 166 | 170 | 76 | 246 | 311 | 159 | 470 | 604 | 258 | 862 | 526 | 245 | 771 |
| Former EL exited and in 3rd year of monitoring (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.4 | 0.5 | 0.4 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 |
| Former EL exited and in 4th year of monitoring (Number) | 9 | 4 | 13 | 47 | 37 | 84 | 93 | 68 | 161 | 148 | 75 | 223 | 282 | 166 | 448 | 479 | 217 | 696 |
| Former EL exited and in 4th year of monitoring (Percent) | 0 | 0 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.4 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 |
| Economically disadvantaged (Number) | 42,718 | 12,125 | 54,843 | 42,087 | 12,389 | 54,476 | 40,493 | 13,901 | 54,394 | 37,733 | 15,763 | 53,496 | 37,130 | 17,026 | 54,156 | 36,321 | 16,738 | 53,059 |
| Economically disadvantaged (Percent) | 48.6 | 45.9 | 47.9 | 48.8 | 43.9 | 47.6 | 47.9 | 43.8 | 46.8 | 46.8 | 44.8 | 46.2 | 46.2 | 44.9 | 45.8 | 44.8 | 43.7 | 44.5 |
| Historically Underperforming Subgroup (Number) | 50,011 | 14,669 | 64,680 | 49,361 | 15,183 | 64,544 | 47,406 | 16,879 | 64,285 | 43,994 | 19,022 | 63,016 | 43,253 | 20,388 | 63,641 | 42,631 | 20,053 | 62,684 |
| Historically Underperforming Subgroup (Percent) | 56.8 | 55.5 | 56.5 | 57.2 | 53.8 | 56.4 | 56.1 | 53.2 | 55.3 | 54.6 | 54 | 54.4 | 53.8 | 53.8 | 53.8 | 52.6 | 52.4 | 52.5 |
| Enrollment in school of residence after Oct 1 (Number) | 1,771 | 607 | 2,378 | 1,655 | 603 | 2,258 | 1,538 | 636 | 2,174 | 1,449 | 747 | 2,196 | 1,647 | 859 | 2,506 | 1,569 | 852 | 2,421 |
| Enrollment in school of residence after Oct 1 (Percent) | 2 | 2.3 | 2.1 | 1.9 | 2.1 | 2 | 1.8 | 2 | 1.9 | 1.8 | 2.1 | 1.9 | 2 | 2.3 | 2.1 | 1.9 | 2.2 | 2 |
| Enrollment in district of residence after Oct 1 (Number) | 1,113 | 419 | 1,532 | 1,016 | 428 | 1,444 | 1,002 | 458 | 1,460 | 958 | 526 | 1,484 | 1,101 | 636 | 1,737 | 1,027 | 599 | 1,626 |
| Enrollment in district of residence after Oct 1 (Percent) | 1.3 | 1.6 | 1.3 | 1.2 | 1.5 | 1.3 | 1.2 | 1.4 | 1.3 | 1.2 | 1.5 | 1.3 | 1.4 | 1.7 | 1.5 | 1.3 | 1.6 | 1.4 |
| Enrollment as PA resident after Oct 1 (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enrollment as PA resident after Oct 1 (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enrollment in school of residence after previous Oct 1 but on/before current Oct 1 (Number) | 22,914 | 5,649 | 28,563 | 22,039 | 5,426 | 27,465 | 24,779 | 8,617 | 33,396 | 33,790 | 12,755 | 46,545 | 24,567 | 11,760 | 36,327 | 16,196 | 4,556 | 20,752 |
| Enrollment in school of residence after previous Oct 1 but on/before current Oct 1 (Percent) | 26 | 21.4 | 25 | 25.5 | 19.2 | 24 | 29.3 | 27.2 | 28.7 | 41.9 | 36.2 | 40.2 | 30.5 | 31 | 30.7 | 20 | 11.9 | 17.4 |

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|
| Enrollment in district of residence after previous Oct 1 but on/before current Oct 1 (Number) | 8,588 | 3,168 | 11,756 | 7,856 | 3,010 | 10,866 | 7,349 | 3,204 | 10,553 | 7,668 | 3,489 | 11,157 | 6,623 | 3,466 | 10,089 | 5,913 | 2,882 | 8,795 |
| Enrollment in district of residence after previous Oct 1 but on/before current Oct 1 (Percent) | 9.8 | 12 | 10.3 | 9.1 | 10.7 | 9.5 | 8.7 | 10.1 | 9.1 | 9.5 | 9.9 | 9.6 | 8.2 | 9.1 | 8.5 | 7.3 | 7.5 | 7.4 |
| Court/agency placed (Number) | 18 | 0 | 18 | 14 | 0 | 14 | 11 | 0 | 11 | 15 | 8 | 23 | 48 | 13 | 61 | 90 | 18 | 108 |
| Court/agency placed (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 |
| Military family (Number) | 536 | 140 | 676 | 493 | 155 | 648 | 495 | 138 | 633 | 435 | 142 | 577 | 442 | 183 | 625 | 515 | 162 | 677 |
| Military family (Percent) | 0.6 | 0.5 | 0.6 | 0.6 | 0.5 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.4 | 0.6 |
| Homeless (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Homeless (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Foster (Number) | 471 | 133 | 604 | 349 | 128 | 477 | 377 | 109 | 486 | 347 | 128 | 475 | 324 | 167 | 491 | 341 | 147 | 488 |
| Foster (Percent) | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Students with scores used in state summaries (Number) | 87,974 | 26,424 | 114,398 | 86,321 | 28,212 | 114,533 | 84,554 | 31,720 | 116,274 | 80,589 | 35,196 | 115,785 | 80,424 | 37,928 | 118,352 | 81,071 | 38,295 | 119,366 |

Demographic Characteristics of Students Taking the 2022 PSSA: Mathematics

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|
| Female (Number) | 43,132 | 13,123 | 56,255 | 42,425 | 13,942 | 56,367 | 41,778 | 15,505 | 57,283 | 39,629 | 16,844 | 56,473 | 39,750 | 18,055 | 57,805 | 39,391 | 17,966 | 57,357 |
| Female (Percent) | 49 | 49.3 | 49 | 49.1 | 49 | 49.1 | 49.4 | 48.6 | 49.2 | 48.9 | 48.3 | 48.7 | 48.9 | 48.7 | 48.8 | 48.2 | 48.2 | 48.2 |
| Male (Number) | 44,960 | 13,499 | 58,459 | 43,927 | 14,528 | 58,455 | 42,816 | 16,390 | 59,206 | 41,345 | 18,026 | 59,371 | 41,519 | 19,033 | 60,552 | 42,350 | 19,332 | 61,682 |
| Male (Percent) | 51 | 50.7 | 51 | 50.9 | 51 | 50.9 | 50.6 | 51.4 | 50.8 | 51.1 | 51.7 | 51.3 | 51.1 | 51.3 | 51.2 | 51.8 | 51.8 | 51.8 |
| American Indian/Alaskan Native (not Hispanic) (Number) | 130 | 44 | 174 | 114 | 64 | 178 | 121 | 73 | 194 | 106 | 63 | 169 | 129 | 62 | 191 | 121 | 61 | 182 |
| American Indian/Alaskan Native (not Hispanic) (Percent) | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Asian (not Hispanic) (Number) | 4,160 | 1,436 | 5,596 | 3,926 | 1,433 | 5,359 | 3,887 | 1,387 | 5,274 | 3,754 | 1,429 | 5,183 | 3,965 | 1,402 | 5,367 | 3,840 | 1,381 | 5,221 |
| Asian (not Hispanic) (Percent) | 4.7 | 5.4 | 4.9 | 4.5 | 5 | 4.7 | 4.6 | 4.3 | 4.5 | 4.6 | 4.1 | 4.5 | 4.9 | 3.8 | 4.5 | 4.7 | 3.7 | 4.4 |
| Black or African American (not Hispanic) (Number) | 12,698 | 3,734 | 16,432 | 12,448 | 3,799 | 16,247 | 12,621 | 4,202 | 16,823 | 11,751 | 4,644 | 16,395 | 11,935 | 4,853 | 16,788 | 11,747 | 5,075 | 16,822 |
| Black or African American (not Hispanic) (Percent) | 14.4 | 14 | 14.3 | 14.4 | 13.3 | 14.1 | 14.9 | 13.2 | 14.4 | 14.5 | 13.3 | 14.2 | 14.7 | 13.1 | 14.2 | 14.4 | 13.6 | 14.1 |
| Hispanic (any race) (Number) | 11,721 | 4,005 | 15,726 | 11,840 | 4,048 | 15,888 | 11,046 | 4,844 | 15,890 | 10,573 | 5,151 | 15,724 | 10,514 | 5,540 | 16,054 | 10,426 | 5,377 | 15,803 |
| Hispanic (any race) (Percent) | 13.3 | 15 | 13.7 | 13.7 | 14.2 | 13.8 | 13.1 | 15.2 | 13.6 | 13.1 | 14.8 | 13.6 | 12.9 | 14.9 | 13.6 | 12.8 | 14.4 | 13.3 |
| Multi-Racial (not Hispanic) (Number) | 4,534 | 1,658 | 6,192 | 4,177 | 1,618 | 5,795 | 4,198 | 1,650 | 5,848 | 3,997 | 1,701 | 5,698 | 3,690 | 1,799 | 5,489 | 3,649 | 1,628 | 5,277 |
| Multi-Racial (not Hispanic) (Percent) | 5.1 | 6.2 | 5.4 | 4.8 | 5.7 | 5 | 5 | 5.2 | 5 | 4.9 | 4.9 | 4.9 | 4.5 | 4.9 | 4.6 | 4.5 | 4.4 | 4.4 |
| White (not Hispanic) (Number) | 54,764 | 15,728 | 70,492 | 53,785 | 17,469 | 71,254 | 52,654 | 19,715 | 72,369 | 50,717 | 21,853 | 72,570 | 50,973 | 23,403 | 74,376 | 51,889 | 23,747 | 75,636 |
| White (not Hispanic) (Percent) | 62.2 | 59.1 | 61.5 | 62.3 | 61.4 | 62.1 | 62.2 | 61.8 | 62.1 | 62.6 | 62.7 | 62.6 | 62.7 | 63.1 | 62.8 | 63.5 | 63.7 | 63.5 |
| Native Hawaiian or Other Pacific Islander (not Hispanic) (Number) | 85 | 17 | 102 | 62 | 39 | 101 | 67 | 24 | 91 | 76 | 29 | 105 | 63 | 29 | 92 | 69 | 29 | 98 |
| Native Hawaiian or Other Pacific Islander (not Hispanic) (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| IEP (not gifted) (Number) | 15,217 | 5,092 | 20,309 | 15,602 | 5,586 | 21,188 | 15,382 | 6,352 | 21,734 | 14,181 | 7,080 | 21,261 | 13,865 | 7,427 | 21,292 | 13,974 | 7,339 | 21,313 |
| IEP (not gifted) (Percent) | 17.3 | 19.1 | 17.7 | 18.1 | 19.6 | 18.5 | 18.2 | 19.9 | 18.7 | 17.5 | 20.3 | 18.4 | 17.1 | 20 | 18 | 17.1 | 19.7 | 17.9 |
| Student exited IEP in last 2 years (Number) | 1,149 | 321 | 1,470 | 1,224 | 346 | 1,570 | 1,239 | 444 | 1,683 | 1,133 | 508 | 1,641 | 1,004 | 534 | 1,538 | 985 | 468 | 1,453 |
| Student exited IEP in last 2 years (Percent) | 1.3 | 1.2 | 1.3 | 1.4 | 1.2 | 1.4 | 1.5 | 1.4 | 1.4 | 1.4 | 1.5 | 1.4 | 1.2 | 1.4 | 1.3 | 1.2 | 1.3 | 1.2 |

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Title I (Number) | 49,601 | 15,335 | 64,936 | 49,188 | 15,275 | 64,463 | 44,761 | 15,546 | 60,307 | 34,136 | 13,727 | 47,863 | 28,244 | 12,543 | 40,787 | 26,697 | 12,421 | 39,118 |
| Title I (Percent) | 56.3 | 57.6 | 56.6 | 57 | 53.7 | 56.1 | 52.9 | 48.7 | 51.8 | 42.2 | 39.4 | 41.3 | 34.8 | 33.8 | 34.5 | 32.7 | 33.3 | 32.9 |
| Title III served (Number) | 4,676 | 1,359 | 6,035 | 4,625 | 1,317 | 5,942 | 4,116 | 1,276 | 5,392 | 3,628 | 1,120 | 4,748 | 3,452 | 1,085 | 4,537 | 3,484 | 1,048 | 4,532 |
| Title III served (Percent) | 5.3 | 5.1 | 5.3 | 5.4 | 4.6 | 5.2 | 4.9 | 4 | 4.6 | 4.5 | 3.2 | 4.1 | 4.2 | 2.9 | 3.8 | 4.3 | 2.8 | 3.8 |
| Title III not served (Number) | 10,781 | 2,607 | 13,388 | 10,442 | 2,918 | 13,360 | 10,586 | 3,374 | 13,960 | 10,271 | 3,656 | 13,927 | 9,815 | 4,504 | 14,319 | 9,962 | 4,567 | 14,529 |
| Title III not served (Percent) | 12.2 | 9.8 | 11.7 | 12.1 | 10.2 | 11.6 | 12.5 | 10.6 | 12 | 12.7 | 10.5 | 12 | 12.1 | 12.1 | 12.1 | 12.2 | 12.2 | 12.2 |
| Migrant student (Number) | 109 | 60 | 169 | 120 | 44 | 164 | 111 | 48 | 159 | 121 | 31 | 152 | 113 | 20 | 133 | 97 | 30 | 127 |
| Migrant student (Percent) | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| EL enrolled first year (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EL enrolled first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EL enrolled not first year (Number) | 4,953 | 1,481 | 6,434 | 4,895 | 1,426 | 6,321 | 4,314 | 1,364 | 5,678 | 3,788 | 1,218 | 5,006 | 3,609 | 1,160 | 4,769 | 3,608 | 1,112 | 4,720 |
| EL enrolled not first year (Percent) | 5.6 | 5.6 | 5.6 | 5.7 | 5 | 5.5 | 5.1 | 4.3 | 4.9 | 4.7 | 3.5 | 4.3 | 4.4 | 3.1 | 4 | 4.4 | 3 | 4 |
| Exited ESL/bilingual program and in first year of monitoring (Number) | 157 | 56 | 213 | 222 | 93 | 315 | 503 | 221 | 724 | 391 | 162 | 553 | 110 | 71 | 181 | 138 | 63 | 201 |
| Exited ESL/bilingual program and in first year of monitoring (Percent) | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.6 | 0.7 | 0.6 | 0.5 | 0.5 | 0.5 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Exited ESL/bilingual program and in 2nd year of monitoring (Number) | 73 | 33 | 106 | 216 | 82 | 298 | 323 | 122 | 445 | 716 | 336 | 1,052 | 562 | 280 | 842 | 155 | 89 | 244 |
| Exited ESL/bilingual program and in 2nd year of monitoring (Percent) | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.9 | 1 | 0.9 | 0.7 | 0.8 | 0.7 | 0.2 | 0.2 | 0.2 |
| Former EL no longer monitored (Number) | 8 | 3 | 11 | 9 | 5 | 14 | 32 | 30 | 62 | 127 | 116 | 243 | 321 | 263 | 584 | 727 | 409 | 1,136 |
| Former EL no longer monitored (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 | 0.4 | 0.7 | 0.5 | 0.9 | 1.1 | 1 |
| LIFE first year (Number) | 2 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIFE first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| LIFE not first year (Number) | 9 | 8 | 17 | 10 | 9 | 19 | 22 | 18 | 40 | 21 | 12 | 33 | 28 | 13 | 41 | 41 | 19 | 60 |
| LIFE not first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.1 | 0.1 |
| Former EL exited and in 3rd year of monitoring (Number) | 72 | 34 | 106 | 103 | 63 | 166 | 168 | 77 | 245 | 313 | 156 | 469 | 609 | 250 | 859 | 534 | 234 | 768 |
| Former EL exited and in 3rd year of monitoring (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.4 | 0.4 | 0.4 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.6 |

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Former EL exited and in 4th year of monitoring (Number) | 7 | 6 | 13 | 47 | 38 | 85 | 94 | 68 | 162 | 148 | 75 | 223 | 282 | 164 | 446 | 477 | 214 | 691 |
| Former EL exited and in 4th year of monitoring (Percent) | 0 | 0 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.6 | 0.6 | 0.6 |
| Economically disadvantaged (Number) | 42,682 | 12,309 | 54,991 | 41,981 | 12,602 | 54,583 | 40,375 | 14,047 | 54,422 | 37,954 | 15,512 | 53,466 | 37,550 | 16,561 | 54,111 | 36,603 | 16,252 | 52,855 |
| Economically disadvantaged (Percent) | 48.5 | 46.2 | 47.9 | 48.6 | 44.3 | 47.5 | 47.7 | 44 | 46.7 | 46.9 | 44.5 | 46.2 | 46.2 | 44.7 | 45.7 | 44.8 | 43.6 | 44.4 |
| Historically Underperforming Subgroup (Number) | 50,126 | 14,858 | 64,984 | 49,430 | 15,406 | 64,836 | 47,424 | 17,028 | 64,452 | 44,372 | 18,742 | 63,114 | 43,848 | 19,865 | 63,713 | 43,090 | 19,456 | 62,546 |
| Historically Underperforming Subgroup (Percent) | 56.9 | 55.8 | 56.6 | 57.2 | 54.1 | 56.5 | 56.1 | 53.4 | 55.3 | 54.8 | 53.7 | 54.5 | 54 | 53.6 | 53.8 | 52.7 | 52.2 | 52.5 |
| Enrollment in school of residence after Oct 1 (Number) | 1,771 | 634 | 2,405 | 1,652 | 632 | 2,284 | 1,546 | 658 | 2,204 | 1,467 | 741 | 2,208 | 1,674 | 841 | 2,515 | 1,568 | 842 | 2,410 |
| Enrollment in school of residence after Oct 1 (Percent) | 2 | 2.4 | 2.1 | 1.9 | 2.2 | 2 | 1.8 | 2.1 | 1.9 | 1.8 | 2.1 | 1.9 | 2.1 | 2.3 | 2.1 | 1.9 | 2.3 | 2 |
| Enrollment in district of residence after Oct 1 (Number) | 1,119 | 425 | 1,544 | 1,029 | 440 | 1,469 | 1,010 | 464 | 1,474 | 977 | 522 | 1,499 | 1,122 | 621 | 1,743 | 1,036 | 585 | 1,621 |
| Enrollment in district of residence after Oct 1 (Percent) | 1.3 | 1.6 | 1.3 | 1.2 | 1.5 | 1.3 | 1.2 | 1.5 | 1.3 | 1.2 | 1.5 | 1.3 | 1.4 | 1.7 | 1.5 | 1.3 | 1.6 | 1.4 |
| Enrollment as PA resident after Oct 1 (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enrollment as PA resident after Oct 1 (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enrollment in school of residence after previous Oct 1 but on/before current Oct 1 (Number) | 22,996 | 5,817 | 28,813 | 22,052 | 5,633 | 27,685 | 24,850 | 8,769 | 33,619 | 34,111 | 12,593 | 46,704 | 25,063 | 11,418 | 36,481 | 16,365 | 4,439 | 20,804 |
| Enrollment in school of residence after previous Oct 1 but on/before current Oct 1 (Percent) | 26.1 | 21.9 | 25.1 | 25.5 | 19.8 | 24.1 | 29.4 | 27.5 | 28.9 | 42.1 | 36.1 | 40.3 | 30.8 | 30.8 | 30.8 | 20 | 11.9 | 17.5 |
| Enrollment in district of residence after previous Oct 1 but on/before current Oct 1 (Number) | 8,837 | 3,173 | 12,010 | 8,093 | 3,021 | 11,114 | 7,559 | 3,230 | 10,789 | 7,917 | 3,430 | 11,347 | 6,923 | 3,393 | 10,316 | 6,179 | 2,782 | 8,961 |

| Demographic or Educational Characteristic | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Enrollment in district of residence after previous Oct 1 but on/before current Oct 1 (Percent) | 10 | 11.9 | 10.5 | 9.4 | 10.6 | 9.7 | 8.9 | 10.1 | 9.3 | 9.8 | 9.8 | 9.8 | 8.5 | 9.1 | 8.7 | 7.6 | 7.5 | 7.5 |
| Court/agency placed (Number) | 13 | 0 | 13 | 9 | 0 | 9 | 11 | 0 | 11 | 12 | 8 | 20 | 53 | 13 | 66 | 88 | 20 | 108 |
| Court/agency placed (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0.1 | 0.1 | 0.1 | 0.1 |
| Military family (Number) | 547 | 139 | 686 | 498 | 157 | 655 | 495 | 140 | 635 | 435 | 144 | 579 | 440 | 191 | 631 | 509 | 169 | 678 |
| Military family (Percent) | 0.6 | 0.5 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.4 | 0.5 | 0.5 | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 | 0.6 |
| Homeless (Number) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Homeless (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Foster (Number) | 464 | 138 | 602 | 341 | 134 | 475 | 373 | 115 | 488 | 346 | 130 | 476 | 323 | 160 | 483 | 334 | 150 | 484 |
| Foster (Percent) | 0.5 | 0.5 | 0.5 | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Students with scores used in state summaries (Number) | 88,092 | 26,622 | 114,714 | 86,352 | 28,470 | 114,822 | 84,594 | 31,895 | 116,489 | 80,974 | 34,870 | 115,844 | 81,269 | 37,088 | 118,357 | 81,741 | 37,298 | 119,039 |

Demographic Characteristics of Students Taking the 2022 PSSA: Science

| Demographic or Educational Characteristic | Gr 4 PPT | Gr 4 CBT | Gr 4 Total | Gr 8 PPT | Gr 8 CBT | Gr 8 Total |
|--|-----------------|-----------------|-------------------|-----------------|-----------------|-------------------|
| Female (Number) | 41,738 | 14,456 | 56,194 | 38,346 | 18,657 | 57,003 |
| Female (Percent) | 49.1 | 48.9 | 49.1 | 48.1 | 48.1 | 48.1 |
| Male (Number) | 43,205 | 15,098 | 58,303 | 41,299 | 20,110 | 61,409 |
| Male (Percent) | 50.9 | 51.1 | 50.9 | 51.9 | 51.9 | 51.9 |
| American Indian/Alaskan Native (not Hispanic) (Number) | 113 | 65 | 178 | 114 | 69 | 183 |
| American Indian/Alaskan Native (not Hispanic) (Percent) | 0.1 | 0.2 | 0.2 | 0.1 | 0.2 | 0.2 |
| Asian (not Hispanic) (Number) | 3,905 | 1,456 | 5,361 | 3,714 | 1,508 | 5,222 |
| Asian (not Hispanic) (Percent) | 4.6 | 4.9 | 4.7 | 4.7 | 3.9 | 4.4 |
| Black or African American (not Hispanic) (Number) | 12,346 | 3,789 | 16,135 | 11,539 | 5,094 | 16,633 |
| Black or African American (not Hispanic) (Percent) | 14.5 | 12.8 | 14.1 | 14.5 | 13.1 | 14 |
| Hispanic (any race) (Number) | 11,626 | 4,202 | 15,828 | 10,086 | 5,586 | 15,672 |
| Hispanic (any race) (Percent) | 13.7 | 14.2 | 13.8 | 12.7 | 14.4 | 13.2 |
| Multi-Racial (not Hispanic) (Number) | 4,139 | 1,642 | 5,781 | 3,554 | 1,681 | 5,235 |
| Multi-Racial (not Hispanic) (Percent) | 4.9 | 5.6 | 5 | 4.5 | 4.3 | 4.4 |
| White (not Hispanic) (Number) | 52,752 | 18,361 | 71,113 | 50,571 | 24,799 | 75,370 |
| White (not Hispanic) (Percent) | 62.1 | 62.1 | 62.1 | 63.5 | 64 | 63.7 |
| Native Hawaiian or Other Pacific Islander (not Hispanic) (Number) | 62 | 39 | 101 | 67 | 30 | 97 |
| Native Hawaiian or Other Pacific Islander (not Hispanic) (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| IEP (not gifted) (Number) | 15,330 | 5,768 | 21,098 | 13,688 | 7,477 | 21,165 |
| IEP (not gifted) (Percent) | 18 | 19.5 | 18.4 | 17.2 | 19.3 | 17.9 |
| Student exited IEP in last 2 years (Number) | 1,192 | 371 | 1,563 | 967 | 477 | 1,444 |
| Student exited IEP in last 2 years (Percent) | 1.4 | 1.3 | 1.4 | 1.2 | 1.2 | 1.2 |
| Title I (Number) | 48,627 | 15,638 | 64,265 | 25,999 | 12,762 | 38,761 |
| Title I (Percent) | 57.2 | 52.9 | 56.1 | 32.6 | 32.9 | 32.7 |
| Title III served (Number) | 4,573 | 1,355 | 5,928 | 3,363 | 1,148 | 4,511 |
| Title III served (Percent) | 5.4 | 4.6 | 5.2 | 4.2 | 3 | 3.8 |
| Title III not served (Number) | 10,304 | 3,007 | 13,311 | 9,681 | 4,760 | 14,441 |
| Title III not served (Percent) | 12.1 | 10.2 | 11.6 | 12.2 | 12.3 | 12.2 |

| Demographic or Educational Characteristic | Gr 4 PPT | Gr 4 CBT | Gr 4 Total | Gr 8 PPT | Gr 8 CBT | Gr 8 Total |
|--|----------|----------|------------|----------|----------|------------|
| Migrant student (Number) | 121 | 43 | 164 | 96 | 31 | 127 |
| Migrant student (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| EL enrolled first year (Number) | 0 | 0 | 0 | 0 | 0 | 0 |
| EL enrolled first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| EL enrolled not first year (Number) | 4,844 | 1,467 | 6,311 | 3,460 | 1,235 | 4,695 |
| EL enrolled not first year (Percent) | 5.7 | 5 | 5.5 | 4.3 | 3.2 | 4 |
| Exited ESL/bilingual program and in first year of monitoring (Number) | 220 | 95 | 315 | 135 | 60 | 195 |
| Exited ESL/bilingual program and in first year of monitoring (Percent) | 0.3 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 |
| Exited ESL/bilingual program and in 2nd year of monitoring (Number) | 215 | 83 | 298 | 146 | 98 | 244 |
| Exited ESL/bilingual program and in 2nd year of monitoring (Percent) | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 | 0.2 |
| Former EL no longer monitored (Number) | 8 | 6 | 14 | 690 | 440 | 1,130 |
| Former EL no longer monitored (Percent) | 0 | 0 | 0 | 0.9 | 1.1 | 1 |
| LIFE first year (Number) | 0 | 0 | 0 | 0 | 0 | 0 |
| LIFE first year (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| LIFE not first year (Number) | 9 | 10 | 19 | 43 | 19 | 62 |
| LIFE not first year (Percent) | 0 | 0 | 0 | 0.1 | 0 | 0.1 |
| Former EL exited and in 3rd year of monitoring (Number) | 101 | 65 | 166 | 507 | 260 | 767 |
| Former EL exited and in 3rd year of monitoring (Percent) | 0.1 | 0.2 | 0.1 | 0.6 | 0.7 | 0.6 |
| Former EL exited and in 4th year of monitoring (Number) | 45 | 38 | 83 | 466 | 224 | 690 |
| Former EL exited and in 4th year of monitoring (Percent) | 0.1 | 0.1 | 0.1 | 0.6 | 0.6 | 0.6 |
| Economically disadvantaged (Number) | 41,376 | 12,975 | 54,351 | 35,546 | 16,899 | 52,445 |
| Economically disadvantaged (Percent) | 48.7 | 43.9 | 47.5 | 44.6 | 43.6 | 44.3 |
| Historically Underperforming Subgroup (Number) | 48,687 | 15,884 | 64,571 | 41,889 | 20,195 | 62,084 |
| Historically Underperforming Subgroup (Percent) | 57.3 | 53.7 | 56.4 | 52.6 | 52.1 | 52.4 |
| Enrollment in school of residence after Oct 1 (Number) | 1,615 | 644 | 2,259 | 1,505 | 850 | 2,355 |
| Enrollment in school of residence after Oct 1 (Percent) | 1.9 | 2.2 | 2 | 1.9 | 2.2 | 2 |
| Enrollment in district of residence after Oct 1 (Number) | 988 | 465 | 1,453 | 985 | 598 | 1,583 |
| Enrollment in district of residence after Oct 1 (Percent) | 1.2 | 1.6 | 1.3 | 1.2 | 1.5 | 1.3 |
| Enrollment as PA resident after Oct 1 (Number) | 0 | 0 | 0 | 0 | 0 | 0 |
| Enrollment as PA resident after Oct 1 (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |

| Demographic or Educational Characteristic | Gr 4 PPT | Gr 4 CBT | Gr 4 Total | Gr 8 PPT | Gr 8 CBT | Gr 8 Total |
|--|-----------------|-----------------|-------------------|-----------------|-----------------|-------------------|
| Enrollment in school of residence after previous Oct 1 but on/before current Oct 1 (Number) | 21,624 | 5,960 | 27,584 | 15,753 | 4,896 | 20,649 |
| Enrollment in school of residence after previous Oct 1 but on/before current Oct 1 (Percent) | 25.5 | 20.2 | 24.1 | 19.8 | 12.6 | 17.4 |
| Enrollment in district of residence after previous Oct 1 but on/before current Oct 1 (Number) | 7,951 | 3,104 | 11,055 | 6,013 | 2,873 | 8,886 |
| Enrollment in district of residence after previous Oct 1 but on/before current Oct 1 (Percent) | 9.4 | 10.5 | 9.7 | 7.5 | 7.4 | 7.5 |
| Court/agency placed (Number) | 7 | 0 | 7 | 81 | 20 | 101 |
| Court/agency placed (Percent) | 0 | 0 | 0 | 0.1 | 0.1 | 0.1 |
| Military family (Number) | 487 | 161 | 648 | 505 | 172 | 677 |
| Military family (Percent) | 0.6 | 0.5 | 0.6 | 0.6 | 0.4 | 0.6 |
| Homeless (Number) | 0 | 0 | 0 | 0 | 0 | 0 |
| Homeless (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| Foster (Number) | 335 | 135 | 470 | 325 | 152 | 477 |
| Foster (Percent) | 0.4 | 0.5 | 0.4 | 0.4 | 0.4 | 0.4 |
| Students with scores used in state summaries (Number) | 84,943 | 29,554 | 114,497 | 79,645 | 38,767 | 118,412 |

APPENDIX J: INCIDENCE OF ACCOMMODATIONS RECEIVED

Incidence of Presentation Accommodations Received on the 2022 PSSA: English Language Arts

| Type of Presentation Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Braille format (Number) | 12 | N/A | 12 | 9 | N/A | 9 | 4 | N/A | 4 | 6 | N/A | 6 | 7 | N/A | 7 | 4 | N/A | 4 |
| Braille format (Percent) | 0 | N/A | 0 |
| Large print format (Number) | 81 | N/A | 81 | 81 | N/A | 81 | 68 | N/A | 68 | 54 | N/A | 54 | 63 | N/A | 63 | 72 | N/A | 72 |
| Large print format (Percent) | 0.1 | N/A | 0.1 | 0.1 | N/A | 0.1 | 0.1 | N/A | 0.1 | 0.1 | N/A | 0 | 0.1 | N/A | 0.1 | 0.1 | N/A | 0.1 |
| Computer Assistive Technology (Number) | 10 | N/A | 10 | 2 | N/A | 2 | 4 | N/A | 4 | 5 | N/A | 5 | 10 | N/A | 10 | 8 | N/A | 8 |
| Computer Assistive Technology (Percent) | 0 | N/A | 0 |
| Some conventions questions/text-dependent analysis prompts read aloud (Number) | 2947 | 557 | 3504 | 3498 | 979 | 4477 | 3093 | 967 | 4060 | 1732 | 1139 | 2871 | 1143 | 1030 | 2173 | 956 | 935 | 1891 |
| Some conventions questions/text-dependent analysis prompts read aloud (Percent) | 3.3 | 2.1 | 3.1 | 4.1 | 3.5 | 3.9 | 3.7 | 3 | 3.5 | 2.1 | 3.2 | 2.5 | 1.4 | 2.7 | 1.8 | 1.2 | 2.4 | 1.6 |
| All conventions questions/text-dependent analysis prompts read aloud (Number) | 3169 | 944 | 4113 | 3086 | 1570 | 4656 | 2269 | 1590 | 3859 | 1250 | 1329 | 2579 | 738 | 941 | 1679 | 656 | 832 | 1488 |
| All conventions questions/text-dependent analysis prompts read aloud (Percent) | 3.6 | 3.6 | 3.6 | 3.6 | 5.6 | 4.1 | 2.7 | 5 | 3.3 | 1.6 | 3.8 | 2.2 | 0.9 | 2.5 | 1.4 | 0.8 | 2.2 | 1.2 |
| Conventions questions/text-dependent analysis prompts signed (Number) | 0 | 123 | 123 | 5 | 62 | 67 | 10 | 54 | 64 | 6 | 47 | 53 | 6 | 41 | 47 | 2 | 44 | 46 |
| Conventions questions/text-dependent analysis prompts signed (Percent) | 0 | 0.5 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0 |
| Conventions questions/text-dependent analysis prompts interpreted for EL student (Number) | 0 | 31 | 31 | 36 | 44 | 80 | 15 | 46 | 61 | 25 | 45 | 70 | 15 | 41 | 56 | 26 | 43 | 69 |
| Conventions questions/text-dependent analysis prompts interpreted for EL student (Percent) | 0 | 0.1 | 0 | 0 | 0.2 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0.1 |
| Amplification device (Number) | 37 | 9 | 46 | 30 | 21 | 51 | 35 | 21 | 56 | 14 | 13 | 27 | 15 | 12 | 27 | 12 | 22 | 34 |
| Amplification device (Percent) | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 |
| Magnification device (Number) | 9 | 5 | 14 | 9 | 10 | 19 | 11 | 13 | 24 | 5 | 6 | 11 | 9 | 11 | 20 | 1 | 9 | 10 |
| Magnification device (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Color overlay (Number) | 92 | N/A | 92 | 37 | N/A | 37 | 42 | N/A | 42 | 20 | N/A | 20 | 4 | N/A | 4 | 7 | N/A | 7 |
| Color overlay (Percent) | 0.1 | N/A | 0.1 | 0 | N/A | 0 |

| Type of Presentation Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Other (per Accommodations Guidelines) (Number) | 324 | 153 | 477 | 282 | 162 | 444 | 272 | 274 | 546 | 45 | 306 | 351 | 57 | 212 | 269 | 29 | 229 | 258 |
| Other (per Accommodations Guidelines) (Percent) | 0.4 | 0.6 | 0.4 | 0.3 | 0.6 | 0.4 | 0.3 | 0.9 | 0.5 | 0.1 | 0.9 | 0.3 | 0.1 | 0.6 | 0.2 | 0 | 0.6 | 0.2 |
| Audio (Number) | N/A | 3315 | 3315 | N/A | 3579 | 3579 | N/A | 3781 | 3781 | N/A | 4146 | 4146 | N/A | 3724 | 3724 | N/A | 3490 | 3490 |
| Audio (Percent) | N/A | 12.5 | 2.9 | N/A | 12.7 | 3.1 | N/A | 11.9 | 3.3 | N/A | 11.8 | 3.6 | N/A | 9.8 | 3.1 | N/A | 9.1 | 2.9 |
| Color Chooser (Number) | N/A | 8 | 8 | N/A | 24 | 24 | N/A | 52 | 52 | N/A | 85 | 85 | N/A | 57 | 57 | N/A | 23 | 23 |
| Color Chooser (Percent) | N/A | 0 | 0 | N/A | 0.1 | 0 | N/A | 0.2 | 0 | N/A | 0.2 | 0.1 | N/A | 0.2 | 0 | N/A | 0.1 | 0 |
| Contrasting Text Chooser (Number) | N/A | 3 | 3 | N/A | 27 | 27 | N/A | 17 | 17 | N/A | 40 | 40 | N/A | 51 | 51 | N/A | 26 | 26 |
| Contrasting Text Chooser (Percent) | N/A | 0 | 0 | N/A | 0.1 | 0 |
| Reverse Contrast (Number) | N/A | 0 | 0 | N/A | 6 | 6 | N/A | 10 | 10 | N/A | 23 | 23 | N/A | 28 | 28 | N/A | 20 | 20 |
| Reverse Contrast (Percent) | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0.1 | 0 | N/A | 0.1 | 0 | N/A | 0.1 | 0 |
| Refreshable Braille (Number) | N/A | 0 | 0 |
| Refreshable Braille (Percent) | N/A | 0 | 0 |

Incidence of Presentation Accommodations Received on the 2022 PSSA: Mathematics

| Type of Presentation Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Braille format (Number) | 6 | N/A | 6 | 6 | N/A | 6 | 6 | N/A | 6 | 3 | N/A | 3 | 5 | N/A | 5 | 6 | N/A | 6 |
| Braille format (Percent) | 0 | N/A | 0 |
| Large print format (Number) | 66 | N/A | 66 | 73 | N/A | 73 | 60 | N/A | 60 | 47 | N/A | 47 | 61 | N/A | 61 | 63 | N/A | 63 |
| Large print format (Percent) | 0.1 | N/A | 0.1 | 0.1 | N/A | 0.1 | 0.1 | N/A | 0.1 | 0.1 | N/A | 0 | 0.1 | N/A | 0.1 | 0.1 | N/A | 0.1 |
| Computer Assistive Technology (Number) | 1 | N/A | 1 | 3 | N/A | 3 | 3 | N/A | 3 | 0 | N/A | 0 | 3 | N/A | 3 | 1 | N/A | 1 |
| Computer Assistive Technology (Percent) | 0 | N/A | 0 |
| Some test items/questions read aloud (Number) | 5,763 | 1,266 | 7,029 | 5,252 | 1,388 | 6,640 | 4,200 | 1,336 | 5,536 | 2,074 | 1,189 | 3,263 | 1,321 | 1,216 | 2,537 | 1,116 | 1,059 | 2,175 |
| Some test items/questions read aloud (Percent) | 6.5 | 4.8 | 6.1 | 6.1 | 4.9 | 5.8 | 5 | 4.2 | 4.8 | 2.6 | 3.4 | 2.8 | 1.6 | 3.3 | 2.1 | 1.4 | 2.8 | 1.8 |
| All test items/questions read aloud (Number) | 4,422 | 1,762 | 6,184 | 3,838 | 1,903 | 5,741 | 2,848 | 1,965 | 4,813 | 1,586 | 1,725 | 3,311 | 948 | 1,254 | 2,202 | 749 | 1,086 | 1,835 |
| All test items/questions read aloud (Percent) | 5 | 6.6 | 5.4 | 4.4 | 6.7 | 5 | 3.4 | 6.2 | 4.1 | 2 | 4.9 | 2.9 | 1.2 | 3.4 | 1.9 | 0.9 | 2.9 | 1.5 |
| Test items/questions signed (Number) | 13 | 36 | 49 | 13 | 48 | 61 | 15 | 32 | 47 | 12 | 30 | 42 | 8 | 33 | 41 | 5 | 21 | 26 |
| Test items/questions signed (Percent) | 0 | 0.1 | 0 | 0 | 0.2 | 0.1 | 0 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0 |
| Test items/questions interpreted for EL student (Number) | 68 | 14 | 82 | 50 | 15 | 65 | 36 | 66 | 102 | 17 | 64 | 81 | 15 | 53 | 68 | 22 | 61 | 83 |
| Test items/questions interpreted for EL student (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.2 | 0.1 |
| Amplification device (Number) | 33 | 9 | 42 | 25 | 21 | 46 | 42 | 22 | 64 | 12 | 17 | 29 | 14 | 12 | 26 | 10 | 23 | 33 |
| Amplification device (Percent) | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.1 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0 |
| Magnification device (Number) | 4 | 6 | 10 | 8 | 10 | 18 | 9 | 13 | 22 | 4 | 5 | 9 | 6 | 10 | 16 | 2 | 10 | 12 |
| Magnification device (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Color overlay (Number) | 31 | N/A | 31 | 3 | N/A | 3 | 9 | N/A | 9 | 4 | N/A | 4 | 3 | N/A | 3 | 2 | N/A | 2 |
| Color overlay (Percent) | 0 | N/A | 0 |
| Other (per Accommodations Guidelines) (Number) | 152 | 138 | 290 | 153 | 156 | 309 | 202 | 231 | 433 | 47 | 320 | 367 | 52 | 202 | 254 | 26 | 221 | 247 |
| Other (per Accommodations Guidelines) (Percent) | 0.2 | 0.5 | 0.3 | 0.2 | 0.5 | 0.3 | 0.2 | 0.7 | 0.4 | 0.1 | 0.9 | 0.3 | 0.1 | 0.5 | 0.2 | 0 | 0.6 | 0.2 |
| Spanish version (Number) | 389 | N/A | 389 | 454 | N/A | 454 | 465 | N/A | 465 | 546 | N/A | 546 | 563 | N/A | 563 | 562 | N/A | 562 |
| Spanish version (Percent) | 0.4 | N/A | 0.3 | 0.5 | N/A | 0.4 | 0.5 | N/A | 0.4 | 0.7 | N/A | 0.5 | 0.7 | N/A | 0.5 | 0.7 | N/A | 0.5 |
| Audio (Number) | N/A | 4,130 | 4,130 | N/A | 4,332 | 4,332 | N/A | 4,548 | 4,548 | N/A | 4,577 | 4,577 | N/A | 4,113 | 4,113 | N/A | 3,757 | 3,757 |
| Audio (Percent) | N/A | 15.5 | 3.6 | N/A | 15.2 | 3.8 | N/A | 14.3 | 3.9 | N/A | 13.1 | 4 | N/A | 11.1 | 3.5 | N/A | 10.1 | 3.2 |

| Type of Presentation Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|------------------------------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Video sign language (Number) | N/A | 11 | 11 | N/A | 19 | 19 | N/A | 14 | 14 | N/A | 13 | 13 | N/A | 24 | 24 | N/A | 21 | 21 |
| Video sign language (Percent) | N/A | 0 | 0 | N/A | 0.1 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0.1 | 0 | N/A | 0.1 | 0 |
| Color Chooser (Number) | N/A | 8 | 8 | N/A | 24 | 24 | N/A | 54 | 54 | N/A | 84 | 84 | N/A | 51 | 51 | N/A | 22 | 22 |
| Color Chooser (Percent) | N/A | 0 | 0 | N/A | 0.1 | 0 | N/A | 0.2 | 0 | N/A | 0.2 | 0.1 | N/A | 0.1 | 0 | N/A | 0.1 | 0 |
| Contrasting Text Chooser (Number) | N/A | 3 | 3 | N/A | 29 | 29 | N/A | 18 | 18 | N/A | 41 | 41 | N/A | 42 | 42 | N/A | 25 | 25 |
| Contrasting Text Chooser (Percent) | N/A | 0 | 0 | N/A | 0.1 | 0 |
| Reverse Contrast (Number) | N/A | 0 | 0 | N/A | 6 | 6 | N/A | 10 | 10 | N/A | 23 | 23 | N/A | 27 | 27 | N/A | 20 | 20 |
| Reverse Contrast (Percent) | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0.1 | 0 | N/A | 0.1 | 0 | N/A | 0.1 | 0 |
| Refreshable Braille (Number) | N/A | 0 | 0 |
| Refreshable Braille (Percent) | N/A | 0 | 0 |

Incidence of Presentation Accommodations Received on the 2022 PSSA: Science

| Type of Presentation Accommodation | Gr 4 PPT | Gr 4 CBT | Gr 4 Total | Gr 8 PPT | Gr 8 CBT | Gr 8 Total |
|---|----------|----------|------------|----------|----------|------------|
| Braille format (Number) | 6 | N/A | 6 | 5 | N/A | 5 |
| Braille format (Percent) | 0 | N/A | 0 | 0 | N/A | 0 |
| Large print format (Number) | 75 | N/A | 75 | 55 | N/A | 55 |
| Large print format (Percent) | 0.1 | N/A | 0.1 | 0.1 | N/A | 0 |
| Computer Assistive Technology (Number) | 1 | N/A | 1 | 1 | N/A | 1 |
| Computer Assistive Technology (Percent) | 0 | N/A | 0 | 0 | N/A | 0 |
| Some test items/questions read aloud (Number) | 5,016 | 1,321 | 6,337 | 968 | 1,015 | 1,983 |
| Some test items/questions read aloud (Percent) | 5.9 | 4.5 | 5.5 | 1.2 | 2.6 | 1.7 |
| All test items/questions read aloud (Number) | 4,175 | 1,903 | 6,078 | 826 | 1,058 | 1,884 |
| All test items/questions read aloud (Percent) | 4.9 | 6.4 | 5.3 | 1 | 2.7 | 1.6 |
| Test items/questions signed (Number) | 10 | 48 | 58 | 3 | 10 | 13 |
| Test items/questions signed (Percent) | 0 | 0.2 | 0.1 | 0 | 0 | 0 |
| Test items/questions interpreted for EL student (Number) | 66 | 12 | 78 | 28 | 61 | 89 |
| Test items/questions interpreted for EL student (Percent) | 0.1 | 0 | 0.1 | 0 | 0.2 | 0.1 |
| Amplification device (Number) | 20 | 21 | 41 | 11 | 22 | 33 |
| Amplification device (Percent) | 0 | 0.1 | 0 | 0 | 0.1 | 0 |
| Magnification device (Number) | 5 | 12 | 17 | 2 | 11 | 13 |
| Magnification device (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| Color overlay (Number) | 4 | N/A | 4 | 1 | N/A | 1 |
| Color overlay (Percent) | 0 | N/A | 0 | 0 | N/A | 0 |
| Other (per Accommodations Guidelines) (Number) | 138 | 149 | 287 | 11 | 214 | 225 |
| Other (per Accommodations Guidelines) (Percent) | 0.2 | 0.5 | 0.3 | 0 | 0.6 | 0.2 |
| Spanish version (Number) | 455 | N/A | 455 | 552 | N/A | 552 |
| Spanish version (Percent) | 0.5 | N/A | 0.4 | 0.7 | N/A | 0.5 |
| Audio (Number) | N/A | 4,449 | 4,449 | N/A | 3,813 | 3,813 |
| Audio (Percent) | N/A | 15.1 | 3.9 | N/A | 9.8 | 3.2 |
| Video sign language (Number) | N/A | 19 | 19 | N/A | 23 | 23 |
| Video sign language (Percent) | N/A | 0.1 | 0 | N/A | 0.1 | 0 |

| Type of Presentation Accommodation | Gr 4 PPT | Gr 4 CBT | Gr 4 Total | Gr 8 PPT | Gr 8 CBT | Gr 8 Total |
|------------------------------------|----------|----------|------------|----------|----------|------------|
| Color Chooser (Number) | N/A | 32 | 32 | N/A | 22 | 22 |
| Color Chooser (Percent) | N/A | 0.1 | 0 | N/A | 0.1 | 0 |
| Contrasting Text Chooser (Number) | N/A | 38 | 38 | N/A | 26 | 26 |
| Contrasting Text Chooser (Percent) | N/A | 0.1 | 0 | N/A | 0.1 | 0 |
| Reverse Contrast (Number) | N/A | 14 | 14 | N/A | 20 | 20 |
| Reverse Contrast (Percent) | N/A | 0 | 0 | N/A | 0.1 | 0 |
| Refreshable Braille (Number) | N/A | 0 | 0 | N/A | 0 | 0 |
| Refreshable Braille (Percent) | N/A | 0 | 0 | N/A | 0 | 0 |

Incidence of Response Accommodations Received on the 2022 PSSA: English Language Arts

| Type of Response Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Assessment Coordinator marked multiple-choice responses at student's direction (Number) | 70 | 18 | 88 | 130 | 6 | 136 | 154 | 4 | 158 | 77 | 4 | 81 | 76 | 8 | 84 | 35 | 2 | 37 |
| Assessment Coordinator marked multiple-choice responses at student's direction (Percent) | 0.1 | 0.1 | 0.1 | 0.2 | 0 | 0.1 | 0.2 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0 | 0 | 0 |
| Assessment Coordinator transcribed student responses (Number) | 166 | 34 | 200 | 262 | 12 | 274 | 237 | 10 | 247 | 215 | 12 | 227 | 183 | 8 | 191 | 184 | 11 | 195 |
| Assessment Coordinator transcribed student responses (Percent) | 0.2 | 0.1 | 0.2 | 0.3 | 0 | 0.2 | 0.3 | 0 | 0.2 | 0.3 | 0 | 0.2 | 0.2 | 0 | 0.2 | 0.2 | 0 | 0.2 |
| Keyboard, word processor, or computer (Number) | 34 | N/A | 34 | 64 | N/A | 64 | 114 | N/A | 114 | 111 | N/A | 111 | 119 | N/A | 119 | 108 | N/A | 108 |
| Keyboard, word processor, or computer (Percent) | 0 | N/A | 0 | 0.1 | N/A | 0.1 |
| Braille/Notetaker (Number) | 5 | N/A | 5 | 2 | N/A | 2 | 2 | N/A | 2 | 1 | N/A | 1 | 7 | N/A | 7 | 2 | N/A | 2 |
| Braille/Notetaker (Percent) | 0 | N/A | 0 |
| Augmentative communication device (Number) | 6 | N/A | 6 | 1 | N/A | 1 | 1 | N/A | 1 | 3 | N/A | 3 | 4 | N/A | 4 | 2 | N/A | 2 |
| Augmentative communication device (Percent) | 0 | N/A | 0 |
| Computer Assistive Technology (Number) | 9 | N/A | 9 | 10 | N/A | 10 | 8 | N/A | 8 | 7 | N/A | 7 | 2 | N/A | 2 | 5 | N/A | 5 |
| Computer Assistive Technology (Percent) | 0 | N/A | 0 |
| Other (per Accommodations Guidelines) (Number) | 81 | 37 | 118 | 60 | 39 | 99 | 45 | 153 | 198 | 15 | 156 | 171 | 17 | 95 | 112 | 17 | 92 | 109 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.5 | 0.2 | 0 | 0.4 | 0.1 | 0 | 0.3 | 0.1 | 0 | 0.2 | 0.1 |
| Mixed-Mode (Number) | N/A | 32 | 32 | N/A | 16 | 16 | N/A | 21 | 21 | N/A | 13 | 13 | N/A | 12 | 12 | N/A | 14 | 14 |
| Mixed-Mode (Percent) | N/A | 0.1 | 0 | N/A | 0.1 | 0 | N/A | 0.1 | 0 | N/A | 0 | 0 | N/A | 0 | 0 | N/A | 0 | 0 |

Incidence of Response Accommodations Received on the 2022 PSSA: Mathematics

| Type of Response Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Assessment Coordinator marked multiple-choice responses at student's direction (Number) | 73 | 19 | 92 | 120 | 5 | 125 | 148 | 4 | 152 | 71 | 4 | 75 | 68 | 8 | 76 | 22 | 2 | 24 |
| Assessment Coordinator marked multiple-choice responses at student's direction (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0.2 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0 | 0 | 0 |
| Assessment Coordinator scribed open-ended responses at student's direction (Number) | 172 | 54 | 226 | 150 | 51 | 201 | 112 | 47 | 159 | 76 | 20 | 96 | 49 | 19 | 68 | 37 | 20 | 57 |
| Assessment Coordinator scribed open-ended responses at student's direction (Percent) | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0 | 0.1 | 0 |
| Assessment Coordinator transcribed student responses (Number) | 108 | 35 | 143 | 172 | 11 | 183 | 143 | 10 | 153 | 94 | 6 | 100 | 106 | 10 | 116 | 100 | 12 | 112 |
| Assessment Coordinator transcribed student responses (Percent) | 0.1 | 0.1 | 0.1 | 0.2 | 0 | 0.2 | 0.2 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 |
| Qualified interpreter translated, transcribed, and/or scribed student's signed responses (Number) | 14 | 1 | 15 | 7 | 0 | 7 | 11 | 1 | 12 | 4 | 7 | 11 | 8 | 0 | 8 | 4 | 2 | 6 |
| Qualified interpreter translated, transcribed, and/or scribed student's signed responses (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Qualified interpreter translated, transcribed, and/or scribed EL student responses (Number) | 25 | 1 | 26 | 27 | 4 | 31 | 26 | 2 | 28 | 6 | 0 | 6 | 6 | 0 | 6 | 7 | 3 | 10 |
| Qualified interpreter translated, transcribed, and/or scribed EL student responses (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Keyboard, word processor, or computer (Number) | 14 | N/A | 14 | 16 | N/A | 16 | 31 | N/A | 31 | 23 | N/A | 23 | 31 | N/A | 31 | 24 | N/A | 24 |
| Keyboard, word processor, or computer (Percent) | 0 | N/A | 0 |
| Braille/Notetaker (Number) | 3 | N/A | 3 | 1 | N/A | 1 | 4 | N/A | 4 | 0 | N/A | 0 | 2 | N/A | 2 | 1 | N/A | 1 |
| Braille/Notetaker (Percent) | 0 | N/A | 0 |
| Augmentative communication device (Number) | 5 | N/A | 5 | 0 | N/A | 0 | 1 | N/A | 1 | 0 | N/A | 0 | 3 | N/A | 3 | 0 | N/A | 0 |
| Augmentative communication device (Percent) | 0 | N/A | 0 |
| Computer Assistive Technology (Number) | 3 | N/A | 3 | 8 | N/A | 8 | 5 | N/A | 5 | 0 | N/A | 0 | 1 | N/A | 1 | 1 | N/A | 1 |
| Computer Assistive Technology (Percent) | 0 | N/A | 0 |
| Translation dictionary for EL student (Number) | 46 | 41 | 87 | 53 | 50 | 103 | 41 | 73 | 114 | 47 | 99 | 146 | 36 | 120 | 156 | 63 | 113 | 176 |
| Translation dictionary for EL student (Percent) | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0 | 0.2 | 0.1 | 0.1 | 0.3 | 0.1 | 0 | 0.3 | 0.1 | 0.1 | 0.3 | 0.1 |

| Type of Response Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Other (per Accommodations Guidelines) (Number) | 142 | 37 | 179 | 130 | 45 | 175 | 152 | 165 | 317 | 38 | 149 | 187 | 26 | 83 | 109 | 23 | 78 | 101 |
| Other (per Accommodations Guidelines) (Percent) | 0.2 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.5 | 0.3 | 0 | 0.4 | 0.2 | 0 | 0.2 | 0.1 | 0 | 0.2 | 0.1 |
| Mixed-Mode (Number) | N/A | 36 | 36 | N/A | 18 | 18 | N/A | 22 | 22 | N/A | 18 | 18 | N/A | 15 | 15 | N/A | 14 | 14 |
| Mixed-Mode (Percent) | N/A | 0.1 | 0 | N/A | 0 | 0 | N/A | 0 | 0 |

Incidence of Response Accommodations Received on the 2022 PSSA: Science

| Type of Response Accommodation | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|--|-----------|-----------|-------------|-----------|-----------|-------------|
| Assessment Coordinator marked multiple-choice responses at student's direction (Number) | 135 | 7 | 142 | 26 | 2 | 28 |
| Assessment Coordinator marked multiple-choice responses at student's direction (Percent) | 0.2 | 0 | 0.1 | 0 | 0 | 0 |
| Assessment Coordinator scribed open-ended responses at student's direction (Number) | 194 | 52 | 246 | 33 | 18 | 51 |
| Assessment Coordinator scribed open-ended responses at student's direction (Percent) | 0.2 | 0.2 | 0.2 | 0 | 0 | 0 |
| Assessment Coordinator transcribed student responses (Number) | 183 | 11 | 194 | 95 | 12 | 107 |
| Assessment Coordinator transcribed student responses (Percent) | 0.2 | 0 | 0.2 | 0.1 | 0 | 0.1 |
| Qualified interpreter translated, transcribed, and/or scribed student's signed responses (Number) | 9 | 0 | 9 | 4 | 2 | 6 |
| Qualified interpreter translated, transcribed, and/or scribed student's signed responses (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| Qualified interpreter translated, transcribed, and/or scribed EL student responses (Number) | 25 | 4 | 29 | 10 | 1 | 11 |
| Qualified interpreter translated, transcribed, and/or scribed EL student responses (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| Keyboard, word processor, or computer (Number) | 28 | NULL | 28 | 25 | NULL | 25 |
| Keyboard, word processor, or computer (Percent) | 0 | NULL | 0 | 0 | NULL | 0 |
| Braille/Notetaker (Number) | 2 | NULL | 2 | 3 | NULL | 3 |
| Braille/Notetaker (Percent) | 0 | NULL | 0 | 0 | NULL | 0 |
| Augmentative communication device (Number) | 1 | NULL | 1 | 0 | NULL | 0 |
| Augmentative communication device (Percent) | 0 | NULL | 0 | 0 | NULL | 0 |
| Computer Assistive Technology (Number) | 10 | NULL | 10 | 1 | NULL | 1 |
| Computer Assistive Technology (Percent) | 0 | NULL | 0 | 0 | NULL | 0 |
| Translation dictionary for EL student (Number) | 60 | 48 | 108 | 53 | 100 | 153 |
| Translation dictionary for EL student (Percent) | 0.1 | 0.2 | 0.1 | 0.1 | 0.3 | 0.1 |
| Other (per Accommodations Guidelines) (Number) | 74 | 35 | 109 | 13 | 69 | 82 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0.1 | 0.1 | 0 | 0.2 | 0.1 |
| Mixed-Mode (Number) | NULL | 17 | 17 | NULL | 14 | 14 |
| Mixed-Mode (Percent) | NULL | 0.1 | 0 | NULL | 0 | 0 |

Incidence of Setting Accommodations Received on the 2022 PSSA: English Language Arts

| Type of Setting Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Hospital/home setting (Number) | 11 | 0 | 11 | 7 | 1 | 8 | 12 | 2 | 14 | 13 | 1 | 14 | 10 | 3 | 13 | 12 | 3 | 15 |
| Hospital/home setting (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| One-on-one setting (Number) | 395 | 83 | 478 | 404 | 84 | 488 | 351 | 60 | 411 | 220 | 54 | 274 | 168 | 58 | 226 | 185 | 47 | 232 |
| One-on-one setting (Percent) | 0.4 | 0.3 | 0.4 | 0.5 | 0.3 | 0.4 | 0.4 | 0.2 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.2 |
| Small group setting (Number) | 11,432 | 3,494 | 14,926 | 11,975 | 3,941 | 15,916 | 11,264 | 4,426 | 15,690 | 9,421 | 4,884 | 14,305 | 9,355 | 4,874 | 14,229 | 9,263 | 4,932 | 14,195 |
| Small group setting (Percent) | 13 | 13.2 | 13 | 13.9 | 14 | 13.9 | 13.3 | 14 | 13.5 | 11.7 | 13.9 | 12.4 | 11.6 | 12.9 | 12 | 11.4 | 12.9 | 11.9 |
| Other (per Accommodations Guidelines) (Number) | 51 | 35 | 86 | 60 | 64 | 124 | 123 | 102 | 225 | 116 | 217 | 333 | 67 | 182 | 249 | 79 | 140 | 219 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.3 | 0.2 | 0.1 | 0.6 | 0.3 | 0.1 | 0.5 | 0.2 | 0.1 | 0.4 | 0.2 |

Incidence of Setting Accommodations Received on the 2022 PSSA: Mathematics

| Type of Setting Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Hospital/home setting (Number) | 5 | 1 | 6 | 4 | 0 | 4 | 10 | 2 | 12 | 8 | 3 | 11 | 6 | 3 | 9 | 13 | 3 | 16 |
| Hospital/home setting (Percent) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| One-on-one setting (Number) | 405 | 84 | 489 | 386 | 85 | 471 | 348 | 57 | 405 | 212 | 54 | 266 | 162 | 57 | 219 | 180 | 62 | 242 |
| One-on-one setting (Percent) | 0.5 | 0.3 | 0.4 | 0.4 | 0.3 | 0.4 | 0.4 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Small group setting (Number) | 11,332 | 3,521 | 14,853 | 11,835 | 3,995 | 15,830 | 11,150 | 4,485 | 15,635 | 9,331 | 4,853 | 14,184 | 8,991 | 4,765 | 13,756 | 8,858 | 4,756 | 13,614 |
| Small group setting (Percent) | 12.9 | 13.2 | 12.9 | 13.7 | 14 | 13.8 | 13.2 | 14.1 | 13.4 | 11.5 | 13.9 | 12.2 | 11.1 | 12.8 | 11.6 | 10.8 | 12.8 | 11.4 |
| Other (per Accommodations Guidelines) (Number) | 45 | 35 | 80 | 65 | 66 | 131 | 91 | 103 | 194 | 90 | 214 | 304 | 102 | 170 | 272 | 102 | 141 | 243 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.3 | 0.2 | 0.1 | 0.6 | 0.3 | 0.1 | 0.5 | 0.2 | 0.1 | 0.4 | 0.2 |

Incidence of Setting Accommodations Received on the 2022 PSSA: Science

| Type of Setting Accommodation | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|
| Hospital/home setting (Number) | 6 | 0 | 6 | 13 | 3 | 16 |
| Hospital/home setting (Percent) | 0 | 0 | 0 | 0 | 0 | 0 |
| One-on-one setting (Number) | 403 | 84 | 487 | 159 | 47 | 206 |
| One-on-one setting (Percent) | 0.5 | 0.3 | 0.4 | 0.2 | 0.1 | 0.2 |
| Small group setting (Number) | 11,566 | 4,051 | 15,617 | 8,610 | 4,741 | 13,351 |
| Small group setting (Percent) | 13.6 | 13.7 | 13.6 | 10.8 | 12.2 | 11.3 |
| Other (per Accommodations Guidelines) (Number) | 55 | 46 | 101 | 71 | 135 | 206 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0.2 | 0.1 | 0.1 | 0.3 | 0.2 |

Incidence of Timing Accommodations Received on the 2022 PSSA: English Language Arts

| Type of Timing Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Extended time (Number) | 5,118 | 2,375 | 7,493 | 8,683 | 3,089 | 11,772 | 7,860 | 3,299 | 11,159 | 5,945 | 3,226 | 9,171 | 4,811 | 2,809 | 7,620 | 4,648 | 2,643 | 7,291 |
| Extended time (Percent) | 5.8 | 9 | 6.5 | 10.1 | 10.9 | 10.3 | 9.3 | 10.4 | 9.6 | 7.4 | 9.2 | 7.9 | 6 | 7.4 | 6.4 | 5.7 | 6.9 | 6.1 |
| Frequent breaks (Number) | 2,718 | 1,904 | 4,622 | 3,028 | 2,091 | 5,119 | 2,836 | 2,286 | 5,122 | 1,654 | 2,250 | 3,904 | 1,408 | 1,857 | 3,265 | 1,167 | 1,720 | 2,887 |
| Frequent breaks (Percent) | 3.1 | 7.2 | 4 | 3.5 | 7.4 | 4.5 | 3.4 | 7.2 | 4.4 | 2.1 | 6.4 | 3.4 | 1.8 | 4.9 | 2.8 | 1.4 | 4.5 | 2.4 |
| Changed test schedule (Number) | 277 | 71 | 348 | 220 | 84 | 304 | 226 | 82 | 308 | 127 | 139 | 266 | 187 | 129 | 316 | 218 | 99 | 317 |
| Changed test schedule (Percent) | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.4 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Other (per Accommodations Guidelines) (Number) | 60 | 4 | 64 | 75 | 5 | 80 | 31 | 54 | 85 | 49 | 69 | 118 | 24 | 81 | 105 | 24 | 75 | 99 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.2 | 0.1 |

Incidence of Timing Accommodations Received on the 2022 PSSA: Mathematics

| Type of Timing Accommodation | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|--------------|--------------|----------------|
| Extended time (Number) | 3,930 | 2,364 | 6,294 | 4,452 | 2,866 | 7,318 | 4,766 | 3,294 | 8,060 | 3,950 | 3,141 | 7,091 | 3,204 | 2,752 | 5,956 | 2,306 | 2,480 | 4,786 |
| Extended time (Percent) | 4.5 | 8.9 | 5.5 | 5.2 | 10.1 | 6.4 | 5.6 | 10.3 | 6.9 | 4.9 | 9 | 6.1 | 3.9 | 7.4 | 5 | 2.8 | 6.6 | 4 |
| Frequent breaks (Number) | 2,626 | 1,894 | 4,520 | 2,709 | 2,101 | 4,810 | 2,464 | 2,313 | 4,777 | 1,542 | 2,221 | 3,763 | 1,201 | 1,811 | 3,012 | 1,114 | 1,680 | 2,794 |
| Frequent breaks (Percent) | 3 | 7.1 | 3.9 | 3.1 | 7.4 | 4.2 | 2.9 | 7.3 | 4.1 | 1.9 | 6.4 | 3.2 | 1.5 | 4.9 | 2.5 | 1.4 | 4.5 | 2.3 |
| Changed test schedule (Number) | 308 | 73 | 381 | 273 | 76 | 349 | 298 | 85 | 383 | 147 | 138 | 285 | 187 | 104 | 291 | 187 | 100 | 287 |
| Changed test schedule (Percent) | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.3 | 0.3 | 0.2 | 0.4 | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.2 |
| Other (per Accommodations Guidelines) (Number) | 59 | 4 | 63 | 57 | 4 | 61 | 45 | 51 | 96 | 30 | 65 | 95 | 15 | 73 | 88 | 40 | 70 | 110 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0 | 0.1 | 0.1 | 0 | 0.1 | 0.1 | 0.2 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.2 | 0.1 | 0 | 0.2 | 0.1 |

Incidence of Timing Accommodations Received on the 2022 PSSA: Science

| Type of Timing Accommodation | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|---|--------------|--------------|----------------|--------------|--------------|----------------|
| Extended time (Number) | 2,710 | 2,396 | 5,106 | 1,236 | 2,369 | 3,605 |
| Extended time (Percent) | 3.2 | 8.1 | 4.5 | 1.6 | 6.1 | 3 |
| Frequent breaks (Number) | 2,487 | 2,086 | 4,573 | 990 | 1,625 | 2,615 |
| Frequent breaks (Percent) | 2.9 | 7.1 | 4 | 1.2 | 4.2 | 2.2 |
| Changed test schedule (Number) | 265 | 78 | 343 | 208 | 95 | 303 |
| Changed test schedule (Percent) | 0.3 | 0.3 | 0.3 | 0.3 | 0.2 | 0.3 |
| Other (per Accommodations Guidelines) (Number) | 63 | 3 | 66 | 25 | 70 | 95 |
| Other (per Accommodations Guidelines) (Percent) | 0.1 | 0 | 0.1 | 0 | 0.2 | 0.1 |

APPENDIX K: ACCOMMODATION RATE FOR NON-IEP AND IEP STUDENTS

Accommodation Rate for Non-IEP and IEP Students on the 2022 PSSA: English Language Arts

| Student Subgroup | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|----------------------------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Non-IEP Students (Number) | 72,734 | 21,386 | 94,120 | 70,670 | 22,713 | 93,383 | 69,099 | 25,440 | 94,539 | 66,403 | 28,071 | 94,474 | 66,613 | 30,416 | 97,029 | 67,145 | 30,782 | 97,927 |
| Non-Accommodated (Number) | 65,454 | 19,493 | 84,947 | 61,047 | 20,484 | 81,531 | 61,021 | 23,571 | 84,592 | 60,842 | 26,180 | 87,022 | 62,002 | 29,249 | 91,251 | 62,632 | 29,694 | 92,326 |
| Non-Accommodated (Percent) | 90 | 91.1 | 90.3 | 86.4 | 90.2 | 87.3 | 88.3 | 92.7 | 89.5 | 91.6 | 93.3 | 92.1 | 93.1 | 96.2 | 94 | 93.3 | 96.5 | 94.3 |
| Accommodated (Number) | 7,280 | 1,893 | 9,173 | 9,623 | 2,229 | 11,852 | 8,078 | 1,869 | 9,947 | 5,561 | 1,891 | 7,452 | 4,611 | 1,167 | 5,778 | 4,513 | 1,088 | 5,601 |
| Accommodated (Percent) | 10 | 8.9 | 9.7 | 13.6 | 9.8 | 12.7 | 11.7 | 7.3 | 10.5 | 8.4 | 6.7 | 7.9 | 6.9 | 3.8 | 6 | 6.7 | 3.5 | 5.7 |
| IEP Students (Number) | 15,240 | 5,038 | 20,278 | 15,651 | 5,499 | 21,150 | 15,455 | 6,280 | 21,735 | 14,186 | 7,125 | 21,311 | 13,811 | 7,512 | 21,323 | 13,926 | 7,513 | 21,439 |
| Non-Accommodated (Number) | 6,143 | 1,557 | 7,700 | 5,381 | 1,450 | 6,831 | 5,216 | 1,515 | 6,731 | 5,212 | 1,767 | 6,979 | 5,152 | 2,165 | 7,317 | 5,287 | 2,143 | 7,430 |
| Non-Accommodated (Percent) | 40.3 | 30.9 | 38 | 34.4 | 26.4 | 32.3 | 33.7 | 24.1 | 31 | 36.7 | 24.8 | 32.7 | 37.3 | 28.8 | 34.3 | 38 | 28.5 | 34.7 |
| Accommodated (Number) | 9,097 | 3,481 | 12,578 | 10,270 | 4,049 | 14,319 | 10,239 | 4,765 | 15,004 | 8,974 | 5,358 | 14,332 | 8,659 | 5,347 | 14,006 | 8,639 | 5,370 | 14,009 |
| Accommodated (Percent) | 59.7 | 69.1 | 62 | 65.6 | 73.6 | 67.7 | 66.3 | 75.9 | 69 | 63.3 | 75.2 | 67.3 | 62.7 | 71.2 | 65.7 | 62 | 71.5 | 65.3 |

Accommodation Rate for Non-IEP and IEP Students on the 2022 PSSA: Mathematics

| Student Subgroup | Gr. 3 PPT | Gr. 3 CBT | Gr. 3 Total | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 5 PPT | Gr. 5 CBT | Gr. 5 Total | Gr. 6 PPT | Gr. 6 CBT | Gr. 6 Total | Gr. 7 PPT | Gr. 7 CBT | Gr. 7 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|----------------------------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|-----------|-----------|-------------|
| Non-IEP Students (Number) | 72,875 | 21,530 | 94,405 | 70,750 | 22,884 | 93,634 | 69,212 | 25,543 | 94,755 | 66,793 | 27,790 | 94,583 | 67,404 | 29,661 | 97,065 | 67,767 | 29,959 | 97,726 |
| Non-Accommodated (Number) | 64,783 | 19,062 | 83,845 | 63,753 | 20,375 | 84,128 | 63,124 | 23,261 | 86,385 | 62,734 | 25,904 | 88,638 | 64,167 | 28,370 | 92,537 | 65,356 | 28,829 | 94,185 |
| Non-Accommodated (Percent) | 88.9 | 88.5 | 88.8 | 90.1 | 89 | 89.8 | 91.2 | 91.1 | 91.2 | 93.9 | 93.2 | 93.7 | 95.2 | 95.6 | 95.3 | 96.4 | 96.2 | 96.4 |
| Accommodated (Number) | 8,092 | 2,468 | 10,560 | 6,997 | 2,509 | 9,506 | 6,088 | 2,282 | 8,370 | 4,059 | 1,886 | 5,945 | 3,237 | 1,291 | 4,528 | 2,411 | 1,130 | 3,541 |
| Accommodated (Percent) | 11.1 | 11.5 | 11.2 | 9.9 | 11 | 10.2 | 8.8 | 8.9 | 8.8 | 6.1 | 6.8 | 6.3 | 4.8 | 4.4 | 4.7 | 3.6 | 3.8 | 3.6 |
| IEP Students (Number) | 15,217 | 5,092 | 20,309 | 15,602 | 5,586 | 21,188 | 15,382 | 6,352 | 21,734 | 14,181 | 7,080 | 21,261 | 13,865 | 7,427 | 21,292 | 13,974 | 7,339 | 21,313 |
| Non-Accommodated (Number) | 6,212 | 1,462 | 7,674 | 5,703 | 1,377 | 7,080 | 5,456 | 1,404 | 6,860 | 5,506 | 1,644 | 7,150 | 5,531 | 2,028 | 7,559 | 5,785 | 2,037 | 7,822 |
| Non-Accommodated (Percent) | 40.8 | 28.7 | 37.8 | 36.6 | 24.7 | 33.4 | 35.5 | 22.1 | 31.6 | 38.8 | 23.2 | 33.6 | 39.9 | 27.3 | 35.5 | 41.4 | 27.8 | 36.7 |
| Accommodated (Number) | 9,005 | 3,630 | 12,635 | 9,899 | 4,209 | 14,108 | 9,926 | 4,948 | 14,874 | 8,675 | 5,436 | 14,111 | 8,334 | 5,399 | 13,733 | 8,189 | 5,302 | 13,491 |
| Accommodated (Percent) | 59.2 | 71.3 | 62.2 | 63.4 | 75.3 | 66.6 | 64.5 | 77.9 | 68.4 | 61.2 | 76.8 | 66.4 | 60.1 | 72.7 | 64.5 | 58.6 | 72.2 | 63.3 |

Accommodation Rate for Non-IEP and IEP Students on the 2022 PSSA: Science

| Student Subgroup | Gr. 4 PPT | Gr. 4 CBT | Gr. 4 Total | Gr. 8 PPT | Gr. 8 CBT | Gr. 8 Total |
|----------------------------------|----------------------|----------------------|------------------------|----------------------|----------------------|------------------------|
| Non-IEP Students (Number) | 69,613 | 23,786 | 93,399 | 65,957 | 31,290 | 97,247 |
| Non-Accommodated (Number) | 63,940 | 21,590 | 85,530 | 64,346 | 30,161 | 94,507 |
| Non-Accommodated (Percent) | 91.9 | 90.8 | 91.6 | 97.6 | 96.4 | 97.2 |
| Accommodated (Number) | 5,673 | 2,196 | 7,869 | 1,611 | 1,129 | 2,740 |
| Accommodated (Percent) | 8.1 | 9.2 | 8.4 | 2.4 | 3.6 | 2.8 |
| IEP Students (Number) | 15,330 | 5,768 | 21,098 | 13,688 | 7,477 | 21,165 |
| Non-Accommodated (Number) | 5,673 | 1,489 | 7,162 | 5,763 | 2,180 | 7,943 |
| Non-Accommodated (Percent) | 37 | 25.8 | 33.9 | 42.1 | 29.2 | 37.5 |
| Accommodated (Number) | 9,657 | 4,279 | 13,936 | 7,925 | 5,297 | 13,222 |
| Accommodated (Percent) | 63 | 74.2 | 66.1 | 57.9 | 70.8 | 62.5 |

APPENDIX L: INCIDENCE OF ACCOMMODATIONS RECEIVED BY IEP AND EL STUDENTS

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: English Language Arts Grade 3

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|-----------------------------------|----------------|----------------|-----------------|
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 1,043 | 1,621 | 206 | 77 |
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1.5 | 11.1 | 5.1 | 11.7 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 415 | 2,547 | 122 | 85 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.6 | 17.5 | 3 | 12.9 |
| PPT - Small group setting (Number) | 2,181 | 7,960 | 896 | 395 |
| PPT - Small group setting (Percent) | 3.2 | 54.6 | 22.2 | 60.1 |
| PPT - Extended time (Number) | 3,185 | 1,664 | 204 | 65 |
| PPT - Extended time (Percent) | 4.6 | 11.4 | 5 | 9.9 |
| PPT - Frequent breaks (Number) | 321 | 2,236 | 61 | 100 |
| PPT - Frequent breaks (Percent) | 0.5 | 15.3 | 1.5 | 15.2 |
| PPT - Number assessed (Number) | 68,689 | 14,583 | 4,045 | 657 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 195 | 311 | 35 | 16 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1 | 6.5 | 2.8 | 6.7 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 130 | 758 | 30 | 26 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.6 | 15.8 | 2.4 | 10.9 |
| CBT - Small group setting (Number) | 348 | 2,737 | 264 | 145 |
| CBT - Small group setting (Percent) | 1.7 | 57 | 21.4 | 60.7 |
| CBT - Extended time (Number) | 605 | 1,586 | 103 | 81 |
| CBT - Extended time (Percent) | 3 | 33 | 8.3 | 33.9 |
| CBT - Frequent breaks (Number) | 177 | 1,612 | 39 | 76 |
| CBT - Frequent breaks (Percent) | 0.9 | 33.6 | 3.2 | 31.8 |
| CBT - Number assessed (Number) | 20,151 | 4,799 | 1,235 | 239 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 1,238 | 1,932 | 241 | 93 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1.4 | 10 | 4.6 | 10.4 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 545 | 3,305 | 152 | 111 |

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|---|--|-----------------------|-----------------------|------------------------|
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.6 | 17.1 | 2.9 | 12.4 |
| Total - Small group setting (Number) | 2,529 | 10,697 | 1,160 | 540 |
| Total - Small group setting (Percent) | 2.8 | 55.2 | 22 | 60.3 |
| Total - Extended time (Number) | 3,790 | 3,250 | 307 | 146 |
| Total - Extended time (Percent) | 4.3 | 16.8 | 5.8 | 16.3 |
| Total - Frequent breaks (Number) | 498 | 3,848 | 100 | 176 |
| Total - Frequent breaks (Percent) | 0.6 | 19.9 | 1.9 | 19.6 |
| Total - Number assessed (Number) | 88,840 | 19,382 | 5,280 | 896 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: English Language Arts Grade 4

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 992 | 2,187 | 207 | 112 |
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1.5 | 14.7 | 5.3 | 14.3 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 286 | 2,573 | 113 | 114 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.4 | 17.3 | 2.9 | 14.6 |
| PPT - Small group setting (Number) | 1,874 | 8,754 | 828 | 519 |
| PPT - Small group setting (Percent) | 2.8 | 58.9 | 21.4 | 66.4 |
| PPT - Extended time (Number) | 5,979 | 2,262 | 348 | 94 |
| PPT - Extended time (Percent) | 9 | 15.2 | 9 | 12 |
| PPT - Frequent breaks (Number) | 344 | 2,524 | 50 | 110 |
| PPT - Frequent breaks (Percent) | 0.5 | 17 | 1.3 | 14.1 |
| PPT - Number assessed (Number) | 66,799 | 14,869 | 3,871 | 782 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 259 | 626 | 69 | 25 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1.2 | 12 | 5.9 | 9.6 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 221 | 1,206 | 75 | 68 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1 | 23 | 6.4 | 26.1 |
| CBT - Small group setting (Number) | 369 | 3,154 | 243 | 175 |
| CBT - Small group setting (Percent) | 1.7 | 60.2 | 20.7 | 67 |
| CBT - Extended time (Number) | 1,041 | 1,822 | 131 | 95 |
| CBT - Extended time (Percent) | 4.8 | 34.8 | 11.1 | 36.4 |
| CBT - Frequent breaks (Number) | 190 | 1,785 | 28 | 88 |
| CBT - Frequent breaks (Percent) | 0.9 | 34.1 | 2.4 | 33.7 |
| CBT - Number assessed (Number) | 21,537 | 5,238 | 1,176 | 261 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 1,251 | 2,813 | 276 | 137 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1.4 | 14 | 5.5 | 13.1 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 507 | 3,779 | 188 | 182 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.6 | 18.8 | 3.7 | 17.4 |
| Total - Small group setting (Number) | 2,243 | 11,908 | 1,071 | 694 |

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| Total - Small group setting (Percent) | 2.5 | 59.2 | 21.2 | 66.5 |
| Total - Extended time (Number) | 7,020 | 4,084 | 479 | 189 |
| Total - Extended time (Percent) | 7.9 | 20.3 | 9.5 | 18.1 |
| Total - Frequent breaks (Number) | 534 | 4,309 | 78 | 198 |
| Total - Frequent breaks (Percent) | 0.6 | 21.4 | 1.5 | 19 |
| Total - Number assessed (Number) | 88,336 | 20,107 | 5,047 | 1,043 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: English Language Arts Grade 5

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 717 | 2,131 | 120 | 125 |
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1.1 | 14.5 | 3.6 | 16 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 171 | 1,962 | 57 | 79 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.3 | 13.4 | 1.7 | 10.1 |
| PPT - Small group setting (Number) | 1,409 | 8,807 | 535 | 513 |
| PPT - Small group setting (Percent) | 2.1 | 60 | 16.3 | 65.5 |
| PPT - Extended time (Number) | 5,340 | 2,190 | 230 | 100 |
| PPT - Extended time (Percent) | 8.1 | 14.9 | 7 | 12.8 |
| PPT - Frequent breaks (Number) | 236 | 2,442 | 33 | 125 |
| PPT - Frequent breaks (Percent) | 0.4 | 16.6 | 1 | 16 |
| PPT - Number assessed (Number) | 65,807 | 14,672 | 3,292 | 783 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 192 | 708 | 41 | 26 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.8 | 11.8 | 3.6 | 9.7 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 159 | 1,298 | 67 | 66 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.7 | 21.6 | 6 | 24.6 |
| CBT - Small group setting (Number) | 330 | 3,722 | 206 | 168 |
| CBT - Small group setting (Percent) | 1.4 | 61.9 | 18.3 | 62.7 |
| CBT - Extended time (Number) | 943 | 2,100 | 140 | 116 |
| CBT - Extended time (Percent) | 3.9 | 34.9 | 12.5 | 43.3 |
| CBT - Frequent breaks (Number) | 195 | 1,962 | 43 | 86 |
| CBT - Frequent breaks (Percent) | 0.8 | 32.6 | 3.8 | 32.1 |
| CBT - Number assessed (Number) | 24,316 | 6,012 | 1,124 | 268 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 909 | 2,839 | 161 | 151 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 1 | 13.7 | 3.6 | 14.4 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 330 | 3,260 | 124 | 145 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.4 | 15.8 | 2.8 | 13.8 |
| Total - Small group setting (Number) | 1,739 | 12,529 | 741 | 681 |

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| Total - Small group setting (Percent) | 1.9 | 60.6 | 16.8 | 64.8 |
| Total - Extended time (Number) | 6,283 | 4,290 | 370 | 216 |
| Total - Extended time (Percent) | 7 | 20.7 | 8.4 | 20.6 |
| Total - Frequent breaks (Number) | 431 | 4,404 | 76 | 211 |
| Total - Frequent breaks (Percent) | 0.5 | 21.3 | 1.7 | 20.1 |
| Total - Number assessed (Number) | 90,123 | 20,684 | 4,416 | 1,051 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: English Language Arts Grade 6

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 219 | 1,422 | 33 | 58 |
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.3 | 10.5 | 1.2 | 8.7 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 44 | 1,169 | 15 | 22 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 8.6 | 0.5 | 3.3 |
| PPT - Small group setting (Number) | 862 | 7,887 | 326 | 346 |
| PPT - Small group setting (Percent) | 1.4 | 58.3 | 11.6 | 52 |
| PPT - Extended time (Number) | 4,081 | 1,642 | 145 | 77 |
| PPT - Extended time (Percent) | 6.4 | 12.1 | 5.2 | 11.6 |
| PPT - Frequent breaks (Number) | 106 | 1,487 | 14 | 47 |
| PPT - Frequent breaks (Percent) | 0.2 | 11 | 0.5 | 7.1 |
| PPT - Number assessed (Number) | 63,590 | 13,521 | 2,813 | 665 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 101 | 945 | 44 | 49 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.4 | 13.9 | 4.4 | 14.8 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 113 | 1,123 | 38 | 55 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.4 | 16.5 | 3.8 | 16.7 |
| CBT - Small group setting (Number) | 377 | 4,174 | 151 | 182 |
| CBT - Small group setting (Percent) | 1.4 | 61.4 | 15.3 | 55.2 |
| CBT - Extended time (Number) | 848 | 2,185 | 91 | 102 |
| CBT - Extended time (Percent) | 3.1 | 32.2 | 9.2 | 30.9 |
| CBT - Frequent breaks (Number) | 166 | 1,944 | 46 | 94 |
| CBT - Frequent breaks (Percent) | 0.6 | 28.6 | 4.6 | 28.5 |
| CBT - Number assessed (Number) | 27,081 | 6,795 | 990 | 330 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 320 | 2,367 | 77 | 107 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.4 | 11.7 | 2 | 10.8 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 157 | 2,292 | 53 | 77 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.2 | 11.3 | 1.4 | 7.7 |
| Total - Small group setting (Number) | 1,239 | 12,061 | 477 | 528 |

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| Total - Small group setting (Percent) | 1.4 | 59.4 | 12.5 | 53.1 |
| Total - Extended time (Number) | 4,929 | 3,827 | 236 | 179 |
| Total - Extended time (Percent) | 5.4 | 18.8 | 6.2 | 18 |
| Total - Frequent breaks (Number) | 272 | 3,431 | 60 | 141 |
| Total - Frequent breaks (Percent) | 0.3 | 16.9 | 1.6 | 14.2 |
| Total - Number assessed (Number) | 90,671 | 20,316 | 3,803 | 995 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: English Language Arts Grade 7

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 64 | 1,032 | 17 | 30 |
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 7.8 | 0.6 | 4.9 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 28 | 679 | 16 | 15 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0 | 5.1 | 0.6 | 2.5 |
| PPT - Small group setting (Number) | 856 | 7,875 | 315 | 309 |
| PPT - Small group setting (Percent) | 1.3 | 59.7 | 11.8 | 50.5 |
| PPT - Extended time (Number) | 3,216 | 1,392 | 152 | 51 |
| PPT - Extended time (Percent) | 5 | 10.5 | 5.7 | 8.3 |
| PPT - Frequent breaks (Number) | 75 | 1,269 | 22 | 42 |
| PPT - Frequent breaks (Percent) | 0.1 | 9.6 | 0.8 | 6.9 |
| PPT - Number assessed (Number) | 63,942 | 13,199 | 2,671 | 612 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 24 | 915 | 42 | 49 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 12.8 | 4.5 | 14.3 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 18 | 855 | 29 | 39 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 11.9 | 3.1 | 11.4 |
| CBT - Small group setting (Number) | 299 | 4,244 | 135 | 196 |
| CBT - Small group setting (Percent) | 1 | 59.2 | 14.5 | 57.3 |
| CBT - Extended time (Number) | 409 | 2,181 | 103 | 116 |
| CBT - Extended time (Percent) | 1.4 | 30.4 | 11.1 | 33.9 |
| CBT - Frequent breaks (Number) | 102 | 1,612 | 53 | 90 |
| CBT - Frequent breaks (Percent) | 0.3 | 22.5 | 5.7 | 26.3 |
| CBT - Number assessed (Number) | 29,485 | 7,170 | 931 | 342 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 88 | 1,947 | 59 | 79 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 9.6 | 1.6 | 8.3 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 46 | 1,534 | 45 | 54 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0 | 7.5 | 1.2 | 5.7 |
| Total - Small group setting (Number) | 1,155 | 12,119 | 450 | 505 |

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| Total - Small group setting (Percent) | 1.2 | 59.5 | 12.5 | 52.9 |
| Total - Extended time (Number) | 3,625 | 3,573 | 255 | 167 |
| Total - Extended time (Percent) | 3.9 | 17.5 | 7.1 | 17.5 |
| Total - Frequent breaks (Number) | 177 | 2,881 | 75 | 132 |
| Total - Frequent breaks (Percent) | 0.2 | 14.1 | 2.1 | 13.8 |
| Total - Number assessed (Number) | 93,427 | 20,369 | 3,602 | 954 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: English Language Arts Grade 8

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 46 | 857 | 32 | 21 |
| PPT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 6.4 | 1.1 | 4 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 27 | 600 | 9 | 20 |
| PPT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0 | 4.5 | 0.3 | 3.8 |
| PPT - Small group setting (Number) | 805 | 7,885 | 297 | 276 |
| PPT - Small group setting (Percent) | 1.3 | 58.8 | 10.5 | 53 |
| PPT - Extended time (Number) | 3,151 | 1,314 | 134 | 49 |
| PPT - Extended time (Percent) | 4.9 | 9.8 | 4.8 | 9.4 |
| PPT - Frequent breaks (Number) | 57 | 1,072 | 6 | 32 |
| PPT - Frequent breaks (Percent) | 0.1 | 8 | 0.2 | 6.1 |
| PPT - Number assessed (Number) | 64,329 | 13,405 | 2,816 | 521 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 19 | 866 | 22 | 28 |
| CBT - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 12 | 2.4 | 9.7 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 15 | 762 | 14 | 41 |
| CBT - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 10.5 | 1.5 | 14.2 |
| CBT - Small group setting (Number) | 295 | 4,361 | 104 | 172 |
| CBT - Small group setting (Percent) | 1 | 60.4 | 11.2 | 59.5 |
| CBT - Extended time (Number) | 387 | 2,079 | 74 | 103 |
| CBT - Extended time (Percent) | 1.3 | 28.8 | 8 | 35.6 |
| CBT - Frequent breaks (Number) | 94 | 1,517 | 42 | 67 |
| CBT - Frequent breaks (Percent) | 0.3 | 21 | 4.5 | 23.2 |
| CBT - Number assessed (Number) | 29,856 | 7,224 | 926 | 289 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Number) | 65 | 1,723 | 54 | 49 |
| Total - Some conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0.1 | 8.4 | 1.4 | 6 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Number) | 42 | 1,362 | 23 | 61 |
| Total - All conventions questions/ text-dependent analysis prompts read aloud (Percent) | 0 | 6.6 | 0.6 | 7.5 |
| Total - Small group setting (Number) | 1,100 | 12,246 | 401 | 448 |

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| Total - Small group setting (Percent) | 1.2 | 59.4 | 10.7 | 55.3 |
| Total - Extended time (Number) | 3,538 | 3,393 | 208 | 152 |
| Total - Extended time (Percent) | 3.8 | 16.4 | 5.6 | 18.8 |
| Total - Frequent breaks (Number) | 151 | 2,589 | 48 | 99 |
| Total - Frequent breaks (Percent) | 0.2 | 12.6 | 1.3 | 12.2 |
| Total - Number assessed (Number) | 94,185 | 20,629 | 3,742 | 810 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Mathematics Grade 3

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 2,838 | 2,286 | 495 | 144 |
| PPT - Some test items/questions read aloud (Percent) | 4.1 | 15.7 | 11.5 | 22 |
| PPT - All test items/questions read aloud (Number) | 583 | 3,502 | 209 | 128 |
| PPT - All test items/questions read aloud (Percent) | 0.9 | 24 | 4.9 | 19.5 |
| PPT - Small group setting (Number) | 2,194 | 7,765 | 981 | 392 |
| PPT - Small group setting (Percent) | 3.2 | 53.3 | 22.8 | 59.8 |
| PPT - Extended time (Number) | 2,292 | 1,436 | 149 | 53 |
| PPT - Extended time (Percent) | 3.3 | 9.9 | 3.5 | 8.1 |
| PPT - Frequent breaks (Number) | 276 | 2,183 | 74 | 93 |
| PPT - Frequent breaks (Percent) | 0.4 | 15 | 1.7 | 14.2 |
| PPT - Number assessed (Number) | 68,577 | 14,562 | 4,298 | 655 |
| CBT - Some test items/questions read aloud (Number) | 480 | 622 | 124 | 40 |
| CBT - Some test items/questions read aloud (Percent) | 2.4 | 12.8 | 10.1 | 16 |
| CBT - All test items/questions read aloud (Number) | 233 | 1,362 | 102 | 65 |
| CBT - All test items/questions read aloud (Percent) | 1.1 | 28.1 | 8.3 | 26 |
| CBT - Small group setting (Number) | 359 | 2,748 | 265 | 149 |
| CBT - Small group setting (Percent) | 1.8 | 56.8 | 21.5 | 59.6 |
| CBT - Extended time (Number) | 580 | 1,589 | 112 | 83 |
| CBT - Extended time (Percent) | 2.9 | 32.8 | 9.1 | 33.2 |
| CBT - Frequent breaks (Number) | 175 | 1,602 | 41 | 76 |
| CBT - Frequent breaks (Percent) | 0.9 | 33.1 | 3.3 | 30.4 |
| CBT - Number assessed (Number) | 20,299 | 4,842 | 1,231 | 250 |
| Total - Some test items/questions read aloud (Number) | 3,318 | 2,908 | 619 | 184 |
| Total - Some test items/questions read aloud (Percent) | 3.7 | 15 | 11.2 | 20.3 |
| Total - All test items/questions read aloud (Number) | 816 | 4,864 | 311 | 193 |
| Total - All test items/questions read aloud (Percent) | 0.9 | 25.1 | 5.6 | 21.3 |
| Total - Small group setting (Number) | 2,553 | 10,513 | 1,246 | 541 |
| Total - Small group setting (Percent) | 2.9 | 54.2 | 22.5 | 59.8 |
| Total - Extended time (Number) | 2,872 | 3,025 | 261 | 136 |
| Total - Extended time (Percent) | 3.2 | 15.6 | 4.7 | 15 |
| Total - Frequent breaks (Number) | 451 | 3,785 | 115 | 169 |
| Total - Frequent breaks (Percent) | 0.5 | 19.5 | 2.1 | 18.7 |
| Total - Number assessed (Number) | 88,876 | 19,404 | 5,529 | 905 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Mathematics Grade 4

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 1,869 | 2,833 | 377 | 173 |
| PPT - Some test items/questions read aloud (Percent) | 2.8 | 19.1 | 9.2 | 22.1 |
| PPT - All test items/questions read aloud (Number) | 334 | 3,213 | 147 | 144 |
| PPT - All test items/questions read aloud (Percent) | 0.5 | 21.7 | 3.6 | 18.4 |
| PPT - Small group setting (Number) | 1,811 | 8,586 | 921 | 517 |
| PPT - Small group setting (Percent) | 2.7 | 57.9 | 22.4 | 65.9 |
| PPT - Extended time (Number) | 2,595 | 1,606 | 171 | 80 |
| PPT - Extended time (Percent) | 3.9 | 10.8 | 4.2 | 10.2 |
| PPT - Frequent breaks (Number) | 304 | 2,262 | 43 | 100 |
| PPT - Frequent breaks (Percent) | 0.5 | 15.3 | 1 | 12.8 |
| PPT - Number assessed (Number) | 66,639 | 14,818 | 4,111 | 784 |
| CBT - Some test items/questions read aloud (Number) | 532 | 699 | 123 | 34 |
| CBT - Some test items/questions read aloud (Percent) | 2.4 | 13.1 | 10.6 | 12.6 |
| CBT - All test items/questions read aloud (Number) | 196 | 1,531 | 87 | 89 |
| CBT - All test items/questions read aloud (Percent) | 0.9 | 28.8 | 7.5 | 33 |
| CBT - Small group setting (Number) | 380 | 3,191 | 237 | 187 |
| CBT - Small group setting (Percent) | 1.7 | 60 | 20.5 | 69.3 |
| CBT - Extended time (Number) | 820 | 1,810 | 136 | 100 |
| CBT - Extended time (Percent) | 3.8 | 34 | 11.8 | 37 |
| CBT - Frequent breaks (Number) | 186 | 1,798 | 27 | 90 |
| CBT - Frequent breaks (Percent) | 0.9 | 33.8 | 2.3 | 33.3 |
| CBT - Number assessed (Number) | 21,728 | 5,316 | 1,156 | 270 |
| Total - Some test items/questions read aloud (Number) | 2,401 | 3,532 | 500 | 207 |
| Total - Some test items/questions read aloud (Percent) | 2.7 | 17.5 | 9.5 | 19.6 |
| Total - All test items/questions read aloud (Number) | 530 | 4,744 | 234 | 233 |
| Total - All test items/questions read aloud (Percent) | 0.6 | 23.6 | 4.4 | 22.1 |
| Total - Small group setting (Number) | 2,191 | 11,777 | 1,158 | 704 |
| Total - Small group setting (Percent) | 2.5 | 58.5 | 22 | 66.8 |
| Total - Extended time (Number) | 3,415 | 3,416 | 307 | 180 |
| Total - Extended time (Percent) | 3.9 | 17 | 5.8 | 17.1 |
| Total - Frequent breaks (Number) | 490 | 4,060 | 70 | 190 |
| Total - Frequent breaks (Percent) | 0.6 | 20.2 | 1.3 | 18 |
| Total - Number assessed (Number) | 88,367 | 20,134 | 5,267 | 1,054 |

**Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Mathematics
Grade 5**

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 1,256 | 2,545 | 235 | 164 |
| PPT - Some test items/questions read aloud (Percent) | 1.9 | 17.4 | 6.7 | 21 |
| PPT - All test items/questions read aloud (Number) | 163 | 2,503 | 71 | 111 |
| PPT - All test items/questions read aloud (Percent) | 0.2 | 17.1 | 2 | 14.2 |
| PPT - Small group setting (Number) | 1,379 | 8,676 | 597 | 498 |
| PPT - Small group setting (Percent) | 2.1 | 59.4 | 16.9 | 63.7 |
| PPT - Extended time (Number) | 2,885 | 1,647 | 154 | 80 |
| PPT - Extended time (Percent) | 4.4 | 11.3 | 4.4 | 10.2 |
| PPT - Frequent breaks (Number) | 208 | 2,108 | 37 | 111 |
| PPT - Frequent breaks (Percent) | 0.3 | 14.4 | 1 | 14.2 |
| PPT - Number assessed (Number) | 65,680 | 14,600 | 3,532 | 782 |
| CBT - Some test items/questions read aloud (Number) | 348 | 871 | 83 | 34 |
| CBT - Some test items/questions read aloud (Percent) | 1.4 | 14.3 | 7.6 | 12.4 |
| CBT - All test items/questions read aloud (Number) | 129 | 1,642 | 110 | 84 |
| CBT - All test items/questions read aloud (Percent) | 0.5 | 27 | 10.1 | 30.5 |
| CBT - Small group setting (Number) | 338 | 3,774 | 198 | 175 |
| CBT - Small group setting (Percent) | 1.4 | 62.1 | 18.2 | 63.6 |
| CBT - Extended time (Number) | 936 | 2,109 | 136 | 113 |
| CBT - Extended time (Percent) | 3.8 | 34.7 | 12.5 | 41.1 |
| CBT - Frequent breaks (Number) | 201 | 1,982 | 43 | 87 |
| CBT - Frequent breaks (Percent) | 0.8 | 32.6 | 3.9 | 31.6 |
| CBT - Number assessed (Number) | 24,454 | 6,077 | 1,089 | 275 |
| Total - Some test items/questions read aloud (Number) | 1,604 | 3,416 | 318 | 198 |
| Total - Some test items/questions read aloud (Percent) | 1.8 | 16.5 | 6.9 | 18.7 |
| Total - All test items/questions read aloud (Number) | 292 | 4,145 | 181 | 195 |
| Total - All test items/questions read aloud (Percent) | 0.3 | 20 | 3.9 | 18.4 |
| Total - Small group setting (Number) | 1,717 | 12,450 | 795 | 673 |
| Total - Small group setting (Percent) | 1.9 | 60.2 | 17.2 | 63.7 |
| Total - Extended time (Number) | 3,821 | 3,756 | 290 | 193 |
| Total - Extended time (Percent) | 4.2 | 18.2 | 6.3 | 18.3 |
| Total - Frequent breaks (Number) | 409 | 4,090 | 80 | 198 |
| Total - Frequent breaks (Percent) | 0.5 | 19.8 | 1.7 | 18.7 |
| Total - Number assessed (Number) | 90,134 | 20,677 | 4,621 | 1,057 |

**Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Mathematics
Grade 6**

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 310 | 1,632 | 65 | 67 |
| PPT - Some test items/questions read aloud (Percent) | 0.5 | 12.1 | 2.1 | 9.9 |
| PPT - All test items/questions read aloud (Number) | 69 | 1,438 | 25 | 54 |
| PPT - All test items/questions read aloud (Percent) | 0.1 | 10.6 | 0.8 | 8 |
| PPT - Small group setting (Number) | 872 | 7,768 | 367 | 324 |
| PPT - Small group setting (Percent) | 1.4 | 57.5 | 11.8 | 48.1 |
| PPT - Extended time (Number) | 2,399 | 1,301 | 190 | 60 |
| PPT - Extended time (Percent) | 3.8 | 9.6 | 6.1 | 8.9 |
| PPT - Frequent breaks (Number) | 126 | 1,338 | 29 | 49 |
| PPT - Frequent breaks (Percent) | 0.2 | 9.9 | 0.9 | 7.3 |
| PPT - Number assessed (Number) | 63,679 | 13,507 | 3,114 | 674 |
| CBT - Some test items/questions read aloud (Number) | 78 | 1,023 | 44 | 44 |
| CBT - Some test items/questions read aloud (Percent) | 0.3 | 15.1 | 4.9 | 13.8 |
| CBT - All test items/questions read aloud (Number) | 70 | 1,505 | 66 | 84 |
| CBT - All test items/questions read aloud (Percent) | 0.3 | 22.3 | 7.3 | 26.3 |
| CBT - Small group setting (Number) | 364 | 4,189 | 126 | 174 |
| CBT - Small group setting (Percent) | 1.4 | 62 | 14 | 54.5 |
| CBT - Extended time (Number) | 749 | 2,209 | 84 | 99 |
| CBT - Extended time (Percent) | 2.8 | 32.7 | 9.3 | 31 |
| CBT - Frequent breaks (Number) | 153 | 1,932 | 42 | 94 |
| CBT - Frequent breaks (Percent) | 0.6 | 28.6 | 4.7 | 29.5 |
| CBT - Number assessed (Number) | 26,891 | 6,761 | 899 | 319 |
| Total - Some test items/questions read aloud (Number) | 388 | 2,655 | 109 | 111 |
| Total - Some test items/questions read aloud (Percent) | 0.4 | 13.1 | 2.7 | 11.2 |
| Total - All test items/questions read aloud (Number) | 139 | 2,943 | 91 | 138 |
| Total - All test items/questions read aloud (Percent) | 0.2 | 14.5 | 2.3 | 13.9 |
| Total - Small group setting (Number) | 1,236 | 11,957 | 493 | 498 |
| Total - Small group setting (Percent) | 1.4 | 59 | 12.3 | 50.2 |
| Total - Extended time (Number) | 3,148 | 3,510 | 274 | 159 |
| Total - Extended time (Percent) | 3.5 | 17.3 | 6.8 | 16 |
| Total - Frequent breaks (Number) | 279 | 3,270 | 71 | 143 |
| Total - Frequent breaks (Percent) | 0.3 | 16.1 | 1.8 | 14.4 |
| Total - Number assessed (Number) | 90,570 | 20,268 | 4,013 | 993 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Mathematics Grade 7

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 114 | 1,108 | 57 | 42 |
| PPT - Some test items/questions read aloud (Percent) | 0.2 | 8.4 | 1.9 | 6.8 |
| PPT - All test items/questions read aloud (Number) | 34 | 878 | 10 | 26 |
| PPT - All test items/questions read aloud (Percent) | 0.1 | 6.6 | 0.3 | 4.2 |
| PPT - Small group setting (Number) | 751 | 7,612 | 343 | 285 |
| PPT - Small group setting (Percent) | 1.2 | 57.5 | 11.5 | 45.9 |
| PPT - Extended time (Number) | 1,967 | 1,099 | 93 | 45 |
| PPT - Extended time (Percent) | 3.1 | 8.3 | 3.1 | 7.2 |
| PPT - Frequent breaks (Number) | 71 | 1,062 | 23 | 45 |
| PPT - Frequent breaks (Percent) | 0.1 | 8 | 0.8 | 7.2 |
| PPT - Number assessed (Number) | 64,416 | 13,244 | 2,988 | 621 |
| CBT - Some test items/questions read aloud (Number) | 29 | 1,091 | 41 | 55 |
| CBT - Some test items/questions read aloud (Percent) | 0.1 | 15.4 | 5 | 16.2 |
| CBT - All test items/questions read aloud (Number) | 28 | 1,096 | 61 | 69 |
| CBT - All test items/questions read aloud (Percent) | 0.1 | 15.5 | 7.4 | 20.3 |
| CBT - Small group setting (Number) | 290 | 4,185 | 93 | 197 |
| CBT - Small group setting (Percent) | 1 | 59.1 | 11.3 | 57.9 |
| CBT - Extended time (Number) | 397 | 2,141 | 93 | 121 |
| CBT - Extended time (Percent) | 1.4 | 30.2 | 11.3 | 35.6 |
| CBT - Frequent breaks (Number) | 101 | 1,577 | 44 | 89 |
| CBT - Frequent breaks (Percent) | 0.4 | 22.3 | 5.4 | 26.2 |
| CBT - Number assessed (Number) | 28,841 | 7,087 | 820 | 340 |
| Total - Some test items/questions read aloud (Number) | 143 | 2,199 | 98 | 97 |
| Total - Some test items/questions read aloud (Percent) | 0.2 | 10.8 | 2.6 | 10.1 |
| Total - All test items/questions read aloud (Number) | 62 | 1,974 | 71 | 95 |
| Total - All test items/questions read aloud (Percent) | 0.1 | 9.7 | 1.9 | 9.9 |
| Total - Small group setting (Number) | 1,041 | 11,797 | 436 | 482 |
| Total - Small group setting (Percent) | 1.1 | 58 | 11.4 | 50.2 |
| Total - Extended time (Number) | 2,364 | 3,240 | 186 | 166 |
| Total - Extended time (Percent) | 2.5 | 15.9 | 4.9 | 17.3 |
| Total - Frequent breaks (Number) | 172 | 2,639 | 67 | 134 |
| Total - Frequent breaks (Percent) | 0.2 | 13 | 1.8 | 13.9 |
| Total - Number assessed (Number) | 93,257 | 20,331 | 3,808 | 961 |

**Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Mathematics
Grade 8**

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 62 | 985 | 38 | 31 |
| PPT - Some test items/questions read aloud (Percent) | 0.1 | 7.3 | 1.2 | 5.8 |
| PPT - All test items/questions read aloud (Number) | 33 | 689 | 8 | 19 |
| PPT - All test items/questions read aloud (Percent) | 0.1 | 5.1 | 0.3 | 3.5 |
| PPT - Small group setting (Number) | 766 | 7,534 | 316 | 242 |
| PPT - Small group setting (Percent) | 1.2 | 56.1 | 10.3 | 45 |
| PPT - Extended time (Number) | 1,128 | 1,045 | 104 | 29 |
| PPT - Extended time (Percent) | 1.7 | 7.8 | 3.4 | 5.4 |
| PPT - Frequent breaks (Number) | 74 | 1,007 | 8 | 25 |
| PPT - Frequent breaks (Percent) | 0.1 | 7.5 | 0.3 | 4.6 |
| PPT - Number assessed (Number) | 64,697 | 13,436 | 3,070 | 538 |
| CBT - Some test items/questions read aloud (Number) | 25 | 969 | 31 | 34 |
| CBT - Some test items/questions read aloud (Percent) | 0.1 | 13.7 | 3.7 | 12.4 |
| CBT - All test items/questions read aloud (Number) | 17 | 957 | 51 | 61 |
| CBT - All test items/questions read aloud (Percent) | 0.1 | 13.5 | 6.1 | 22.2 |
| CBT - Small group setting (Number) | 276 | 4,228 | 90 | 162 |
| CBT - Small group setting (Percent) | 0.9 | 59.9 | 10.8 | 58.9 |
| CBT - Extended time (Number) | 296 | 2,007 | 80 | 97 |
| CBT - Extended time (Percent) | 1 | 28.4 | 9.6 | 35.3 |
| CBT - Frequent breaks (Number) | 93 | 1,483 | 39 | 65 |
| CBT - Frequent breaks (Percent) | 0.3 | 21 | 4.7 | 23.6 |
| CBT - Number assessed (Number) | 29,122 | 7,064 | 837 | 275 |
| Total - Some test items/questions read aloud (Number) | 87 | 1,954 | 69 | 65 |
| Total - Some test items/questions read aloud (Percent) | 0.1 | 9.5 | 1.8 | 8 |
| Total - All test items/questions read aloud (Number) | 50 | 1,646 | 59 | 80 |
| Total - All test items/questions read aloud (Percent) | 0.1 | 8 | 1.5 | 9.8 |
| Total - Small group setting (Number) | 1,042 | 11,762 | 406 | 404 |
| Total - Small group setting (Percent) | 1.1 | 57.4 | 10.4 | 49.7 |
| Total - Extended time (Number) | 1,424 | 3,052 | 184 | 126 |
| Total - Extended time (Percent) | 1.5 | 14.9 | 4.7 | 15.5 |
| Total - Frequent breaks (Number) | 167 | 2,490 | 47 | 90 |
| Total - Frequent breaks (Percent) | 0.2 | 12.1 | 1.2 | 11.1 |
| Total - Number assessed (Number) | 93,819 | 20,500 | 3,907 | 813 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Science Grade 4

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 1,880 | 2,573 | 388 | 175 |
| PPT - Some test items/questions read aloud (Percent) | 2.9 | 17.7 | 9.5 | 22.5 |
| PPT - All test items/questions read aloud (Number) | 361 | 3,484 | 167 | 163 |
| PPT - All test items/questions read aloud (Percent) | 0.6 | 23.9 | 4.1 | 21 |
| PPT - Small group setting (Number) | 1,727 | 8,421 | 892 | 526 |
| PPT - Small group setting (Percent) | 2.6 | 57.9 | 21.9 | 67.6 |
| PPT - Extended time (Number) | 1,220 | 1,345 | 79 | 66 |
| PPT - Extended time (Percent) | 1.9 | 9.2 | 1.9 | 8.5 |
| PPT - Frequent breaks (Number) | 254 | 2,110 | 43 | 80 |
| PPT - Frequent breaks (Percent) | 0.4 | 14.5 | 1.1 | 10.3 |
| PPT - Number assessed (Number) | 65,547 | 14,552 | 4,066 | 778 |
| CBT - Some test items/questions read aloud (Number) | 484 | 688 | 120 | 29 |
| CBT - Some test items/questions read aloud (Percent) | 2.1 | 12.5 | 10 | 10.7 |
| CBT - All test items/questions read aloud (Number) | 219 | 1,518 | 80 | 86 |
| CBT - All test items/questions read aloud (Percent) | 1 | 27.6 | 6.7 | 31.7 |
| CBT - Small group setting (Number) | 383 | 3,236 | 256 | 176 |
| CBT - Small group setting (Percent) | 1.7 | 58.9 | 21.4 | 64.9 |
| CBT - Extended time (Number) | 450 | 1,728 | 125 | 93 |
| CBT - Extended time (Percent) | 2 | 31.4 | 10.5 | 34.3 |
| CBT - Frequent breaks (Number) | 185 | 1,792 | 26 | 83 |
| CBT - Frequent breaks (Percent) | 0.8 | 32.6 | 2.2 | 30.6 |
| CBT - Number assessed (Number) | 22,590 | 5,497 | 1,196 | 271 |
| Total - Some test items/questions read aloud (Number) | 2,364 | 3,261 | 508 | 204 |
| Total - Some test items/questions read aloud (Percent) | 2.7 | 16.3 | 9.7 | 19.4 |
| Total - All test items/questions read aloud (Number) | 580 | 5,002 | 247 | 249 |
| Total - All test items/questions read aloud (Percent) | 0.7 | 24.9 | 4.7 | 23.7 |
| Total - Small group setting (Number) | 2,110 | 11,657 | 1,148 | 702 |
| Total - Small group setting (Percent) | 2.4 | 58.1 | 21.8 | 66.9 |
| Total - Extended time (Number) | 1,670 | 3,073 | 204 | 159 |
| Total - Extended time (Percent) | 1.9 | 15.3 | 3.9 | 15.2 |
| Total - Frequent breaks (Number) | 439 | 3,902 | 69 | 163 |
| Total - Frequent breaks (Percent) | 0.5 | 19.5 | 1.3 | 15.5 |
| Total - Number assessed (Number) | 88,137 | 20,049 | 5,262 | 1,049 |

Incidence of IEP and EL Students Receiving Selected Accommodations on the 2022 PSSA: Science Grade 8

| Accommodation Received by Administration Mode | General Education (non-IEP or EL) | IEP and non-EL | EL and non-IEP | Both IEP and EL |
|--|--|-----------------------|-----------------------|------------------------|
| PPT - Some test items/questions read aloud (Number) | 61 | 855 | 24 | 28 |
| PPT - Some test items/questions read aloud (Percent) | 0.1 | 6.5 | 0.8 | 5.3 |
| PPT - All test items/questions read aloud (Number) | 37 | 749 | 13 | 27 |
| PPT - All test items/questions read aloud (Percent) | 0.1 | 5.7 | 0.4 | 5.1 |
| PPT - Small group setting (Number) | 707 | 7,372 | 287 | 244 |
| PPT - Small group setting (Percent) | 1.1 | 56 | 9.8 | 46.5 |
| PPT - Extended time (Number) | 351 | 817 | 49 | 19 |
| PPT - Extended time (Percent) | 0.6 | 6.2 | 1.7 | 3.6 |
| PPT - Frequent breaks (Number) | 68 | 902 | 2 | 18 |
| PPT - Frequent breaks (Percent) | 0.1 | 6.9 | 0.1 | 3.4 |
| PPT - Number assessed (Number) | 63,022 | 13,163 | 2,935 | 525 |
| CBT - Some test items/questions read aloud (Number) | 25 | 927 | 30 | 33 |
| CBT - Some test items/questions read aloud (Percent) | 0.1 | 12.9 | 3.2 | 11.6 |
| CBT - All test items/questions read aloud (Number) | 16 | 937 | 47 | 58 |
| CBT - All test items/questions read aloud (Percent) | 0.1 | 13 | 4.9 | 20.4 |
| CBT - Small group setting (Number) | 272 | 4,213 | 88 | 168 |
| CBT - Small group setting (Percent) | 0.9 | 58.6 | 9.3 | 59.2 |
| CBT - Extended time (Number) | 177 | 2,018 | 76 | 98 |
| CBT - Extended time (Percent) | 0.6 | 28.1 | 8 | 34.5 |
| CBT - Frequent breaks (Number) | 91 | 1,439 | 33 | 62 |
| CBT - Frequent breaks (Percent) | 0.3 | 20 | 3.5 | 21.8 |
| CBT - Number assessed (Number) | 30,339 | 7,193 | 951 | 284 |
| Total - Some test items/questions read aloud (Number) | 86 | 1,782 | 54 | 61 |
| Total - Some test items/questions read aloud (Percent) | 0.1 | 8.8 | 1.4 | 7.5 |
| Total - All test items/questions read aloud (Number) | 53 | 1,686 | 60 | 85 |
| Total - All test items/questions read aloud (Percent) | 0.1 | 8.3 | 1.5 | 10.5 |
| Total - Small group setting (Number) | 979 | 11,585 | 375 | 412 |
| Total - Small group setting (Percent) | 1 | 56.9 | 9.7 | 50.9 |
| Total - Extended time (Number) | 528 | 2,835 | 125 | 117 |
| Total - Extended time (Percent) | 0.6 | 13.9 | 3.2 | 14.5 |
| Total - Frequent breaks (Number) | 159 | 2,341 | 35 | 80 |
| Total - Frequent breaks (Percent) | 0.2 | 11.5 | 0.9 | 9.9 |
| Total - Number assessed (Number) | 93,361 | 20,356 | 3,886 | 809 |

APPENDIX M: CUT SCORES AND SCALE TRANSFORMATIONS

| Subject | Grade | Scaling Intercept | Scaling Slope | Lowest Observed Scaled Score | Scaled Score Cut: Bel. Basic/Basic | Scaled Score Cut: Basic/Prof. | Scaled Score Cut: Prof./Adv. |
|-------------|-------|-------------------|---------------|------------------------------|------------------------------------|-------------------------------|------------------------------|
| Mathematics | 3 | 956.31 | 100 | 600 | 923 | 1000 | 1110 |
| Mathematics | 4 | 981.92 | 100 | 600 | 908 | 1000 | 1107 |
| Mathematics | 5 | 961.69 | 100 | 600 | 901 | 1000 | 1113 |
| Mathematics | 6 | 931.41 | 100 | 600 | 897 | 1000 | 1105 |
| Mathematics | 7 | 956.16 | 100 | 600 | 904 | 1000 | 1109 |
| Mathematics | 8 | 951.76 | 100 | 600 | 906 | 1000 | 1108 |
| ELA | 3 | 962.47 | 100 | 600 | 905 | 1000 | 1143 |
| ELA | 4 | 957.49 | 100 | 600 | 887 | 1000 | 1107 |
| ELA | 5 | 958.32 | 100 | 600 | 893 | 1000 | 1139 |
| ELA | 6 | 940.78 | 100 | 600 | 875 | 1000 | 1115 |
| ELA | 7 | 947.65 | 100 | 600 | 845 | 1000 | 1130 |
| ELA | 8 | 961.11 | 100 | 600 | 886 | 1000 | 1130 |
| Science | 4 | 1225.65 | 176.75 | 1050 | 1150 | 1275 | 1483 |
| Science | 8 | 1196.64 | 191.54 | 925 | 1150 | 1275 | 1464 |

APPENDIX N: RAW-TO-SCALED SCORE CONVERSION TABLES

The raw-to-scaled score conversion tables are presented for each subject and grade level. For each raw score point, the IRT difficulty estimates, standard errors (SE), frequencies, percent, cumulative frequencies, cumulative percent and percentiles were estimated using WINSTEPS (Linacre, 2019). Percentiles were calculated as the cumulative percent for the score below added to half the frequency percent for the current score (half-rounded) and then constrained to the range 1–99 for non-zero frequencies (Linacre, 2009).

Grade 3 Mathematics

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.2248 | 1.835 | 600 | 184 | 3 | 0.0 | 3 | 0.0 | 1 |
| 1 | -3.9972 | 1.0168 | 600 | 102 | 6 | 0.0 | 9 | 0.0 | 1 |
| 2 | -3.27 | 0.7309 | 629 | 73 | 16 | 0.0 | 25 | 0.0 | 1 |
| 3 | -2.8302 | 0.6064 | 673 | 61 | 41 | 0.0 | 66 | 0.1 | 1 |
| 4 | -2.508 | 0.5335 | 706 | 53 | 107 | 0.1 | 173 | 0.2 | 1 |
| 5 | -2.2501 | 0.4847 | 731 | 48 | 220 | 0.2 | 393 | 0.3 | 1 |
| 6 | -2.0327 | 0.4493 | 753 | 45 | 428 | 0.4 | 821 | 0.7 | 1 |
| 7 | -1.8432 | 0.4224 | 772 | 42 | 784 | 0.7 | 1605 | 1.4 | 1 |
| 8 | -1.6739 | 0.4011 | 789 | 40 | 1233 | 1.1 | 2838 | 2.5 | 2 |
| 9 | -1.5201 | 0.3839 | 804 | 38 | 1736 | 1.5 | 4574 | 4.0 | 3 |
| 10 | -1.3783 | 0.3697 | 818 | 37 | 2245 | 2.0 | 6819 | 5.9 | 5 |
| 11 | -1.2461 | 0.3578 | 832 | 36 | 2635 | 2.3 | 9454 | 8.2 | 7 |
| 12 | -1.1218 | 0.3477 | 844 | 35 | 2870 | 2.5 | 12324 | 10.7 | 9 |
| 13 | -1.0039 | 0.3391 | 856 | 34 | 3109 | 2.7 | 15433 | 13.5 | 12 |
| 14 | -0.8915 | 0.3318 | 867 | 33 | 2980 | 2.6 | 18413 | 16.1 | 15 |
| 15 | -0.7835 | 0.3255 | 878 | 33 | 3020 | 2.6 | 21433 | 18.7 | 17 |
| 16 | -0.6793 | 0.3201 | 888 | 32 | 3085 | 2.7 | 24518 | 21.4 | 20 |
| 17 | -0.5784 | 0.3155 | 898 | 32 | 2955 | 2.6 | 27473 | 23.9 | 23 |
| 18 | -0.4802 | 0.3115 | 908 | 31 | 2788 | 2.4 | 30261 | 26.4 | 25 |
| 19 | -0.3842 | 0.3082 | 918 | 31 | 2903 | 2.5 | 33164 | 28.9 | 28 |
| 20 | -0.2901 | 0.3054 | 927 | 31 | 2897 | 2.5 | 36061 | 31.4 | 30 |
| 21 | -0.1975 | 0.3032 | 937 | 30 | 2931 | 2.6 | 38992 | 34.0 | 33 |
| 22 | -0.1062 | 0.3014 | 946 | 30 | 2843 | 2.5 | 41835 | 36.5 | 35 |
| 23 | -0.0158 | 0.3001 | 955 | 30 | 2992 | 2.6 | 44827 | 39.1 | 38 |
| 24 | 0.074 | 0.2992 | 964 | 30 | 2997 | 2.6 | 47824 | 41.7 | 40 |
| 25 | 0.1634 | 0.2988 | 973 | 30 | 3030 | 2.6 | 50854 | 44.3 | 43 |
| 26 | 0.2526 | 0.2988 | 982 | 30 | 3000 | 2.6 | 53854 | 46.9 | 46 |
| 27 | 0.342 | 0.2992 | 991 | 30 | 3047 | 2.7 | 56901 | 49.6 | 48 |
| 28 | 0.4317 | 0.3001 | 999 | 30 | 3054 | 2.7 | 59955 | 52.3 | 51 |
| 29 | 0.5221 | 0.3014 | 1009 | 30 | 3095 | 2.7 | 63050 | 55.0 | 54 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 30 | 0.6135 | 0.3033 | 1018 | 30 | 3227 | 2.8 | 66277 | 57.8 | 56 |
| 31 | 0.7062 | 0.3056 | 1027 | 31 | 3185 | 2.8 | 69462 | 60.6 | 59 |
| 32 | 0.8005 | 0.3086 | 1036 | 31 | 3213 | 2.8 | 72675 | 63.4 | 62 |
| 33 | 0.8968 | 0.3121 | 1046 | 31 | 3196 | 2.8 | 75871 | 66.1 | 65 |
| 34 | 0.9954 | 0.3163 | 1056 | 32 | 3042 | 2.7 | 78913 | 68.8 | 67 |
| 35 | 1.097 | 0.3212 | 1066 | 32 | 3045 | 2.7 | 81958 | 71.4 | 70 |
| 36 | 1.2019 | 0.3269 | 1077 | 33 | 2974 | 2.6 | 84932 | 74.0 | 73 |
| 37 | 1.3109 | 0.3335 | 1087 | 33 | 2882 | 2.5 | 87814 | 76.6 | 75 |
| 38 | 1.4246 | 0.3411 | 1099 | 34 | 2980 | 2.6 | 90794 | 79.1 | 78 |
| 39 | 1.5439 | 0.3498 | 1111 | 35 | 2824 | 2.5 | 93618 | 81.6 | 80 |
| 40 | 1.6697 | 0.3599 | 1123 | 36 | 2776 | 2.4 | 96394 | 84.0 | 83 |
| 41 | 1.8034 | 0.3715 | 1137 | 37 | 2661 | 2.3 | 99055 | 86.3 | 85 |
| 42 | 1.9463 | 0.385 | 1151 | 39 | 2493 | 2.2 | 101548 | 88.5 | 87 |
| 43 | 2.1005 | 0.4008 | 1166 | 40 | 2443 | 2.1 | 103991 | 90.7 | 90 |
| 44 | 2.2685 | 0.4194 | 1183 | 42 | 2301 | 2.0 | 106292 | 92.7 | 92 |
| 45 | 2.4537 | 0.4419 | 1202 | 44 | 2071 | 1.8 | 108363 | 94.5 | 94 |
| 46 | 2.6609 | 0.4695 | 1222 | 47 | 1776 | 1.5 | 110139 | 96.0 | 95 |
| 47 | 2.8977 | 0.505 | 1246 | 51 | 1508 | 1.3 | 111647 | 97.3 | 97 |
| 48 | 3.1763 | 0.553 | 1274 | 55 | 1242 | 1.1 | 112889 | 98.4 | 98 |
| 49 | 3.5199 | 0.6239 | 1308 | 62 | 896 | 0.8 | 113785 | 99.2 | 99 |
| 50 | 3.9809 | 0.745 | 1354 | 75 | 566 | 0.5 | 114351 | 99.7 | 99 |
| 51 | 4.7282 | 1.0262 | 1429 | 103 | 279 | 0.2 | 114630 | 99.9 | 99 |
| 52 | 5.9687 | 1.8397 | 1553 | 184 | 84 | 0.1 | 114714 | 100.0 | 99 |

Grade 4 Mathematics

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.8338 | 1.8404 | 600 | 184 | 2 | 0.0 | 2 | 0.0 | 1 |
| 1 | -4.5926 | 1.0259 | 600 | 103 | 6 | 0.0 | 8 | 0.0 | 1 |
| 2 | -3.8479 | 0.7422 | 600 | 74 | 15 | 0.0 | 23 | 0.0 | 1 |
| 3 | -3.3923 | 0.6187 | 643 | 62 | 42 | 0.0 | 65 | 0.1 | 1 |
| 4 | -3.0558 | 0.5462 | 676 | 55 | 97 | 0.1 | 162 | 0.1 | 1 |
| 5 | -2.7847 | 0.4975 | 703 | 50 | 239 | 0.2 | 401 | 0.3 | 1 |
| 6 | -2.5551 | 0.4622 | 726 | 46 | 424 | 0.4 | 825 | 0.7 | 1 |
| 7 | -2.3543 | 0.4351 | 746 | 44 | 711 | 0.6 | 1536 | 1.3 | 1 |
| 8 | -2.1744 | 0.4138 | 764 | 41 | 1173 | 1.0 | 2709 | 2.4 | 2 |
| 9 | -2.0105 | 0.3965 | 781 | 40 | 1602 | 1.4 | 4311 | 3.8 | 3 |
| 10 | -1.8591 | 0.3822 | 796 | 38 | 1984 | 1.7 | 6295 | 5.5 | 5 |
| 11 | -1.7176 | 0.3703 | 810 | 37 | 2458 | 2.1 | 8753 | 7.6 | 7 |
| 12 | -1.5844 | 0.3602 | 823 | 36 | 2776 | 2.4 | 11529 | 10.0 | 9 |
| 13 | -1.4578 | 0.3516 | 836 | 35 | 2947 | 2.6 | 14476 | 12.6 | 11 |
| 14 | -1.3368 | 0.3443 | 848 | 34 | 3262 | 2.8 | 17738 | 15.4 | 14 |
| 15 | -1.2205 | 0.338 | 860 | 34 | 3451 | 3.0 | 21189 | 18.5 | 17 |
| 16 | -1.1081 | 0.3326 | 871 | 33 | 3489 | 3.0 | 24678 | 21.5 | 20 |
| 17 | -0.999 | 0.328 | 882 | 33 | 3630 | 3.2 | 28308 | 24.7 | 23 |
| 18 | -0.8927 | 0.3242 | 893 | 32 | 3526 | 3.1 | 31834 | 27.7 | 26 |
| 19 | -0.7887 | 0.3209 | 903 | 32 | 3644 | 3.2 | 35478 | 30.9 | 29 |
| 20 | -0.6866 | 0.3182 | 913 | 32 | 3579 | 3.1 | 39057 | 34.0 | 32 |
| 21 | -0.5862 | 0.316 | 923 | 32 | 3558 | 3.1 | 42615 | 37.1 | 36 |
| 22 | -0.4869 | 0.3142 | 933 | 31 | 3565 | 3.1 | 46180 | 40.2 | 39 |
| 23 | -0.3886 | 0.3129 | 943 | 31 | 3420 | 3.0 | 49600 | 43.2 | 42 |
| 24 | -0.291 | 0.312 | 953 | 31 | 3501 | 3.0 | 53101 | 46.2 | 45 |
| 25 | -0.1938 | 0.3115 | 963 | 31 | 3410 | 3.0 | 56511 | 49.2 | 48 |
| 26 | -0.0968 | 0.3114 | 972 | 31 | 3395 | 3.0 | 59906 | 52.2 | 51 |
| 27 | 0.0003 | 0.3117 | 982 | 31 | 3216 | 2.8 | 63122 | 55.0 | 54 |
| 28 | 0.0976 | 0.3123 | 992 | 31 | 3150 | 2.7 | 66272 | 57.7 | 56 |
| 29 | 0.1954 | 0.3133 | 1001 | 31 | 3199 | 2.8 | 69471 | 60.5 | 59 |
| 30 | 0.2939 | 0.3146 | 1011 | 31 | 3091 | 2.7 | 72562 | 63.2 | 62 |
| 31 | 0.3935 | 0.3164 | 1021 | 32 | 3095 | 2.7 | 75657 | 65.9 | 65 |
| 32 | 0.4942 | 0.3185 | 1031 | 32 | 3064 | 2.7 | 78721 | 68.6 | 67 |
| 33 | 0.5964 | 0.321 | 1042 | 32 | 2893 | 2.5 | 81614 | 71.1 | 70 |
| 34 | 0.7004 | 0.324 | 1052 | 32 | 2862 | 2.5 | 84476 | 73.6 | 72 |
| 35 | 0.8065 | 0.3275 | 1063 | 33 | 2718 | 2.4 | 87194 | 75.9 | 75 |
| 36 | 0.9151 | 0.3317 | 1073 | 33 | 2755 | 2.4 | 89949 | 78.3 | 77 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 1.0267 | 0.3365 | 1085 | 34 | 2698 | 2.3 | 92647 | 80.7 | 80 |
| 38 | 1.1417 | 0.3421 | 1096 | 34 | 2630 | 2.3 | 95277 | 83.0 | 82 |
| 39 | 1.261 | 0.3488 | 1108 | 35 | 2481 | 2.2 | 97758 | 85.1 | 84 |
| 40 | 1.3854 | 0.3567 | 1120 | 36 | 2456 | 2.1 | 100214 | 87.3 | 86 |
| 41 | 1.516 | 0.3663 | 1134 | 37 | 2329 | 2.0 | 102543 | 89.3 | 88 |
| 42 | 1.6543 | 0.3779 | 1147 | 38 | 2200 | 1.9 | 104743 | 91.2 | 90 |
| 43 | 1.8024 | 0.3923 | 1162 | 39 | 2024 | 1.8 | 106767 | 93.0 | 92 |
| 44 | 1.9632 | 0.4102 | 1178 | 41 | 1794 | 1.6 | 108561 | 94.5 | 94 |
| 45 | 2.1406 | 0.433 | 1196 | 43 | 1558 | 1.4 | 110119 | 95.9 | 95 |
| 46 | 2.3405 | 0.4625 | 1216 | 46 | 1442 | 1.3 | 111561 | 97.2 | 97 |
| 47 | 2.5722 | 0.5018 | 1239 | 50 | 1144 | 1.0 | 112705 | 98.2 | 98 |
| 48 | 2.8507 | 0.5563 | 1267 | 56 | 892 | 0.8 | 113597 | 98.9 | 99 |
| 49 | 3.2037 | 0.6369 | 1302 | 64 | 626 | 0.5 | 114223 | 99.5 | 99 |
| 50 | 3.691 | 0.7701 | 1351 | 77 | 365 | 0.3 | 114588 | 99.8 | 99 |
| 51 | 4.4924 | 1.0609 | 1431 | 106 | 183 | 0.2 | 114771 | 100.0 | 99 |
| 52 | 5.7941 | 1.8675 | 1561 | 187 | 51 | 0.0 | 114822 | 100.0 | 99 |

Grade 5 Mathematics

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.0325 | 1.8337 | 600 | 183 | 0 | 0.0 | 0 | 0.0 | 0 |
| 1 | -3.8082 | 1.0144 | 600 | 101 | 5 | 0.0 | 5 | 0.0 | 1 |
| 2 | -3.0859 | 0.7274 | 653 | 73 | 22 | 0.0 | 27 | 0.0 | 1 |
| 3 | -2.6514 | 0.602 | 697 | 60 | 65 | 0.1 | 92 | 0.1 | 1 |
| 4 | -2.3346 | 0.5283 | 728 | 53 | 192 | 0.2 | 284 | 0.2 | 1 |
| 5 | -2.0823 | 0.4788 | 753 | 48 | 464 | 0.4 | 748 | 0.6 | 1 |
| 6 | -1.8707 | 0.4428 | 775 | 44 | 865 | 0.7 | 1613 | 1.4 | 1 |
| 7 | -1.6871 | 0.4153 | 793 | 42 | 1617 | 1.4 | 3230 | 2.8 | 2 |
| 8 | -1.5238 | 0.3936 | 809 | 39 | 2456 | 2.1 | 5686 | 4.9 | 4 |
| 9 | -1.3759 | 0.376 | 824 | 38 | 3159 | 2.7 | 8845 | 7.6 | 6 |
| 10 | -1.2401 | 0.3615 | 838 | 36 | 3996 | 3.4 | 12841 | 11.0 | 9 |
| 11 | -1.1139 | 0.3494 | 850 | 35 | 4508 | 3.9 | 17349 | 14.9 | 13 |
| 12 | -0.9954 | 0.3392 | 862 | 34 | 4820 | 4.1 | 22169 | 19.0 | 17 |
| 13 | -0.8833 | 0.3306 | 873 | 33 | 4776 | 4.1 | 26945 | 23.1 | 21 |
| 14 | -0.7764 | 0.3233 | 884 | 32 | 4754 | 4.1 | 31699 | 27.2 | 25 |
| 15 | -0.674 | 0.3171 | 894 | 32 | 4504 | 3.9 | 36203 | 31.1 | 29 |
| 16 | -0.5751 | 0.3118 | 904 | 31 | 4399 | 3.8 | 40602 | 34.9 | 33 |
| 17 | -0.4793 | 0.3073 | 914 | 31 | 4085 | 3.5 | 44687 | 38.4 | 37 |
| 18 | -0.3861 | 0.3035 | 923 | 30 | 3934 | 3.4 | 48621 | 41.7 | 40 |
| 19 | -0.2949 | 0.3004 | 932 | 30 | 3727 | 3.2 | 52348 | 44.9 | 43 |
| 20 | -0.2055 | 0.2978 | 941 | 30 | 3657 | 3.1 | 56005 | 48.1 | 47 |
| 21 | -0.1175 | 0.2957 | 950 | 30 | 3520 | 3.0 | 59525 | 51.1 | 50 |
| 22 | -0.0305 | 0.2941 | 959 | 29 | 3324 | 2.9 | 62849 | 54.0 | 53 |
| 23 | 0.0556 | 0.2929 | 967 | 29 | 3253 | 2.8 | 66102 | 56.7 | 55 |
| 24 | 0.1412 | 0.2922 | 976 | 29 | 3199 | 2.7 | 69301 | 59.5 | 58 |
| 25 | 0.2264 | 0.2918 | 984 | 29 | 3049 | 2.6 | 72350 | 62.1 | 61 |
| 26 | 0.3116 | 0.2918 | 993 | 29 | 2883 | 2.5 | 75233 | 64.6 | 63 |
| 27 | 0.3968 | 0.2922 | 1001 | 29 | 2656 | 2.3 | 77889 | 66.9 | 66 |
| 28 | 0.4824 | 0.293 | 1010 | 29 | 2640 | 2.3 | 80529 | 69.1 | 68 |
| 29 | 0.5685 | 0.2941 | 1019 | 29 | 2602 | 2.2 | 83131 | 71.4 | 70 |
| 30 | 0.6555 | 0.2957 | 1027 | 30 | 2461 | 2.1 | 85592 | 73.5 | 72 |
| 31 | 0.7435 | 0.2977 | 1036 | 30 | 2377 | 2.0 | 87969 | 75.5 | 74 |
| 32 | 0.8329 | 0.3002 | 1045 | 30 | 2265 | 1.9 | 90234 | 77.5 | 76 |
| 33 | 0.9239 | 0.3032 | 1054 | 30 | 2208 | 1.9 | 92442 | 79.4 | 78 |
| 34 | 1.0169 | 0.3068 | 1063 | 31 | 2120 | 1.8 | 94562 | 81.2 | 80 |
| 35 | 1.1123 | 0.311 | 1073 | 31 | 2075 | 1.8 | 96637 | 83.0 | 82 |
| 36 | 1.2105 | 0.3159 | 1083 | 32 | 1923 | 1.7 | 98560 | 84.6 | 84 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 1.312 | 0.3216 | 1093 | 32 | 1901 | 1.6 | 100461 | 86.2 | 85 |
| 38 | 1.4175 | 0.3282 | 1103 | 33 | 1872 | 1.6 | 102333 | 87.8 | 87 |
| 39 | 1.5277 | 0.3359 | 1114 | 34 | 1708 | 1.5 | 104041 | 89.3 | 89 |
| 40 | 1.6436 | 0.345 | 1126 | 35 | 1691 | 1.5 | 105732 | 90.8 | 90 |
| 41 | 1.7662 | 0.3556 | 1138 | 36 | 1589 | 1.4 | 107321 | 92.1 | 91 |
| 42 | 1.897 | 0.3682 | 1151 | 37 | 1460 | 1.3 | 108781 | 93.4 | 93 |
| 43 | 2.038 | 0.3831 | 1165 | 38 | 1365 | 1.2 | 110146 | 94.6 | 94 |
| 44 | 2.1916 | 0.4013 | 1181 | 40 | 1306 | 1.1 | 111452 | 95.7 | 95 |
| 45 | 2.3614 | 0.4236 | 1198 | 42 | 1173 | 1.0 | 112625 | 96.7 | 96 |
| 46 | 2.5526 | 0.4518 | 1217 | 45 | 1032 | 0.9 | 113657 | 97.6 | 97 |
| 47 | 2.773 | 0.4885 | 1239 | 49 | 905 | 0.8 | 114562 | 98.3 | 98 |
| 48 | 3.0356 | 0.5388 | 1265 | 54 | 728 | 0.6 | 115290 | 99.0 | 99 |
| 49 | 3.3647 | 0.6131 | 1298 | 61 | 568 | 0.5 | 115858 | 99.5 | 99 |
| 50 | 3.8141 | 0.7387 | 1343 | 74 | 379 | 0.3 | 116237 | 99.8 | 99 |
| 51 | 4.5548 | 1.0245 | 1417 | 102 | 197 | 0.2 | 116434 | 100.0 | 99 |
| 52 | 5.7946 | 1.8402 | 1541 | 184 | 55 | 0.0 | 116489 | 100.0 | 99 |

Grade 6 Mathematics

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.1779 | 1.8345 | 600 | 183 | 1 | 0.0 | 1 | 0.0 | 1 |
| 1 | -3.9515 | 1.0158 | 600 | 102 | 8 | 0.0 | 9 | 0.0 | 1 |
| 2 | -3.2266 | 0.7292 | 609 | 73 | 10 | 0.0 | 19 | 0.0 | 1 |
| 3 | -2.7893 | 0.6042 | 652 | 60 | 47 | 0.0 | 66 | 0.1 | 1 |
| 4 | -2.4699 | 0.5309 | 684 | 53 | 131 | 0.1 | 197 | 0.2 | 1 |
| 5 | -2.2147 | 0.4818 | 710 | 48 | 328 | 0.3 | 525 | 0.5 | 1 |
| 6 | -2.0002 | 0.4462 | 731 | 45 | 626 | 0.5 | 1151 | 1.0 | 1 |
| 7 | -1.8133 | 0.4192 | 750 | 42 | 1122 | 1.0 | 2273 | 2.0 | 1 |
| 8 | -1.6467 | 0.398 | 767 | 40 | 1741 | 1.5 | 4014 | 3.5 | 3 |
| 9 | -1.4952 | 0.3809 | 782 | 38 | 2509 | 2.2 | 6523 | 5.6 | 5 |
| 10 | -1.3555 | 0.367 | 796 | 37 | 3172 | 2.7 | 9695 | 8.4 | 7 |
| 11 | -1.2251 | 0.3554 | 809 | 36 | 3733 | 3.2 | 13428 | 11.6 | 10 |
| 12 | -1.1023 | 0.3458 | 821 | 35 | 4081 | 3.5 | 17509 | 15.1 | 13 |
| 13 | -0.9856 | 0.3376 | 833 | 34 | 4121 | 3.6 | 21630 | 18.7 | 17 |
| 14 | -0.874 | 0.3308 | 844 | 33 | 4257 | 3.7 | 25887 | 22.3 | 21 |
| 15 | -0.7665 | 0.325 | 855 | 33 | 4059 | 3.5 | 29946 | 25.9 | 24 |
| 16 | -0.6625 | 0.3201 | 865 | 32 | 4013 | 3.5 | 33959 | 29.3 | 28 |
| 17 | -0.5614 | 0.316 | 875 | 32 | 3932 | 3.4 | 37891 | 32.7 | 31 |
| 18 | -0.4626 | 0.3126 | 885 | 31 | 3616 | 3.1 | 41507 | 35.8 | 34 |
| 19 | -0.3658 | 0.3099 | 895 | 31 | 3526 | 3.0 | 45033 | 38.9 | 37 |
| 20 | -0.2705 | 0.3077 | 904 | 31 | 3458 | 3.0 | 48491 | 41.9 | 40 |
| 21 | -0.1763 | 0.306 | 914 | 31 | 3256 | 2.8 | 51747 | 44.7 | 43 |
| 22 | -0.0831 | 0.3048 | 923 | 30 | 3317 | 2.9 | 55064 | 47.5 | 46 |
| 23 | 0.0096 | 0.3041 | 932 | 30 | 3158 | 2.7 | 58222 | 50.3 | 49 |
| 24 | 0.1019 | 0.3038 | 942 | 30 | 3108 | 2.7 | 61330 | 52.9 | 52 |
| 25 | 0.1942 | 0.3039 | 951 | 30 | 2981 | 2.6 | 64311 | 55.5 | 54 |
| 26 | 0.2867 | 0.3044 | 960 | 30 | 2909 | 2.5 | 67220 | 58.0 | 57 |
| 27 | 0.3797 | 0.3054 | 969 | 31 | 2799 | 2.4 | 70019 | 60.4 | 59 |
| 28 | 0.4733 | 0.3068 | 979 | 31 | 2922 | 2.5 | 72941 | 63.0 | 62 |
| 29 | 0.568 | 0.3086 | 988 | 31 | 2806 | 2.4 | 75747 | 65.4 | 64 |
| 30 | 0.6639 | 0.3108 | 998 | 31 | 2683 | 2.3 | 78430 | 67.7 | 67 |
| 31 | 0.7613 | 0.3135 | 1008 | 31 | 2663 | 2.3 | 81093 | 70.0 | 69 |
| 32 | 0.8606 | 0.3167 | 1017 | 32 | 2563 | 2.2 | 83656 | 72.2 | 71 |
| 33 | 0.9621 | 0.3204 | 1028 | 32 | 2628 | 2.3 | 86284 | 74.5 | 73 |
| 34 | 1.0661 | 0.3246 | 1038 | 32 | 2493 | 2.2 | 88777 | 76.6 | 76 |
| 35 | 1.173 | 0.3294 | 1049 | 33 | 2453 | 2.1 | 91230 | 78.8 | 78 |
| 36 | 1.2832 | 0.3347 | 1060 | 33 | 2454 | 2.1 | 93684 | 80.9 | 80 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 1.3972 | 0.3407 | 1071 | 34 | 2288 | 2.0 | 95972 | 82.8 | 82 |
| 38 | 1.5155 | 0.3474 | 1083 | 35 | 2213 | 1.9 | 98185 | 84.8 | 84 |
| 39 | 1.6388 | 0.3549 | 1095 | 35 | 2195 | 1.9 | 100380 | 86.7 | 86 |
| 40 | 1.7677 | 0.3633 | 1108 | 36 | 2086 | 1.8 | 102466 | 88.5 | 88 |
| 41 | 1.903 | 0.3727 | 1122 | 37 | 2125 | 1.8 | 104591 | 90.3 | 89 |
| 42 | 2.0459 | 0.3835 | 1136 | 38 | 1974 | 1.7 | 106565 | 92.0 | 91 |
| 43 | 2.1978 | 0.3961 | 1151 | 40 | 1805 | 1.6 | 108370 | 93.5 | 93 |
| 44 | 2.3605 | 0.4111 | 1167 | 41 | 1674 | 1.4 | 110044 | 95.0 | 94 |
| 45 | 2.537 | 0.4297 | 1185 | 43 | 1454 | 1.3 | 111498 | 96.2 | 96 |
| 46 | 2.7316 | 0.4535 | 1205 | 45 | 1273 | 1.1 | 112771 | 97.3 | 97 |
| 47 | 2.9514 | 0.4856 | 1227 | 49 | 1117 | 1.0 | 113888 | 98.3 | 98 |
| 48 | 3.2085 | 0.5312 | 1252 | 53 | 834 | 0.7 | 114722 | 99.0 | 99 |
| 49 | 3.5265 | 0.6014 | 1284 | 60 | 562 | 0.5 | 115284 | 99.5 | 99 |
| 50 | 3.9583 | 0.7243 | 1327 | 72 | 350 | 0.3 | 115634 | 99.8 | 99 |
| 51 | 4.6744 | 1.0107 | 1399 | 101 | 162 | 0.1 | 115796 | 100.0 | 99 |
| 52 | 5.8929 | 1.8313 | 1521 | 183 | 48 | 0.0 | 115844 | 100.0 | 99 |

Grade 7 Mathematics

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.1571 | 1.8339 | 600 | 183 | 3 | 0.0 | 3 | 0.0 | 1 |
| 1 | -3.9322 | 1.0149 | 600 | 101 | 2 | 0.0 | 5 | 0.0 | 1 |
| 2 | -3.209 | 0.7282 | 635 | 73 | 18 | 0.0 | 23 | 0.0 | 1 |
| 3 | -2.7731 | 0.6032 | 679 | 60 | 48 | 0.0 | 71 | 0.1 | 1 |
| 4 | -2.4547 | 0.53 | 711 | 53 | 196 | 0.2 | 267 | 0.2 | 1 |
| 5 | -2.2005 | 0.4809 | 736 | 48 | 379 | 0.3 | 646 | 0.5 | 1 |
| 6 | -1.9868 | 0.4453 | 757 | 45 | 872 | 0.7 | 1518 | 1.3 | 1 |
| 7 | -1.8008 | 0.4183 | 776 | 42 | 1521 | 1.3 | 3039 | 2.6 | 2 |
| 8 | -1.6349 | 0.3969 | 793 | 40 | 2368 | 2.0 | 5407 | 4.6 | 4 |
| 9 | -1.4844 | 0.3796 | 808 | 38 | 3368 | 2.8 | 8775 | 7.4 | 6 |
| 10 | -1.3457 | 0.3654 | 822 | 37 | 4225 | 3.6 | 13000 | 11.0 | 9 |
| 11 | -1.2166 | 0.3535 | 835 | 35 | 5023 | 4.2 | 18023 | 15.2 | 13 |
| 12 | -1.0953 | 0.3435 | 847 | 34 | 5590 | 4.7 | 23613 | 20.0 | 18 |
| 13 | -0.9803 | 0.3349 | 858 | 33 | 5829 | 4.9 | 29442 | 24.9 | 22 |
| 14 | -0.8706 | 0.3276 | 869 | 33 | 5751 | 4.9 | 35193 | 29.7 | 27 |
| 15 | -0.7654 | 0.3213 | 880 | 32 | 5531 | 4.7 | 40724 | 34.4 | 32 |
| 16 | -0.6639 | 0.3159 | 890 | 32 | 5321 | 4.5 | 46045 | 38.9 | 37 |
| 17 | -0.5656 | 0.3113 | 900 | 31 | 4850 | 4.1 | 50895 | 43.0 | 41 |
| 18 | -0.47 | 0.3073 | 909 | 31 | 4428 | 3.7 | 55323 | 46.7 | 45 |
| 19 | -0.3766 | 0.3039 | 919 | 30 | 4036 | 3.4 | 59359 | 50.2 | 48 |
| 20 | -0.2851 | 0.3011 | 928 | 30 | 3873 | 3.3 | 63232 | 53.4 | 52 |
| 21 | -0.1952 | 0.2987 | 937 | 30 | 3583 | 3.0 | 66815 | 56.5 | 55 |
| 22 | -0.1066 | 0.2968 | 946 | 30 | 3314 | 2.8 | 70129 | 59.3 | 58 |
| 23 | -0.0189 | 0.2953 | 954 | 30 | 3095 | 2.6 | 73224 | 61.9 | 61 |
| 24 | 0.0679 | 0.2942 | 963 | 29 | 2886 | 2.4 | 76110 | 64.3 | 63 |
| 25 | 0.1543 | 0.2935 | 972 | 29 | 2784 | 2.4 | 78894 | 66.7 | 65 |
| 26 | 0.2403 | 0.2932 | 980 | 29 | 2592 | 2.2 | 81486 | 68.8 | 68 |
| 27 | 0.3263 | 0.2932 | 989 | 29 | 2473 | 2.1 | 83959 | 70.9 | 70 |
| 28 | 0.4123 | 0.2936 | 997 | 29 | 2434 | 2.1 | 86393 | 73.0 | 72 |
| 29 | 0.4987 | 0.2943 | 1006 | 29 | 2332 | 2.0 | 88725 | 75.0 | 74 |
| 30 | 0.5856 | 0.2954 | 1015 | 30 | 2223 | 1.9 | 90948 | 76.8 | 76 |
| 31 | 0.6733 | 0.2969 | 1023 | 30 | 2067 | 1.7 | 93015 | 78.6 | 78 |
| 32 | 0.762 | 0.2987 | 1032 | 30 | 1973 | 1.7 | 94988 | 80.3 | 79 |
| 33 | 0.8519 | 0.301 | 1041 | 30 | 1994 | 1.7 | 96982 | 81.9 | 81 |
| 34 | 0.9433 | 0.3038 | 1050 | 30 | 1817 | 1.5 | 98799 | 83.5 | 83 |
| 35 | 1.0365 | 0.3071 | 1060 | 31 | 1739 | 1.5 | 100538 | 84.9 | 84 |
| 36 | 1.132 | 0.311 | 1069 | 31 | 1696 | 1.4 | 102234 | 86.4 | 86 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 1.2301 | 0.3156 | 1079 | 32 | 1591 | 1.3 | 103825 | 87.7 | 87 |
| 38 | 1.3315 | 0.3211 | 1089 | 32 | 1620 | 1.4 | 105445 | 89.1 | 88 |
| 39 | 1.4366 | 0.3277 | 1100 | 33 | 1485 | 1.3 | 106930 | 90.3 | 90 |
| 40 | 1.5466 | 0.3356 | 1111 | 34 | 1378 | 1.2 | 108308 | 91.5 | 91 |
| 41 | 1.6623 | 0.3451 | 1122 | 35 | 1366 | 1.2 | 109674 | 92.7 | 92 |
| 42 | 1.7853 | 0.3567 | 1135 | 36 | 1390 | 1.2 | 111064 | 93.8 | 93 |
| 43 | 1.9175 | 0.3708 | 1148 | 37 | 1185 | 1.0 | 112249 | 94.8 | 94 |
| 44 | 2.0613 | 0.3883 | 1162 | 39 | 1182 | 1.0 | 113431 | 95.8 | 95 |
| 45 | 2.2205 | 0.4103 | 1178 | 41 | 1109 | 0.9 | 114540 | 96.8 | 96 |
| 46 | 2.4001 | 0.4384 | 1196 | 44 | 995 | 0.8 | 115535 | 97.6 | 97 |
| 47 | 2.6082 | 0.4755 | 1217 | 48 | 882 | 0.7 | 116417 | 98.4 | 98 |
| 48 | 2.858 | 0.5266 | 1242 | 53 | 682 | 0.6 | 117099 | 98.9 | 99 |
| 49 | 3.1739 | 0.6021 | 1274 | 60 | 592 | 0.5 | 117691 | 99.4 | 99 |
| 50 | 3.6099 | 0.7294 | 1317 | 73 | 368 | 0.3 | 118059 | 99.7 | 99 |
| 51 | 4.337 | 1.0179 | 1390 | 102 | 221 | 0.2 | 118280 | 99.9 | 99 |
| 52 | 5.5676 | 1.8366 | 1513 | 184 | 77 | 0.1 | 118357 | 100.0 | 99 |

Grade 8 Mathematics

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.3721 | 1.8337 | 600 | 183 | 1 | 0.0 | 1 | 0.0 | 1 |
| 1 | -4.1475 | 1.0146 | 600 | 101 | 5 | 0.0 | 6 | 0.0 | 1 |
| 2 | -3.4248 | 0.7278 | 609 | 73 | 14 | 0.0 | 20 | 0.0 | 1 |
| 3 | -2.9895 | 0.6027 | 653 | 60 | 53 | 0.0 | 73 | 0.1 | 1 |
| 4 | -2.6717 | 0.5294 | 685 | 53 | 151 | 0.1 | 224 | 0.2 | 1 |
| 5 | -2.4182 | 0.4801 | 710 | 48 | 423 | 0.4 | 647 | 0.5 | 1 |
| 6 | -2.2052 | 0.4444 | 731 | 44 | 852 | 0.7 | 1499 | 1.3 | 1 |
| 7 | -2.0201 | 0.4171 | 750 | 42 | 1528 | 1.3 | 3027 | 2.5 | 2 |
| 8 | -1.8553 | 0.3955 | 766 | 40 | 2477 | 2.1 | 5504 | 4.6 | 4 |
| 9 | -1.7059 | 0.378 | 781 | 38 | 3523 | 3.0 | 9027 | 7.6 | 6 |
| 10 | -1.5687 | 0.3634 | 795 | 36 | 4441 | 3.7 | 13468 | 11.3 | 9 |
| 11 | -1.4411 | 0.3512 | 808 | 35 | 5103 | 4.3 | 18571 | 15.6 | 13 |
| 12 | -1.3215 | 0.3408 | 820 | 34 | 5581 | 4.7 | 24152 | 20.3 | 18 |
| 13 | -1.2084 | 0.3318 | 831 | 33 | 5443 | 4.6 | 29595 | 24.9 | 23 |
| 14 | -1.1009 | 0.3241 | 842 | 32 | 5354 | 4.5 | 34949 | 29.4 | 27 |
| 15 | -0.9981 | 0.3174 | 852 | 32 | 4940 | 4.1 | 39889 | 33.5 | 31 |
| 16 | -0.8993 | 0.3115 | 862 | 31 | 4608 | 3.9 | 44497 | 37.4 | 35 |
| 17 | -0.8039 | 0.3064 | 871 | 31 | 4199 | 3.5 | 48696 | 40.9 | 39 |
| 18 | -0.7114 | 0.3019 | 881 | 30 | 4065 | 3.4 | 52761 | 44.3 | 43 |
| 19 | -0.6214 | 0.298 | 890 | 30 | 3652 | 3.1 | 56413 | 47.4 | 46 |
| 20 | -0.5336 | 0.2947 | 898 | 29 | 3441 | 2.9 | 59854 | 50.3 | 49 |
| 21 | -0.4477 | 0.2918 | 907 | 29 | 3202 | 2.7 | 63056 | 53.0 | 52 |
| 22 | -0.3632 | 0.2895 | 915 | 29 | 3105 | 2.6 | 66161 | 55.6 | 54 |
| 23 | -0.28 | 0.2875 | 924 | 29 | 2917 | 2.5 | 69078 | 58.0 | 57 |
| 24 | -0.1978 | 0.2861 | 932 | 29 | 2842 | 2.4 | 71920 | 60.4 | 59 |
| 25 | -0.1163 | 0.285 | 940 | 29 | 2742 | 2.3 | 74662 | 62.7 | 62 |
| 26 | -0.0352 | 0.2844 | 948 | 28 | 2708 | 2.3 | 77370 | 65.0 | 64 |
| 27 | 0.0455 | 0.2842 | 956 | 28 | 2598 | 2.2 | 79968 | 67.2 | 66 |
| 28 | 0.1264 | 0.2845 | 964 | 28 | 2498 | 2.1 | 82466 | 69.3 | 68 |
| 29 | 0.2075 | 0.2852 | 973 | 29 | 2510 | 2.1 | 84976 | 71.4 | 70 |
| 30 | 0.2891 | 0.2864 | 981 | 29 | 2463 | 2.1 | 87439 | 73.5 | 72 |
| 31 | 0.3717 | 0.2882 | 989 | 29 | 2444 | 2.1 | 89883 | 75.5 | 74 |
| 32 | 0.4553 | 0.2905 | 997 | 29 | 2286 | 1.9 | 92169 | 77.4 | 76 |
| 33 | 0.5405 | 0.2933 | 1006 | 29 | 2226 | 1.9 | 94395 | 79.3 | 78 |
| 34 | 0.6275 | 0.2969 | 1015 | 30 | 2162 | 1.8 | 96557 | 81.1 | 80 |
| 35 | 0.7169 | 0.3011 | 1023 | 30 | 2039 | 1.7 | 98596 | 82.8 | 82 |
| 36 | 0.809 | 0.3061 | 1033 | 31 | 2012 | 1.7 | 100608 | 84.5 | 84 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 0.9044 | 0.3119 | 1042 | 31 | 1924 | 1.6 | 102532 | 86.1 | 85 |
| 38 | 1.0038 | 0.3188 | 1052 | 32 | 1853 | 1.6 | 104385 | 87.7 | 87 |
| 39 | 1.1079 | 0.3267 | 1063 | 33 | 1771 | 1.5 | 106156 | 89.2 | 88 |
| 40 | 1.2177 | 0.336 | 1074 | 34 | 1710 | 1.4 | 107866 | 90.6 | 90 |
| 41 | 1.3342 | 0.3469 | 1085 | 35 | 1568 | 1.3 | 109434 | 91.9 | 91 |
| 42 | 1.4589 | 0.3597 | 1098 | 36 | 1469 | 1.2 | 110903 | 93.2 | 93 |
| 43 | 1.5937 | 0.375 | 1111 | 38 | 1403 | 1.2 | 112306 | 94.3 | 94 |
| 44 | 1.7411 | 0.3933 | 1126 | 39 | 1244 | 1.0 | 113550 | 95.4 | 95 |
| 45 | 1.9044 | 0.4157 | 1142 | 42 | 1120 | 0.9 | 114670 | 96.3 | 96 |
| 46 | 2.0887 | 0.444 | 1161 | 44 | 1009 | 0.8 | 115679 | 97.2 | 97 |
| 47 | 2.3018 | 0.4807 | 1182 | 48 | 901 | 0.8 | 116580 | 97.9 | 98 |
| 48 | 2.5563 | 0.5309 | 1207 | 53 | 786 | 0.7 | 117366 | 98.6 | 98 |
| 49 | 2.8763 | 0.6051 | 1239 | 61 | 656 | 0.6 | 118022 | 99.1 | 99 |
| 50 | 3.3152 | 0.7308 | 1283 | 73 | 500 | 0.4 | 118522 | 99.6 | 99 |
| 51 | 4.0431 | 1.0176 | 1356 | 102 | 356 | 0.3 | 118878 | 99.9 | 99 |
| 52 | 5.2723 | 1.8358 | 1479 | 184 | 161 | 0.1 | 119039 | 100.0 | 99 |

Grade 3 English Language Arts

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -4.8525 | 1.8357 | 600 | 184 | 2 | 0.0 | 2 | 0.0 | 1 |
| 1 | -3.623 | 1.0181 | 600 | 102 | 3 | 0.0 | 5 | 0.0 | 1 |
| 2 | -2.8934 | 0.7325 | 673 | 73 | 23 | 0.0 | 28 | 0.0 | 1 |
| 3 | -2.4514 | 0.6082 | 717 | 61 | 52 | 0.0 | 80 | 0.1 | 1 |
| 4 | -2.127 | 0.5355 | 750 | 54 | 143 | 0.1 | 223 | 0.2 | 1 |
| 5 | -1.867 | 0.4868 | 776 | 49 | 337 | 0.3 | 560 | 0.5 | 1 |
| 6 | -1.6475 | 0.4516 | 798 | 45 | 662 | 0.6 | 1222 | 1.1 | 1 |
| 7 | -1.4559 | 0.4249 | 817 | 42 | 1177 | 1.0 | 2399 | 2.1 | 2 |
| 8 | -1.2844 | 0.4039 | 834 | 40 | 1773 | 1.5 | 4172 | 3.6 | 3 |
| 9 | -1.1283 | 0.387 | 850 | 39 | 2396 | 2.1 | 6568 | 5.7 | 5 |
| 10 | -0.984 | 0.3731 | 864 | 37 | 3070 | 2.7 | 9638 | 8.4 | 7 |
| 11 | -0.8492 | 0.3616 | 878 | 36 | 3350 | 2.9 | 12988 | 11.4 | 10 |
| 12 | -0.722 | 0.352 | 890 | 35 | 3679 | 3.2 | 16667 | 14.6 | 13 |
| 13 | -0.601 | 0.3439 | 902 | 34 | 3829 | 3.3 | 20496 | 17.9 | 16 |
| 14 | -0.4851 | 0.3372 | 914 | 34 | 3832 | 3.3 | 24328 | 21.3 | 20 |
| 15 | -0.3733 | 0.3315 | 925 | 33 | 3823 | 3.3 | 28151 | 24.6 | 23 |
| 16 | -0.265 | 0.3268 | 936 | 33 | 3860 | 3.4 | 32011 | 28.0 | 26 |
| 17 | -0.1595 | 0.323 | 947 | 32 | 3744 | 3.3 | 35755 | 31.3 | 30 |
| 18 | -0.0562 | 0.3199 | 957 | 32 | 3814 | 3.3 | 39569 | 34.6 | 33 |
| 19 | 0.0454 | 0.3176 | 967 | 32 | 3700 | 3.2 | 43269 | 37.8 | 36 |
| 20 | 0.1457 | 0.3158 | 977 | 32 | 3767 | 3.3 | 47036 | 41.1 | 39 |
| 21 | 0.2451 | 0.3147 | 987 | 31 | 3668 | 3.2 | 50704 | 44.3 | 43 |
| 22 | 0.3439 | 0.3143 | 997 | 31 | 3818 | 3.3 | 54522 | 47.7 | 46 |
| 23 | 0.4427 | 0.3143 | 1007 | 31 | 3712 | 3.2 | 58234 | 50.9 | 49 |
| 24 | 0.5417 | 0.315 | 1017 | 32 | 3787 | 3.3 | 62021 | 54.2 | 53 |
| 25 | 0.6413 | 0.3163 | 1027 | 32 | 3619 | 3.2 | 65640 | 57.4 | 56 |
| 26 | 0.7419 | 0.3182 | 1037 | 32 | 3705 | 3.2 | 69345 | 60.6 | 59 |
| 27 | 0.844 | 0.3208 | 1047 | 32 | 3648 | 3.2 | 72993 | 63.8 | 62 |
| 28 | 0.948 | 0.3241 | 1057 | 32 | 3678 | 3.2 | 76671 | 67.0 | 65 |
| 29 | 1.0543 | 0.3282 | 1068 | 33 | 3677 | 3.2 | 80348 | 70.2 | 69 |
| 30 | 1.1636 | 0.3332 | 1079 | 33 | 3679 | 3.2 | 84027 | 73.5 | 72 |
| 31 | 1.2765 | 0.3391 | 1090 | 34 | 3585 | 3.1 | 87612 | 76.6 | 75 |
| 32 | 1.3939 | 0.3462 | 1102 | 35 | 3615 | 3.2 | 91227 | 79.7 | 78 |
| 33 | 1.5167 | 0.3547 | 1114 | 35 | 3407 | 3.0 | 94634 | 82.7 | 81 |
| 34 | 1.646 | 0.3648 | 1127 | 36 | 3244 | 2.8 | 97878 | 85.6 | 84 |
| 35 | 1.7834 | 0.3769 | 1141 | 38 | 3037 | 2.7 | 100915 | 88.2 | 87 |
| 36 | 1.9308 | 0.3914 | 1156 | 39 | 2886 | 2.5 | 103801 | 90.7 | 89 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 2.0909 | 0.4092 | 1172 | 41 | 2554 | 2.2 | 106355 | 93.0 | 92 |
| 38 | 2.2671 | 0.4311 | 1189 | 43 | 2205 | 1.9 | 108560 | 94.9 | 94 |
| 39 | 2.4647 | 0.4589 | 1209 | 46 | 1931 | 1.7 | 110491 | 96.6 | 96 |
| 40 | 2.6916 | 0.4953 | 1232 | 50 | 1514 | 1.3 | 112005 | 97.9 | 97 |
| 41 | 2.9609 | 0.5451 | 1259 | 55 | 1106 | 1.0 | 113111 | 98.9 | 98 |
| 42 | 3.2968 | 0.6188 | 1292 | 62 | 685 | 0.6 | 113796 | 99.5 | 99 |
| 43 | 3.7533 | 0.7434 | 1338 | 74 | 400 | 0.3 | 114196 | 99.8 | 99 |
| 44 | 4.501 | 1.0279 | 1413 | 103 | 162 | 0.1 | 114358 | 100.0 | 99 |
| 45 | 5.7457 | 1.842 | 1537 | 184 | 40 | 0.0 | 114398 | 100.0 | 99 |

Grade 4 English Language Arts

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.585 | 1.8343 | 600 | 183 | 2 | 0.0 | 2 | 0.0 | 1 |
| 1 | -4.3591 | 1.0156 | 600 | 102 | 2 | 0.0 | 4 | 0.0 | 1 |
| 2 | -3.6344 | 0.7291 | 600 | 73 | 8 | 0.0 | 12 | 0.0 | 1 |
| 3 | -3.1974 | 0.6041 | 638 | 60 | 26 | 0.0 | 38 | 0.0 | 1 |
| 4 | -2.878 | 0.5309 | 670 | 53 | 25 | 0.0 | 63 | 0.1 | 1 |
| 5 | -2.6229 | 0.4816 | 695 | 48 | 85 | 0.1 | 148 | 0.1 | 1 |
| 6 | -2.4086 | 0.4459 | 717 | 45 | 162 | 0.1 | 310 | 0.3 | 1 |
| 7 | -2.2222 | 0.4186 | 735 | 42 | 263 | 0.2 | 573 | 0.5 | 1 |
| 8 | -2.0562 | 0.397 | 752 | 40 | 453 | 0.4 | 1026 | 0.9 | 1 |
| 9 | -1.9057 | 0.3794 | 767 | 38 | 708 | 0.6 | 1734 | 1.5 | 1 |
| 10 | -1.7674 | 0.3648 | 781 | 36 | 981 | 0.9 | 2715 | 2.4 | 2 |
| 11 | -1.6389 | 0.3526 | 794 | 35 | 1275 | 1.1 | 3990 | 3.5 | 3 |
| 12 | -1.5183 | 0.3421 | 806 | 34 | 1516 | 1.3 | 5506 | 4.8 | 4 |
| 13 | -1.4044 | 0.3332 | 817 | 33 | 1769 | 1.5 | 7275 | 6.4 | 6 |
| 14 | -1.296 | 0.3254 | 828 | 33 | 1765 | 1.5 | 9040 | 7.9 | 7 |
| 15 | -1.1923 | 0.3186 | 838 | 32 | 1957 | 1.7 | 10997 | 9.6 | 9 |
| 16 | -1.0927 | 0.3127 | 848 | 31 | 2030 | 1.8 | 13027 | 11.4 | 10 |
| 17 | -0.9966 | 0.3076 | 858 | 31 | 2065 | 1.8 | 15092 | 13.2 | 12 |
| 18 | -0.9034 | 0.303 | 867 | 30 | 2095 | 1.8 | 17187 | 15.0 | 14 |
| 19 | -0.8128 | 0.299 | 876 | 30 | 2035 | 1.8 | 19222 | 16.8 | 16 |
| 20 | -0.7244 | 0.2956 | 885 | 30 | 2076 | 1.8 | 21298 | 18.6 | 18 |
| 21 | -0.638 | 0.2926 | 894 | 29 | 2174 | 1.9 | 23472 | 20.5 | 20 |
| 22 | -0.5532 | 0.2899 | 902 | 29 | 2045 | 1.8 | 25517 | 22.3 | 21 |
| 23 | -0.4698 | 0.2877 | 911 | 29 | 2108 | 1.8 | 27625 | 24.1 | 23 |
| 24 | -0.3876 | 0.2858 | 919 | 29 | 2139 | 1.9 | 29764 | 26.0 | 25 |
| 25 | -0.3063 | 0.2843 | 927 | 28 | 2190 | 1.9 | 31954 | 27.9 | 27 |
| 26 | -0.2259 | 0.2831 | 935 | 28 | 2224 | 1.9 | 34178 | 29.8 | 29 |
| 27 | -0.146 | 0.2821 | 943 | 28 | 2405 | 2.1 | 36583 | 31.9 | 31 |
| 28 | -0.0666 | 0.2815 | 951 | 28 | 2333 | 2.0 | 38916 | 34.0 | 33 |
| 29 | 0.0125 | 0.2811 | 959 | 28 | 2454 | 2.1 | 41370 | 36.1 | 35 |
| 30 | 0.0915 | 0.2811 | 967 | 28 | 2526 | 2.2 | 43896 | 38.3 | 37 |
| 31 | 0.1706 | 0.2813 | 975 | 28 | 2475 | 2.2 | 46371 | 40.5 | 39 |
| 32 | 0.2499 | 0.2819 | 982 | 28 | 2661 | 2.3 | 49032 | 42.8 | 42 |
| 33 | 0.3295 | 0.2827 | 990 | 28 | 2799 | 2.4 | 51831 | 45.3 | 44 |
| 34 | 0.4097 | 0.2838 | 998 | 28 | 2868 | 2.5 | 54699 | 47.8 | 47 |
| 35 | 0.4907 | 0.2853 | 1007 | 29 | 2923 | 2.6 | 57622 | 50.3 | 49 |
| 36 | 0.5726 | 0.2871 | 1015 | 29 | 3014 | 2.6 | 60636 | 52.9 | 52 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 0.6556 | 0.2892 | 1023 | 29 | 3174 | 2.8 | 63810 | 55.7 | 54 |
| 38 | 0.74 | 0.2918 | 1031 | 29 | 3206 | 2.8 | 67016 | 58.5 | 57 |
| 39 | 0.8259 | 0.2947 | 1040 | 29 | 3188 | 2.8 | 70204 | 61.3 | 60 |
| 40 | 0.9138 | 0.2981 | 1049 | 30 | 3166 | 2.8 | 73370 | 64.1 | 63 |
| 41 | 1.0038 | 0.302 | 1058 | 30 | 3322 | 2.9 | 76692 | 67.0 | 66 |
| 42 | 1.0963 | 0.3064 | 1067 | 31 | 3404 | 3.0 | 80096 | 69.9 | 68 |
| 43 | 1.1916 | 0.3113 | 1077 | 31 | 3351 | 2.9 | 83447 | 72.9 | 71 |
| 44 | 1.2903 | 0.3169 | 1087 | 32 | 3300 | 2.9 | 86747 | 75.7 | 74 |
| 45 | 1.3927 | 0.3233 | 1097 | 32 | 3350 | 2.9 | 90097 | 78.7 | 77 |
| 46 | 1.4995 | 0.3304 | 1107 | 33 | 3195 | 2.8 | 93292 | 81.5 | 80 |
| 47 | 1.6113 | 0.3384 | 1119 | 34 | 3045 | 2.7 | 96337 | 84.1 | 83 |
| 48 | 1.7289 | 0.3475 | 1130 | 35 | 2835 | 2.5 | 99172 | 86.6 | 85 |
| 49 | 1.8532 | 0.3578 | 1143 | 36 | 2626 | 2.3 | 101798 | 88.9 | 88 |
| 50 | 1.9853 | 0.3694 | 1156 | 37 | 2328 | 2.0 | 104126 | 90.9 | 90 |
| 51 | 2.1267 | 0.3827 | 1170 | 38 | 2143 | 1.9 | 106269 | 92.8 | 92 |
| 52 | 2.2789 | 0.3979 | 1185 | 40 | 1800 | 1.6 | 108069 | 94.4 | 94 |
| 53 | 2.4441 | 0.4153 | 1202 | 42 | 1522 | 1.3 | 109591 | 95.7 | 95 |
| 54 | 2.6249 | 0.4355 | 1220 | 44 | 1272 | 1.1 | 110863 | 96.8 | 96 |
| 55 | 2.8247 | 0.459 | 1240 | 46 | 1048 | 0.9 | 111911 | 97.7 | 97 |
| 56 | 3.0478 | 0.4865 | 1262 | 49 | 849 | 0.7 | 112760 | 98.5 | 98 |
| 57 | 3.3002 | 0.5192 | 1288 | 52 | 622 | 0.5 | 113382 | 99.0 | 99 |
| 58 | 3.5901 | 0.5588 | 1317 | 56 | 420 | 0.4 | 113802 | 99.4 | 99 |
| 59 | 3.9301 | 0.6091 | 1351 | 61 | 282 | 0.2 | 114084 | 99.6 | 99 |
| 60 | 4.3424 | 0.679 | 1392 | 68 | 184 | 0.2 | 114268 | 99.8 | 99 |
| 61 | 4.8776 | 0.7945 | 1445 | 79 | 160 | 0.1 | 114428 | 99.9 | 99 |
| 62 | 5.7021 | 1.0634 | 1528 | 106 | 79 | 0.1 | 114507 | 100.0 | 99 |
| 63 | 6.9969 | 1.8606 | 1657 | 186 | 26 | 0.0 | 114533 | 100.0 | 99 |

Grade 5 English Language Arts

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.6381 | 1.8378 | 600 | 184 | 0 | 0.0 | 0 | 0.0 | 0 |
| 1 | -4.4034 | 1.0216 | 600 | 102 | 2 | 0.0 | 2 | 0.0 | 1 |
| 2 | -3.6671 | 0.7368 | 600 | 74 | 5 | 0.0 | 7 | 0.0 | 1 |
| 3 | -3.2192 | 0.6127 | 636 | 61 | 12 | 0.0 | 19 | 0.0 | 1 |
| 4 | -2.8898 | 0.5397 | 669 | 54 | 31 | 0.0 | 50 | 0.0 | 1 |
| 5 | -2.6258 | 0.4905 | 696 | 49 | 66 | 0.1 | 116 | 0.1 | 1 |
| 6 | -2.4031 | 0.4546 | 718 | 45 | 145 | 0.1 | 261 | 0.2 | 1 |
| 7 | -2.2093 | 0.4269 | 737 | 43 | 266 | 0.2 | 527 | 0.5 | 1 |
| 8 | -2.0367 | 0.4048 | 755 | 40 | 390 | 0.3 | 917 | 0.8 | 1 |
| 9 | -1.8802 | 0.3868 | 770 | 39 | 556 | 0.5 | 1473 | 1.3 | 1 |
| 10 | -1.7365 | 0.3717 | 785 | 37 | 815 | 0.7 | 2288 | 2.0 | 2 |
| 11 | -1.6032 | 0.3589 | 798 | 36 | 1042 | 0.9 | 3330 | 2.9 | 2 |
| 12 | -1.4784 | 0.3479 | 810 | 35 | 1283 | 1.1 | 4613 | 4.0 | 3 |
| 13 | -1.3607 | 0.3384 | 822 | 34 | 1502 | 1.3 | 6115 | 5.3 | 5 |
| 14 | -1.249 | 0.3301 | 833 | 33 | 1699 | 1.5 | 7814 | 6.7 | 6 |
| 15 | -1.1425 | 0.3229 | 844 | 32 | 1907 | 1.6 | 9721 | 8.4 | 8 |
| 16 | -1.0403 | 0.3166 | 854 | 32 | 2071 | 1.8 | 11792 | 10.1 | 9 |
| 17 | -0.9418 | 0.311 | 864 | 31 | 2079 | 1.8 | 13871 | 11.9 | 11 |
| 18 | -0.8467 | 0.3061 | 874 | 31 | 2132 | 1.8 | 16003 | 13.8 | 13 |
| 19 | -0.7543 | 0.3018 | 883 | 30 | 2291 | 2.0 | 18294 | 15.7 | 15 |
| 20 | -0.6644 | 0.298 | 892 | 30 | 2240 | 1.9 | 20534 | 17.7 | 17 |
| 21 | -0.5765 | 0.2948 | 901 | 29 | 2240 | 1.9 | 22774 | 19.6 | 19 |
| 22 | -0.4905 | 0.2919 | 909 | 29 | 2302 | 2.0 | 25076 | 21.6 | 21 |
| 23 | -0.406 | 0.2895 | 918 | 29 | 2264 | 1.9 | 27340 | 23.5 | 23 |
| 24 | -0.3228 | 0.2875 | 926 | 29 | 2433 | 2.1 | 29773 | 25.6 | 25 |
| 25 | -0.2406 | 0.2859 | 934 | 29 | 2367 | 2.0 | 32140 | 27.6 | 27 |
| 26 | -0.1592 | 0.2846 | 942 | 28 | 2448 | 2.1 | 34588 | 29.7 | 29 |
| 27 | -0.0785 | 0.2836 | 950 | 28 | 2514 | 2.2 | 37102 | 31.9 | 31 |
| 28 | 0.0017 | 0.283 | 958 | 28 | 2557 | 2.2 | 39659 | 34.1 | 33 |
| 29 | 0.0817 | 0.2827 | 966 | 28 | 2590 | 2.2 | 42249 | 36.3 | 35 |
| 30 | 0.1616 | 0.2827 | 974 | 28 | 2759 | 2.4 | 45008 | 38.7 | 38 |
| 31 | 0.2416 | 0.283 | 982 | 28 | 2899 | 2.5 | 47907 | 41.2 | 40 |
| 32 | 0.3218 | 0.2837 | 991 | 28 | 2996 | 2.6 | 50903 | 43.8 | 42 |
| 33 | 0.4026 | 0.2846 | 999 | 28 | 3028 | 2.6 | 53931 | 46.4 | 45 |
| 34 | 0.4839 | 0.2859 | 1007 | 29 | 3112 | 2.7 | 57043 | 49.1 | 48 |
| 35 | 0.5661 | 0.2876 | 1015 | 29 | 3154 | 2.7 | 60197 | 51.8 | 50 |
| 36 | 0.6494 | 0.2896 | 1023 | 29 | 3424 | 2.9 | 63621 | 54.7 | 53 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 0.7339 | 0.292 | 1032 | 29 | 3405 | 2.9 | 67026 | 57.6 | 56 |
| 38 | 0.82 | 0.2947 | 1040 | 29 | 3350 | 2.9 | 70376 | 60.5 | 59 |
| 39 | 0.9078 | 0.2979 | 1049 | 30 | 3482 | 3.0 | 73858 | 63.5 | 62 |
| 40 | 0.9976 | 0.3016 | 1058 | 30 | 3542 | 3.0 | 77400 | 66.6 | 65 |
| 41 | 1.0898 | 0.3057 | 1067 | 31 | 3555 | 3.1 | 80955 | 69.6 | 68 |
| 42 | 1.1846 | 0.3103 | 1077 | 31 | 3519 | 3.0 | 84474 | 72.7 | 71 |
| 43 | 1.2825 | 0.3155 | 1087 | 32 | 3587 | 3.1 | 88061 | 75.7 | 74 |
| 44 | 1.3839 | 0.3214 | 1097 | 32 | 3421 | 2.9 | 91482 | 78.7 | 77 |
| 45 | 1.4892 | 0.3279 | 1107 | 33 | 3285 | 2.8 | 94767 | 81.5 | 80 |
| 46 | 1.5991 | 0.3351 | 1118 | 34 | 3088 | 2.7 | 97855 | 84.2 | 83 |
| 47 | 1.7141 | 0.3432 | 1130 | 34 | 2912 | 2.5 | 100767 | 86.7 | 85 |
| 48 | 1.8349 | 0.3522 | 1142 | 35 | 2685 | 2.3 | 103452 | 89.0 | 88 |
| 49 | 1.9625 | 0.3622 | 1155 | 36 | 2430 | 2.1 | 105882 | 91.1 | 90 |
| 50 | 2.0977 | 0.3733 | 1168 | 37 | 2216 | 1.9 | 108098 | 93.0 | 92 |
| 51 | 2.2417 | 0.3857 | 1182 | 39 | 1901 | 1.6 | 109999 | 94.6 | 94 |
| 52 | 2.3957 | 0.3995 | 1198 | 40 | 1529 | 1.3 | 111528 | 95.9 | 95 |
| 53 | 2.5615 | 0.415 | 1214 | 42 | 1268 | 1.1 | 112796 | 97.0 | 96 |
| 54 | 2.7409 | 0.4324 | 1232 | 43 | 989 | 0.9 | 113785 | 97.9 | 97 |
| 55 | 2.9364 | 0.4523 | 1252 | 45 | 776 | 0.7 | 114561 | 98.5 | 98 |
| 56 | 3.1513 | 0.4754 | 1273 | 48 | 623 | 0.5 | 115184 | 99.1 | 99 |
| 57 | 3.3902 | 0.503 | 1297 | 50 | 410 | 0.4 | 115594 | 99.4 | 99 |
| 58 | 3.6603 | 0.5377 | 1324 | 54 | 270 | 0.2 | 115864 | 99.6 | 99 |
| 59 | 3.9736 | 0.584 | 1356 | 58 | 202 | 0.2 | 116066 | 99.8 | 99 |
| 60 | 4.353 | 0.6524 | 1394 | 65 | 102 | 0.1 | 116168 | 99.9 | 99 |
| 61 | 4.851 | 0.7698 | 1443 | 77 | 64 | 0.1 | 116232 | 100.0 | 99 |
| 62 | 5.6365 | 1.045 | 1522 | 105 | 36 | 0.0 | 116268 | 100.0 | 99 |
| 63 | 6.9045 | 1.8505 | 1649 | 185 | 6 | 0.0 | 116274 | 100.0 | 99 |

Grade 6 English Language Arts

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.2632 | 1.8329 | 600 | 183 | 0 | 0.0 | 0 | 0.0 | 0 |
| 1 | -4.0408 | 1.0131 | 600 | 101 | 2 | 0.0 | 2 | 0.0 | 1 |
| 2 | -3.3212 | 0.7257 | 609 | 73 | 2 | 0.0 | 4 | 0.0 | 1 |
| 3 | -2.8889 | 0.6003 | 652 | 60 | 5 | 0.0 | 9 | 0.0 | 1 |
| 4 | -2.574 | 0.5266 | 683 | 53 | 15 | 0.0 | 24 | 0.0 | 1 |
| 5 | -2.3234 | 0.4772 | 708 | 48 | 44 | 0.0 | 68 | 0.1 | 1 |
| 6 | -2.1132 | 0.4413 | 729 | 44 | 69 | 0.1 | 137 | 0.1 | 1 |
| 7 | -1.9308 | 0.4139 | 748 | 41 | 135 | 0.1 | 272 | 0.2 | 1 |
| 8 | -1.7686 | 0.3922 | 764 | 39 | 238 | 0.2 | 510 | 0.4 | 1 |
| 9 | -1.6217 | 0.3747 | 779 | 37 | 353 | 0.3 | 863 | 0.7 | 1 |
| 10 | -1.4869 | 0.3601 | 792 | 36 | 469 | 0.4 | 1332 | 1.2 | 1 |
| 11 | -1.3617 | 0.3479 | 805 | 35 | 695 | 0.6 | 2027 | 1.8 | 1 |
| 12 | -1.2443 | 0.3376 | 816 | 34 | 853 | 0.7 | 2880 | 2.5 | 2 |
| 13 | -1.1334 | 0.3287 | 827 | 33 | 1024 | 0.9 | 3904 | 3.4 | 3 |
| 14 | -1.0279 | 0.321 | 838 | 32 | 1215 | 1.0 | 5119 | 4.4 | 4 |
| 15 | -0.927 | 0.3144 | 848 | 31 | 1397 | 1.2 | 6516 | 5.6 | 5 |
| 16 | -0.83 | 0.3086 | 858 | 31 | 1529 | 1.3 | 8045 | 6.9 | 6 |
| 17 | -0.7364 | 0.3036 | 867 | 30 | 1574 | 1.4 | 9619 | 8.3 | 8 |
| 18 | -0.6455 | 0.2992 | 876 | 30 | 1788 | 1.5 | 11407 | 9.9 | 9 |
| 19 | -0.5572 | 0.2954 | 885 | 30 | 1936 | 1.7 | 13343 | 11.5 | 11 |
| 20 | -0.4709 | 0.2922 | 894 | 29 | 2075 | 1.8 | 15418 | 13.3 | 12 |
| 21 | -0.3863 | 0.2894 | 902 | 29 | 2174 | 1.9 | 17592 | 15.2 | 14 |
| 22 | -0.3033 | 0.287 | 910 | 29 | 2249 | 1.9 | 19841 | 17.1 | 16 |
| 23 | -0.2215 | 0.285 | 919 | 29 | 2277 | 2.0 | 22118 | 19.1 | 18 |
| 24 | -0.1408 | 0.2834 | 927 | 28 | 2456 | 2.1 | 24574 | 21.2 | 20 |
| 25 | -0.0609 | 0.2821 | 935 | 28 | 2561 | 2.2 | 27135 | 23.4 | 22 |
| 26 | 0.0185 | 0.2812 | 943 | 28 | 2600 | 2.2 | 29735 | 25.7 | 25 |
| 27 | 0.0973 | 0.2806 | 951 | 28 | 2701 | 2.3 | 32436 | 28.0 | 27 |
| 28 | 0.1759 | 0.2802 | 958 | 28 | 2795 | 2.4 | 35231 | 30.4 | 29 |
| 29 | 0.2545 | 0.2802 | 966 | 28 | 2848 | 2.5 | 38079 | 32.9 | 32 |
| 30 | 0.333 | 0.2805 | 974 | 28 | 2983 | 2.6 | 41062 | 35.5 | 34 |
| 31 | 0.4119 | 0.2811 | 982 | 28 | 3159 | 2.7 | 44221 | 38.2 | 37 |
| 32 | 0.4911 | 0.2819 | 990 | 28 | 3239 | 2.8 | 47460 | 41.0 | 40 |
| 33 | 0.5709 | 0.283 | 998 | 28 | 3365 | 2.9 | 50825 | 43.9 | 42 |
| 34 | 0.6514 | 0.2845 | 1006 | 28 | 3317 | 2.9 | 54142 | 46.8 | 45 |
| 35 | 0.7328 | 0.2862 | 1014 | 29 | 3502 | 3.0 | 57644 | 49.8 | 48 |
| 36 | 0.8153 | 0.2883 | 1022 | 29 | 3535 | 3.1 | 61179 | 52.8 | 51 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 0.8991 | 0.2907 | 1031 | 29 | 3621 | 3.1 | 64800 | 56.0 | 54 |
| 38 | 0.9843 | 0.2934 | 1039 | 29 | 3550 | 3.1 | 68350 | 59.0 | 57 |
| 39 | 1.0713 | 0.2965 | 1048 | 30 | 3668 | 3.2 | 72018 | 62.2 | 61 |
| 40 | 1.1602 | 0.3 | 1057 | 30 | 3609 | 3.1 | 75627 | 65.3 | 64 |
| 41 | 1.2514 | 0.3038 | 1066 | 30 | 3717 | 3.2 | 79344 | 68.5 | 67 |
| 42 | 1.345 | 0.3081 | 1075 | 31 | 3577 | 3.1 | 82921 | 71.6 | 70 |
| 43 | 1.4414 | 0.3129 | 1085 | 31 | 3537 | 3.1 | 86458 | 74.7 | 73 |
| 44 | 1.541 | 0.3183 | 1095 | 32 | 3452 | 3.0 | 89910 | 77.7 | 76 |
| 45 | 1.6441 | 0.3242 | 1105 | 32 | 3407 | 2.9 | 93317 | 80.6 | 79 |
| 46 | 1.7513 | 0.3308 | 1116 | 33 | 3120 | 2.7 | 96437 | 83.3 | 82 |
| 47 | 1.8631 | 0.3381 | 1127 | 34 | 3036 | 2.6 | 99473 | 85.9 | 85 |
| 48 | 1.9802 | 0.3463 | 1139 | 35 | 2855 | 2.5 | 102328 | 88.4 | 87 |
| 49 | 2.1032 | 0.3554 | 1151 | 36 | 2603 | 2.2 | 104931 | 90.6 | 90 |
| 50 | 2.2332 | 0.3657 | 1164 | 37 | 2271 | 2.0 | 107202 | 92.6 | 92 |
| 51 | 2.3711 | 0.3774 | 1178 | 38 | 1967 | 1.7 | 109169 | 94.3 | 93 |
| 52 | 2.5185 | 0.3907 | 1193 | 39 | 1728 | 1.5 | 110897 | 95.8 | 95 |
| 53 | 2.6771 | 0.406 | 1208 | 41 | 1393 | 1.2 | 112290 | 97.0 | 96 |
| 54 | 2.849 | 0.4237 | 1226 | 42 | 1096 | 0.9 | 113386 | 97.9 | 97 |
| 55 | 3.0372 | 0.4444 | 1245 | 44 | 878 | 0.8 | 114264 | 98.7 | 98 |
| 56 | 3.2454 | 0.469 | 1265 | 47 | 597 | 0.5 | 114861 | 99.2 | 99 |
| 57 | 3.4792 | 0.4988 | 1289 | 50 | 408 | 0.4 | 115269 | 99.6 | 99 |
| 58 | 3.7463 | 0.5362 | 1315 | 54 | 247 | 0.2 | 115516 | 99.8 | 99 |
| 59 | 4.0595 | 0.5854 | 1347 | 59 | 127 | 0.1 | 115643 | 99.9 | 99 |
| 60 | 4.4422 | 0.6562 | 1385 | 66 | 71 | 0.1 | 115714 | 99.9 | 99 |
| 61 | 4.9468 | 0.775 | 1435 | 78 | 39 | 0.0 | 115753 | 100.0 | 99 |
| 62 | 5.7415 | 1.0499 | 1515 | 105 | 24 | 0.0 | 115777 | 100.0 | 99 |
| 63 | 7.0172 | 1.8536 | 1643 | 185 | 8 | 0.0 | 115785 | 100.0 | 99 |

Grade 7 English Language Arts

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.3264 | 1.8325 | 600 | 183 | 0 | 0.0 | 0 | 0.0 | 0 |
| 1 | -4.105 | 1.0124 | 600 | 101 | 0 | 0.0 | 0 | 0.0 | 0 |
| 2 | -3.3868 | 0.7246 | 609 | 72 | 0 | 0.0 | 0 | 0.0 | 0 |
| 3 | -2.9561 | 0.5988 | 652 | 60 | 4 | 0.0 | 4 | 0.0 | 1 |
| 4 | -2.6431 | 0.5249 | 683 | 52 | 14 | 0.0 | 18 | 0.0 | 1 |
| 5 | -2.3943 | 0.4751 | 708 | 48 | 28 | 0.0 | 46 | 0.0 | 1 |
| 6 | -2.1862 | 0.4389 | 729 | 44 | 70 | 0.1 | 116 | 0.1 | 1 |
| 7 | -2.006 | 0.4112 | 747 | 41 | 155 | 0.1 | 271 | 0.2 | 1 |
| 8 | -1.8461 | 0.3893 | 763 | 39 | 272 | 0.2 | 543 | 0.5 | 1 |
| 9 | -1.7016 | 0.3715 | 777 | 37 | 421 | 0.4 | 964 | 0.8 | 1 |
| 10 | -1.5692 | 0.3567 | 791 | 36 | 589 | 0.5 | 1553 | 1.3 | 1 |
| 11 | -1.4464 | 0.3444 | 803 | 34 | 831 | 0.7 | 2384 | 2.0 | 2 |
| 12 | -1.3315 | 0.3339 | 815 | 33 | 984 | 0.8 | 3368 | 2.8 | 2 |
| 13 | -1.2231 | 0.3249 | 825 | 32 | 1220 | 1.0 | 4588 | 3.9 | 3 |
| 14 | -1.1201 | 0.3171 | 836 | 32 | 1411 | 1.2 | 5999 | 5.1 | 4 |
| 15 | -1.0217 | 0.3104 | 845 | 31 | 1636 | 1.4 | 7635 | 6.5 | 6 |
| 16 | -0.9271 | 0.3047 | 855 | 30 | 1751 | 1.5 | 9386 | 7.9 | 7 |
| 17 | -0.8359 | 0.2997 | 864 | 30 | 1932 | 1.6 | 11318 | 9.6 | 9 |
| 18 | -0.7474 | 0.2953 | 873 | 30 | 2001 | 1.7 | 13319 | 11.3 | 10 |
| 19 | -0.6613 | 0.2916 | 882 | 29 | 2115 | 1.8 | 15434 | 13.0 | 12 |
| 20 | -0.5772 | 0.2884 | 890 | 29 | 2119 | 1.8 | 17553 | 14.8 | 14 |
| 21 | -0.4949 | 0.2857 | 898 | 29 | 2215 | 1.9 | 19768 | 16.7 | 16 |
| 22 | -0.4139 | 0.2834 | 906 | 28 | 2296 | 1.9 | 22064 | 18.6 | 18 |
| 23 | -0.3342 | 0.2815 | 914 | 28 | 2285 | 1.9 | 24349 | 20.6 | 20 |
| 24 | -0.2554 | 0.28 | 922 | 28 | 2360 | 2.0 | 26709 | 22.6 | 22 |
| 25 | -0.1773 | 0.2789 | 930 | 28 | 2397 | 2.0 | 29106 | 24.6 | 24 |
| 26 | -0.0998 | 0.278 | 938 | 28 | 2417 | 2.0 | 31523 | 26.6 | 26 |
| 27 | -0.0226 | 0.2775 | 945 | 28 | 2505 | 2.1 | 34028 | 28.8 | 28 |
| 28 | 0.0543 | 0.2773 | 953 | 28 | 2503 | 2.1 | 36531 | 30.9 | 30 |
| 29 | 0.1312 | 0.2773 | 961 | 28 | 2607 | 2.2 | 39138 | 33.1 | 32 |
| 30 | 0.2082 | 0.2777 | 968 | 28 | 2758 | 2.3 | 41896 | 35.4 | 34 |
| 31 | 0.2855 | 0.2783 | 976 | 28 | 2808 | 2.4 | 44704 | 37.8 | 37 |
| 32 | 0.3631 | 0.2792 | 984 | 28 | 2912 | 2.5 | 47616 | 40.2 | 39 |
| 33 | 0.4414 | 0.2804 | 992 | 28 | 2995 | 2.5 | 50611 | 42.8 | 41 |
| 34 | 0.5204 | 0.2818 | 1000 | 28 | 3072 | 2.6 | 53683 | 45.4 | 44 |
| 35 | 0.6003 | 0.2835 | 1008 | 28 | 3263 | 2.8 | 56946 | 48.1 | 47 |
| 36 | 0.6812 | 0.2855 | 1016 | 29 | 3303 | 2.8 | 60249 | 50.9 | 50 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 0.7634 | 0.2878 | 1024 | 29 | 3311 | 2.8 | 63560 | 53.7 | 52 |
| 38 | 0.847 | 0.2905 | 1032 | 29 | 3351 | 2.8 | 66911 | 56.5 | 55 |
| 39 | 0.9322 | 0.2935 | 1041 | 29 | 3374 | 2.9 | 70285 | 59.4 | 58 |
| 40 | 1.0193 | 0.2969 | 1050 | 30 | 3457 | 2.9 | 73742 | 62.3 | 61 |
| 41 | 1.1086 | 0.3006 | 1059 | 30 | 3417 | 2.9 | 77159 | 65.2 | 64 |
| 42 | 1.2002 | 0.3049 | 1068 | 30 | 3441 | 2.9 | 80600 | 68.1 | 67 |
| 43 | 1.2945 | 0.3096 | 1077 | 31 | 3452 | 2.9 | 84052 | 71.0 | 70 |
| 44 | 1.392 | 0.3149 | 1087 | 31 | 3420 | 2.9 | 87472 | 73.9 | 72 |
| 45 | 1.493 | 0.3208 | 1097 | 32 | 3454 | 2.9 | 90926 | 76.8 | 75 |
| 46 | 1.598 | 0.3275 | 1107 | 33 | 3256 | 2.8 | 94182 | 79.6 | 78 |
| 47 | 1.7077 | 0.335 | 1118 | 34 | 3136 | 2.6 | 97318 | 82.2 | 81 |
| 48 | 1.8227 | 0.3435 | 1130 | 34 | 3031 | 2.6 | 100349 | 84.8 | 84 |
| 49 | 1.944 | 0.3532 | 1142 | 35 | 2660 | 2.2 | 103009 | 87.0 | 86 |
| 50 | 2.0726 | 0.3642 | 1155 | 36 | 2651 | 2.2 | 105660 | 89.3 | 88 |
| 51 | 2.2097 | 0.3768 | 1169 | 38 | 2345 | 2.0 | 108005 | 91.3 | 90 |
| 52 | 2.3572 | 0.3914 | 1183 | 39 | 2016 | 1.7 | 110021 | 93.0 | 92 |
| 53 | 2.517 | 0.4084 | 1199 | 41 | 1797 | 1.5 | 111818 | 94.5 | 94 |
| 54 | 2.6917 | 0.4281 | 1217 | 43 | 1599 | 1.4 | 113417 | 95.8 | 95 |
| 55 | 2.8849 | 0.4514 | 1236 | 45 | 1385 | 1.2 | 114802 | 97.0 | 96 |
| 56 | 3.1009 | 0.4789 | 1258 | 48 | 1064 | 0.9 | 115866 | 97.9 | 97 |
| 57 | 3.3459 | 0.5118 | 1282 | 51 | 849 | 0.7 | 116715 | 98.6 | 98 |
| 58 | 3.6282 | 0.552 | 1310 | 55 | 614 | 0.5 | 117329 | 99.1 | 99 |
| 59 | 3.9608 | 0.6033 | 1344 | 60 | 426 | 0.4 | 117755 | 99.5 | 99 |
| 60 | 4.3664 | 0.6744 | 1384 | 67 | 308 | 0.3 | 118063 | 99.8 | 99 |
| 61 | 4.8959 | 0.7912 | 1437 | 79 | 185 | 0.2 | 118248 | 99.9 | 99 |
| 62 | 5.7158 | 1.0615 | 1519 | 106 | 85 | 0.1 | 118333 | 100.0 | 99 |
| 63 | 7.0081 | 1.8597 | 1648 | 186 | 19 | 0.0 | 118352 | 100.0 | 99 |

Grade 8 English Language Arts

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -5.3848 | 1.8315 | 600 | 183 | 1 | 0.0 | 1 | 0.0 | 1 |
| 1 | -4.166 | 1.0105 | 600 | 101 | 0 | 0.0 | 1 | 0.0 | 1 |
| 2 | -3.4517 | 0.7219 | 616 | 72 | 1 | 0.0 | 2 | 0.0 | 1 |
| 3 | -3.025 | 0.5955 | 659 | 60 | 9 | 0.0 | 11 | 0.0 | 1 |
| 4 | -2.716 | 0.5209 | 690 | 52 | 27 | 0.0 | 38 | 0.0 | 1 |
| 5 | -2.4714 | 0.4707 | 714 | 47 | 62 | 0.1 | 100 | 0.1 | 1 |
| 6 | -2.2674 | 0.4341 | 734 | 43 | 121 | 0.1 | 221 | 0.2 | 1 |
| 7 | -2.0914 | 0.4061 | 752 | 41 | 237 | 0.2 | 458 | 0.4 | 1 |
| 8 | -1.9356 | 0.3839 | 768 | 38 | 406 | 0.3 | 864 | 0.7 | 1 |
| 9 | -1.7953 | 0.3658 | 782 | 37 | 568 | 0.5 | 1432 | 1.2 | 1 |
| 10 | -1.667 | 0.3509 | 794 | 35 | 753 | 0.6 | 2185 | 1.8 | 2 |
| 11 | -1.5484 | 0.3383 | 806 | 34 | 1021 | 0.9 | 3206 | 2.7 | 2 |
| 12 | -1.4376 | 0.3275 | 817 | 33 | 1321 | 1.1 | 4527 | 3.8 | 3 |
| 13 | -1.3334 | 0.3184 | 828 | 32 | 1496 | 1.3 | 6023 | 5.0 | 4 |
| 14 | -1.2346 | 0.3104 | 838 | 31 | 1603 | 1.3 | 7626 | 6.4 | 6 |
| 15 | -1.1404 | 0.3035 | 847 | 30 | 1802 | 1.5 | 9428 | 7.9 | 7 |
| 16 | -1.0502 | 0.2975 | 856 | 30 | 1862 | 1.6 | 11290 | 9.5 | 9 |
| 17 | -0.9632 | 0.2923 | 865 | 29 | 2000 | 1.7 | 13290 | 11.1 | 10 |
| 18 | -0.8791 | 0.2878 | 873 | 29 | 1967 | 1.6 | 15257 | 12.8 | 12 |
| 19 | -0.7974 | 0.2839 | 881 | 28 | 1982 | 1.7 | 17239 | 14.4 | 14 |
| 20 | -0.7178 | 0.2805 | 889 | 28 | 2020 | 1.7 | 19259 | 16.1 | 15 |
| 21 | -0.64 | 0.2776 | 897 | 28 | 2045 | 1.7 | 21304 | 17.8 | 17 |
| 22 | -0.5636 | 0.2752 | 905 | 28 | 2026 | 1.7 | 23330 | 19.5 | 19 |
| 23 | -0.4885 | 0.2731 | 912 | 27 | 2026 | 1.7 | 25356 | 21.2 | 20 |
| 24 | -0.4143 | 0.2715 | 920 | 27 | 2113 | 1.8 | 27469 | 23.0 | 22 |
| 25 | -0.3409 | 0.2703 | 927 | 27 | 2179 | 1.8 | 29648 | 24.8 | 24 |
| 26 | -0.2681 | 0.2694 | 934 | 27 | 2218 | 1.9 | 31866 | 26.7 | 26 |
| 27 | -0.1957 | 0.2689 | 942 | 27 | 2267 | 1.9 | 34133 | 28.6 | 28 |
| 28 | -0.1235 | 0.2687 | 949 | 27 | 2353 | 2.0 | 36486 | 30.6 | 30 |
| 29 | -0.0513 | 0.2688 | 956 | 27 | 2469 | 2.1 | 38955 | 32.6 | 32 |
| 30 | 0.021 | 0.2692 | 963 | 27 | 2542 | 2.1 | 41497 | 34.8 | 34 |
| 31 | 0.0937 | 0.27 | 970 | 27 | 2697 | 2.3 | 44194 | 37.0 | 36 |
| 32 | 0.1669 | 0.271 | 978 | 27 | 2812 | 2.4 | 47006 | 39.4 | 38 |
| 33 | 0.2407 | 0.2724 | 985 | 27 | 3023 | 2.5 | 50029 | 41.9 | 41 |
| 34 | 0.3153 | 0.2741 | 993 | 27 | 2923 | 2.4 | 52952 | 44.4 | 43 |
| 35 | 0.391 | 0.2761 | 1000 | 28 | 3016 | 2.5 | 55968 | 46.9 | 46 |
| 36 | 0.4679 | 0.2784 | 1008 | 28 | 3259 | 2.7 | 59227 | 49.6 | 48 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 0.5461 | 0.281 | 1016 | 28 | 3299 | 2.8 | 62526 | 52.4 | 51 |
| 38 | 0.6259 | 0.284 | 1024 | 28 | 3380 | 2.8 | 65906 | 55.2 | 54 |
| 39 | 0.7075 | 0.2874 | 1032 | 29 | 3513 | 2.9 | 69419 | 58.2 | 57 |
| 40 | 0.7911 | 0.2911 | 1040 | 29 | 3515 | 2.9 | 72934 | 61.1 | 60 |
| 41 | 0.877 | 0.2952 | 1049 | 30 | 3519 | 2.9 | 76453 | 64.0 | 63 |
| 42 | 0.9654 | 0.2997 | 1058 | 30 | 3613 | 3.0 | 80066 | 67.1 | 66 |
| 43 | 1.0567 | 0.3047 | 1067 | 30 | 3575 | 3.0 | 83641 | 70.1 | 69 |
| 44 | 1.1512 | 0.3102 | 1076 | 31 | 3598 | 3.0 | 87239 | 73.1 | 72 |
| 45 | 1.2494 | 0.3163 | 1086 | 32 | 3477 | 2.9 | 90716 | 76.0 | 75 |
| 46 | 1.3516 | 0.3232 | 1096 | 32 | 3264 | 2.7 | 93980 | 78.7 | 77 |
| 47 | 1.4584 | 0.3307 | 1107 | 33 | 3233 | 2.7 | 97213 | 81.4 | 80 |
| 48 | 1.5706 | 0.3392 | 1118 | 34 | 3102 | 2.6 | 100315 | 84.0 | 83 |
| 49 | 1.6888 | 0.3487 | 1130 | 35 | 2883 | 2.4 | 103198 | 86.5 | 85 |
| 50 | 1.8141 | 0.3595 | 1143 | 36 | 2670 | 2.2 | 105868 | 88.7 | 88 |
| 51 | 1.9477 | 0.3717 | 1156 | 37 | 2487 | 2.1 | 108355 | 90.8 | 90 |
| 52 | 2.091 | 0.3856 | 1170 | 39 | 2153 | 1.8 | 110508 | 92.6 | 92 |
| 53 | 2.2458 | 0.4016 | 1186 | 40 | 1929 | 1.6 | 112437 | 94.2 | 93 |
| 54 | 2.4144 | 0.4202 | 1203 | 42 | 1613 | 1.4 | 114050 | 95.5 | 95 |
| 55 | 2.6 | 0.4419 | 1221 | 44 | 1362 | 1.1 | 115412 | 96.7 | 96 |
| 56 | 2.8065 | 0.4676 | 1242 | 47 | 1219 | 1.0 | 116631 | 97.7 | 97 |
| 57 | 3.0396 | 0.4987 | 1265 | 50 | 909 | 0.8 | 117540 | 98.5 | 98 |
| 58 | 3.3072 | 0.5372 | 1292 | 54 | 618 | 0.5 | 118158 | 99.0 | 99 |
| 59 | 3.6222 | 0.5874 | 1323 | 59 | 475 | 0.4 | 118633 | 99.4 | 99 |
| 60 | 4.0079 | 0.6589 | 1362 | 66 | 335 | 0.3 | 118968 | 99.7 | 99 |
| 61 | 4.5164 | 0.7778 | 1413 | 78 | 225 | 0.2 | 119193 | 99.9 | 99 |
| 62 | 5.3157 | 1.0521 | 1493 | 105 | 128 | 0.1 | 119321 | 100.0 | 99 |
| 63 | 6.5947 | 1.8548 | 1621 | 185 | 45 | 0.0 | 119366 | 100.0 | 99 |

Grade 4 Science

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -4.5071 | 1.8351 | 1050 | 324 | 1 | 0.0 | 1 | 0.0 | 1 |
| 1 | -3.2792 | 1.017 | 1050 | 180 | 6 | 0.0 | 7 | 0.0 | 1 |
| 2 | -2.5516 | 0.731 | 1050 | 129 | 15 | 0.0 | 22 | 0.0 | 1 |
| 3 | -2.1117 | 0.6066 | 1050 | 107 | 41 | 0.0 | 63 | 0.1 | 1 |
| 4 | -1.7893 | 0.5337 | 1050 | 94 | 94 | 0.1 | 157 | 0.1 | 1 |
| 5 | -1.5312 | 0.4849 | 1050 | 86 | 241 | 0.2 | 398 | 0.3 | 1 |
| 6 | -1.3136 | 0.4495 | 1050 | 79 | 453 | 0.4 | 851 | 0.7 | 1 |
| 7 | -1.1239 | 0.4227 | 1050 | 75 | 800 | 0.7 | 1651 | 1.4 | 1 |
| 8 | -0.9544 | 0.4015 | 1057 | 71 | 1221 | 1.1 | 2872 | 2.5 | 2 |
| 9 | -0.8001 | 0.3844 | 1084 | 68 | 1685 | 1.5 | 4557 | 4.0 | 3 |
| 10 | -0.6579 | 0.3704 | 1109 | 65 | 2149 | 1.9 | 6706 | 5.9 | 5 |
| 11 | -0.5251 | 0.3587 | 1133 | 63 | 2452 | 2.1 | 9158 | 8.0 | 7 |
| 12 | -0.4001 | 0.3488 | 1155 | 62 | 2695 | 2.4 | 11853 | 10.4 | 9 |
| 13 | -0.2813 | 0.3405 | 1176 | 60 | 2851 | 2.5 | 14704 | 12.8 | 12 |
| 14 | -0.1678 | 0.3335 | 1196 | 59 | 3036 | 2.7 | 17740 | 15.5 | 14 |
| 15 | -0.0587 | 0.3275 | 1215 | 58 | 3150 | 2.8 | 20890 | 18.2 | 17 |
| 16 | 0.0468 | 0.3224 | 1234 | 57 | 3124 | 2.7 | 24014 | 21.0 | 20 |
| 17 | 0.1493 | 0.3181 | 1252 | 56 | 3014 | 2.6 | 27028 | 23.6 | 22 |
| 18 | 0.2494 | 0.3146 | 1270 | 56 | 3121 | 2.7 | 30149 | 26.3 | 25 |
| 19 | 0.3474 | 0.3117 | 1287 | 55 | 3173 | 2.8 | 33322 | 29.1 | 28 |
| 20 | 0.4438 | 0.3093 | 1304 | 55 | 3225 | 2.8 | 36547 | 31.9 | 31 |
| 21 | 0.5389 | 0.3076 | 1321 | 54 | 3236 | 2.8 | 39783 | 34.7 | 33 |
| 22 | 0.6331 | 0.3064 | 1338 | 54 | 3331 | 2.9 | 43114 | 37.7 | 36 |
| 23 | 0.7267 | 0.3057 | 1354 | 54 | 3358 | 2.9 | 46472 | 40.6 | 39 |
| 24 | 0.8201 | 0.3055 | 1371 | 54 | 3424 | 3.0 | 49896 | 43.6 | 42 |
| 25 | 0.9134 | 0.3057 | 1387 | 54 | 3477 | 3.0 | 53373 | 46.6 | 45 |
| 26 | 1.0071 | 0.3065 | 1404 | 54 | 3619 | 3.2 | 56992 | 49.8 | 48 |
| 27 | 1.1015 | 0.3078 | 1420 | 54 | 3646 | 3.2 | 60638 | 53.0 | 51 |
| 28 | 1.1968 | 0.3096 | 1437 | 55 | 3640 | 3.2 | 64278 | 56.1 | 55 |
| 29 | 1.2933 | 0.312 | 1454 | 55 | 3761 | 3.3 | 68039 | 59.4 | 58 |
| 30 | 1.3916 | 0.315 | 1472 | 56 | 3885 | 3.4 | 71924 | 62.8 | 61 |
| 31 | 1.492 | 0.3187 | 1489 | 56 | 3823 | 3.3 | 75747 | 66.2 | 64 |
| 32 | 1.5949 | 0.3231 | 1508 | 57 | 3872 | 3.4 | 79619 | 69.5 | 68 |
| 33 | 1.7009 | 0.3283 | 1526 | 58 | 4081 | 3.6 | 83700 | 73.1 | 71 |
| 34 | 1.8106 | 0.3344 | 1546 | 59 | 3765 | 3.3 | 87465 | 76.4 | 75 |
| 35 | 1.9248 | 0.3416 | 1566 | 60 | 3710 | 3.2 | 91175 | 79.6 | 78 |
| 36 | 2.0443 | 0.3501 | 1587 | 62 | 3727 | 3.3 | 94902 | 82.9 | 81 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 2.1703 | 0.3601 | 1609 | 64 | 3568 | 3.1 | 98470 | 86.0 | 84 |
| 38 | 2.3042 | 0.3719 | 1633 | 66 | 3353 | 2.9 | 101823 | 88.9 | 87 |
| 39 | 2.4477 | 0.3862 | 1658 | 68 | 3029 | 2.6 | 104852 | 91.6 | 90 |
| 40 | 2.6033 | 0.4034 | 1686 | 71 | 2701 | 2.4 | 107553 | 93.9 | 93 |
| 41 | 2.7746 | 0.4248 | 1716 | 75 | 2283 | 2.0 | 109836 | 95.9 | 95 |
| 42 | 2.9663 | 0.4519 | 1750 | 80 | 1732 | 1.5 | 111568 | 97.4 | 97 |
| 43 | 3.1861 | 0.4874 | 1789 | 86 | 1258 | 1.1 | 112826 | 98.5 | 98 |
| 44 | 3.4469 | 0.5363 | 1835 | 95 | 840 | 0.7 | 113666 | 99.3 | 99 |
| 45 | 3.7723 | 0.6093 | 1892 | 108 | 488 | 0.4 | 114154 | 99.7 | 99 |
| 46 | 4.2158 | 0.7336 | 1971 | 130 | 261 | 0.2 | 114415 | 99.9 | 99 |
| 47 | 4.9473 | 1.0191 | 2100 | 180 | 71 | 0.1 | 114486 | 100.0 | 99 |
| 48 | 6.1784 | 1.8364 | 2318 | 325 | 11 | 0.0 | 114497 | 100.0 | 99 |

Grade 8 Science

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 0 | -4.9655 | 1.8353 | 925 | 352 | 0 | 0.0 | 0 | 0.0 | 0 |
| 1 | -3.737 | 1.0174 | 925 | 195 | 1 | 0.0 | 1 | 0.0 | 1 |
| 2 | -3.0088 | 0.7315 | 925 | 140 | 13 | 0.0 | 14 | 0.0 | 1 |
| 3 | -2.5683 | 0.607 | 925 | 116 | 43 | 0.0 | 57 | 0.0 | 1 |
| 4 | -2.2453 | 0.5342 | 925 | 102 | 120 | 0.1 | 177 | 0.1 | 1 |
| 5 | -1.9867 | 0.4854 | 925 | 93 | 335 | 0.3 | 512 | 0.4 | 1 |
| 6 | -1.7686 | 0.4501 | 925 | 86 | 602 | 0.5 | 1114 | 0.9 | 1 |
| 7 | -1.5783 | 0.4233 | 925 | 81 | 1053 | 0.9 | 2167 | 1.8 | 1 |
| 8 | -1.4083 | 0.4022 | 927 | 77 | 1697 | 1.4 | 3864 | 3.3 | 3 |
| 9 | -1.2536 | 0.3851 | 957 | 74 | 2180 | 1.8 | 6044 | 5.1 | 4 |
| 10 | -1.1107 | 0.3711 | 984 | 71 | 2741 | 2.3 | 8785 | 7.4 | 6 |
| 11 | -0.9774 | 0.3595 | 1009 | 69 | 3147 | 2.7 | 11932 | 10.1 | 9 |
| 12 | -0.8518 | 0.3497 | 1033 | 67 | 3543 | 3.0 | 15475 | 13.1 | 12 |
| 13 | -0.7325 | 0.3414 | 1056 | 65 | 3667 | 3.1 | 19142 | 16.2 | 15 |
| 14 | -0.6184 | 0.3344 | 1078 | 64 | 3645 | 3.1 | 22787 | 19.2 | 18 |
| 15 | -0.5086 | 0.3284 | 1099 | 63 | 3590 | 3.0 | 26377 | 22.3 | 21 |
| 16 | -0.4025 | 0.3233 | 1120 | 62 | 3611 | 3.0 | 29988 | 25.3 | 24 |
| 17 | -0.2993 | 0.319 | 1139 | 61 | 3543 | 3.0 | 33531 | 28.3 | 27 |
| 18 | -0.1987 | 0.3155 | 1159 | 60 | 3407 | 2.9 | 36938 | 31.2 | 30 |
| 19 | -0.1002 | 0.3125 | 1177 | 60 | 3489 | 2.9 | 40427 | 34.1 | 33 |
| 20 | -0.0033 | 0.3102 | 1196 | 59 | 3417 | 2.9 | 43844 | 37.0 | 36 |
| 21 | 0.0924 | 0.3084 | 1214 | 59 | 3514 | 3.0 | 47358 | 40.0 | 39 |
| 22 | 0.187 | 0.3071 | 1232 | 59 | 3462 | 2.9 | 50820 | 42.9 | 41 |
| 23 | 0.2811 | 0.3063 | 1250 | 59 | 3498 | 3.0 | 54318 | 45.9 | 44 |
| 24 | 0.3748 | 0.306 | 1268 | 59 | 3572 | 3.0 | 57890 | 48.9 | 47 |
| 25 | 0.4684 | 0.3062 | 1286 | 59 | 3539 | 3.0 | 61429 | 51.9 | 50 |
| 26 | 0.5624 | 0.3068 | 1304 | 59 | 3707 | 3.1 | 65136 | 55.0 | 53 |
| 27 | 0.6569 | 0.308 | 1322 | 59 | 3640 | 3.1 | 68776 | 58.1 | 57 |
| 28 | 0.7522 | 0.3097 | 1341 | 59 | 3858 | 3.3 | 72634 | 61.3 | 60 |
| 29 | 0.8488 | 0.312 | 1359 | 60 | 3548 | 3.0 | 76182 | 64.3 | 63 |
| 30 | 0.947 | 0.3149 | 1378 | 60 | 3812 | 3.2 | 79994 | 67.6 | 66 |
| 31 | 1.0473 | 0.3184 | 1397 | 61 | 3726 | 3.1 | 83720 | 70.7 | 69 |
| 32 | 1.1499 | 0.3226 | 1417 | 62 | 3786 | 3.2 | 87506 | 73.9 | 72 |
| 33 | 1.2556 | 0.3277 | 1437 | 63 | 3606 | 3.0 | 91112 | 76.9 | 75 |
| 34 | 1.365 | 0.3338 | 1458 | 64 | 3534 | 3.0 | 94646 | 79.9 | 78 |
| 35 | 1.4787 | 0.3409 | 1480 | 65 | 3417 | 2.9 | 98063 | 82.8 | 81 |
| 36 | 1.5977 | 0.3493 | 1503 | 67 | 3183 | 2.7 | 101246 | 85.5 | 84 |

| Raw Score | IRT Difficulty Estimate | IRT Difficulty SE | Scale Score | Scale Score SE | Frequency | Percent | Cumulative Frequency | Cumulative Percent | Percentile |
|-----------|-------------------------|-------------------|-------------|----------------|-----------|---------|----------------------|--------------------|------------|
| 37 | 1.7231 | 0.3592 | 1527 | 69 | 3074 | 2.6 | 104320 | 88.1 | 87 |
| 38 | 1.8564 | 0.3711 | 1552 | 71 | 2897 | 2.4 | 107217 | 90.5 | 89 |
| 39 | 1.9992 | 0.3853 | 1580 | 74 | 2562 | 2.2 | 109779 | 92.7 | 92 |
| 40 | 2.1543 | 0.4027 | 1609 | 77 | 2193 | 1.9 | 111972 | 94.6 | 94 |
| 41 | 2.3249 | 0.4241 | 1642 | 81 | 1891 | 1.6 | 113863 | 96.2 | 95 |
| 42 | 2.516 | 0.4513 | 1679 | 86 | 1526 | 1.3 | 115389 | 97.4 | 97 |
| 43 | 2.7353 | 0.4869 | 1721 | 93 | 1196 | 1.0 | 116585 | 98.5 | 98 |
| 44 | 2.9957 | 0.5361 | 1770 | 103 | 813 | 0.7 | 117398 | 99.1 | 99 |
| 45 | 3.321 | 0.6092 | 1833 | 117 | 568 | 0.5 | 117966 | 99.6 | 99 |
| 46 | 3.7646 | 0.7338 | 1918 | 141 | 316 | 0.3 | 118282 | 99.9 | 99 |
| 47 | 4.4966 | 1.0195 | 2058 | 195 | 112 | 0.1 | 118394 | 100.0 | 99 |
| 48 | 5.7284 | 1.8367 | 2294 | 352 | 18 | 0.0 | 118412 | 100.0 | 99 |

APPENDIX O: OPERATIONAL ITEM STATISTICS

Due to the transition to pre-equating rather than post-equating, the Item Statistics are provided for all operational (OP) items. Item statistics include previous and current item sequence, previous and current p -value, and previous and current IRT difficulty estimates.

Mathematics Grade 3

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P -Value | P -Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|---------------------|------------|----------------------------------|-------------------------|
| 314728 | MC | 0 | 1 | 0 | 27 | 2018 | 0.82 | 0.80 | -1.3254 | -1.3254 |
| 493230 | MC | 0 | 2 | 8 | 47 | 2018 | 0.75 | 0.76 | -0.7961 | -0.7961 |
| 408673 | MC | 0 | 3 | 8 | 40 | 2017 | 0.59 | 0.61 | 0.1239 | 0.1239 |
| 579661 | MC | 0 | 4 | 2 | 48 | 2019 | 0.78 | 0.77 | -0.9407 | -0.9407 |
| 497737 | MC | 0 | 5 | 2 | 50 | 2019 | 0.46 | 0.52 | 0.8657 | 0.8657 |
| 313475 | MC | 0 | 6 | 0 | 65 | 2017 | 0.60 | 0.54 | 0.1188 | 0.1188 |
| 408704 | MC | 0 | 7 | 5 | 47 | 2018 | 0.61 | 0.54 | 0.0322 | 0.0322 |
| 313276 | MC | 0 | 8 | 6 | 49 | 2017 | 0.38 | 0.36 | 1.2598 | 1.2598 |
| 314720 | MC | 0 | 9 | 0 | 15 | 2019 | 0.62 | 0.60 | 0.0265 | 0.0265 |
| 314244 | MC | 0 | 10 | 2 | 44 | 2017 | 0.43 | 0.41 | 0.9827 | 0.9827 |
| 497744 | MC | 0 | 11 | 4 | 48 | 2019 | 0.59 | 0.61 | 0.1884 | 0.1884 |
| 479164 | MC | 0 | 12 | 1 | 49 | 2019 | 0.50 | 0.54 | 0.5115 | 0.5115 |
| 565996 | MC | 0 | 13 | 1 | 48 | 2019 | 0.44 | 0.43 | 0.9143 | 0.9143 |
| 408729 | MC | 0 | 14 | 7 | 41 | 2017 | 0.56 | 0.45 | 0.3127 | 0.3127 |
| 314248 | MC | 0 | 15 | 2 | 42 | 2016 | 0.79 | 0.74 | -1.1457 | -1.1457 |
| 314241 | MC | 0 | 16 | 5 | 40 | 2017 | 0.56 | 0.57 | 0.2639 | 0.2639 |
| 497739 | MC | 0 | 17 | 2 | 47 | 2019 | 0.61 | 0.58 | 0.0301 | 0.0301 |
| 394377 | MC | 0 | 18 | 6 | 39 | 2017 | 0.76 | 0.72 | -0.8751 | -0.8751 |
| 495214 | MC | 0 | 19 | 4 | 22 | 2018 | 0.47 | 0.43 | 0.7198 | 0.7198 |
| 316238 | MC | 0 | 20 | 5 | 46 | 2016 | 0.64 | 0.56 | -0.1877 | -0.1877 |
| 503236 | OE | 0 | 25 | 6 | 52 | 2019 | 0.39 | 0.37 | 1.2980 | 1.2980 |
| 495131 | OE | 0 | 26 | 6 | 52 | 2018 | 0.44 | 0.41 | 1.0711 | 1.0711 |
| 493222 | MC | 0 | 27 | 5 | 49 | 2018 | 0.84 | 0.85 | -1.4428 | -1.4428 |
| 314411 | MC | 0 | 28 | 7 | 43 | 2016 | 0.78 | 0.74 | -0.9863 | -0.9863 |
| 313468 | MC | 0 | 29 | 0 | 70 | 2017 | 0.68 | 0.69 | -0.4834 | -0.4834 |
| 493236 | MC | 0 | 30 | 6 | 21 | 2019 | 0.54 | 0.47 | 0.4662 | 0.4662 |
| 408844 | MC | 0 | 31 | 0 | 11 | 2018 | 0.35 | 0.34 | 1.4367 | 1.4367 |
| 313562 | MC | 0 | 32 | 7 | 45 | 2016 | 0.57 | 0.54 | 0.2416 | 0.2416 |
| 579663 | MC | 0 | 33 | 7 | 48 | 2019 | 0.57 | 0.55 | 0.2854 | 0.2854 |
| 408664 | MC | 0 | 34 | 8 | 21 | 2018 | 0.46 | 0.48 | 0.8374 | 0.8374 |
| 408686 | MC | 0 | 35 | 0 | 40 | 2018 | 0.61 | 0.60 | 0.0058 | 0.0058 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 313560 | MC | 0 | 36 | 0 | 11 | 2017 | 0.73 | 0.67 | -0.6741 | -0.6741 |
| 579642 | MC | 0 | 37 | 6 | 22 | 2019 | 0.53 | 0.54 | 0.5083 | 0.5083 |
| 313750 | MC | 0 | 38 | 0 | 59 | 2017 | 0.44 | 0.46 | 0.9164 | 0.9164 |
| 493241 | MC | 0 | 39 | 3 | 49 | 2019 | 0.78 | 0.78 | -0.8826 | -0.8826 |
| 408674 | MC | 0 | 40 | 4 | 45 | 2017 | 0.49 | 0.49 | 0.6468 | 0.6468 |
| 314970 | MC | 0 | 41 | 0 | 2 | 2019 | 0.59 | 0.60 | 0.0581 | 0.0581 |
| 408723 | MC | 0 | 42 | 9 | 42 | 2017 | 0.49 | 0.47 | 0.6511 | 0.6511 |
| 493223 | MC | 0 | 43 | 7 | 49 | 2018 | 0.56 | 0.59 | 0.2689 | 0.2689 |
| 408681 | MC | 0 | 44 | 2 | 45 | 2017 | 0.64 | 0.60 | -0.1113 | -0.1113 |
| 312912 | MC | 0 | 45 | 0 | 4 | 2017 | 0.33 | 0.36 | 1.5774 | 1.5774 |
| 495210 | MC | 0 | 46 | 5 | 22 | 2019 | 0.80 | 0.76 | -1.0490 | -1.0490 |
| 565734 | OE | 0 | 51 | 3 | 52 | 2019 | 0.54 | 0.50 | 0.5117 | 0.5117 |

Mathematics Grade 4

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 313261 | MC | 0 | 1 | 0 | 2 | 2017 | 0.63 | 0.65 | -0.6279 | -0.6279 |
| 495206 | MC | 0 | 2 | 0 | 3 | 2019 | 0.60 | 0.55 | -0.4642 | -0.4642 |
| 493258 | MC | 0 | 3 | 3 | 4 | 2018 | 0.68 | 0.66 | -0.8909 | -0.8909 |
| 314196 | MC | 0 | 5 | 0 | 13 | 2017 | 0.83 | 0.82 | -1.8771 | -1.8771 |
| 495235 | MC | 0 | 6 | 4 | 22 | 2019 | 0.73 | 0.75 | -1.1722 | -1.1722 |
| 313459 | MC | 0 | 7 | 9 | 50 | 2019 | 0.64 | 0.69 | -0.6550 | -0.6550 |
| 315530 | MC | 0 | 8 | 0 | 22 | 2017 | 0.52 | 0.50 | 0.0292 | 0.0292 |
| 408560 | MC | 0 | 9 | 4 | 22 | 2018 | 0.67 | 0.67 | -0.8360 | -0.8360 |
| 408641 | MC | 0 | 10 | 6 | 49 | 2018 | 0.41 | 0.39 | 0.4639 | 0.4639 |
| 315522 | MC | 0 | 11 | 0 | 45 | 2019 | 0.67 | 0.64 | -0.8573 | -0.8573 |
| 575723 | MC | 0 | 12 | 7 | 49 | 2019 | 0.42 | 0.39 | 0.4513 | 0.4513 |
| 313738 | MC | 0 | 13 | 6 | 48 | 2017 | 0.68 | 0.69 | -0.8337 | -0.8337 |
| 575742 | MC | 0 | 14 | 3 | 23 | 2019 | 0.49 | 0.56 | 0.1251 | 0.1251 |
| 495220 | MC | 0 | 15 | 9 | 24 | 2018 | 0.47 | 0.46 | 0.1813 | 0.1813 |
| 408742 | MC | 0 | 16 | 3 | 22 | 2018 | 0.44 | 0.42 | 0.3284 | 0.3284 |
| 313455 | MC | 0 | 17 | 3 | 49 | 2017 | 0.39 | 0.43 | 0.6761 | 0.6761 |
| 314656 | MC | 0 | 18 | 0 | 21 | 2017 | 0.56 | 0.56 | -0.2593 | -0.2593 |
| 497759 | MC | 0 | 19 | 0 | 30 | 2019 | 0.76 | 0.71 | -1.3221 | -1.3221 |
| 497740 | MC | 0 | 20 | 1 | 21 | 2019 | 0.65 | 0.66 | -0.7796 | -0.7796 |
| 313075 | MC | 0 | 21 | 0 | 39 | 2019 | 0.79 | 0.73 | -1.7024 | -1.7024 |
| 503235 | OE | 0 | 25 | 8 | 52 | 2019 | 0.31 | 0.29 | 1.0431 | 1.0431 |
| 495133 | OE | 0 | 26 | 1 | 52 | 2018 | 0.36 | 0.35 | 0.8157 | 0.8157 |
| 314216 | MC | 0 | 27 | 0 | 56 | 2017 | 0.70 | 0.69 | -0.8996 | -0.8996 |
| 495229 | MC | 0 | 28 | 2 | 49 | 2019 | 0.41 | 0.40 | 0.5167 | 0.5167 |
| 408789 | MC | 0 | 29 | 8 | 39 | 2017 | 0.88 | 0.82 | -2.2900 | -2.2900 |
| 314189 | MC | 0 | 30 | 0 | 17 | 2017 | 0.59 | 0.53 | -0.2784 | -0.2784 |
| 314534 | MC | 0 | 31 | 0 | 60 | 2017 | 0.67 | 0.58 | -0.7300 | -0.7300 |
| 408574 | MC | 0 | 32 | 4 | 39 | 2017 | 0.71 | 0.75 | -1.0442 | -1.0442 |
| 408639 | MC | 0 | 33 | 5 | 44 | 2017 | 0.46 | 0.49 | 0.2995 | 0.2995 |
| 493280 | MC | 0 | 34 | 7 | 23 | 2019 | 0.43 | 0.46 | 0.4229 | 0.4229 |
| 408553 | MC | 0 | 35 | 3 | 47 | 2018 | 0.50 | 0.50 | -0.0019 | -0.0019 |
| 314175 | MC | 0 | 36 | 0 | 73 | 2017 | 0.60 | 0.60 | -0.4546 | -0.4546 |
| 313456 | MC | 0 | 37 | 0 | 14 | 2017 | 0.52 | 0.47 | 0.0271 | 0.0271 |
| 314659 | MC | 0 | 38 | 0 | 20 | 2017 | 0.59 | 0.62 | -0.4402 | -0.4402 |
| 408635 | MC | 0 | 39 | 9 | 42 | 2017 | 0.77 | 0.78 | -1.4363 | -1.4363 |
| 314148 | MC | 0 | 40 | 0 | 5 | 2019 | 0.44 | 0.45 | 0.4059 | 0.4059 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 408781 | MC | 0 | 41 | 6 | 23 | 2019 | 0.44 | 0.41 | 0.3680 | 0.3680 |
| 314193 | MC | 0 | 42 | 0 | 9 | 2017 | 0.80 | 0.64 | -1.6012 | -0.7331 |
| 479188 | MC | 0 | 43 | 8 | 48 | 2019 | 0.46 | 0.47 | 0.2783 | 0.2783 |
| 314171 | MC | 0 | 44 | 8 | 47 | 2017 | 0.46 | 0.35 | 0.3154 | 0.3154 |
| 408563 | MC | 0 | 45 | 5 | 49 | 2017 | 0.61 | 0.52 | -0.4292 | -0.4292 |
| 479174 | MC | 0 | 46 | 6 | 22 | 2018 | 0.37 | 0.35 | 0.6899 | 0.6899 |
| 315525 | OE | 0 | 51 | 5 | 51 | 2016 | 0.36 | 0.35 | 0.9821 | 0.9821 |

Mathematics Grade 5

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 313905 | MC | 0 | 1 | 6 | 4 | 2018 | 0.71 | 0.66 | -0.8442 | -0.8442 |
| 313760 | MC | 0 | 2 | 2 | 5 | 2016 | 0.57 | 0.48 | -0.1171 | -0.1171 |
| 493287 | MC | 0 | 3 | 0 | 1 | 2019 | 0.65 | 0.59 | -0.5541 | -0.5541 |
| 313325 | MC | 0 | 5 | 1 | 44 | 2017 | 0.43 | 0.44 | 0.5793 | 0.5793 |
| 314909 | MC | 0 | 6 | 0 | 16 | 2019 | 0.65 | 0.63 | -0.5123 | -0.5123 |
| 408608 | MC | 0 | 7 | 7 | 24 | 2018 | 0.32 | 0.34 | 1.2870 | 1.2870 |
| 408812 | MC | 0 | 8 | 0 | 19 | 2019 | 0.68 | 0.65 | -0.6793 | -0.6793 |
| 408605 | MC | 0 | 9 | 8 | 41 | 2017 | 0.48 | 0.47 | 0.3568 | 0.3568 |
| 575709 | MC | 0 | 10 | 4 | 23 | 2019 | 0.41 | 0.39 | 0.7310 | 0.7310 |
| 408854 | MC | 0 | 11 | 9 | 48 | 2017 | 0.37 | 0.35 | 0.9154 | 0.9154 |
| 314020 | MC | 0 | 12 | 9 | 43 | 2017 | 0.52 | 0.46 | 0.1508 | 0.1508 |
| 408592 | MC | 0 | 13 | 0 | 46 | 2019 | 0.38 | 0.36 | 0.8410 | 0.8410 |
| 408647 | MC | 0 | 14 | 1 | 42 | 2017 | 0.51 | 0.48 | 0.1289 | 0.1289 |
| 408587 | MC | 0 | 15 | 6 | 43 | 2017 | 0.40 | 0.37 | 0.7841 | 0.7841 |
| 313319 | MC | 0 | 16 | 0 | 17 | 2017 | 0.74 | 0.68 | -0.8762 | -0.8762 |
| 408589 | MC | 0 | 17 | 1 | 23 | 2018 | 0.52 | 0.48 | 0.0475 | 0.0475 |
| 314766 | MC | 0 | 18 | 0 | 6 | 2017 | 0.52 | 0.48 | 0.1526 | 0.1526 |
| 408811 | MC | 0 | 19 | 1 | 50 | 2018 | 0.52 | 0.53 | 0.0438 | 0.0438 |
| 313768 | MC | 0 | 20 | 0 | 61 | 2017 | 0.58 | 0.50 | -0.2047 | -0.2047 |
| 314394 | MC | 0 | 21 | 2 | 50 | 2017 | 0.37 | 0.34 | 0.9382 | 0.9382 |
| 314504 | OE | 0 | 25 | 8 | 52 | 2018 | 0.46 | 0.40 | 0.5945 | 0.5945 |
| 313770 | OE | 0 | 26 | 4 | 51 | 2016 | 0.58 | 0.49 | -0.0413 | -0.0413 |
| 495265 | MC | 0 | 27 | 4 | 48 | 2019 | 0.51 | 0.48 | 0.2172 | 0.2172 |
| 574137 | MC | 0 | 28 | 9 | 24 | 2019 | 0.36 | 0.40 | 0.9816 | 0.9816 |
| 574151 | MC | 0 | 29 | 7 | 22 | 2019 | 0.44 | 0.38 | 0.5915 | 0.5915 |
| 408648 | MC | 0 | 30 | 2 | 22 | 2018 | 0.62 | 0.59 | -0.3670 | -0.3670 |
| 408591 | MC | 0 | 31 | 4 | 47 | 2018 | 0.47 | 0.43 | 0.4392 | 0.4392 |
| 408805 | MC | 0 | 32 | 3 | 50 | 2018 | 0.46 | 0.46 | 0.4408 | 0.4408 |
| 566348 | MC | 0 | 33 | 1 | 48 | 2019 | 0.32 | 0.31 | 1.1279 | 1.1279 |
| 313924 | MC | 0 | 34 | 8 | 42 | 2017 | 0.47 | 0.42 | 0.3953 | 0.3953 |
| 408630 | MC | 0 | 35 | 0 | 42 | 2018 | 0.67 | 0.62 | -0.7129 | -0.7129 |
| 495255 | MC | 0 | 36 | 6 | 23 | 2019 | 0.49 | 0.51 | 0.2998 | 0.2998 |
| 314024 | MC | 0 | 37 | 0 | 30 | 2018 | 0.42 | 0.40 | 0.6757 | 0.6757 |
| 408790 | MC | 0 | 38 | 9 | 23 | 2019 | 0.36 | 0.35 | 0.9615 | 0.9615 |
| 314501 | MC | 0 | 39 | 0 | 35 | 2018 | 0.52 | 0.48 | 0.1344 | 0.1344 |
| 408602 | MC | 0 | 40 | 9 | 46 | 2017 | 0.44 | 0.43 | 0.5253 | 0.5253 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 408806 | MC | 0 | 41 | 0 | 27 | 2019 | 0.47 | 0.41 | 0.3986 | 0.3986 |
| 497774 | MC | 0 | 42 | 7 | 47 | 2019 | 0.33 | 0.29 | 1.1843 | 1.1843 |
| 495261 | MC | 0 | 43 | 3 | 49 | 2019 | 0.38 | 0.38 | 0.8597 | 0.8597 |
| 495242 | MC | 0 | 44 | 8 | 49 | 2019 | 0.46 | 0.44 | 0.4284 | 0.4284 |
| 314761 | MC | 0 | 45 | 0 | 34 | 2018 | 0.76 | 0.68 | -1.2009 | -1.2009 |
| 313917 | MC | 0 | 46 | 5 | 49 | 2017 | 0.47 | 0.47 | 0.4110 | 0.4110 |
| 413016 | OE | 0 | 51 | 4 | 51 | 2017 | 0.39 | 0.36 | 0.9865 | 0.9865 |

Mathematics Grade 6

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 479634 | MC | 0 | 1 | 1 | 4 | 2018 | 0.84 | 0.80 | -1.6738 | -1.6738 |
| 319302 | MC | 0 | 2 | 0 | 3 | 2019 | 0.49 | 0.44 | 0.4670 | 0.4670 |
| 319298 | MC | 0 | 3 | 0 | 1 | 2017 | 0.71 | 0.58 | -0.7328 | -0.7328 |
| 496957 | MC | 0 | 5 | 8 | 48 | 2019 | 0.67 | 0.73 | -0.4675 | -1.1198 |
| 497312 | MC | 0 | 6 | 0 | 27 | 2019 | 0.45 | 0.37 | 0.6799 | 0.6799 |
| 574779 | MC | 0 | 7 | 7 | 49 | 2019 | 0.55 | 0.57 | 0.1594 | 0.1594 |
| 574853 | MC | 0 | 8 | 3 | 22 | 2019 | 0.41 | 0.36 | 0.8441 | 0.8441 |
| 319255 | MC | 0 | 9 | 0 | 55 | 2017 | 0.42 | 0.45 | 0.8347 | 0.8347 |
| 314894 | MC | 0 | 10 | 9 | 44 | 2017 | 0.60 | 0.55 | -0.0974 | -0.0974 |
| 411369 | MC | 0 | 11 | 0 | 10 | 2019 | 0.41 | 0.36 | 0.8397 | 0.8397 |
| 399249 | MC | 0 | 12 | 2 | 39 | 2017 | 0.67 | 0.62 | -0.4351 | -0.4351 |
| 401317 | MC | 0 | 13 | 2 | 40 | 2017 | 0.51 | 0.45 | 0.3701 | 0.3701 |
| 412554 | MC | 0 | 14 | 0 | 39 | 2018 | 0.64 | 0.60 | -0.2480 | -0.2480 |
| 560214 | MC | 0 | 15 | 9 | 21 | 2019 | 0.57 | 0.57 | 0.0415 | 0.0415 |
| 478722 | MC | 0 | 16 | 8 | 23 | 2019 | 0.49 | 0.48 | 0.4328 | 0.4328 |
| 501162 | MC | 0 | 17 | 9 | 47 | 2019 | 0.68 | 0.64 | -0.5030 | -0.5030 |
| 401985 | MC | 0 | 18 | 2 | 50 | 2017 | 0.67 | 0.59 | -0.4450 | -0.4450 |
| 412895 | MC | 0 | 19 | 8 | 47 | 2017 | 0.45 | 0.47 | 0.6673 | 0.6673 |
| 412555 | MC | 0 | 20 | 6 | 47 | 2018 | 0.67 | 0.63 | -0.4649 | -0.4649 |
| 492467 | MC | 0 | 21 | 7 | 23 | 2018 | 0.49 | 0.47 | 0.4611 | 0.4611 |
| 566984 | OE | 0 | 25 | 7 | 52 | 2019 | 0.29 | 0.29 | 1.6449 | 1.6449 |
| 577147 | OE | 0 | 26 | 9 | 52 | 2019 | 0.35 | 0.27 | 1.2403 | 1.2403 |
| 319258 | MC | 0 | 27 | 0 | 29 | 2017 | 0.61 | 0.52 | -0.1433 | -0.1433 |
| 496953 | MC | 0 | 28 | 2 | 50 | 2018 | 0.59 | 0.54 | -0.0538 | -0.0538 |
| 567155 | MC | 0 | 29 | 5 | 21 | 2019 | 0.39 | 0.35 | 0.9517 | 0.9517 |
| 491798 | MC | 0 | 30 | 9 | 49 | 2019 | 0.66 | 0.70 | -0.4455 | -0.9721 |
| 500237 | MC | 0 | 31 | 8 | 49 | 2019 | 0.56 | 0.57 | 0.0975 | 0.0975 |
| 319283 | MC | 0 | 32 | 0 | 74 | 2017 | 0.69 | 0.67 | -0.5362 | -0.5362 |
| 401320 | MC | 0 | 33 | 0 | 11 | 2018 | 0.56 | 0.52 | 0.1194 | 0.1194 |
| 496607 | MC | 0 | 34 | 5 | 50 | 2019 | 0.42 | 0.46 | 0.7848 | 0.7848 |
| 319261 | MC | 0 | 35 | 0 | 38 | 2017 | 0.53 | 0.48 | 0.2989 | 0.2989 |
| 417167 | MC | 0 | 36 | 9 | 50 | 2018 | 0.64 | 0.61 | -0.3259 | -0.3259 |
| 314817 | MC | 0 | 37 | 0 | 56 | 2017 | 0.55 | 0.49 | 0.1559 | 0.1559 |
| 417165 | MC | 0 | 38 | 0 | 35 | 2019 | 0.79 | 0.75 | -1.1694 | -1.1694 |
| 314863 | MC | 0 | 39 | 0 | 71 | 2017 | 0.64 | 0.57 | -0.2789 | -0.2789 |
| 574297 | MC | 0 | 40 | 8 | 22 | 2019 | 0.54 | 0.50 | 0.2139 | 0.2139 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 491897 | MC | 0 | 41 | 3 | 23 | 2018 | 0.47 | 0.44 | 0.5622 | 0.5622 |
| 492468 | MC | 0 | 42 | 4 | 49 | 2019 | 0.56 | 0.49 | 0.1093 | 0.1093 |
| 312500 | MC | 0 | 43 | 4 | 42 | 2017 | 0.50 | 0.44 | 0.4275 | 0.4275 |
| 416042 | MC | 0 | 44 | 0 | 28 | 2019 | 0.55 | 0.49 | 0.2705 | 0.2705 |
| 404808 | MC | 0 | 45 | 4 | 39 | 2017 | 0.47 | 0.41 | 0.5802 | 0.5802 |
| 496958 | MC | 0 | 46 | 3 | 24 | 2019 | 0.58 | 0.60 | -0.0289 | -0.0289 |
| 313522 | OE | 0 | 51 | 2 | 51 | 2016 | 0.45 | 0.40 | 0.7987 | 0.7987 |

Mathematics Grade 7

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 335226 | MC | 0 | 1 | 3 | 5 | 2016 | 0.64 | 0.61 | -0.6690 | -0.6690 |
| 490716 | MC | 0 | 2 | 8 | 4 | 2018 | 0.53 | 0.49 | -0.0949 | -0.0949 |
| 335228 | MC | 0 | 3 | 0 | 1 | 2017 | 0.54 | 0.47 | -0.2347 | -0.2347 |
| 412663 | MC | 0 | 5 | 0 | 11 | 2019 | 0.72 | 0.70 | -1.2210 | -1.2210 |
| 576068 | MC | 0 | 6 | 6 | 50 | 2019 | 0.53 | 0.62 | -0.1718 | -0.6942 |
| 314824 | MC | 0 | 7 | 7 | 48 | 2017 | 0.45 | 0.48 | 0.3531 | 0.3531 |
| 575224 | MC | 0 | 8 | 6 | 21 | 2019 | 0.47 | 0.42 | 0.1384 | 0.1384 |
| 335234 | MC | 0 | 9 | 8 | 45 | 2017 | 0.44 | 0.46 | 0.4045 | 0.4045 |
| 335236 | MC | 0 | 10 | 0 | 70 | 2017 | 0.65 | 0.64 | -0.7730 | -0.7730 |
| 477770 | MC | 0 | 11 | 2 | 48 | 2019 | 0.39 | 0.39 | 0.5612 | 0.5612 |
| 415641 | MC | 0 | 12 | 0 | 46 | 2018 | 0.67 | 0.63 | -0.8293 | -0.8293 |
| 565889 | MC | 0 | 13 | 2 | 22 | 2019 | 0.56 | 0.54 | -0.3410 | -0.3410 |
| 335237 | MC | 0 | 14 | 0 | 9 | 2017 | 0.43 | 0.39 | 0.4873 | 0.4873 |
| 415662 | MC | 0 | 15 | 8 | 47 | 2017 | 0.49 | 0.49 | 0.1571 | 0.1571 |
| 314897 | MC | 0 | 16 | 2 | 41 | 2016 | 0.41 | 0.37 | 0.5430 | 0.5430 |
| 335233 | MC | 0 | 17 | 0 | 73 | 2017 | 0.40 | 0.37 | 0.5359 | 0.5359 |
| 412776 | MC | 0 | 18 | 1 | 45 | 2017 | 0.31 | 0.18 | 1.0861 | 1.6825 |
| 480243 | MC | 0 | 19 | 9 | 24 | 2019 | 0.57 | 0.52 | -0.3558 | -0.3558 |
| 565885 | MC | 0 | 20 | 5 | 22 | 2019 | 0.44 | 0.47 | 0.2737 | 0.2737 |
| 560209 | MC | 0 | 21 | 5 | 23 | 2019 | 0.54 | 0.49 | -0.2627 | -0.2627 |
| 503121 | OE | 0 | 25 | 8 | 52 | 2019 | 0.29 | 0.26 | 1.0155 | 1.0155 |
| 313528 | OE | 0 | 26 | 7 | 51 | 2016 | 0.34 | 0.32 | 0.9665 | 0.9665 |
| 401981 | MC | 0 | 27 | 0 | 39 | 2019 | 0.61 | 0.60 | -0.5740 | -0.5740 |
| 412775 | MC | 0 | 28 | 0 | 28 | 2018 | 0.58 | 0.55 | -0.4068 | -0.4068 |
| 500367 | MC | 0 | 29 | 1 | 50 | 2018 | 0.48 | 0.51 | 0.0827 | 0.0827 |
| 567236 | MC | 0 | 30 | 7 | 47 | 2019 | 0.51 | 0.51 | -0.0773 | -0.0773 |
| 319340 | MC | 0 | 31 | 0 | 63 | 2017 | 0.35 | 0.34 | 0.9918 | 0.9918 |
| 496115 | MC | 0 | 32 | 7 | 49 | 2019 | 0.59 | 0.61 | -0.4505 | -0.4505 |
| 567235 | MC | 0 | 33 | 1 | 22 | 2019 | 0.46 | 0.43 | 0.1235 | 0.1235 |
| 496114 | MC | 0 | 34 | 3 | 23 | 2019 | 0.57 | 0.56 | -0.4346 | -0.4346 |
| 319290 | MC | 0 | 35 | 6 | 49 | 2016 | 0.39 | 0.37 | 0.6050 | 0.6050 |
| 319265 | MC | 0 | 36 | 0 | 12 | 2017 | 0.52 | 0.44 | -0.1213 | -0.1213 |
| 413355 | MC | 0 | 37 | 2 | 47 | 2018 | 0.44 | 0.40 | 0.4043 | 0.4043 |
| 565300 | MC | 0 | 38 | 8 | 24 | 2019 | 0.74 | 0.76 | -1.2967 | -1.2967 |
| 314813 | MC | 0 | 39 | 0 | 12 | 2018 | 0.40 | 0.38 | 0.6047 | 0.6047 |
| 415638 | MC | 0 | 40 | 0 | 13 | 2018 | 0.56 | 0.50 | -0.2424 | -0.2424 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 567233 | MC | 0 | 41 | 7 | 21 | 2019 | 0.60 | 0.53 | -0.5445 | -0.5445 |
| 314870 | MC | 0 | 42 | 0 | 14 | 2017 | 0.56 | 0.51 | -0.2497 | -0.2497 |
| 417798 | MC | 0 | 43 | 9 | 42 | 2017 | 0.41 | 0.36 | 0.5349 | 0.5349 |
| 404813 | MC | 0 | 44 | 8 | 24 | 2018 | 0.49 | 0.51 | 0.1033 | 0.1033 |
| 335238 | MC | 0 | 45 | 0 | 8 | 2017 | 0.54 | 0.45 | -0.1068 | -0.1068 |
| 478171 | MC | 0 | 46 | 9 | 23 | 2019 | 0.44 | 0.40 | 0.2976 | 0.2976 |
| 566985 | OE | 0 | 51 | 4 | 52 | 2019 | 0.30 | 0.23 | 1.2197 | 1.2197 |

Mathematics Grade 8

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 312494 | MC | 0 | 1 | 0 | 3 | 2017 | 0.61 | 0.55 | -0.5403 | -0.5403 |
| 319312 | MC | 0 | 2 | 0 | 1 | 2018 | 0.56 | 0.53 | -0.4283 | -0.4283 |
| 314901 | MC | 0 | 3 | 5 | 4 | 2018 | 0.41 | 0.38 | 0.3761 | 0.3761 |
| 335243 | MC | 0 | 5 | 8 | 42 | 2016 | 0.71 | 0.57 | -1.1869 | -0.6390 |
| 416600 | MC | 0 | 6 | 3 | 49 | 2017 | 0.51 | 0.51 | -0.0901 | -0.0901 |
| 416558 | MC | 0 | 7 | 0 | 14 | 2018 | 0.51 | 0.48 | -0.1261 | -0.1261 |
| 319332 | MC | 0 | 8 | 0 | 72 | 2017 | 0.34 | 0.29 | 0.8306 | 0.8306 |
| 415801 | MC | 0 | 9 | 6 | 40 | 2017 | 0.44 | 0.45 | 0.2783 | 0.2783 |
| 415806 | MC | 0 | 10 | 6 | 47 | 2017 | 0.74 | 0.68 | -1.3135 | -1.3135 |
| 413598 | MC | 0 | 11 | 7 | 44 | 2017 | 0.40 | 0.35 | 0.4762 | 0.4762 |
| 416369 | MC | 0 | 12 | 9 | 24 | 2019 | 0.44 | 0.45 | 0.1947 | 0.1947 |
| 314900 | MC | 0 | 13 | 0 | 19 | 2018 | 0.74 | 0.71 | -1.3656 | -1.3656 |
| 494637 | MC | 0 | 14 | 6 | 24 | 2019 | 0.57 | 0.50 | -0.4728 | -0.4728 |
| 569270 | MC | 0 | 15 | 3 | 50 | 2019 | 0.57 | 0.51 | -0.4693 | -0.4693 |
| 404826 | MC | 0 | 16 | 0 | 44 | 2019 | 0.58 | 0.53 | -0.5092 | -0.5092 |
| 415803 | MC | 0 | 17 | 5 | 47 | 2018 | 0.37 | 0.34 | 0.6377 | 0.6377 |
| 569264 | MC | 0 | 18 | 9 | 21 | 2019 | 0.62 | 0.60 | -0.7128 | -0.7128 |
| 416550 | MC | 0 | 19 | 9 | 43 | 2017 | 0.65 | 0.56 | -0.7772 | -0.7772 |
| 499241 | MC | 0 | 20 | 2 | 48 | 2019 | 0.45 | 0.33 | 0.1838 | 0.1838 |
| 416594 | MC | 0 | 21 | 4 | 24 | 2019 | 0.47 | 0.45 | 0.0560 | 0.0560 |
| 493897 | OE | 0 | 25 | 3 | 52 | 2019 | 0.35 | 0.36 | 0.5677 | 0.5677 |
| 494647 | OE | 0 | 26 | 5 | 52 | 2018 | 0.40 | 0.35 | 0.4512 | 0.4512 |
| 314892 | MC | 0 | 27 | 9 | 47 | 2016 | 0.73 | 0.65 | -1.2770 | -1.2770 |
| 415804 | MC | 0 | 28 | 7 | 22 | 2018 | 0.56 | 0.48 | -0.3688 | -0.3688 |
| 416363 | MC | 0 | 29 | 4 | 48 | 2017 | 0.48 | 0.49 | 0.0654 | 0.0654 |
| 575464 | MC | 0 | 30 | 2 | 22 | 2019 | 0.50 | 0.52 | -0.0665 | -0.0665 |
| 314841 | MC | 0 | 31 | 0 | 74 | 2017 | 0.47 | 0.47 | 0.0851 | 0.0851 |
| 314876 | MC | 0 | 32 | 8 | 40 | 2017 | 0.51 | 0.45 | -0.0325 | -0.0325 |
| 412790 | MC | 0 | 33 | 8 | 43 | 2017 | 0.39 | 0.33 | 0.5540 | 0.5540 |
| 565842 | MC | 0 | 34 | 2 | 23 | 2019 | 0.57 | 0.52 | -0.4682 | -0.4682 |
| 493096 | MC | 0 | 35 | 7 | 48 | 2019 | 0.37 | 0.32 | 0.5427 | 0.5427 |
| 413332 | MC | 0 | 36 | 0 | 28 | 2018 | 0.50 | 0.44 | -0.1102 | -0.1102 |
| 575469 | MC | 0 | 37 | 8 | 47 | 2019 | 0.47 | 0.43 | 0.0130 | 0.0130 |
| 502455 | MC | 0 | 38 | 6 | 22 | 2019 | 0.56 | 0.58 | -0.4607 | -0.4607 |
| 416559 | MC | 0 | 39 | 0 | 44 | 2018 | 0.56 | 0.46 | -0.3740 | -0.3740 |
| 404815 | MC | 0 | 40 | 6 | 42 | 2017 | 0.43 | 0.36 | 0.3251 | 0.3251 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 416599 | MC | 0 | 41 | 4 | 47 | 2018 | 0.68 | 0.62 | -0.9982 | -0.9982 |
| 404827 | MC | 0 | 42 | 0 | 38 | 2019 | 0.67 | 0.58 | -0.9578 | -0.9578 |
| 488718 | MC | 0 | 43 | 9 | 22 | 2018 | 0.51 | 0.49 | -0.1410 | -0.1410 |
| 412781 | MC | 0 | 44 | 9 | 24 | 2018 | 0.50 | 0.49 | -0.0895 | -0.0895 |
| 335255 | MC | 0 | 45 | 0 | 31 | 2019 | 0.46 | 0.39 | 0.0910 | 0.0910 |
| 503512 | MC | 0 | 46 | 5 | 50 | 2019 | 0.61 | 0.59 | -0.6844 | -0.6844 |
| 313899 | OE | 0 | 51 | 2 | 51 | 2017 | 0.37 | 0.30 | 0.6841 | 0.6841 |

ELA Grade 3

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 581090 | MC | 0 | 1 | 7 | 42 | 2019 | 0.75 | 0.77 | -0.6193 | -0.6193 |
| 581088 | MC | 0 | 2 | 5 | 42 | 2019 | 0.50 | 0.51 | 0.7682 | 0.7682 |
| 581080 | MC | 0 | 3 | 6 | 6 | 2019 | 0.39 | 0.34 | 1.2838 | 1.2838 |
| 408513 | MC | 0 | 4 | 0 | 37 | 2019 | 0.34 | 0.30 | 1.6104 | 1.6104 |
| 581083 | MC | 0 | 5 | 9 | 6 | 2019 | 0.43 | 0.44 | 1.0555 | 1.0555 |
| 493321 | MC | 0 | 7 | 8 | 26 | 2018 | 0.85 | 0.76 | -1.2538 | -0.7381 |
| 493316 | MC | 0 | 8 | 6 | 21 | 2019 | 0.46 | 0.42 | 0.9316 | 0.9316 |
| 493318 | MC | 0 | 9 | 6 | 22 | 2019 | 0.80 | 0.77 | -0.9312 | -0.9312 |
| 493319 | MC | 0 | 10 | 6 | 23 | 2019 | 0.52 | 0.50 | 0.6568 | 0.6568 |
| 493323 | MC | 0 | 11 | 6 | 24 | 2019 | 0.61 | 0.59 | 0.1714 | 0.1714 |
| 493315 | MC | 0 | 12 | 6 | 25 | 2019 | 0.54 | 0.51 | 0.5220 | 0.5220 |
| 493320 | ESR | 0 | 13 | 8 | 35 | 2018 | 0.75 | 0.77 | -0.4286 | -0.4286 |
| 578118 | MC | 0 | 14 | 8 | 27 | 2019 | 0.41 | 0.32 | 1.1682 | 1.1682 |
| 578125 | MC | 0 | 15 | 8 | 29 | 2019 | 0.65 | 0.63 | -0.0065 | -0.0065 |
| 578121 | MC | 0 | 16 | 8 | 30 | 2019 | 0.56 | 0.50 | 0.4671 | 0.4671 |
| 578122 | ESR | 0 | 17 | 8 | 33 | 2019 | 0.47 | 0.47 | 0.8385 | 0.8385 |
| 578117 | ESR | 0 | 18 | 8 | 35 | 2019 | 0.49 | 0.49 | 0.7820 | 0.7820 |
| 580001 | OE | 0 | 19 | 8 | 36 | 2019 | 0.43 | 0.41 | 1.2436 | 1.2436 |
| 581076 | MC | 0 | 37 | 2 | 6 | 2019 | 0.82 | 0.76 | -1.0580 | -1.0580 |
| 504084 | MC | 0 | 38 | 6 | 42 | 2018 | 0.22 | 0.29 | 2.3412 | 1.6571 |
| 581082 | MC | 0 | 39 | 8 | 6 | 2019 | 0.41 | 0.41 | 1.1671 | 1.1671 |
| 409150 | MC | 0 | 40 | 8 | 41 | 2019 | 0.47 | 0.48 | 0.8968 | 0.8968 |
| 496246 | MC | 0 | 43 | 1 | 21 | 2019 | 0.69 | 0.63 | -0.2641 | -0.2641 |
| 496245 | MC | 0 | 44 | 1 | 20 | 2019 | 0.54 | 0.53 | 0.5732 | 0.5732 |
| 496242 | MC | 0 | 45 | 2 | 30 | 2018 | 0.77 | 0.79 | -0.7446 | -0.7446 |
| 496244 | MC | 0 | 46 | 1 | 22 | 2019 | 0.67 | 0.65 | -0.1471 | -0.1471 |
| 496240 | MC | 0 | 47 | 1 | 23 | 2019 | 0.71 | 0.65 | -0.3430 | -0.3430 |
| 496237 | MC | 0 | 48 | 1 | 24 | 2019 | 0.50 | 0.48 | 0.7175 | 0.7175 |
| 496239 | MC | 0 | 49 | 1 | 25 | 2019 | 0.58 | 0.62 | 0.3248 | 0.3248 |
| 579130 | MC | 0 | 50 | 1 | 28 | 2019 | 0.67 | 0.64 | -0.1323 | -0.1323 |
| 579124 | MC | 0 | 51 | 1 | 31 | 2019 | 0.73 | 0.70 | -0.4182 | -0.4182 |
| 579126 | ESR | 0 | 52 | 1 | 32 | 2019 | 0.69 | 0.61 | -0.1679 | -0.1679 |
| 579123 | MC | 0 | 53 | 1 | 33 | 2019 | 0.58 | 0.54 | 0.3170 | 0.3170 |
| 579127 | MC | 0 | 54 | 1 | 35 | 2019 | 0.61 | 0.54 | 0.2063 | 0.2063 |
| 581043 | OE | 0 | 55 | 1 | 36 | 2019 | 0.48 | 0.36 | 0.8321 | 1.2957 |

ELA Grade 4

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 581099 | MC | 0 | 1 | 6 | 52 | 2019 | 0.77 | 0.80 | -0.6838 | -0.6838 |
| 581095 | MC | 0 | 2 | 2 | 52 | 2019 | 0.70 | 0.68 | -0.2741 | -0.2741 |
| 581064 | MC | 0 | 3 | 1 | 6 | 2019 | 0.52 | 0.49 | 0.6524 | 0.6524 |
| 581066 | MC | 0 | 4 | 3 | 6 | 2019 | 0.54 | 0.54 | 0.5729 | 0.5729 |
| 504071 | MC | 0 | 5 | 3 | 51 | 2019 | 0.64 | 0.59 | 0.0395 | 0.0395 |
| 409582 | ESR | 0 | 7 | 1 | 52 | 2017 | 0.59 | 0.60 | 0.2398 | 0.2398 |
| 409589 | MC | 0 | 8 | 1 | 53 | 2017 | 0.65 | 0.66 | -0.0635 | -0.0635 |
| 409588 | MC | 0 | 9 | 1 | 54 | 2017 | 0.84 | 0.84 | -1.3022 | -1.3022 |
| 409584 | MC | 0 | 10 | 1 | 55 | 2017 | 0.73 | 0.69 | -0.5355 | -0.5355 |
| 409591 | MC | 0 | 11 | 1 | 56 | 2017 | 0.83 | 0.83 | -1.2482 | -1.2482 |
| 409583 | MC | 0 | 12 | 1 | 57 | 2017 | 0.62 | 0.61 | 0.0935 | 0.0935 |
| 409585 | MC | 0 | 13 | 1 | 58 | 2017 | 0.62 | 0.62 | 0.0865 | 0.0865 |
| 409587 | MC | 0 | 14 | 1 | 59 | 2017 | 0.66 | 0.67 | -0.1246 | -0.1246 |
| 493327 | MC | 0 | 15 | 1 | 30 | 2019 | 0.79 | 0.71 | -0.8526 | -0.8526 |
| 493332 | MC | 0 | 16 | 1 | 31 | 2019 | 0.80 | 0.69 | -0.8846 | -0.8846 |
| 493328 | MC | 0 | 17 | 1 | 32 | 2019 | 0.77 | 0.69 | -0.6700 | -0.6700 |
| 493326 | MC | 0 | 18 | 1 | 34 | 2019 | 0.68 | 0.60 | -0.1437 | -0.1437 |
| 493329 | ESR | 0 | 19 | 6 | 42 | 2018 | 0.45 | 0.43 | 0.9668 | 0.9668 |
| 493334 | MC | 0 | 20 | 1 | 33 | 2019 | 0.56 | 0.54 | 0.4718 | 0.2754 |
| 493333 | MC | 0 | 21 | 6 | 43 | 2018 | 0.78 | 0.74 | -0.8334 | -0.8334 |
| 493325 | MC | 0 | 22 | 1 | 35 | 2019 | 0.47 | 0.35 | 0.9344 | 0.9344 |
| 493331 | ESR | 0 | 23 | 6 | 45 | 2018 | 0.67 | 0.61 | -0.1618 | -0.1618 |
| 579110 | MC | 0 | 24 | 4 | 37 | 2019 | 0.57 | 0.40 | 0.4640 | 1.0027 |
| 579343 | ESR | 0 | 25 | 4 | 40 | 2019 | 0.65 | 0.55 | 0.0655 | 0.0655 |
| 579109 | ESR | 0 | 26 | 4 | 42 | 2019 | 0.52 | 0.47 | 0.6983 | 0.6983 |
| 579107 | MC | 0 | 27 | 4 | 44 | 2019 | 0.71 | 0.66 | -0.2875 | -0.2875 |
| 579116 | MC | 0 | 28 | 4 | 43 | 2019 | 0.73 | 0.66 | -0.4458 | -0.4458 |
| 504068 | MC | 0 | 46 | 1 | 51 | 2019 | 0.64 | 0.62 | -0.0349 | -0.0349 |
| 581097 | MC | 0 | 47 | 4 | 52 | 2019 | 0.45 | 0.41 | 1.0636 | 1.0636 |
| 504087 | MC | 0 | 48 | 9 | 6 | 2018 | 0.86 | 0.84 | -1.4292 | -1.4292 |
| 504085 | MC | 0 | 49 | 5 | 6 | 2018 | 0.63 | 0.59 | 0.0741 | 0.0741 |
| 579410 | MC | 0 | 52 | 9 | 36 | 2019 | 0.70 | 0.66 | -0.2469 | -0.2469 |
| 579407 | MC | 0 | 53 | 9 | 39 | 2019 | 0.57 | 0.53 | 0.4392 | 0.4392 |
| 579405 | MC | 0 | 54 | 9 | 40 | 2019 | 0.76 | 0.79 | -0.6396 | -1.1365 |
| 579408 | MC | 0 | 55 | 9 | 41 | 2019 | 0.39 | 0.36 | 1.3632 | 1.3632 |
| 579411 | MC | 0 | 56 | 9 | 42 | 2019 | 0.67 | 0.66 | -0.1003 | -0.1003 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------------|-------------|-------------|----------------------|----------------------|-------------------------------|----------------------|-------------------------|----------------|---|--------------------------------|
| 579412 | MC | 0 | 57 | 9 | 43 | 2019 | 0.44 | 0.41 | 1.0992 | 1.0992 |
| 579409 | ESR | 0 | 58 | 9 | 45 | 2019 | 0.60 | 0.60 | 0.2451 | 0.2451 |
| 582450 | TDA | 0 | 59 | 9 | 46 | 2019 | 0.45 | 0.47 | 1.2302 | 1.2302 |

ELA Grade 5

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 581215 | MC | 0 | 1 | 8 | 6 | 2019 | 0.75 | 0.74 | -0.6540 | -0.6540 |
| 505544 | MC | 0 | 2 | 4 | 51 | 2019 | 0.75 | 0.74 | -0.6957 | -0.6957 |
| 581220 | MC | 0 | 3 | 4 | 52 | 2019 | 0.46 | 0.44 | 0.8712 | 0.8712 |
| 505543 | MC | 0 | 4 | 3 | 51 | 2019 | 0.28 | 0.27 | 1.8210 | 1.8210 |
| 581217 | MC | 0 | 5 | 1 | 52 | 2019 | 0.39 | 0.38 | 1.1712 | 1.1712 |
| 580467 | MC | 0 | 7 | 9 | 36 | 2019 | 0.70 | 0.69 | -0.3772 | -0.3772 |
| 580465 | MC | 0 | 8 | 9 | 37 | 2019 | 0.61 | 0.59 | 0.1185 | 0.1185 |
| 580493 | MC | 0 | 9 | 9 | 39 | 2019 | 0.46 | 0.38 | 0.8515 | 0.8515 |
| 580462 | MC | 0 | 10 | 9 | 40 | 2019 | 0.43 | 0.41 | 1.0227 | 1.0227 |
| 580463 | ESR | 0 | 11 | 9 | 41 | 2019 | 0.58 | 0.55 | 0.2025 | 0.2025 |
| 580466 | MC | 0 | 12 | 9 | 42 | 2019 | 0.56 | 0.55 | 0.3528 | 0.3528 |
| 582425 | ESR | 0 | 13 | 9 | 43 | 2019 | 0.66 | 0.66 | -0.0148 | -0.0148 |
| 580464 | MC | 0 | 14 | 9 | 45 | 2019 | 0.69 | 0.68 | -0.3048 | -0.3048 |
| 566396 | MC | 0 | 15 | 1 | 37 | 2019 | 0.79 | 0.75 | -0.8986 | -0.8986 |
| 566395 | MC | 0 | 16 | 1 | 38 | 2019 | 0.50 | 0.55 | 0.6593 | 0.6593 |
| 566398 | ESR | 0 | 17 | 1 | 39 | 2019 | 0.56 | 0.51 | 0.2862 | 0.2862 |
| 566389 | MC | 0 | 18 | 1 | 40 | 2019 | 0.60 | 0.54 | 0.1986 | 0.1986 |
| 566391 | MC | 0 | 19 | 1 | 41 | 2019 | 0.49 | 0.48 | 0.6707 | 0.6707 |
| 566390 | ESR | 0 | 20 | 1 | 42 | 2019 | 0.62 | 0.59 | 0.1248 | 0.1248 |
| 566394 | MC | 0 | 21 | 1 | 43 | 2019 | 0.47 | 0.46 | 0.8066 | 0.8066 |
| 566393 | MC | 0 | 22 | 1 | 44 | 2019 | 0.61 | 0.54 | 0.1083 | 0.1083 |
| 493357 | MC | 0 | 23 | 1 | 36 | 2018 | 0.85 | 0.81 | -1.3838 | -1.3838 |
| 493355 | ESR | 0 | 24 | 1 | 37 | 2018 | 0.55 | 0.49 | 0.4726 | 0.4726 |
| 493364 | MC | 0 | 25 | 1 | 38 | 2018 | 0.77 | 0.72 | -0.7703 | -0.7703 |
| 493359 | MC | 0 | 26 | 1 | 39 | 2018 | 0.61 | 0.58 | 0.1398 | 0.1398 |
| 493361 | MC | 0 | 27 | 1 | 40 | 2018 | 0.64 | 0.58 | -0.0258 | -0.0258 |
| 493363 | MC | 0 | 28 | 1 | 41 | 2018 | 0.53 | 0.52 | 0.5418 | 0.5418 |
| 493356 | MC | 0 | 29 | 1 | 42 | 2018 | 0.61 | 0.56 | 0.1477 | 0.1477 |
| 505538 | MC | 0 | 47 | 9 | 51 | 2019 | 0.53 | 0.45 | 0.5047 | 0.5047 |
| 581223 | MC | 0 | 48 | 7 | 52 | 2019 | 0.40 | 0.42 | 1.1391 | 1.1391 |
| 505542 | MC | 0 | 49 | 2 | 51 | 2019 | 0.45 | 0.49 | 0.9373 | 0.9373 |
| 505536 | MC | 0 | 50 | 7 | 51 | 2019 | 0.53 | 0.48 | 0.5208 | 0.5208 |
| 580588 | MC | 0 | 53 | 4 | 37 | 2019 | 0.54 | 0.52 | 0.4861 | 0.4861 |
| 580581 | MC | 0 | 54 | 4 | 39 | 2019 | 0.62 | 0.70 | 0.0562 | -0.5151 |
| 580586 | MC | 0 | 55 | 4 | 40 | 2019 | 0.73 | 0.75 | -0.5738 | -0.5738 |
| 580589 | MC | 0 | 56 | 4 | 41 | 2019 | 0.68 | 0.66 | -0.2811 | -0.2811 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------------|-------------|-------------|----------------------|----------------------|-------------------------------|----------------------|-------------------------|----------------|---|--------------------------------|
| 580582 | MC | 0 | 57 | 4 | 43 | 2019 | 0.78 | 0.71 | -0.8735 | -0.8735 |
| 580587 | ESR | 0 | 58 | 4 | 44 | 2019 | 0.72 | 0.73 | -0.4395 | -0.4395 |
| 583779 | TDA | 0 | 59 | 4 | 46 | 2019 | 0.46 | 0.48 | 1.0318 | 1.0318 |

ELA Grade 6

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 341235 | MC | 0 | 1 | 4 | 51 | 2018 | 0.67 | 0.64 | 0.1239 | 0.1239 |
| 503922 | MC | 0 | 2 | 5 | 51 | 2019 | 0.60 | 0.62 | 0.4953 | 0.4953 |
| 503913 | MC | 0 | 3 | 8 | 51 | 2019 | 0.56 | 0.54 | 0.7047 | 0.7047 |
| 584195 | MC | 0 | 4 | 2 | 6 | 2019 | 0.62 | 0.56 | 0.3416 | 0.3416 |
| 584194 | MC | 0 | 5 | 1 | 6 | 2019 | 0.76 | 0.80 | -0.4918 | -0.4918 |
| 496308 | MC | 0 | 7 | 2 | 36 | 2018 | 0.82 | 0.80 | -0.8191 | -0.8191 |
| 496309 | MC | 0 | 8 | 2 | 37 | 2018 | 0.70 | 0.71 | -0.0612 | -0.0612 |
| 496316 | ESR | 0 | 9 | 2 | 39 | 2018 | 0.68 | 0.68 | 0.1234 | 0.1234 |
| 496307 | MC | 0 | 10 | 2 | 43 | 2018 | 0.47 | 0.45 | 1.1566 | 1.1566 |
| 496313 | MC | 0 | 11 | 2 | 45 | 2018 | 0.54 | 0.59 | 0.8180 | 0.8180 |
| 496310 | ESR | 0 | 12 | 2 | 41 | 2018 | 0.68 | 0.65 | 0.0749 | 0.0749 |
| 496311 | MC | 0 | 13 | 2 | 42 | 2018 | 0.60 | 0.61 | 0.5212 | 0.5212 |
| 496315 | MC | 0 | 14 | 2 | 44 | 2018 | 0.66 | 0.66 | 0.1566 | 0.1566 |
| 495094 | MC | 0 | 15 | 6 | 30 | 2019 | 0.70 | 0.62 | -0.0234 | -0.0234 |
| 500480 | ESR | 0 | 16 | 8 | 39 | 2018 | 0.65 | 0.62 | 0.2809 | 0.2809 |
| 495092 | MC | 0 | 17 | 6 | 32 | 2019 | 0.66 | 0.55 | 0.1801 | 0.1801 |
| 495090 | MC | 0 | 18 | 6 | 33 | 2019 | 0.54 | 0.49 | 0.7636 | 0.7636 |
| 495091 | MC | 0 | 19 | 6 | 34 | 2019 | 0.41 | 0.37 | 1.3994 | 1.3994 |
| 495086 | ESR | 0 | 20 | 8 | 43 | 2018 | 0.47 | 0.46 | 1.0759 | 1.0759 |
| 495895 | MC | 0 | 21 | 1 | 36 | 2018 | 0.52 | 0.47 | 0.8712 | 0.8712 |
| 495896 | MC | 0 | 22 | 1 | 39 | 2018 | 0.39 | 0.37 | 1.5563 | 1.5563 |
| 495893 | ESR | 0 | 23 | 1 | 40 | 2018 | 0.64 | 0.58 | 0.2166 | 0.2166 |
| 495897 | MC | 0 | 24 | 1 | 31 | 2019 | 0.67 | 0.62 | 0.1115 | 0.1115 |
| 495900 | MC | 0 | 25 | 1 | 30 | 2019 | 0.73 | 0.64 | -0.1998 | -0.1998 |
| 495899 | MC | 0 | 26 | 1 | 33 | 2019 | 0.58 | 0.40 | 0.6100 | 1.4487 |
| 495898 | MC | 0 | 27 | 1 | 34 | 2019 | 0.50 | 0.39 | 0.9969 | 1.5130 |
| 499798 | MC | 0 | 28 | 1 | 35 | 2019 | 0.56 | 0.47 | 0.6936 | 0.6936 |
| 584202 | MC | 0 | 46 | 9 | 6 | 2019 | 0.74 | 0.71 | -0.2799 | -0.2799 |
| 503920 | MC | 0 | 47 | 3 | 51 | 2019 | 0.74 | 0.74 | -0.3134 | -0.3134 |
| 584200 | MC | 0 | 48 | 7 | 6 | 2019 | 0.77 | 0.74 | -0.4809 | -0.4809 |
| 584206 | MC | 0 | 49 | 4 | 52 | 2019 | 0.69 | 0.68 | 0.0269 | 0.0269 |
| 576367 | MC | 0 | 52 | 3 | 36 | 2019 | 0.82 | 0.80 | -0.8009 | -0.8009 |
| 578140 | MC | 0 | 53 | 3 | 37 | 2019 | 0.63 | 0.59 | 0.3353 | 0.3353 |
| 578625 | ESR | 0 | 54 | 3 | 39 | 2019 | 0.49 | 0.50 | 1.0489 | 1.0489 |
| 576365 | MC | 0 | 55 | 3 | 41 | 2019 | 0.61 | 0.60 | 0.4325 | 0.4325 |
| 576358 | MC | 0 | 56 | 3 | 42 | 2019 | 0.58 | 0.58 | 0.6055 | 0.6055 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------------|-------------|-------------|----------------------|----------------------|-------------------------------|----------------------|-------------------------|----------------|---|--------------------------------|
| 576366 | MC | 0 | 57 | 3 | 43 | 2019 | 0.67 | 0.66 | 0.0830 | 0.0830 |
| 576364 | MC | 0 | 58 | 3 | 45 | 2019 | 0.62 | 0.60 | 0.3849 | 0.3849 |
| 579502 | TDA | 0 | 59 | 3 | 46 | 2019 | 0.49 | 0.50 | 1.1746 | 1.1746 |

ELA Grade 7

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 584128 | MC | 0 | 1 | 7 | 51 | 2019 | 0.81 | 0.79 | -0.8789 | -0.8789 |
| 503916 | MC | 0 | 2 | 4 | 50 | 2019 | 0.61 | 0.61 | 0.3101 | 0.3101 |
| 503927 | MC | 0 | 3 | 8 | 50 | 2019 | 0.45 | 0.40 | 1.0900 | 1.0900 |
| 503931 | MC | 0 | 4 | 1 | 50 | 2019 | 0.62 | 0.65 | 0.1606 | 0.1606 |
| 584129 | MC | 0 | 5 | 8 | 51 | 2019 | 0.73 | 0.69 | -0.3441 | -0.3441 |
| 494380 | MC | 0 | 7 | 1 | 29 | 2019 | 0.61 | 0.59 | 0.3259 | 0.3259 |
| 494379 | MC | 0 | 8 | 1 | 30 | 2019 | 0.60 | 0.54 | 0.3861 | 0.3861 |
| 494385 | MC | 0 | 9 | 1 | 31 | 2019 | 0.69 | 0.65 | -0.1118 | -0.1118 |
| 494378 | MC | 0 | 10 | 1 | 32 | 2019 | 0.80 | 0.78 | -0.7504 | -0.7504 |
| 494384 | MC | 0 | 11 | 1 | 33 | 2019 | 0.52 | 0.48 | 0.7718 | 0.7718 |
| 494383 | ESR | 0 | 12 | 4 | 41 | 2018 | 0.64 | 0.59 | 0.0125 | 0.0125 |
| 494382 | MC | 0 | 13 | 1 | 34 | 2019 | 0.47 | 0.46 | 0.9924 | 0.9924 |
| 495930 | MC | 0 | 14 | 0 | 21 | 2019 | 0.57 | 0.57 | 0.6315 | 0.6315 |
| 495929 | MC | 0 | 15 | 0 | 22 | 2019 | 0.81 | 0.83 | -0.9082 | -0.9082 |
| 495924 | MC | 0 | 16 | 0 | 23 | 2019 | 0.60 | 0.62 | 0.3092 | 0.3092 |
| 495926 | MC | 0 | 17 | 0 | 24 | 2019 | 0.59 | 0.58 | 0.3977 | 0.3977 |
| 495931 | MC | 0 | 18 | 0 | 27 | 2019 | 0.51 | 0.53 | 0.7517 | 0.5525 |
| 495922 | MC | 0 | 19 | 0 | 25 | 2019 | 0.58 | 0.60 | 0.3797 | 0.3797 |
| 495927 | ESR | 0 | 20 | 0 | 28 | 2019 | 0.34 | 0.34 | 1.5249 | 1.5249 |
| 497159 | MC | 0 | 21 | 5 | 35 | 2018 | 0.44 | 0.43 | 1.1538 | 1.1538 |
| 497153 | MC | 0 | 22 | 5 | 37 | 2018 | 0.72 | 0.68 | -0.2724 | -0.2724 |
| 497161 | ESR | 0 | 23 | 5 | 38 | 2018 | 0.76 | 0.66 | -0.4181 | -0.4181 |
| 497162 | ESR | 0 | 24 | 5 | 39 | 2018 | 0.79 | 0.75 | -0.5147 | -0.5147 |
| 497154 | MC | 0 | 25 | 5 | 40 | 2018 | 0.48 | 0.42 | 0.9268 | 0.9268 |
| 497160 | MC | 0 | 26 | 5 | 41 | 2018 | 0.61 | 0.55 | 0.2944 | 0.2944 |
| 502775 | MC | 0 | 27 | 5 | 42 | 2018 | 0.47 | 0.43 | 0.9762 | 0.9762 |
| 497158 | MC | 0 | 28 | 5 | 43 | 2018 | 0.53 | 0.45 | 0.7021 | 0.7021 |
| 503924 | MC | 0 | 46 | 6 | 51 | 2018 | 0.62 | 0.55 | 0.2390 | 0.2390 |
| 584047 | MC | 0 | 47 | 3 | 6 | 2019 | 0.47 | 0.40 | 0.9850 | 0.9850 |
| 584048 | MC | 0 | 48 | 4 | 6 | 2019 | 0.87 | 0.85 | -1.3025 | -1.3025 |
| 584045 | MC | 0 | 49 | 1 | 6 | 2019 | 0.84 | 0.84 | -1.0518 | -1.0518 |
| 580591 | MC | 0 | 52 | 5 | 35 | 2019 | 0.65 | 0.66 | 0.1254 | 0.1254 |
| 580590 | MC | 0 | 53 | 5 | 36 | 2019 | 0.58 | 0.57 | 0.4580 | 0.4580 |
| 580607 | MC | 0 | 54 | 5 | 39 | 2019 | 0.74 | 0.73 | -0.3745 | -0.3745 |
| 580604 | MC | 0 | 55 | 5 | 40 | 2019 | 0.65 | 0.61 | 0.0898 | 0.0898 |
| 580608 | ESR | 0 | 56 | 5 | 42 | 2019 | 0.58 | 0.57 | 0.3776 | 0.3776 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------------|-------------|-------------|----------------------|----------------------|-------------------------------|----------------------|-------------------------|----------------|---|--------------------------------|
| 580603 | MC | 0 | 57 | 5 | 43 | 2019 | 0.74 | 0.75 | -0.4001 | -0.4001 |
| 580606 | ESR | 0 | 58 | 5 | 44 | 2019 | 0.67 | 0.68 | 0.0476 | 0.0476 |
| 583806 | TDA | 0 | 59 | 5 | 45 | 2019 | 0.46 | 0.52 | 1.2971 | 1.2971 |

ELA Grade 8

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 584083 | MC | 0 | 1 | 8 | 6 | 2019 | 0.61 | 0.55 | 0.1607 | 0.1607 |
| 503806 | MC | 0 | 2 | 4 | 51 | 2018 | 0.63 | 0.63 | 0.0262 | 0.0262 |
| 503810 | MC | 0 | 3 | 3 | 50 | 2019 | 0.52 | 0.49 | 0.5955 | 0.5955 |
| 584101 | MC | 0 | 4 | 7 | 51 | 2019 | 0.48 | 0.46 | 0.7738 | 0.7738 |
| 503814 | MC | 0 | 5 | 5 | 50 | 2019 | 0.53 | 0.45 | 0.5511 | 0.5511 |
| 494399 | MC | 0 | 7 | 0 | 22 | 2019 | 0.33 | 0.40 | 1.6536 | 1.0352 |
| 494397 | MC | 0 | 8 | 0 | 23 | 2019 | 0.76 | 0.77 | -0.6539 | -0.6539 |
| 494402 | ESR | 0 | 9 | 0 | 24 | 2019 | 0.72 | 0.71 | -0.3021 | -0.3021 |
| 494403 | MC | 0 | 10 | 9 | 39 | 2018 | 0.85 | 0.82 | -1.4303 | -1.4303 |
| 494400 | MC | 0 | 11 | 0 | 25 | 2019 | 0.61 | 0.63 | 0.1320 | 0.1320 |
| 494401 | MC | 0 | 12 | 0 | 26 | 2019 | 0.47 | 0.51 | 0.7905 | 0.7905 |
| 494396 | ESR | 0 | 13 | 9 | 42 | 2018 | 0.70 | 0.70 | -0.3100 | -0.3100 |
| 494405 | MC | 0 | 14 | 0 | 27 | 2019 | 0.51 | 0.52 | 0.6170 | 0.6170 |
| 494398 | MC | 0 | 15 | 0 | 28 | 2019 | 0.62 | 0.64 | 0.0837 | 0.0837 |
| 497070 | ESR | 0 | 16 | 5 | 36 | 2018 | 0.41 | 0.40 | 1.0455 | 0.9131 |
| 497068 | MC | 0 | 17 | 5 | 38 | 2018 | 0.77 | 0.70 | -0.7889 | -0.7889 |
| 497064 | MC | 0 | 18 | 1 | 31 | 2019 | 0.70 | 0.70 | -0.3455 | -0.3455 |
| 497069 | MC | 0 | 19 | 1 | 32 | 2019 | 0.46 | 0.34 | 0.8627 | 0.8627 |
| 497065 | MC | 0 | 20 | 1 | 33 | 2019 | 0.86 | 0.82 | -1.4908 | -1.4908 |
| 497072 | MC | 0 | 21 | 1 | 34 | 2019 | 0.63 | 0.56 | 0.0088 | 0.0088 |
| 497067 | ESR | 0 | 22 | 5 | 44 | 2018 | 0.74 | 0.69 | -0.4675 | -0.4675 |
| 495116 | MC | 0 | 23 | 7 | 36 | 2018 | 0.54 | 0.47 | 0.4820 | 0.4820 |
| 495123 | MC | 0 | 24 | 7 | 37 | 2018 | 0.50 | 0.44 | 0.6795 | 0.6795 |
| 495118 | MC | 0 | 25 | 7 | 38 | 2018 | 0.47 | 0.39 | 0.8146 | 0.8146 |
| 495120 | MC | 0 | 26 | 7 | 39 | 2018 | 0.58 | 0.53 | 0.2740 | 0.2740 |
| 495117 | MC | 0 | 27 | 7 | 41 | 2018 | 0.77 | 0.74 | -0.7549 | -0.7549 |
| 495119 | MC | 0 | 28 | 7 | 43 | 2018 | 0.61 | 0.56 | 0.1048 | 0.1048 |
| 495121 | ESR | 0 | 29 | 7 | 44 | 2018 | 0.72 | 0.68 | -0.3283 | -0.3283 |
| 503808 | MC | 0 | 47 | 9 | 50 | 2019 | 0.77 | 0.75 | -0.8024 | -0.8024 |
| 341018 | MC | 0 | 48 | 0 | 5 | 2017 | 0.39 | 0.36 | 1.1888 | 1.1888 |
| 584082 | MC | 0 | 49 | 7 | 6 | 2019 | 0.43 | 0.44 | 0.9927 | 0.9927 |
| 503804 | MC | 0 | 50 | 7 | 50 | 2019 | 0.51 | 0.50 | 0.6094 | 0.6094 |
| 578086 | MC | 0 | 53 | 7 | 35 | 2019 | 0.79 | 0.76 | -0.9744 | -0.9744 |
| 578066 | MC | 0 | 54 | 7 | 37 | 2019 | 0.82 | 0.81 | -1.2042 | -1.2042 |
| 578069 | MC | 0 | 55 | 7 | 38 | 2019 | 0.79 | 0.75 | -0.9203 | -0.9203 |
| 578080 | MC | 0 | 56 | 7 | 41 | 2019 | 0.48 | 0.47 | 0.7625 | 0.7625 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------------|-------------|-------------|----------------------|----------------------|-------------------------------|----------------------|-------------------------|----------------|---|--------------------------------|
| 578070 | ESR | 0 | 57 | 7 | 44 | 2019 | 0.63 | 0.62 | 0.1360 | 0.1360 |
| 578088 | MC | 0 | 58 | 7 | 43 | 2019 | 0.72 | 0.70 | -0.4960 | -0.4960 |
| 578068 | TDA | 0 | 59 | 7 | 45 | 2019 | 0.49 | 0.53 | 0.9427 | 0.9427 |

Science Grade 4

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 496502 | MC | 0 | 1 | 8 | 46 | 2018 | 0.80 | 0.83 | -0.5423 | -0.5423 |
| 494813 | MC | 0 | 2 | 11 | 47 | 2018 | 0.61 | 0.57 | 0.5450 | 0.5450 |
| 494837 | MC | 0 | 3 | 0 | 44 | 2019 | 0.58 | 0.59 | 0.6526 | 0.6526 |
| 411272 | MC | 0 | 4 | 6 | 70 | 2017 | 0.54 | 0.61 | 0.8192 | 0.8192 |
| 565986 | MC | 0 | 5 | 1 | 48 | 2019 | 0.40 | 0.41 | 1.4474 | 1.4474 |
| 494808 | MC | 0 | 6 | 2 | 23 | 2019 | 0.50 | 0.52 | 1.0342 | 1.0342 |
| 565987 | MC | 0 | 7 | 1 | 20 | 2019 | 0.56 | 0.56 | 0.6049 | 0.6049 |
| 496499 | MC | 0 | 8 | 10 | 23 | 2019 | 0.40 | 0.40 | 1.5431 | 1.5431 |
| 335265 | MC | 0 | 9 | 11 | 68 | 2016 | 0.55 | 0.54 | 0.8569 | 0.8569 |
| 411189 | MC | 0 | 10 | 7 | 23 | 2018 | 0.44 | 0.44 | 1.3573 | 1.3573 |
| 494804 | MC | 0 | 11 | 4 | 23 | 2019 | 0.44 | 0.47 | 1.3462 | 1.3462 |
| 574816 | MC | 0 | 12 | 5 | 22 | 2019 | 0.61 | 0.60 | 0.4603 | 0.4603 |
| 336960 | MC | 0 | 13 | 5 | 69 | 2017 | 0.38 | 0.34 | 1.6110 | 1.6110 |
| 272655 | MC | 0 | 14 | 0 | 17 | 2017 | 0.39 | 0.38 | 1.4509 | 1.4509 |
| 408840 | MC | 0 | 15 | 2 | 22 | 2018 | 0.60 | 0.61 | 0.5695 | 0.5695 |
| 409093 | MC | 0 | 16 | 5 | 47 | 2018 | 0.45 | 0.37 | 1.2781 | 1.2781 |
| 410863 | MC | 0 | 17 | 10 | 47 | 2018 | 0.66 | 0.62 | 0.2984 | 0.2984 |
| 304994 | MC | 0 | 18 | 4 | 34 | 2017 | 0.47 | 0.46 | 1.1557 | 1.1557 |
| 401659 | MC | 0 | 19 | 0 | 33 | 2018 | 0.57 | 0.59 | 0.7464 | 0.7464 |
| 462648 | SCR | 0 | 24 | 8 | 52 | 2018 | 0.35 | 0.42 | 1.8433 | 1.8433 |
| 566544 | SCR | 0 | 25 | 3 | 52 | 2019 | 0.48 | 0.50 | 1.2628 | 1.2628 |
| 398573 | SCR | 0 | 26 | 7 | 74 | 2017 | 0.71 | 0.72 | -0.1848 | -0.1848 |
| 337529 | MC | 0 | 27 | 0 | 65 | 2017 | 0.52 | 0.55 | 0.9034 | 0.9034 |
| 304895 | MC | 0 | 28 | 11 | 69 | 2017 | 0.57 | 0.59 | 0.6412 | 0.6412 |
| 495279 | MC | 0 | 29 | 1 | 22 | 2018 | 0.42 | 0.44 | 1.4035 | 1.4035 |
| 479683 | MC | 0 | 30 | 2 | 49 | 2019 | 0.61 | 0.64 | 0.4721 | 0.4721 |
| 494819 | MC | 0 | 31 | 9 | 23 | 2019 | 0.71 | 0.71 | -0.0145 | -0.0145 |
| 496501 | MC | 0 | 32 | 8 | 49 | 2019 | 0.49 | 0.51 | 1.0714 | 1.0714 |
| 410858 | MC | 0 | 33 | 4 | 32 | 2017 | 0.67 | 0.62 | 0.1507 | 0.1507 |
| 496516 | MC | 0 | 34 | 11 | 23 | 2019 | 0.39 | 0.44 | 1.5318 | 1.5318 |
| 409067 | MC | 0 | 35 | 1 | 69 | 2017 | 0.58 | 0.64 | 0.5650 | 0.5650 |
| 410859 | MC | 0 | 36 | 8 | 22 | 2018 | 0.54 | 0.54 | 0.8730 | 0.8730 |
| 301023 | MC | 0 | 37 | 0 | 44 | 2017 | 0.49 | 0.47 | 1.1535 | 1.1535 |
| 579555 | MC | 0 | 38 | 6 | 21 | 2019 | 0.70 | 0.70 | 0.0121 | 0.0121 |
| 498448 | MC | 0 | 39 | 8 | 20 | 2018 | 0.56 | 0.57 | 0.7797 | 0.7797 |
| 411597 | MC | 0 | 40 | 10 | 67 | 2017 | 0.68 | 0.68 | 0.1327 | 0.1327 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 579540 | MC | 0 | 41 | 6 | 48 | 2019 | 0.40 | 0.36 | 1.5149 | 1.5149 |
| 304914 | MC | 0 | 42 | 2 | 34 | 2017 | 0.59 | 0.62 | 0.5459 | 0.5459 |
| 409062 | MC | 0 | 43 | 4 | 49 | 2018 | 0.57 | 0.56 | 0.6740 | 0.6740 |
| 579552 | MC | 0 | 44 | 11 | 46 | 2019 | 0.52 | 0.48 | 0.9032 | 0.9032 |
| 336966 | MC | 0 | 45 | 11 | 71 | 2016 | 0.74 | 0.69 | -0.1990 | -0.1990 |
| 335278 | SCR | 0 | 50 | 0 | 73 | 2017 | 0.58 | 0.60 | 0.5588 | 0.5588 |
| 492832 | SCR | 0 | 51 | 0 | 50 | 2019 | 0.48 | 0.48 | 1.1210 | 1.1210 |

Science Grade 8

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------|------|------|---------------|---------------|------------------------|---------------|------------------|---------|----------------------------------|-------------------------|
| 496016 | MC | 0 | 1 | 7 | 22 | 2018 | 0.85 | 0.90 | -1.4753 | -2.0843 |
| 579922 | MC | 0 | 2 | 11 | 50 | 2019 | 0.48 | 0.51 | 0.6392 | 0.6392 |
| 313619 | MC | 0 | 3 | 7 | 72 | 2017 | 0.43 | 0.43 | 0.8798 | 0.8798 |
| 412137 | MC | 0 | 4 | 5 | 24 | 2018 | 0.50 | 0.51 | 0.5519 | 0.5519 |
| 340479 | MC | 0 | 5 | 2 | 72 | 2017 | 0.44 | 0.52 | 0.8223 | 0.8223 |
| 493907 | MC | 0 | 6 | 2 | 24 | 2019 | 0.58 | 0.63 | 0.1676 | 0.1676 |
| 566177 | MC | 0 | 7 | 12 | 49 | 2019 | 0.35 | 0.37 | 1.2976 | 1.2976 |
| 337536 | MC | 0 | 8 | 10 | 51 | 2018 | 0.57 | 0.53 | 0.2400 | 0.2400 |
| 577688 | MC | 0 | 9 | 5 | 50 | 2019 | 0.70 | 0.68 | -0.4538 | -0.4538 |
| 479414 | MC | 0 | 10 | 8 | 22 | 2018 | 0.69 | 0.67 | -0.4060 | -0.4060 |
| 493917 | MC | 0 | 11 | 12 | 24 | 2019 | 0.70 | 0.70 | -0.4586 | -0.4586 |
| 401720 | MC | 0 | 12 | 2 | 24 | 2018 | 0.40 | 0.41 | 1.0235 | 1.0235 |
| 401762 | MC | 0 | 13 | 2 | 32 | 2017 | 0.60 | 0.64 | 0.0468 | 0.0468 |
| 496014 | MC | 0 | 14 | 6 | 51 | 2019 | 0.75 | 0.74 | -0.7289 | -0.7289 |
| 313643 | MC | 0 | 15 | 8 | 33 | 2017 | 0.37 | 0.32 | 1.1989 | 1.1989 |
| 401706 | MC | 0 | 16 | 10 | 33 | 2017 | 0.67 | 0.65 | -0.3580 | -0.3580 |
| 339838 | MC | 0 | 17 | 6 | 34 | 2017 | 0.38 | 0.44 | 1.1051 | 1.1051 |
| 565293 | SCR | 0 | 25 | 12 | 54 | 2019 | 0.34 | 0.30 | 1.3517 | 1.3517 |
| 413200 | SCR | 0 | 26 | 5 | 54 | 2018 | 0.35 | 0.35 | 1.4033 | 1.4033 |
| 279708 | SCR | 0 | 27 | 0 | 52 | 2018 | 0.42 | 0.37 | 0.9011 | 0.9011 |
| 577687 | MC | 0 | 28 | 4 | 50 | 2019 | 0.66 | 0.69 | -0.2777 | -0.2777 |
| 410880 | MC | 0 | 29 | 10 | 34 | 2017 | 0.60 | 0.65 | 0.0420 | 0.0420 |
| 494531 | MC | 0 | 30 | 9 | 24 | 2019 | 0.75 | 0.76 | -0.7767 | -0.7767 |
| 412150 | MC | 0 | 31 | 4 | 50 | 2018 | 0.45 | 0.40 | 0.8166 | 0.8166 |
| 413214 | MC | 0 | 32 | 2 | 51 | 2019 | 0.42 | 0.39 | 0.9929 | 0.9929 |
| 303675 | MC | 0 | 33 | 0 | 11 | 2019 | 0.67 | 0.62 | -0.2820 | -0.2820 |
| 305069 | MC | 0 | 34 | 5 | 71 | 2017 | 0.39 | 0.39 | 1.0683 | 1.0683 |
| 401768 | MC | 0 | 35 | 3 | 51 | 2018 | 0.38 | 0.42 | 1.1576 | 1.1576 |
| 401734 | MC | 0 | 36 | 9 | 33 | 2017 | 0.60 | 0.59 | 0.0033 | 0.0033 |
| 498860 | MC | 0 | 37 | 5 | 51 | 2018 | 0.52 | 0.51 | 0.4447 | 0.4447 |
| 411602 | MC | 0 | 38 | 12 | 33 | 2017 | 0.48 | 0.48 | 0.6062 | 0.6062 |
| 579570 | MC | 0 | 39 | 7 | 49 | 2019 | 0.76 | 0.75 | -0.8314 | -0.8314 |
| 566925 | MC | 0 | 40 | 12 | 50 | 2019 | 0.43 | 0.40 | 0.8707 | 0.8707 |
| 566178 | MC | 0 | 41 | 1 | 50 | 2019 | 0.59 | 0.58 | 0.0254 | 0.0254 |
| 303367 | MC | 0 | 42 | 7 | 71 | 2016 | 0.55 | 0.57 | 0.3068 | 0.3068 |
| 412167 | MC | 0 | 43 | 11 | 33 | 2017 | 0.64 | 0.64 | -0.1496 | -0.1496 |

| PubID | Type | Form | Item Sequence | Previous Form | Previous Item Sequence | Previous Year | Previous P-Value | P-Value | Previous IRT Difficulty Estimate | IRT Difficulty Estimate |
|--------------|-------------|-------------|----------------------|----------------------|-------------------------------|----------------------|-------------------------|----------------|---|--------------------------------|
| 412141 | MC | 0 | 44 | 6 | 50 | 2018 | 0.65 | 0.63 | -0.1498 | -0.1498 |
| 561264 | MC | 0 | 45 | 12 | 21 | 2019 | 0.49 | 0.44 | 0.6006 | 0.6006 |
| 561262 | MC | 0 | 46 | 12 | 20 | 2019 | 0.42 | 0.37 | 0.9432 | 0.9432 |
| 561263 | MC | 0 | 47 | 12 | 19 | 2019 | 0.62 | 0.59 | -0.0428 | -0.0428 |
| 561248 | MC | 0 | 48 | 11 | 18 | 2019 | 0.67 | 0.54 | -0.2751 | -0.2751 |
| 566546 | SCR | 0 | 52 | 5 | 54 | 2019 | 0.48 | 0.47 | 0.6837 | 0.6837 |
| 578318 | SCR | 0 | 53 | 11 | 54 | 2019 | 0.62 | 0.61 | 0.0554 | 0.0554 |

APPENDIX P: RELIABILITIES

Each table in this appendix provides the number of items (N items), number of students (N), mean score (Mean), standard deviation of raw score (SD), reliability (r), standard error of measurement (SEM), overall (indicated as “All”), and disaggregated by reporting category code (see Chapter Two). Reliability of scores is calculated based on weighted raw scores (ELA only). For each subject and grade level, tables present reliabilities disaggregated by gender, Ethnicity, whether students had an individualized educational plan (IEP), whether students were considered an English Learner (EL), and whether students had a low-income background (Low Income).

Grade 3 Mathematics

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 52 | 43 | 114714 | 27.60 | 11.38 | 0.92 | 3.21 | MC*OE |
| A | All | 16 | 13 | 114714 | 8.62 | 3.70 | 0.77 | 1.77 | MC*OE |
| B | All | 14 | 14 | 114714 | 8.24 | 3.56 | 0.80 | 1.60 | MC |
| C | All | 8 | 5 | 114714 | 3.38 | 2.25 | 0.60 | 1.43 | MC*OE |
| D | All | 14 | 11 | 114714 | 7.36 | 3.10 | 0.73 | 1.61 | MC*OE |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 52 | 43 | 56255 | 27.11 | 11.18 | 0.92 | 3.22 | MC*OE |
| Total | Male | 52 | 43 | 58459 | 28.07 | 11.55 | 0.92 | 3.20 | MC*OE |
| A | Female | 16 | 13 | 56255 | 8.50 | 3.65 | 0.76 | 1.77 | MC*OE |
| A | Male | 16 | 13 | 58459 | 8.73 | 3.75 | 0.78 | 1.76 | MC*OE |
| B | Female | 14 | 14 | 56255 | 7.99 | 3.53 | 0.79 | 1.62 | MC |
| B | Male | 14 | 14 | 58459 | 8.47 | 3.57 | 0.80 | 1.58 | MC |
| C | Female | 8 | 5 | 56255 | 3.34 | 2.21 | 0.59 | 1.42 | MC*OE |
| C | Male | 8 | 5 | 58459 | 3.43 | 2.29 | 0.61 | 1.44 | MC*OE |
| D | Female | 14 | 11 | 56255 | 7.27 | 3.04 | 0.72 | 1.61 | MC*OE |
| D | Male | 14 | 11 | 58459 | 7.44 | 3.14 | 0.74 | 1.61 | MC*OE |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 52 | 43 | 174 | 25.20 | 11.71 | 0.92 | 3.26 | MC*OE |
| Total | African American | 52 | 43 | 16432 | 18.94 | 8.99 | 0.87 | 3.20 | MC*OE |
| Total | Hispanic | 52 | 43 | 15726 | 21.18 | 9.79 | 0.89 | 3.22 | MC*OE |
| Total | White | 52 | 43 | 70492 | 30.64 | 10.52 | 0.91 | 3.15 | MC*OE |
| Total | Multiple Ethnicities | 52 | 43 | 6192 | 26.45 | 11.09 | 0.92 | 3.23 | MC*OE |
| Total | Asian | 52 | 43 | 5596 | 34.09 | 10.69 | 0.92 | 3.06 | MC*OE |
| Total | Pacific Islander | 52 | 43 | 102 | 25.76 | 10.68 | 0.91 | 3.27 | MC*OE |
| A | American Indian | 16 | 13 | 174 | 7.82 | 3.66 | 0.76 | 1.80 | MC*OE |
| A | African American | 16 | 13 | 16432 | 5.92 | 3.10 | 0.66 | 1.80 | MC*OE |
| A | Hispanic | 16 | 13 | 15726 | 6.62 | 3.29 | 0.70 | 1.80 | MC*OE |
| A | White | 16 | 13 | 70492 | 9.58 | 3.42 | 0.75 | 1.71 | MC*OE |
| A | Multiple Ethnicities | 16 | 13 | 6192 | 8.26 | 3.66 | 0.76 | 1.77 | MC*OE |
| A | Asian | 16 | 13 | 5596 | 10.47 | 3.47 | 0.77 | 1.67 | MC*OE |
| A | Pacific Islander | 16 | 13 | 102 | 8.02 | 3.46 | 0.72 | 1.83 | MC*OE |
| B | American Indian | 14 | 14 | 174 | 7.56 | 3.73 | 0.81 | 1.61 | MC |
| B | African American | 14 | 14 | 16432 | 5.95 | 3.15 | 0.71 | 1.69 | MC |
| B | Hispanic | 14 | 14 | 15726 | 6.45 | 3.31 | 0.74 | 1.68 | MC |
| B | White | 14 | 14 | 70492 | 9.04 | 3.32 | 0.78 | 1.57 | MC |
| B | Multiple Ethnicities | 14 | 14 | 6192 | 7.91 | 3.54 | 0.79 | 1.62 | MC |
| B | Asian | 14 | 14 | 5596 | 10.31 | 3.13 | 0.79 | 1.42 | MC |
| B | Pacific Islander | 14 | 14 | 102 | 7.79 | 3.52 | 0.78 | 1.64 | MC |
| C | American Indian | 8 | 5 | 174 | 3.15 | 2.36 | 0.64 | 1.41 | MC*OE |
| C | African American | 8 | 5 | 16432 | 1.98 | 1.70 | 0.46 | 1.24 | MC*OE |
| C | Hispanic | 8 | 5 | 15726 | 2.31 | 1.86 | 0.51 | 1.30 | MC*OE |
| C | White | 8 | 5 | 70492 | 3.88 | 2.21 | 0.58 | 1.43 | MC*OE |
| C | Multiple Ethnicities | 8 | 5 | 6192 | 3.18 | 2.19 | 0.58 | 1.42 | MC*OE |
| C | Asian | 8 | 5 | 5596 | 4.44 | 2.30 | 0.61 | 1.44 | MC*OE |
| C | Pacific Islander | 8 | 5 | 102 | 3.09 | 2.22 | 0.57 | 1.46 | MC*OE |
| D | American Indian | 14 | 11 | 174 | 6.67 | 3.29 | 0.75 | 1.64 | MC*OE |
| D | African American | 14 | 11 | 16432 | 5.08 | 2.57 | 0.60 | 1.62 | MC*OE |
| D | Hispanic | 14 | 11 | 15726 | 5.79 | 2.75 | 0.65 | 1.62 | MC*OE |
| D | White | 14 | 11 | 70492 | 8.15 | 2.88 | 0.70 | 1.57 | MC*OE |
| D | Multiple Ethnicities | 14 | 11 | 6192 | 7.10 | 2.97 | 0.70 | 1.62 | MC*OE |
| D | Asian | 14 | 11 | 5596 | 8.87 | 2.96 | 0.72 | 1.57 | MC*OE |
| D | Pacific Islander | 14 | 11 | 102 | 6.86 | 2.88 | 0.70 | 1.57 | MC*OE |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 52 | 43 | 20309 | 20.68 | 10.39 | 0.90 | 3.22 | MC*OE |
| A | Y | 16 | 13 | 20309 | 6.54 | 3.46 | 0.73 | 1.81 | MC*OE |
| B | Y | 14 | 14 | 20309 | 6.18 | 3.42 | 0.76 | 1.66 | MC |
| C | Y | 8 | 5 | 20309 | 2.27 | 1.93 | 0.55 | 1.29 | MC*OE |
| D | Y | 14 | 11 | 20309 | 5.68 | 2.90 | 0.68 | 1.63 | MC*OE |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 6434 | 20.35 | 9.68 | 0.89 | 3.19 | MC*OE |
| A | Y | 16 | 13 | 6434 | 6.31 | 3.30 | 0.70 | 1.80 | MC*OE |
| B | Y | 14 | 14 | 6434 | 6.35 | 3.37 | 0.76 | 1.67 | MC |
| C | Y | 8 | 5 | 6434 | 2.11 | 1.74 | 0.49 | 1.25 | MC*OE |
| D | Y | 14 | 11 | 6434 | 5.58 | 2.69 | 0.64 | 1.61 | MC*OE |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 52 | 43 | 54991 | 22.64 | 10.22 | 0.90 | 3.23 | MC*OE |
| A | Y | 16 | 13 | 54991 | 7.10 | 3.42 | 0.72 | 1.80 | MC*OE |
| B | Y | 14 | 14 | 54991 | 6.89 | 3.40 | 0.76 | 1.67 | MC |
| C | Y | 8 | 5 | 54991 | 2.53 | 1.95 | 0.53 | 1.33 | MC*OE |
| D | Y | 14 | 11 | 54991 | 6.12 | 2.83 | 0.67 | 1.62 | MC*OE |

Grade 4 Mathematics

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 52 | 43 | 114822 | 26.51 | 10.85 | 0.92 | 3.14 | MC*OE |
| A | All | 21 | 18 | 114822 | 10.96 | 4.50 | 0.81 | 1.93 | MC*OE |
| B | All | 13 | 10 | 114822 | 6.72 | 3.09 | 0.74 | 1.58 | MC*OE |
| C | All | 7 | 7 | 114822 | 4.07 | 1.88 | 0.64 | 1.12 | MC |
| D | All | 11 | 8 | 114822 | 4.77 | 2.69 | 0.68 | 1.51 | MC*OE |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 52 | 43 | 56367 | 26.02 | 10.50 | 0.91 | 3.15 | MC*OE |
| Total | Male | 52 | 43 | 58455 | 26.99 | 11.15 | 0.92 | 3.12 | MC*OE |
| A | Female | 21 | 18 | 56367 | 10.69 | 4.32 | 0.80 | 1.95 | MC*OE |
| A | Male | 21 | 18 | 58455 | 11.22 | 4.64 | 0.83 | 1.91 | MC*OE |
| B | Female | 13 | 10 | 56367 | 6.68 | 3.07 | 0.73 | 1.59 | MC*OE |
| B | Male | 13 | 10 | 58455 | 6.75 | 3.11 | 0.75 | 1.56 | MC*OE |
| C | Female | 7 | 7 | 56367 | 4.03 | 1.85 | 0.63 | 1.13 | MC |
| C | Male | 7 | 7 | 58455 | 4.10 | 1.90 | 0.65 | 1.12 | MC |
| D | Female | 11 | 8 | 56367 | 4.62 | 2.61 | 0.67 | 1.49 | MC*OE |
| D | Male | 11 | 8 | 58455 | 4.91 | 2.75 | 0.69 | 1.54 | MC*OE |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 52 | 43 | 178 | 26.79 | 10.50 | 0.91 | 3.10 | MC*OE |
| Total | African American | 52 | 43 | 16247 | 18.33 | 8.16 | 0.86 | 3.06 | MC*OE |
| Total | Hispanic | 52 | 43 | 15888 | 20.75 | 9.11 | 0.88 | 3.10 | MC*OE |
| Total | White | 52 | 43 | 71254 | 29.25 | 10.21 | 0.91 | 3.12 | MC*OE |
| Total | Multiple Ethnicities | 52 | 43 | 5795 | 25.28 | 10.72 | 0.91 | 3.14 | MC*OE |
| Total | Asian | 52 | 43 | 5359 | 33.37 | 10.46 | 0.91 | 3.06 | MC*OE |
| Total | Pacific Islander | 52 | 43 | 101 | 26.90 | 10.54 | 0.91 | 3.14 | MC*OE |
| A | American Indian | 21 | 18 | 178 | 11.16 | 4.41 | 0.82 | 1.89 | MC*OE |
| A | African American | 21 | 18 | 16247 | 7.85 | 3.58 | 0.70 | 1.95 | MC*OE |
| A | Hispanic | 21 | 18 | 15888 | 8.77 | 3.87 | 0.74 | 1.97 | MC*OE |
| A | White | 21 | 18 | 71254 | 11.99 | 4.28 | 0.80 | 1.91 | MC*OE |
| A | Multiple Ethnicities | 21 | 18 | 5795 | 10.51 | 4.48 | 0.81 | 1.94 | MC*OE |
| A | Asian | 21 | 18 | 5359 | 13.72 | 4.26 | 0.82 | 1.83 | MC*OE |
| A | Pacific Islander | 21 | 18 | 101 | 11.22 | 4.28 | 0.81 | 1.89 | MC*OE |
| B | American Indian | 13 | 10 | 178 | 6.84 | 2.92 | 0.71 | 1.57 | MC*OE |
| B | African American | 13 | 10 | 16247 | 4.70 | 2.67 | 0.67 | 1.53 | MC*OE |
| B | Hispanic | 13 | 10 | 15888 | 5.26 | 2.84 | 0.70 | 1.56 | MC*OE |
| B | White | 13 | 10 | 71254 | 7.39 | 2.91 | 0.71 | 1.57 | MC*OE |
| B | Multiple Ethnicities | 13 | 10 | 5795 | 6.43 | 3.08 | 0.74 | 1.58 | MC*OE |
| B | Asian | 13 | 10 | 5359 | 8.50 | 2.84 | 0.71 | 1.53 | MC*OE |
| B | Pacific Islander | 13 | 10 | 101 | 6.69 | 3.04 | 0.74 | 1.56 | MC*OE |
| C | American Indian | 7 | 7 | 178 | 4.20 | 1.91 | 0.66 | 1.11 | MC |
| C | African American | 7 | 7 | 16247 | 2.84 | 1.66 | 0.48 | 1.19 | MC |
| C | Hispanic | 7 | 7 | 15888 | 3.26 | 1.75 | 0.55 | 1.18 | MC |
| C | White | 7 | 7 | 71254 | 4.48 | 1.76 | 0.61 | 1.10 | MC |
| C | Multiple Ethnicities | 7 | 7 | 5795 | 3.89 | 1.88 | 0.63 | 1.14 | MC |
| C | Asian | 7 | 7 | 5359 | 4.89 | 1.80 | 0.67 | 1.03 | MC |
| C | Pacific Islander | 7 | 7 | 101 | 4.25 | 1.83 | 0.63 | 1.12 | MC |
| D | American Indian | 11 | 8 | 178 | 4.58 | 2.62 | 0.67 | 1.50 | MC*OE |
| D | African American | 11 | 8 | 16247 | 2.94 | 1.89 | 0.52 | 1.31 | MC*OE |
| D | Hispanic | 11 | 8 | 15888 | 3.46 | 2.16 | 0.60 | 1.37 | MC*OE |
| D | White | 11 | 8 | 71254 | 5.39 | 2.63 | 0.66 | 1.54 | MC*OE |
| D | Multiple Ethnicities | 11 | 8 | 5795 | 4.45 | 2.61 | 0.67 | 1.50 | MC*OE |
| D | Asian | 11 | 8 | 5359 | 6.26 | 2.80 | 0.68 | 1.59 | MC*OE |
| D | Pacific Islander | 11 | 8 | 101 | 4.74 | 2.68 | 0.64 | 1.61 | MC*OE |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 21188 | 19.57 | 9.66 | 0.90 | 3.09 | MC*OE |
| A | Y | 21 | 18 | 21188 | 8.27 | 4.11 | 0.78 | 1.95 | MC*OE |
| B | Y | 13 | 10 | 21188 | 4.80 | 2.86 | 0.71 | 1.55 | MC*OE |
| C | Y | 7 | 7 | 21188 | 3.13 | 1.78 | 0.56 | 1.18 | MC |
| D | Y | 11 | 8 | 21188 | 3.36 | 2.30 | 0.64 | 1.38 | MC*OE |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 6321 | 19.42 | 8.61 | 0.87 | 3.08 | MC*OE |
| A | Y | 21 | 18 | 6321 | 8.39 | 3.75 | 0.73 | 1.95 | MC*OE |
| B | Y | 13 | 10 | 6321 | 4.84 | 2.71 | 0.67 | 1.55 | MC*OE |
| C | Y | 7 | 7 | 6321 | 2.99 | 1.68 | 0.50 | 1.19 | MC |
| D | Y | 11 | 8 | 6321 | 3.21 | 2.03 | 0.56 | 1.35 | MC*OE |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 54583 | 21.82 | 9.50 | 0.89 | 3.12 | MC*OE |
| A | Y | 21 | 18 | 54583 | 9.18 | 4.03 | 0.76 | 1.96 | MC*OE |
| B | Y | 13 | 10 | 54583 | 5.56 | 2.91 | 0.71 | 1.57 | MC*OE |
| C | Y | 7 | 7 | 54583 | 3.39 | 1.78 | 0.56 | 1.18 | MC |
| D | Y | 11 | 8 | 54583 | 3.70 | 2.26 | 0.61 | 1.40 | MC*OE |

Grade 5 Mathematics

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 52 | 43 | 116489 | 23.17 | 11.10 | 0.91 | 3.39 | MC*OE |
| A | All | 27 | 24 | 116489 | 12.51 | 6.09 | 0.85 | 2.38 | MC*OE |
| B | All | 8 | 5 | 116489 | 2.99 | 1.92 | 0.55 | 1.29 | MC*OE |
| C | All | 8 | 8 | 116489 | 4.02 | 2.02 | 0.60 | 1.28 | MC |
| D | All | 9 | 6 | 116489 | 3.66 | 2.38 | 0.54 | 1.61 | MC*OE |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 52 | 43 | 57283 | 22.91 | 10.80 | 0.90 | 3.42 | MC*OE |
| Total | Male | 52 | 43 | 59206 | 23.43 | 11.38 | 0.91 | 3.36 | MC*OE |
| A | Female | 27 | 24 | 57283 | 12.44 | 5.94 | 0.84 | 2.39 | MC*OE |
| A | Male | 27 | 24 | 59206 | 12.58 | 6.24 | 0.86 | 2.37 | MC*OE |
| B | Female | 8 | 5 | 57283 | 2.95 | 1.90 | 0.53 | 1.30 | MC*OE |
| B | Male | 8 | 5 | 59206 | 3.02 | 1.94 | 0.57 | 1.27 | MC*OE |
| C | Female | 8 | 8 | 57283 | 3.95 | 1.97 | 0.57 | 1.29 | MC |
| C | Male | 8 | 8 | 59206 | 4.09 | 2.07 | 0.62 | 1.27 | MC |
| D | Female | 9 | 6 | 57283 | 3.57 | 2.35 | 0.52 | 1.64 | MC*OE |
| D | Male | 9 | 6 | 59206 | 3.74 | 2.40 | 0.56 | 1.59 | MC*OE |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 52 | 43 | 194 | 21.12 | 10.50 | 0.90 | 3.37 | MC*OE |
| Total | African American | 52 | 43 | 16823 | 15.30 | 7.38 | 0.81 | 3.23 | MC*OE |
| Total | Hispanic | 52 | 43 | 15890 | 17.49 | 8.57 | 0.85 | 3.31 | MC*OE |
| Total | White | 52 | 43 | 72369 | 25.74 | 10.79 | 0.90 | 3.38 | MC*OE |
| Total | Multiple Ethnicities | 52 | 43 | 5848 | 22.21 | 10.87 | 0.90 | 3.38 | MC*OE |
| Total | Asian | 52 | 43 | 5274 | 31.34 | 11.84 | 0.92 | 3.26 | MC*OE |
| Total | Pacific Islander | 52 | 43 | 91 | 23.52 | 10.59 | 0.90 | 3.43 | MC*OE |
| A | American Indian | 27 | 24 | 194 | 11.46 | 5.89 | 0.83 | 2.40 | MC*OE |
| A | African American | 27 | 24 | 16823 | 8.46 | 4.33 | 0.72 | 2.31 | MC*OE |
| A | Hispanic | 27 | 24 | 15890 | 9.60 | 4.87 | 0.77 | 2.36 | MC*OE |
| A | White | 27 | 24 | 72369 | 13.80 | 5.95 | 0.84 | 2.37 | MC*OE |
| A | Multiple Ethnicities | 27 | 24 | 5848 | 12.05 | 6.00 | 0.84 | 2.38 | MC*OE |
| A | Asian | 27 | 24 | 5274 | 17.03 | 6.34 | 0.87 | 2.26 | MC*OE |
| A | Pacific Islander | 27 | 24 | 91 | 13.05 | 5.59 | 0.81 | 2.47 | MC*OE |
| B | American Indian | 8 | 5 | 194 | 2.78 | 1.88 | 0.59 | 1.20 | MC*OE |
| B | African American | 8 | 5 | 16823 | 1.87 | 1.40 | 0.31 | 1.16 | MC*OE |
| B | Hispanic | 8 | 5 | 15890 | 2.20 | 1.56 | 0.42 | 1.19 | MC*OE |
| B | White | 8 | 5 | 72369 | 3.35 | 1.92 | 0.53 | 1.31 | MC*OE |
| B | Multiple Ethnicities | 8 | 5 | 5848 | 2.82 | 1.87 | 0.53 | 1.28 | MC*OE |
| B | Asian | 8 | 5 | 5274 | 4.14 | 2.12 | 0.61 | 1.32 | MC*OE |
| B | Pacific Islander | 8 | 5 | 91 | 3.11 | 1.83 | 0.52 | 1.27 | MC*OE |
| C | American Indian | 8 | 8 | 194 | 3.66 | 1.91 | 0.55 | 1.29 | MC |
| C | African American | 8 | 8 | 16823 | 2.79 | 1.61 | 0.36 | 1.29 | MC |
| C | Hispanic | 8 | 8 | 15890 | 3.11 | 1.75 | 0.45 | 1.30 | MC |
| C | White | 8 | 8 | 72369 | 4.44 | 1.97 | 0.58 | 1.27 | MC |
| C | Multiple Ethnicities | 8 | 8 | 5848 | 3.85 | 1.99 | 0.58 | 1.29 | MC |
| C | Asian | 8 | 8 | 5274 | 5.07 | 2.05 | 0.66 | 1.20 | MC |
| C | Pacific Islander | 8 | 8 | 91 | 3.82 | 2.06 | 0.63 | 1.26 | MC |
| D | American Indian | 9 | 6 | 194 | 3.23 | 2.25 | 0.51 | 1.58 | MC*OE |
| D | African American | 9 | 6 | 16823 | 2.17 | 1.74 | 0.29 | 1.47 | MC*OE |
| D | Hispanic | 9 | 6 | 15890 | 2.58 | 1.96 | 0.38 | 1.54 | MC*OE |
| D | White | 9 | 6 | 72369 | 4.15 | 2.34 | 0.54 | 1.58 | MC*OE |
| D | Multiple Ethnicities | 9 | 6 | 5848 | 3.49 | 2.35 | 0.54 | 1.60 | MC*OE |
| D | Asian | 9 | 6 | 5274 | 5.10 | 2.50 | 0.62 | 1.53 | MC*OE |
| D | Pacific Islander | 9 | 6 | 91 | 3.53 | 2.31 | 0.51 | 1.61 | MC*OE |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 21734 | 15.97 | 8.60 | 0.86 | 3.22 | MC*OE |
| A | Y | 27 | 24 | 21734 | 8.66 | 4.83 | 0.77 | 2.30 | MC*OE |
| B | Y | 8 | 5 | 21734 | 2.00 | 1.55 | 0.43 | 1.17 | MC*OE |
| C | Y | 8 | 8 | 21734 | 2.97 | 1.78 | 0.48 | 1.28 | MC |
| D | Y | 9 | 6 | 21734 | 2.33 | 1.90 | 0.41 | 1.46 | MC*OE |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 5678 | 15.54 | 7.44 | 0.81 | 3.22 | MC*OE |
| A | Y | 27 | 24 | 5678 | 8.76 | 4.43 | 0.73 | 2.32 | MC*OE |
| B | Y | 8 | 5 | 5678 | 1.93 | 1.38 | 0.32 | 1.14 | MC*OE |
| C | Y | 8 | 8 | 5678 | 2.75 | 1.59 | 0.35 | 1.29 | MC |
| D | Y | 9 | 6 | 5678 | 2.10 | 1.73 | 0.31 | 1.44 | MC*OE |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 54422 | 18.44 | 9.07 | 0.86 | 3.34 | MC*OE |
| A | Y | 27 | 24 | 54422 | 10.04 | 5.11 | 0.79 | 2.37 | MC*OE |
| B | Y | 8 | 5 | 54422 | 2.32 | 1.62 | 0.43 | 1.22 | MC*OE |
| C | Y | 8 | 8 | 54422 | 3.29 | 1.81 | 0.49 | 1.30 | MC |
| D | Y | 9 | 6 | 54422 | 2.79 | 2.04 | 0.41 | 1.57 | MC*OE |

Grade 6 Mathematics

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 52 | 43 | 115844 | 24.85 | 11.25 | 0.92 | 3.10 | MC*OE |
| A | All | 19 | 16 | 115844 | 9.34 | 4.32 | 0.80 | 1.92 | MC*OE |
| B | All | 15 | 12 | 115844 | 7.81 | 3.54 | 0.81 | 1.53 | MC*OE |
| C | All | 8 | 8 | 115844 | 3.63 | 2.26 | 0.71 | 1.23 | MC |
| D | All | 10 | 7 | 115844 | 4.07 | 2.49 | 0.68 | 1.41 | MC*OE |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 52 | 43 | 56473 | 24.80 | 11.06 | 0.92 | 3.12 | MC*OE |
| Total | Male | 52 | 43 | 59371 | 24.88 | 11.43 | 0.93 | 3.08 | MC*OE |
| A | Female | 19 | 16 | 56473 | 9.14 | 4.24 | 0.79 | 1.92 | MC*OE |
| A | Male | 19 | 16 | 59371 | 9.52 | 4.38 | 0.81 | 1.91 | MC*OE |
| B | Female | 15 | 12 | 56473 | 7.89 | 3.50 | 0.81 | 1.53 | MC*OE |
| B | Male | 15 | 12 | 59371 | 7.74 | 3.58 | 0.82 | 1.52 | MC*OE |
| C | Female | 8 | 8 | 56473 | 3.62 | 2.21 | 0.69 | 1.23 | MC |
| C | Male | 8 | 8 | 59371 | 3.64 | 2.30 | 0.72 | 1.22 | MC |
| D | Female | 10 | 7 | 56473 | 4.15 | 2.48 | 0.67 | 1.42 | MC*OE |
| D | Male | 10 | 7 | 59371 | 3.98 | 2.49 | 0.68 | 1.40 | MC*OE |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 52 | 43 | 169 | 22.43 | 11.43 | 0.93 | 3.07 | MC*OE |
| Total | African American | 52 | 43 | 16395 | 16.70 | 7.88 | 0.85 | 3.06 | MC*OE |
| Total | Hispanic | 52 | 43 | 15724 | 19.03 | 9.04 | 0.88 | 3.10 | MC*OE |
| Total | White | 52 | 43 | 72570 | 27.46 | 10.82 | 0.92 | 3.08 | MC*OE |
| Total | Multiple Ethnicities | 52 | 43 | 5698 | 23.52 | 10.91 | 0.92 | 3.11 | MC*OE |
| Total | Asian | 52 | 43 | 5183 | 33.20 | 11.34 | 0.93 | 2.96 | MC*OE |
| Total | Pacific Islander | 52 | 43 | 105 | 26.89 | 11.07 | 0.92 | 3.10 | MC*OE |
| A | American Indian | 19 | 16 | 169 | 8.52 | 4.44 | 0.82 | 1.90 | MC*OE |
| A | African American | 19 | 16 | 16395 | 6.42 | 3.30 | 0.66 | 1.93 | MC*OE |
| A | Hispanic | 19 | 16 | 15724 | 7.26 | 3.62 | 0.71 | 1.94 | MC*OE |
| A | White | 19 | 16 | 72570 | 10.25 | 4.15 | 0.79 | 1.89 | MC*OE |
| A | Multiple Ethnicities | 19 | 16 | 5698 | 8.91 | 4.21 | 0.79 | 1.93 | MC*OE |
| A | Asian | 19 | 16 | 5183 | 12.58 | 4.35 | 0.83 | 1.80 | MC*OE |
| A | Pacific Islander | 19 | 16 | 105 | 9.80 | 4.18 | 0.78 | 1.96 | MC*OE |
| B | American Indian | 15 | 12 | 169 | 6.93 | 3.51 | 0.80 | 1.59 | MC*OE |
| B | African American | 15 | 12 | 16395 | 5.47 | 3.01 | 0.73 | 1.58 | MC*OE |
| B | Hispanic | 15 | 12 | 15724 | 6.16 | 3.20 | 0.76 | 1.57 | MC*OE |
| B | White | 15 | 12 | 72570 | 8.57 | 3.36 | 0.80 | 1.50 | MC*OE |
| B | Multiple Ethnicities | 15 | 12 | 5698 | 7.44 | 3.51 | 0.81 | 1.54 | MC*OE |
| B | Asian | 15 | 12 | 5183 | 10.06 | 3.19 | 0.80 | 1.41 | MC*OE |
| B | Pacific Islander | 15 | 12 | 105 | 8.56 | 3.56 | 0.82 | 1.49 | MC*OE |
| C | American Indian | 8 | 8 | 169 | 3.21 | 2.25 | 0.71 | 1.21 | MC |
| C | African American | 8 | 8 | 16395 | 2.31 | 1.57 | 0.40 | 1.22 | MC |
| C | Hispanic | 8 | 8 | 15724 | 2.70 | 1.82 | 0.54 | 1.24 | MC |
| C | White | 8 | 8 | 72570 | 4.05 | 2.27 | 0.71 | 1.23 | MC |
| C | Multiple Ethnicities | 8 | 8 | 5698 | 3.40 | 2.20 | 0.69 | 1.23 | MC |
| C | Asian | 8 | 8 | 5183 | 5.13 | 2.39 | 0.78 | 1.12 | MC |
| C | Pacific Islander | 8 | 8 | 105 | 4.06 | 2.30 | 0.72 | 1.23 | MC |
| D | American Indian | 10 | 7 | 169 | 3.77 | 2.41 | 0.68 | 1.37 | MC*OE |
| D | African American | 10 | 7 | 16395 | 2.50 | 1.74 | 0.48 | 1.26 | MC*OE |
| D | Hispanic | 10 | 7 | 15724 | 2.91 | 2.01 | 0.58 | 1.31 | MC*OE |
| D | White | 10 | 7 | 72570 | 4.60 | 2.47 | 0.67 | 1.43 | MC*OE |
| D | Multiple Ethnicities | 10 | 7 | 5698 | 3.77 | 2.38 | 0.66 | 1.39 | MC*OE |
| D | Asian | 10 | 7 | 5183 | 5.43 | 2.66 | 0.69 | 1.47 | MC*OE |
| D | Pacific Islander | 10 | 7 | 105 | 4.47 | 2.41 | 0.66 | 1.41 | MC*OE |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 21261 | 16.51 | 8.49 | 0.87 | 3.06 | MC*OE |
| A | Y | 19 | 16 | 21261 | 6.29 | 3.45 | 0.69 | 1.92 | MC*OE |
| B | Y | 15 | 12 | 21261 | 5.13 | 3.03 | 0.73 | 1.57 | MC*OE |
| C | Y | 8 | 8 | 21261 | 2.50 | 1.74 | 0.51 | 1.22 | MC |
| D | Y | 10 | 7 | 21261 | 2.58 | 1.89 | 0.55 | 1.27 | MC*OE |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 5006 | 16.19 | 7.41 | 0.83 | 3.06 | MC*OE |
| A | Y | 19 | 16 | 5006 | 6.26 | 3.24 | 0.64 | 1.93 | MC*OE |
| B | Y | 15 | 12 | 5006 | 5.18 | 2.76 | 0.67 | 1.58 | MC*OE |
| C | Y | 8 | 8 | 5006 | 2.39 | 1.58 | 0.39 | 1.23 | MC |
| D | Y | 10 | 7 | 5006 | 2.36 | 1.65 | 0.42 | 1.25 | MC*OE |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 53466 | 19.95 | 9.45 | 0.89 | 3.10 | MC*OE |
| A | Y | 19 | 16 | 53466 | 7.58 | 3.76 | 0.73 | 1.94 | MC*OE |
| B | Y | 15 | 12 | 53466 | 6.41 | 3.27 | 0.77 | 1.57 | MC*OE |
| C | Y | 8 | 8 | 53466 | 2.83 | 1.90 | 0.57 | 1.24 | MC |
| D | Y | 10 | 7 | 53466 | 3.13 | 2.10 | 0.60 | 1.33 | MC*OE |

Grade 7 Mathematics

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 52 | 43 | 118357 | 22.21 | 10.89 | 0.91 | 3.25 | MC*OE |
| A | All | 21 | 18 | 118357 | 9.31 | 4.75 | 0.81 | 2.07 | MC*OE |
| B | All | 13 | 10 | 118357 | 5.43 | 3.12 | 0.75 | 1.57 | MC*OE |
| C | All | 10 | 10 | 118357 | 4.34 | 2.44 | 0.67 | 1.39 | MC |
| D | All | 8 | 5 | 118357 | 3.12 | 1.91 | 0.49 | 1.37 | MC*OE |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 52 | 43 | 57805 | 22.32 | 10.59 | 0.91 | 3.25 | MC*OE |
| Total | Male | 52 | 43 | 60552 | 22.10 | 11.17 | 0.92 | 3.24 | MC*OE |
| A | Female | 21 | 18 | 57805 | 9.20 | 4.63 | 0.80 | 2.07 | MC*OE |
| A | Male | 21 | 18 | 60552 | 9.42 | 4.85 | 0.82 | 2.07 | MC*OE |
| B | Female | 13 | 10 | 57805 | 5.55 | 3.05 | 0.74 | 1.56 | MC*OE |
| B | Male | 13 | 10 | 60552 | 5.32 | 3.18 | 0.75 | 1.58 | MC*OE |
| C | Female | 10 | 10 | 57805 | 4.32 | 2.40 | 0.66 | 1.39 | MC |
| C | Male | 10 | 10 | 60552 | 4.36 | 2.47 | 0.68 | 1.39 | MC |
| D | Female | 8 | 5 | 57805 | 3.26 | 1.87 | 0.45 | 1.39 | MC*OE |
| D | Male | 8 | 5 | 60552 | 3.00 | 1.95 | 0.52 | 1.35 | MC*OE |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 52 | 43 | 191 | 20.69 | 10.19 | 0.90 | 3.19 | MC*OE |
| Total | African American | 52 | 43 | 16788 | 15.57 | 7.15 | 0.82 | 3.07 | MC*OE |
| Total | Hispanic | 52 | 43 | 16054 | 16.88 | 8.16 | 0.85 | 3.12 | MC*OE |
| Total | White | 52 | 43 | 74376 | 24.29 | 10.81 | 0.91 | 3.27 | MC*OE |
| Total | Multiple Ethnicities | 52 | 43 | 5489 | 20.87 | 10.52 | 0.91 | 3.23 | MC*OE |
| Total | Asian | 52 | 43 | 5367 | 31.51 | 12.11 | 0.93 | 3.25 | MC*OE |
| Total | Pacific Islander | 52 | 43 | 92 | 20.88 | 9.37 | 0.88 | 3.28 | MC*OE |
| A | American Indian | 21 | 18 | 191 | 8.76 | 4.43 | 0.79 | 2.01 | MC*OE |
| A | African American | 21 | 18 | 16788 | 6.59 | 3.35 | 0.66 | 1.96 | MC*OE |
| A | Hispanic | 21 | 18 | 16054 | 7.15 | 3.70 | 0.71 | 2.00 | MC*OE |
| A | White | 21 | 18 | 74376 | 10.16 | 4.71 | 0.81 | 2.08 | MC*OE |
| A | Multiple Ethnicities | 21 | 18 | 5489 | 8.74 | 4.61 | 0.80 | 2.06 | MC*OE |
| A | Asian | 21 | 18 | 5367 | 13.18 | 5.26 | 0.85 | 2.06 | MC*OE |
| A | Pacific Islander | 21 | 18 | 92 | 8.59 | 4.05 | 0.75 | 2.04 | MC*OE |
| B | American Indian | 13 | 10 | 191 | 4.99 | 3.10 | 0.76 | 1.51 | MC*OE |
| B | African American | 13 | 10 | 16788 | 3.73 | 2.28 | 0.59 | 1.47 | MC*OE |
| B | Hispanic | 13 | 10 | 16054 | 4.05 | 2.50 | 0.64 | 1.49 | MC*OE |
| B | White | 13 | 10 | 74376 | 5.95 | 3.10 | 0.74 | 1.58 | MC*OE |
| B | Multiple Ethnicities | 13 | 10 | 5489 | 5.11 | 3.06 | 0.74 | 1.56 | MC*OE |
| B | Asian | 13 | 10 | 5367 | 7.96 | 3.31 | 0.77 | 1.60 | MC*OE |
| B | Pacific Islander | 13 | 10 | 92 | 5.04 | 2.79 | 0.68 | 1.58 | MC*OE |
| C | American Indian | 10 | 10 | 191 | 4.01 | 2.27 | 0.62 | 1.41 | MC |
| C | African American | 10 | 10 | 16788 | 3.04 | 1.80 | 0.41 | 1.38 | MC |
| C | Hispanic | 10 | 10 | 16054 | 3.29 | 1.98 | 0.51 | 1.39 | MC |
| C | White | 10 | 10 | 74376 | 4.76 | 2.44 | 0.67 | 1.40 | MC |
| C | Multiple Ethnicities | 10 | 10 | 5489 | 4.05 | 2.35 | 0.65 | 1.39 | MC |
| C | Asian | 10 | 10 | 5367 | 6.01 | 2.64 | 0.75 | 1.33 | MC |
| C | Pacific Islander | 10 | 10 | 92 | 4.02 | 2.19 | 0.58 | 1.41 | MC |
| D | American Indian | 8 | 5 | 191 | 2.93 | 1.90 | 0.51 | 1.32 | MC*OE |
| D | African American | 8 | 5 | 16788 | 2.20 | 1.49 | 0.31 | 1.23 | MC*OE |
| D | Hispanic | 8 | 5 | 16054 | 2.38 | 1.60 | 0.38 | 1.27 | MC*OE |
| D | White | 8 | 5 | 74376 | 3.41 | 1.92 | 0.48 | 1.38 | MC*OE |
| D | Multiple Ethnicities | 8 | 5 | 5489 | 2.96 | 1.86 | 0.47 | 1.36 | MC*OE |
| D | Asian | 8 | 5 | 5367 | 4.36 | 2.10 | 0.54 | 1.43 | MC*OE |
| D | Pacific Islander | 8 | 5 | 92 | 3.23 | 1.86 | 0.39 | 1.46 | MC*OE |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 21292 | 14.69 | 7.20 | 0.82 | 3.03 | MC*OE |
| A | Y | 21 | 18 | 21292 | 6.35 | 3.34 | 0.66 | 1.95 | MC*OE |
| B | Y | 13 | 10 | 21292 | 3.38 | 2.22 | 0.58 | 1.44 | MC*OE |
| C | Y | 10 | 10 | 21292 | 3.02 | 1.85 | 0.45 | 1.38 | MC |
| D | Y | 8 | 5 | 21292 | 1.94 | 1.46 | 0.37 | 1.16 | MC*OE |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 4769 | 14.37 | 6.37 | 0.77 | 3.02 | MC*OE |
| A | Y | 21 | 18 | 4769 | 6.30 | 3.07 | 0.59 | 1.96 | MC*OE |
| B | Y | 13 | 10 | 4769 | 3.39 | 2.12 | 0.53 | 1.45 | MC*OE |
| C | Y | 10 | 10 | 4769 | 2.80 | 1.72 | 0.38 | 1.36 | MC |
| D | Y | 8 | 5 | 4769 | 1.89 | 1.37 | 0.29 | 1.15 | MC*OE |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 54111 | 17.82 | 8.67 | 0.87 | 3.15 | MC*OE |
| A | Y | 21 | 18 | 54111 | 7.56 | 3.92 | 0.74 | 2.02 | MC*OE |
| B | Y | 13 | 10 | 54111 | 4.28 | 2.61 | 0.67 | 1.51 | MC*OE |
| C | Y | 10 | 10 | 54111 | 3.49 | 2.07 | 0.54 | 1.39 | MC |
| D | Y | 8 | 5 | 54111 | 2.49 | 1.64 | 0.38 | 1.29 | MC*OE |

Grade 8 Mathematics

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 52 | 43 | 119039 | 22.94 | 11.28 | 0.91 | 3.36 | MC*OE |
| A | All | 7 | 7 | 119039 | 3.17 | 1.93 | 0.65 | 1.14 | MC |
| B | All | 28 | 25 | 119039 | 13.11 | 6.39 | 0.86 | 2.42 | MC*OE |
| C | All | 9 | 6 | 119039 | 3.13 | 2.02 | 0.53 | 1.39 | MC*OE |
| D | All | 8 | 5 | 119039 | 3.54 | 2.25 | 0.57 | 1.48 | MC*OE |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 52 | 43 | 57357 | 23.32 | 11.01 | 0.91 | 3.36 | MC*OE |
| Total | Male | 52 | 43 | 61682 | 22.60 | 11.52 | 0.92 | 3.35 | MC*OE |
| A | Female | 7 | 7 | 57357 | 3.26 | 1.91 | 0.64 | 1.14 | MC |
| A | Male | 7 | 7 | 61682 | 3.08 | 1.96 | 0.66 | 1.14 | MC |
| B | Female | 28 | 25 | 57357 | 13.25 | 6.30 | 0.85 | 2.43 | MC*OE |
| B | Male | 28 | 25 | 61682 | 12.98 | 6.47 | 0.86 | 2.40 | MC*OE |
| C | Female | 9 | 6 | 57357 | 3.20 | 1.96 | 0.50 | 1.39 | MC*OE |
| C | Male | 9 | 6 | 61682 | 3.05 | 2.07 | 0.55 | 1.39 | MC*OE |
| D | Female | 8 | 5 | 57357 | 3.60 | 2.20 | 0.55 | 1.47 | MC*OE |
| D | Male | 8 | 5 | 61682 | 3.48 | 2.30 | 0.58 | 1.49 | MC*OE |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 52 | 43 | 182 | 20.47 | 11.22 | 0.91 | 3.32 | MC*OE |
| Total | African American | 52 | 43 | 16822 | 16.15 | 7.96 | 0.84 | 3.17 | MC*OE |
| Total | Hispanic | 52 | 43 | 15803 | 17.47 | 8.94 | 0.87 | 3.22 | MC*OE |
| Total | White | 52 | 43 | 75636 | 25.02 | 11.09 | 0.91 | 3.37 | MC*OE |
| Total | Multiple Ethnicities | 52 | 43 | 5277 | 21.49 | 10.93 | 0.91 | 3.35 | MC*OE |
| Total | Asian | 52 | 43 | 5221 | 32.80 | 12.19 | 0.93 | 3.24 | MC*OE |
| Total | Pacific Islander | 52 | 43 | 98 | 22.96 | 10.97 | 0.91 | 3.35 | MC*OE |
| A | American Indian | 7 | 7 | 182 | 2.75 | 1.86 | 0.63 | 1.13 | MC |
| A | African American | 7 | 7 | 16822 | 2.23 | 1.57 | 0.48 | 1.14 | MC |
| A | Hispanic | 7 | 7 | 15803 | 2.48 | 1.68 | 0.53 | 1.15 | MC |
| A | White | 7 | 7 | 75636 | 3.45 | 1.93 | 0.65 | 1.14 | MC |
| A | Multiple Ethnicities | 7 | 7 | 5277 | 2.97 | 1.89 | 0.63 | 1.15 | MC |
| A | Asian | 7 | 7 | 5221 | 4.47 | 2.02 | 0.73 | 1.05 | MC |
| A | Pacific Islander | 7 | 7 | 98 | 3.26 | 1.92 | 0.65 | 1.14 | MC |
| B | American Indian | 28 | 25 | 182 | 11.63 | 6.37 | 0.86 | 2.42 | MC*OE |
| B | African American | 28 | 25 | 16822 | 9.40 | 4.73 | 0.75 | 2.35 | MC*OE |
| B | Hispanic | 28 | 25 | 15803 | 10.06 | 5.20 | 0.79 | 2.37 | MC*OE |
| B | White | 28 | 25 | 75636 | 14.25 | 6.26 | 0.85 | 2.42 | MC*OE |
| B | Multiple Ethnicities | 28 | 25 | 5277 | 12.35 | 6.17 | 0.85 | 2.43 | MC*OE |
| B | Asian | 28 | 25 | 5221 | 18.57 | 6.75 | 0.89 | 2.27 | MC*OE |
| B | Pacific Islander | 28 | 25 | 98 | 12.95 | 6.40 | 0.86 | 2.44 | MC*OE |
| C | American Indian | 9 | 6 | 182 | 2.78 | 1.91 | 0.50 | 1.35 | MC*OE |
| C | African American | 9 | 6 | 16822 | 2.23 | 1.52 | 0.31 | 1.27 | MC*OE |
| C | Hispanic | 9 | 6 | 15803 | 2.38 | 1.65 | 0.38 | 1.30 | MC*OE |
| C | White | 9 | 6 | 75636 | 3.39 | 2.03 | 0.53 | 1.40 | MC*OE |
| C | Multiple Ethnicities | 9 | 6 | 5277 | 2.93 | 1.97 | 0.52 | 1.37 | MC*OE |
| C | Asian | 9 | 6 | 5221 | 4.66 | 2.38 | 0.63 | 1.45 | MC*OE |
| C | Pacific Islander | 9 | 6 | 98 | 3.30 | 1.94 | 0.50 | 1.38 | MC*OE |
| D | American Indian | 8 | 5 | 182 | 3.30 | 2.27 | 0.59 | 1.45 | MC*OE |
| D | African American | 8 | 5 | 16822 | 2.30 | 1.74 | 0.46 | 1.28 | MC*OE |
| D | Hispanic | 8 | 5 | 15803 | 2.55 | 1.89 | 0.50 | 1.33 | MC*OE |
| D | White | 8 | 5 | 75636 | 3.93 | 2.24 | 0.55 | 1.50 | MC*OE |
| D | Multiple Ethnicities | 8 | 5 | 5277 | 3.24 | 2.21 | 0.56 | 1.46 | MC*OE |
| D | Asian | 8 | 5 | 5221 | 5.11 | 2.21 | 0.56 | 1.47 | MC*OE |
| D | Pacific Islander | 8 | 5 | 98 | 3.46 | 1.97 | 0.43 | 1.49 | MC*OE |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 21313 | 14.76 | 7.36 | 0.82 | 3.10 | MC*OE |
| A | Y | 7 | 7 | 21313 | 2.13 | 1.49 | 0.41 | 1.14 | MC |
| B | Y | 28 | 25 | 21313 | 8.59 | 4.34 | 0.72 | 2.30 | MC*OE |
| C | Y | 9 | 6 | 21313 | 2.02 | 1.47 | 0.30 | 1.23 | MC*OE |
| D | Y | 8 | 5 | 21313 | 2.02 | 1.64 | 0.43 | 1.23 | MC*OE |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 4720 | 14.65 | 6.80 | 0.80 | 3.07 | MC*OE |
| A | Y | 7 | 7 | 4720 | 2.19 | 1.49 | 0.41 | 1.15 | MC |
| B | Y | 28 | 25 | 4720 | 8.49 | 4.11 | 0.69 | 2.30 | MC*OE |
| C | Y | 9 | 6 | 4720 | 1.99 | 1.39 | 0.24 | 1.21 | MC*OE |
| D | Y | 8 | 5 | 4720 | 1.98 | 1.48 | 0.38 | 1.16 | MC*OE |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 52 | 43 | 52855 | 18.36 | 9.27 | 0.88 | 3.26 | MC*OE |
| A | Y | 7 | 7 | 52855 | 2.57 | 1.71 | 0.55 | 1.15 | MC |
| B | Y | 28 | 25 | 52855 | 10.58 | 5.36 | 0.80 | 2.39 | MC*OE |
| C | Y | 9 | 6 | 52855 | 2.51 | 1.71 | 0.40 | 1.32 | MC*OE |
| D | Y | 8 | 5 | 52855 | 2.69 | 1.96 | 0.51 | 1.36 | MC*OE |

Grade 3 English Language Arts

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|------|------|------|--------------|
| Total | All | 45 | 35 | 114398 | 23.42 | 9.32 | 0.89 | 3.10 | ESR*MC*OE |
| A | All | 18 | 13 | 114398 | 9.05 | 4.16 | 0.78 | 1.93 | ESR*MC*OE |
| B | All | 18 | 13 | 114398 | 10.13 | 4.20 | 0.77 | 2.00 | ESR*MC*OE |
| D | All | 9 | 9 | 114398 | 4.24 | 2.00 | 0.57 | 1.31 | MC |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Female | 45 | 35 | 56100 | 24.28 | 9.36 | 0.89 | 3.10 | ESR*MC*OE |
| Total | Male | 45 | 35 | 58298 | 22.60 | 9.20 | 0.89 | 3.08 | ESR*MC*OE |
| A | Female | 18 | 13 | 56100 | 9.51 | 4.20 | 0.79 | 1.93 | ESR*MC*OE |
| A | Male | 18 | 13 | 58298 | 8.60 | 4.06 | 0.77 | 1.93 | ESR*MC*OE |
| B | Female | 18 | 13 | 56100 | 10.34 | 4.18 | 0.77 | 2.01 | ESR*MC*OE |
| B | Male | 18 | 13 | 58298 | 9.92 | 4.20 | 0.78 | 1.98 | ESR*MC*OE |
| D | Female | 9 | 9 | 56100 | 4.42 | 2.01 | 0.57 | 1.31 | MC |
| D | Male | 9 | 9 | 58298 | 4.07 | 1.99 | 0.56 | 1.32 | MC |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | American Indian | 45 | 35 | 173 | 22.61 | 9.92 | 0.90 | 3.07 | ESR*MC*OE |
| Total | African American | 45 | 35 | 16392 | 17.55 | 7.78 | 0.85 | 3.06 | ESR*MC*OE |
| Total | Hispanic | 45 | 35 | 15531 | 18.91 | 8.26 | 0.86 | 3.09 | ESR*MC*OE |
| Total | White | 45 | 35 | 70439 | 25.51 | 8.92 | 0.88 | 3.09 | ESR*MC*OE |
| Total | Multiple Ethnicities | 45 | 35 | 6192 | 22.95 | 9.24 | 0.89 | 3.10 | ESR*MC*OE |
| Total | Asian | 45 | 35 | 5569 | 27.50 | 8.90 | 0.88 | 3.06 | ESR*MC*OE |
| Total | Pacific Islander | 45 | 35 | 102 | 22.06 | 9.14 | 0.88 | 3.13 | ESR*MC*OE |
| A | American Indian | 18 | 13 | 173 | 8.78 | 4.38 | 0.80 | 1.94 | ESR*MC*OE |
| A | African American | 18 | 13 | 16392 | 6.80 | 3.65 | 0.73 | 1.90 | ESR*MC*OE |
| A | Hispanic | 18 | 13 | 15531 | 7.36 | 3.78 | 0.74 | 1.91 | ESR*MC*OE |
| A | White | 18 | 13 | 70439 | 9.83 | 4.05 | 0.77 | 1.93 | ESR*MC*OE |
| A | Multiple Ethnicities | 18 | 13 | 6192 | 8.90 | 4.10 | 0.78 | 1.94 | ESR*MC*OE |
| A | Asian | 18 | 13 | 5569 | 10.67 | 3.98 | 0.77 | 1.92 | ESR*MC*OE |
| A | Pacific Islander | 18 | 13 | 102 | 8.65 | 4.13 | 0.77 | 1.98 | ESR*MC*OE |
| B | American Indian | 18 | 13 | 173 | 9.61 | 4.36 | 0.80 | 1.96 | ESR*MC*OE |
| B | African American | 18 | 13 | 16392 | 7.51 | 3.67 | 0.71 | 1.98 | ESR*MC*OE |
| B | Hispanic | 18 | 13 | 15531 | 8.13 | 3.88 | 0.73 | 2.00 | ESR*MC*OE |
| B | White | 18 | 13 | 70439 | 11.07 | 3.96 | 0.75 | 1.98 | ESR*MC*OE |
| B | Multiple Ethnicities | 18 | 13 | 6192 | 9.89 | 4.19 | 0.77 | 2.00 | ESR*MC*OE |
| B | Asian | 18 | 13 | 5569 | 11.84 | 3.92 | 0.75 | 1.97 | ESR*MC*OE |
| B | Pacific Islander | 18 | 13 | 102 | 9.48 | 4.19 | 0.77 | 2.01 | ESR*MC*OE |
| D | American Indian | 9 | 9 | 173 | 4.23 | 2.10 | 0.61 | 1.32 | MC |
| D | African American | 9 | 9 | 16392 | 3.24 | 1.66 | 0.39 | 1.30 | MC |
| D | Hispanic | 9 | 9 | 15531 | 3.42 | 1.75 | 0.43 | 1.32 | MC |
| D | White | 9 | 9 | 70439 | 4.61 | 1.99 | 0.56 | 1.32 | MC |
| D | Multiple Ethnicities | 9 | 9 | 6192 | 4.16 | 1.97 | 0.56 | 1.31 | MC |
| D | Asian | 9 | 9 | 5569 | 5.00 | 2.04 | 0.61 | 1.28 | MC |
| D | Pacific Islander | 9 | 9 | 102 | 3.93 | 1.86 | 0.50 | 1.32 | MC |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 45 | 35 | 20278 | 16.95 | 8.19 | 0.86 | 3.02 | ESR*MC*OE |
| A | Y | 18 | 13 | 20278 | 6.33 | 3.59 | 0.73 | 1.87 | ESR*MC*OE |
| B | Y | 18 | 13 | 20278 | 7.38 | 3.89 | 0.75 | 1.95 | ESR*MC*OE |
| D | Y | 9 | 9 | 20278 | 3.24 | 1.82 | 0.47 | 1.32 | MC |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 45 | 35 | 6176 | 16.93 | 7.19 | 0.82 | 3.08 | ESR*MC*OE |
| A | Y | 18 | 13 | 6176 | 6.49 | 3.31 | 0.67 | 1.92 | ESR*MC*OE |
| B | Y | 18 | 13 | 6176 | 7.29 | 3.50 | 0.67 | 2.00 | ESR*MC*OE |
| D | Y | 9 | 9 | 6176 | 3.15 | 1.65 | 0.36 | 1.32 | MC |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 45 | 35 | 54843 | 19.73 | 8.43 | 0.86 | 3.10 | ESR*MC*OE |
| A | Y | 18 | 13 | 54843 | 7.58 | 3.82 | 0.74 | 1.93 | ESR*MC*OE |
| B | Y | 18 | 13 | 54843 | 8.54 | 3.94 | 0.74 | 2.01 | ESR*MC*OE |
| D | Y | 9 | 9 | 54843 | 3.61 | 1.81 | 0.47 | 1.31 | MC |

Grade 4 English Language Arts

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 63 | 39 | 114533 | 34.08 | 12.68 | 0.85 | 4.88 | ESR*MC*TDA |
| A | All | 17 | 13 | 114533 | 10.21 | 4.00 | 0.78 | 1.86 | ESR*MC |
| B | All | 21 | 16 | 114533 | 12.07 | 4.60 | 0.80 | 2.04 | ESR*MC |
| D | All | 9 | 9 | 114533 | 5.54 | 2.21 | 0.67 | 1.27 | MC |
| E | All | 16 | 1 | 114533 | 6.26 | 3.96 | | | TDA |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 63 | 39 | 56229 | 35.24 | 12.61 | 0.85 | 4.92 | ESR*MC*TDA |
| Total | Male | 63 | 39 | 58304 | 32.95 | 12.64 | 0.86 | 4.79 | ESR*MC*TDA |
| A | Female | 17 | 13 | 56229 | 10.53 | 3.94 | 0.78 | 1.85 | ESR*MC |
| A | Male | 17 | 13 | 58304 | 9.89 | 4.04 | 0.79 | 1.87 | ESR*MC |
| B | Female | 21 | 16 | 56229 | 12.24 | 4.57 | 0.80 | 2.03 | ESR*MC |
| B | Male | 21 | 16 | 58304 | 11.90 | 4.62 | 0.80 | 2.05 | ESR*MC |
| D | Female | 9 | 9 | 56229 | 5.71 | 2.17 | 0.67 | 1.25 | MC |
| D | Male | 9 | 9 | 58304 | 5.38 | 2.24 | 0.67 | 1.28 | MC |
| E | Female | 16 | 1 | 56229 | 6.76 | 4.02 | | | TDA |
| E | Male | 16 | 1 | 58304 | 5.78 | 3.84 | | | TDA |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 63 | 39 | 177 | 34.07 | 11.29 | 0.83 | 4.71 | ESR*MC*TDA |
| Total | African American | 63 | 39 | 16222 | 25.52 | 11.23 | 0.83 | 4.61 | ESR*MC*TDA |
| Total | Hispanic | 63 | 39 | 15720 | 27.50 | 11.88 | 0.84 | 4.75 | ESR*MC*TDA |
| Total | White | 63 | 39 | 71193 | 37.05 | 11.68 | 0.83 | 4.76 | ESR*MC*TDA |
| Total | Multiple Ethnicities | 63 | 39 | 5786 | 33.15 | 12.71 | 0.85 | 4.86 | ESR*MC*TDA |
| Total | Asian | 63 | 39 | 5333 | 40.74 | 11.55 | 0.83 | 4.80 | ESR*MC*TDA |
| Total | Pacific Islander | 63 | 39 | 102 | 34.62 | 12.57 | 0.84 | 4.97 | ESR*MC*TDA |
| A | American Indian | 17 | 13 | 177 | 10.37 | 3.76 | 0.74 | 1.91 | ESR*MC |
| A | African American | 17 | 13 | 16222 | 7.96 | 3.83 | 0.76 | 1.88 | ESR*MC |
| A | Hispanic | 17 | 13 | 15720 | 8.49 | 3.94 | 0.77 | 1.89 | ESR*MC |
| A | White | 17 | 13 | 71193 | 11.00 | 3.74 | 0.76 | 1.84 | ESR*MC |
| A | Multiple Ethnicities | 17 | 13 | 5786 | 9.99 | 4.07 | 0.79 | 1.86 | ESR*MC |
| A | Asian | 17 | 13 | 5333 | 11.79 | 3.58 | 0.74 | 1.83 | ESR*MC |
| A | Pacific Islander | 17 | 13 | 102 | 10.30 | 3.95 | 0.78 | 1.85 | ESR*MC |
| B | American Indian | 21 | 16 | 177 | 12.08 | 4.27 | 0.77 | 2.04 | ESR*MC |
| B | African American | 21 | 16 | 16222 | 9.08 | 4.07 | 0.74 | 2.09 | ESR*MC |
| B | Hispanic | 21 | 16 | 15720 | 9.83 | 4.31 | 0.76 | 2.09 | ESR*MC |
| B | White | 21 | 16 | 71193 | 13.11 | 4.30 | 0.78 | 2.01 | ESR*MC |
| B | Multiple Ethnicities | 21 | 16 | 5786 | 11.71 | 4.62 | 0.80 | 2.05 | ESR*MC |
| B | Asian | 21 | 16 | 5333 | 14.15 | 4.18 | 0.78 | 1.94 | ESR*MC |
| B | Pacific Islander | 21 | 16 | 102 | 12.18 | 4.60 | 0.80 | 2.06 | ESR*MC |
| D | American Indian | 9 | 9 | 177 | 5.68 | 2.14 | 0.65 | 1.26 | MC |
| D | African American | 9 | 9 | 16222 | 4.27 | 2.07 | 0.58 | 1.35 | MC |
| D | Hispanic | 9 | 9 | 15720 | 4.58 | 2.13 | 0.61 | 1.34 | MC |
| D | White | 9 | 9 | 71193 | 5.97 | 2.09 | 0.65 | 1.24 | MC |
| D | Multiple Ethnicities | 9 | 9 | 5786 | 5.40 | 2.23 | 0.67 | 1.28 | MC |
| D | Asian | 9 | 9 | 5333 | 6.59 | 1.98 | 0.66 | 1.15 | MC |
| D | Pacific Islander | 9 | 9 | 102 | 5.75 | 2.14 | 0.66 | 1.26 | MC |
| E | American Indian | 16 | 1 | 177 | 5.94 | 3.67 | | | TDA |
| E | African American | 16 | 1 | 16222 | 4.21 | 3.51 | | | TDA |
| E | Hispanic | 16 | 1 | 15720 | 4.61 | 3.71 | | | TDA |
| E | White | 16 | 1 | 71193 | 6.97 | 3.82 | | | TDA |
| E | Multiple Ethnicities | 16 | 1 | 5786 | 6.05 | 3.93 | | | TDA |
| E | Asian | 16 | 1 | 5333 | 8.21 | 3.95 | | | TDA |
| E | Pacific Islander | 16 | 1 | 102 | 6.39 | 4.07 | | | TDA |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 21150 | 24.06 | 11.64 | 0.84 | 4.62 | ESR*MC*TDA |
| A | Y | 17 | 13 | 21150 | 7.35 | 3.80 | 0.76 | 1.88 | ESR*MC |
| B | Y | 21 | 16 | 21150 | 8.89 | 4.29 | 0.76 | 2.09 | ESR*MC |
| D | Y | 9 | 9 | 21150 | 4.05 | 2.15 | 0.60 | 1.35 | MC |
| E | Y | 16 | 1 | 21150 | 3.77 | 3.54 | | | TDA |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 6090 | 24.05 | 10.86 | 0.81 | 4.77 | ESR*MC*TDA |
| A | Y | 17 | 13 | 6090 | 7.31 | 3.57 | 0.71 | 1.91 | ESR*MC |
| B | Y | 21 | 16 | 6090 | 8.58 | 3.84 | 0.70 | 2.11 | ESR*MC |
| D | Y | 9 | 9 | 6090 | 4.06 | 2.04 | 0.55 | 1.36 | MC |
| E | Y | 16 | 1 | 6090 | 4.10 | 3.70 | | | TDA |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 54476 | 28.82 | 11.92 | 0.84 | 4.73 | ESR*MC*TDA |
| A | Y | 17 | 13 | 54476 | 8.85 | 3.95 | 0.77 | 1.89 | ESR*MC |
| B | Y | 21 | 16 | 54476 | 10.28 | 4.37 | 0.77 | 2.09 | ESR*MC |
| D | Y | 9 | 9 | 54476 | 4.75 | 2.15 | 0.62 | 1.33 | MC |
| E | Y | 16 | 1 | 54476 | 4.94 | 3.68 | | | TDA |

Grade 5 English Language Arts

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 63 | 39 | 116274 | 33.71 | 12.06 | 0.86 | 4.51 | ESR*MC*TDA |
| A | All | 19 | 14 | 116274 | 11.40 | 4.33 | 0.79 | 1.97 | ESR*MC |
| B | All | 19 | 15 | 116274 | 10.86 | 4.34 | 0.79 | 2.00 | ESR*MC |
| D | All | 9 | 9 | 116274 | 4.38 | 2.07 | 0.58 | 1.34 | MC |
| E | All | 16 | 1 | 116274 | 7.07 | 3.40 | | | TDA |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 63 | 39 | 57163 | 35.02 | 11.83 | 0.86 | 4.49 | ESR*MC*TDA |
| Total | Male | 63 | 39 | 59111 | 32.45 | 12.15 | 0.87 | 4.46 | ESR*MC*TDA |
| A | Female | 19 | 14 | 57163 | 11.85 | 4.22 | 0.79 | 1.94 | ESR*MC |
| A | Male | 19 | 14 | 59111 | 10.96 | 4.40 | 0.79 | 1.99 | ESR*MC |
| B | Female | 19 | 15 | 57163 | 11.02 | 4.25 | 0.78 | 2.00 | ESR*MC |
| B | Male | 19 | 15 | 59111 | 10.70 | 4.41 | 0.79 | 2.00 | ESR*MC |
| D | Female | 9 | 9 | 57163 | 4.52 | 2.06 | 0.58 | 1.33 | MC |
| D | Male | 9 | 9 | 59111 | 4.25 | 2.07 | 0.58 | 1.34 | MC |
| E | Female | 16 | 1 | 57163 | 7.63 | 3.39 | | | TDA |
| E | Male | 16 | 1 | 59111 | 6.53 | 3.31 | | | TDA |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 63 | 39 | 192 | 32.72 | 11.25 | 0.85 | 4.40 | ESR*MC*TDA |
| Total | African American | 63 | 39 | 16783 | 25.93 | 10.87 | 0.83 | 4.44 | ESR*MC*TDA |
| Total | Hispanic | 63 | 39 | 15733 | 27.52 | 11.30 | 0.84 | 4.50 | ESR*MC*TDA |
| Total | White | 63 | 39 | 72350 | 36.44 | 11.16 | 0.85 | 4.38 | ESR*MC*TDA |
| Total | Multiple Ethnicities | 63 | 39 | 5867 | 33.22 | 12.04 | 0.86 | 4.49 | ESR*MC*TDA |
| Total | Asian | 63 | 39 | 5256 | 40.07 | 11.11 | 0.84 | 4.38 | ESR*MC*TDA |
| Total | Pacific Islander | 63 | 39 | 93 | 32.41 | 11.17 | 0.83 | 4.55 | ESR*MC*TDA |
| A | American Indian | 19 | 14 | 192 | 11.18 | 4.06 | 0.76 | 2.00 | ESR*MC |
| A | African American | 19 | 14 | 16783 | 8.85 | 4.04 | 0.75 | 2.02 | ESR*MC |
| A | Hispanic | 19 | 14 | 15733 | 9.41 | 4.15 | 0.76 | 2.01 | ESR*MC |
| A | White | 19 | 14 | 72350 | 12.31 | 4.07 | 0.77 | 1.93 | ESR*MC |
| A | Multiple Ethnicities | 19 | 14 | 5867 | 11.23 | 4.33 | 0.79 | 1.97 | ESR*MC |
| A | Asian | 19 | 14 | 5256 | 13.13 | 3.81 | 0.76 | 1.86 | ESR*MC |
| A | Pacific Islander | 19 | 14 | 93 | 10.75 | 4.16 | 0.76 | 2.03 | ESR*MC |
| B | American Indian | 19 | 15 | 192 | 10.48 | 4.20 | 0.77 | 2.01 | ESR*MC |
| B | African American | 19 | 15 | 16783 | 8.38 | 3.95 | 0.74 | 2.02 | ESR*MC |
| B | Hispanic | 19 | 15 | 15733 | 8.83 | 4.07 | 0.75 | 2.03 | ESR*MC |
| B | White | 19 | 15 | 72350 | 11.74 | 4.10 | 0.77 | 1.98 | ESR*MC |
| B | Multiple Ethnicities | 19 | 15 | 5867 | 10.71 | 4.34 | 0.79 | 2.00 | ESR*MC |
| B | Asian | 19 | 15 | 5256 | 12.96 | 4.04 | 0.77 | 1.92 | ESR*MC |
| B | Pacific Islander | 19 | 15 | 93 | 10.17 | 4.12 | 0.76 | 2.04 | ESR*MC |
| D | American Indian | 9 | 9 | 192 | 4.08 | 2.11 | 0.61 | 1.32 | MC |
| D | African American | 9 | 9 | 16783 | 3.25 | 1.87 | 0.49 | 1.33 | MC |
| D | Hispanic | 9 | 9 | 15733 | 3.52 | 1.90 | 0.50 | 1.35 | MC |
| D | White | 9 | 9 | 72350 | 4.77 | 1.99 | 0.55 | 1.33 | MC |
| D | Multiple Ethnicities | 9 | 9 | 5867 | 4.31 | 2.05 | 0.57 | 1.34 | MC |
| D | Asian | 9 | 9 | 5256 | 5.27 | 2.03 | 0.59 | 1.30 | MC |
| D | Pacific Islander | 9 | 9 | 93 | 4.04 | 1.92 | 0.51 | 1.34 | MC |
| E | American Indian | 16 | 1 | 192 | 6.98 | 3.20 | | | TDA |
| E | African American | 16 | 1 | 16783 | 5.45 | 3.24 | | | TDA |
| E | Hispanic | 16 | 1 | 15733 | 5.76 | 3.32 | | | TDA |
| E | White | 16 | 1 | 72350 | 7.62 | 3.23 | | | TDA |
| E | Multiple Ethnicities | 16 | 1 | 5867 | 6.97 | 3.38 | | | TDA |
| E | Asian | 16 | 1 | 5256 | 8.70 | 3.33 | | | TDA |
| E | Pacific Islander | 16 | 1 | 93 | 7.44 | 3.37 | | | TDA |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 21735 | 23.53 | 10.84 | 0.84 | 4.39 | ESR*MC*TDA |
| A | Y | 19 | 14 | 21735 | 8.09 | 4.02 | 0.75 | 2.01 | ESR*MC |
| B | Y | 19 | 15 | 21735 | 7.69 | 3.99 | 0.75 | 1.99 | ESR*MC |
| D | Y | 9 | 9 | 21735 | 3.06 | 1.85 | 0.48 | 1.33 | MC |
| E | Y | 16 | 1 | 21735 | 4.69 | 3.18 | | | TDA |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 63 | 39 | 5467 | 22.70 | 9.67 | 0.78 | 4.50 | ESR*MC*TDA |
| A | Y | 19 | 14 | 5467 | 7.71 | 3.50 | 0.67 | 2.01 | ESR*MC |
| B | Y | 19 | 15 | 5467 | 7.24 | 3.49 | 0.67 | 2.00 | ESR*MC |
| D | Y | 9 | 9 | 5467 | 2.91 | 1.68 | 0.38 | 1.33 | MC |
| E | Y | 16 | 1 | 5467 | 4.84 | 3.32 | | | TDA |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 54394 | 28.78 | 11.37 | 0.85 | 4.46 | ESR*MC*TDA |
| A | Y | 19 | 14 | 54394 | 9.82 | 4.22 | 0.77 | 2.02 | ESR*MC |
| B | Y | 19 | 15 | 54394 | 9.28 | 4.14 | 0.76 | 2.03 | ESR*MC |
| D | Y | 9 | 9 | 54394 | 3.69 | 1.94 | 0.52 | 1.35 | MC |
| E | Y | 16 | 1 | 54394 | 6.00 | 3.25 | | | TDA |

Grade 6 English Language Arts

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 63 | 39 | 115785 | 34.70 | 11.39 | 0.85 | 4.42 | ESR*MC*TDA |
| A | All | 21 | 16 | 115785 | 11.96 | 4.39 | 0.78 | 2.05 | ESR*MC |
| B | All | 17 | 13 | 115785 | 9.37 | 3.68 | 0.74 | 1.88 | ESR*MC |
| D | All | 9 | 9 | 115785 | 5.97 | 2.07 | 0.62 | 1.29 | MC |
| E | All | 16 | 1 | 115785 | 7.40 | 3.32 | | | TDA |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 63 | 39 | 56495 | 36.45 | 11.09 | 0.85 | 4.34 | ESR*MC*TDA |
| Total | Male | 63 | 39 | 59290 | 33.04 | 11.42 | 0.85 | 4.43 | ESR*MC*TDA |
| A | Female | 21 | 16 | 56495 | 12.48 | 4.33 | 0.78 | 2.02 | ESR*MC |
| A | Male | 21 | 16 | 59290 | 11.47 | 4.40 | 0.78 | 2.07 | ESR*MC |
| B | Female | 17 | 13 | 56495 | 9.80 | 3.61 | 0.73 | 1.86 | ESR*MC |
| B | Male | 17 | 13 | 59290 | 8.95 | 3.69 | 0.74 | 1.89 | ESR*MC |
| D | Female | 9 | 9 | 56495 | 6.16 | 2.01 | 0.60 | 1.27 | MC |
| D | Male | 9 | 9 | 59290 | 5.79 | 2.12 | 0.62 | 1.30 | MC |
| E | Female | 16 | 1 | 56495 | 8.01 | 3.23 | | | TDA |
| E | Male | 16 | 1 | 59290 | 6.83 | 3.30 | | | TDA |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 63 | 39 | 165 | 32.76 | 11.50 | 0.86 | 4.36 | ESR*MC*TDA |
| Total | African American | 63 | 39 | 16400 | 27.78 | 10.50 | 0.82 | 4.46 | ESR*MC*TDA |
| Total | Hispanic | 63 | 39 | 15605 | 29.32 | 10.95 | 0.83 | 4.50 | ESR*MC*TDA |
| Total | White | 63 | 39 | 72625 | 36.99 | 10.57 | 0.84 | 4.27 | ESR*MC*TDA |
| Total | Multiple Ethnicities | 63 | 39 | 5715 | 33.93 | 11.36 | 0.85 | 4.47 | ESR*MC*TDA |
| Total | Asian | 63 | 39 | 5169 | 41.67 | 10.57 | 0.85 | 4.16 | ESR*MC*TDA |
| Total | Pacific Islander | 63 | 39 | 106 | 36.60 | 11.08 | 0.86 | 4.18 | ESR*MC*TDA |
| A | American Indian | 21 | 16 | 165 | 11.02 | 4.56 | 0.79 | 2.07 | ESR*MC |
| A | African American | 21 | 16 | 16400 | 9.59 | 4.03 | 0.73 | 2.10 | ESR*MC |
| A | Hispanic | 21 | 16 | 15605 | 10.14 | 4.16 | 0.75 | 2.10 | ESR*MC |
| A | White | 21 | 16 | 72625 | 12.74 | 4.19 | 0.77 | 2.02 | ESR*MC |
| A | Multiple Ethnicities | 21 | 16 | 5715 | 11.70 | 4.40 | 0.78 | 2.06 | ESR*MC |
| A | Asian | 21 | 16 | 5169 | 14.39 | 4.12 | 0.79 | 1.91 | ESR*MC |
| A | Pacific Islander | 21 | 16 | 106 | 12.62 | 4.40 | 0.79 | 2.01 | ESR*MC |
| B | American Indian | 17 | 13 | 165 | 8.80 | 3.65 | 0.74 | 1.88 | ESR*MC |
| B | African American | 17 | 13 | 16400 | 7.55 | 3.36 | 0.69 | 1.88 | ESR*MC |
| B | Hispanic | 17 | 13 | 15605 | 7.92 | 3.48 | 0.70 | 1.89 | ESR*MC |
| B | White | 17 | 13 | 72625 | 9.95 | 3.54 | 0.72 | 1.87 | ESR*MC |
| B | Multiple Ethnicities | 17 | 13 | 5715 | 9.15 | 3.68 | 0.74 | 1.88 | ESR*MC |
| B | Asian | 17 | 13 | 5169 | 11.51 | 3.45 | 0.73 | 1.80 | ESR*MC |
| B | Pacific Islander | 17 | 13 | 106 | 9.78 | 3.65 | 0.73 | 1.89 | ESR*MC |
| D | American Indian | 9 | 9 | 165 | 5.79 | 2.15 | 0.63 | 1.30 | MC |
| D | African American | 9 | 9 | 16400 | 4.81 | 2.12 | 0.58 | 1.37 | MC |
| D | Hispanic | 9 | 9 | 15605 | 5.16 | 2.16 | 0.61 | 1.35 | MC |
| D | White | 9 | 9 | 72625 | 6.35 | 1.89 | 0.56 | 1.26 | MC |
| D | Multiple Ethnicities | 9 | 9 | 5715 | 5.85 | 2.06 | 0.60 | 1.31 | MC |
| D | Asian | 9 | 9 | 5169 | 6.87 | 1.86 | 0.61 | 1.16 | MC |
| D | Pacific Islander | 9 | 9 | 106 | 6.01 | 2.03 | 0.59 | 1.29 | MC |
| E | American Indian | 16 | 1 | 165 | 7.15 | 3.21 | | | TDA |
| E | African American | 16 | 1 | 16400 | 5.83 | 3.27 | | | TDA |
| E | Hispanic | 16 | 1 | 15605 | 6.10 | 3.35 | | | TDA |
| E | White | 16 | 1 | 72625 | 7.94 | 3.12 | | | TDA |
| E | Multiple Ethnicities | 16 | 1 | 5715 | 7.22 | 3.36 | | | TDA |
| E | Asian | 16 | 1 | 5169 | 8.90 | 3.13 | | | TDA |
| E | Pacific Islander | 16 | 1 | 106 | 8.19 | 2.99 | | | TDA |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 21311 | 24.69 | 10.08 | 0.81 | 4.44 | ESR*MC*TDA |
| A | Y | 21 | 16 | 21311 | 8.70 | 3.92 | 0.71 | 2.11 | ESR*MC |
| B | Y | 17 | 13 | 21311 | 6.71 | 3.21 | 0.66 | 1.88 | ESR*MC |
| D | Y | 9 | 9 | 21311 | 4.40 | 2.11 | 0.57 | 1.39 | MC |
| E | Y | 16 | 1 | 21311 | 4.88 | 3.23 | | | TDA |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 63 | 39 | 4798 | 23.72 | 9.42 | 0.76 | 4.58 | ESR*MC*TDA |
| A | Y | 21 | 16 | 4798 | 8.25 | 3.45 | 0.62 | 2.12 | ESR*MC |
| B | Y | 17 | 13 | 4798 | 6.49 | 2.97 | 0.60 | 1.87 | ESR*MC |
| D | Y | 9 | 9 | 4798 | 4.10 | 2.00 | 0.52 | 1.39 | MC |
| E | Y | 16 | 1 | 4798 | 4.87 | 3.42 | | | TDA |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 53496 | 30.23 | 10.88 | 0.83 | 4.48 | ESR*MC*TDA |
| A | Y | 21 | 16 | 53496 | 10.45 | 4.20 | 0.75 | 2.10 | ESR*MC |
| B | Y | 17 | 13 | 53496 | 8.11 | 3.47 | 0.70 | 1.90 | ESR*MC |
| D | Y | 9 | 9 | 53496 | 5.29 | 2.12 | 0.60 | 1.35 | MC |
| E | Y | 16 | 1 | 53496 | 6.38 | 3.32 | | | TDA |

Grade 7 English Language Arts

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 63 | 39 | 118352 | 35.21 | 12.24 | 0.84 | 4.89 | ESR*MC*TDA |
| A | All | 18 | 14 | 118352 | 10.64 | 4.04 | 0.78 | 1.90 | ESR*MC |
| B | All | 20 | 15 | 118352 | 11.35 | 4.17 | 0.76 | 2.04 | ESR*MC |
| D | All | 9 | 9 | 118352 | 5.74 | 2.07 | 0.64 | 1.25 | MC |
| E | All | 16 | 1 | 118352 | 7.48 | 3.97 | | | TDA |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 63 | 39 | 57827 | 37.16 | 11.90 | 0.83 | 4.84 | ESR*MC*TDA |
| Total | Male | 63 | 39 | 60525 | 33.35 | 12.27 | 0.85 | 4.81 | ESR*MC*TDA |
| A | Female | 18 | 14 | 57827 | 11.15 | 3.93 | 0.77 | 1.87 | ESR*MC |
| A | Male | 18 | 14 | 60525 | 10.15 | 4.08 | 0.78 | 1.91 | ESR*MC |
| B | Female | 20 | 15 | 57827 | 11.69 | 4.08 | 0.75 | 2.02 | ESR*MC |
| B | Male | 20 | 15 | 60525 | 11.02 | 4.23 | 0.77 | 2.05 | ESR*MC |
| D | Female | 9 | 9 | 57827 | 5.98 | 1.99 | 0.63 | 1.22 | MC |
| D | Male | 9 | 9 | 60525 | 5.51 | 2.11 | 0.64 | 1.27 | MC |
| E | Female | 16 | 1 | 57827 | 8.33 | 3.93 | | | TDA |
| E | Male | 16 | 1 | 60525 | 6.67 | 3.84 | | | TDA |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 63 | 39 | 188 | 33.76 | 11.41 | 0.82 | 4.80 | ESR*MC*TDA |
| Total | African American | 63 | 39 | 16775 | 28.35 | 11.06 | 0.82 | 4.69 | ESR*MC*TDA |
| Total | Hispanic | 63 | 39 | 15920 | 29.26 | 11.56 | 0.83 | 4.82 | ESR*MC*TDA |
| Total | White | 63 | 39 | 74501 | 37.56 | 11.57 | 0.83 | 4.76 | ESR*MC*TDA |
| Total | Multiple Ethnicities | 63 | 39 | 5506 | 34.36 | 12.10 | 0.84 | 4.86 | ESR*MC*TDA |
| Total | Asian | 63 | 39 | 5369 | 42.67 | 11.16 | 0.82 | 4.74 | ESR*MC*TDA |
| Total | Pacific Islander | 63 | 39 | 93 | 34.44 | 11.10 | 0.81 | 4.84 | ESR*MC*TDA |
| A | American Indian | 18 | 14 | 188 | 10.46 | 3.82 | 0.76 | 1.88 | ESR*MC |
| A | African American | 18 | 14 | 16775 | 8.77 | 3.81 | 0.74 | 1.93 | ESR*MC |
| A | Hispanic | 18 | 14 | 15920 | 9.01 | 3.90 | 0.75 | 1.94 | ESR*MC |
| A | White | 18 | 14 | 74501 | 11.27 | 3.89 | 0.77 | 1.88 | ESR*MC |
| A | Multiple Ethnicities | 18 | 14 | 5506 | 10.46 | 4.02 | 0.78 | 1.90 | ESR*MC |
| A | Asian | 18 | 14 | 5369 | 12.71 | 3.61 | 0.75 | 1.80 | ESR*MC |
| A | Pacific Islander | 18 | 14 | 93 | 10.73 | 3.45 | 0.69 | 1.92 | ESR*MC |
| B | American Indian | 20 | 15 | 188 | 11.03 | 3.98 | 0.73 | 2.07 | ESR*MC |
| B | African American | 20 | 15 | 16775 | 9.29 | 3.90 | 0.71 | 2.08 | ESR*MC |
| B | Hispanic | 20 | 15 | 15920 | 9.62 | 3.97 | 0.72 | 2.09 | ESR*MC |
| B | White | 20 | 15 | 74501 | 12.05 | 4.01 | 0.75 | 2.01 | ESR*MC |
| B | Multiple Ethnicities | 20 | 15 | 5506 | 11.08 | 4.16 | 0.76 | 2.04 | ESR*MC |
| B | Asian | 20 | 15 | 5369 | 13.52 | 3.78 | 0.75 | 1.91 | ESR*MC |
| B | Pacific Islander | 20 | 15 | 93 | 10.77 | 3.93 | 0.73 | 2.05 | ESR*MC |
| D | American Indian | 9 | 9 | 188 | 5.44 | 2.02 | 0.59 | 1.28 | MC |
| D | African American | 9 | 9 | 16775 | 4.66 | 1.94 | 0.54 | 1.32 | MC |
| D | Hispanic | 9 | 9 | 15920 | 4.83 | 2.00 | 0.57 | 1.31 | MC |
| D | White | 9 | 9 | 74501 | 6.12 | 1.96 | 0.61 | 1.22 | MC |
| D | Multiple Ethnicities | 9 | 9 | 5506 | 5.63 | 2.05 | 0.62 | 1.26 | MC |
| D | Asian | 9 | 9 | 5369 | 6.66 | 1.88 | 0.63 | 1.14 | MC |
| D | Pacific Islander | 9 | 9 | 93 | 5.54 | 2.00 | 0.61 | 1.24 | MC |
| E | American Indian | 16 | 1 | 188 | 6.83 | 3.80 | | | TDA |
| E | African American | 16 | 1 | 16775 | 5.62 | 3.61 | | | TDA |
| E | Hispanic | 16 | 1 | 15920 | 5.80 | 3.80 | | | TDA |
| E | White | 16 | 1 | 74501 | 8.11 | 3.82 | | | TDA |
| E | Multiple Ethnicities | 16 | 1 | 5506 | 7.18 | 3.92 | | | TDA |
| E | Asian | 16 | 1 | 5369 | 9.77 | 3.90 | | | TDA |
| E | Pacific Islander | 16 | 1 | 93 | 7.40 | 3.86 | | | TDA |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 21323 | 24.32 | 10.28 | 0.81 | 4.47 | ESR*MC*TDA |
| A | Y | 18 | 14 | 21323 | 7.58 | 3.63 | 0.72 | 1.94 | ESR*MC |
| B | Y | 20 | 15 | 21323 | 8.18 | 3.72 | 0.68 | 2.09 | ESR*MC |
| D | Y | 9 | 9 | 21323 | 4.19 | 1.97 | 0.53 | 1.35 | MC |
| E | Y | 16 | 1 | 21323 | 4.38 | 3.28 | | | TDA |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 63 | 39 | 4556 | 22.94 | 9.30 | 0.75 | 4.68 | ESR*MC*TDA |
| A | Y | 18 | 14 | 4556 | 7.06 | 3.17 | 0.62 | 1.95 | ESR*MC |
| B | Y | 20 | 15 | 4556 | 7.71 | 3.28 | 0.59 | 2.09 | ESR*MC |
| D | Y | 9 | 9 | 4556 | 3.85 | 1.73 | 0.39 | 1.35 | MC |
| E | Y | 16 | 1 | 4556 | 4.32 | 3.55 | | | TDA |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 54156 | 30.52 | 11.56 | 0.83 | 4.79 | ESR*MC*TDA |
| A | Y | 18 | 14 | 54156 | 9.36 | 3.94 | 0.76 | 1.94 | ESR*MC |
| B | Y | 20 | 15 | 54156 | 9.93 | 4.02 | 0.73 | 2.09 | ESR*MC |
| D | Y | 9 | 9 | 54156 | 5.05 | 2.02 | 0.58 | 1.30 | MC |
| E | Y | 16 | 1 | 54156 | 6.18 | 3.75 | | | TDA |

Grade 8 English Language Arts

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|-------|------|------|--------------|
| Total | All | 63 | 39 | 119366 | 35.27 | 12.61 | 0.85 | 4.89 | ESR*MC*TDA |
| A | All | 18 | 13 | 119366 | 11.15 | 3.86 | 0.73 | 2.01 | ESR*MC |
| B | All | 20 | 16 | 119366 | 12.08 | 4.75 | 0.82 | 2.01 | ESR*MC |
| D | All | 9 | 9 | 119366 | 4.59 | 2.16 | 0.61 | 1.35 | MC |
| E | All | 16 | 1 | 119366 | 7.45 | 3.89 | | | TDA |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 63 | 39 | 57556 | 37.52 | 12.16 | 0.85 | 4.78 | ESR*MC*TDA |
| Total | Male | 63 | 39 | 61810 | 33.17 | 12.67 | 0.85 | 4.84 | ESR*MC*TDA |
| A | Female | 18 | 13 | 57556 | 11.86 | 3.67 | 0.71 | 1.97 | ESR*MC |
| A | Male | 18 | 13 | 61810 | 10.49 | 3.91 | 0.73 | 2.04 | ESR*MC |
| B | Female | 20 | 16 | 57556 | 12.47 | 4.59 | 0.81 | 1.98 | ESR*MC |
| B | Male | 20 | 16 | 61810 | 11.72 | 4.88 | 0.83 | 2.03 | ESR*MC |
| D | Female | 9 | 9 | 57556 | 4.86 | 2.16 | 0.62 | 1.34 | MC |
| D | Male | 9 | 9 | 61810 | 4.33 | 2.13 | 0.60 | 1.36 | MC |
| E | Female | 16 | 1 | 57556 | 8.33 | 3.79 | | | TDA |
| E | Male | 16 | 1 | 61810 | 6.63 | 3.80 | | | TDA |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 63 | 39 | 181 | 33.40 | 12.50 | 0.84 | 5.02 | ESR*MC*TDA |
| Total | African American | 63 | 39 | 16935 | 28.59 | 11.58 | 0.83 | 4.82 | ESR*MC*TDA |
| Total | Hispanic | 63 | 39 | 15702 | 29.29 | 12.22 | 0.84 | 4.89 | ESR*MC*TDA |
| Total | White | 63 | 39 | 75902 | 37.49 | 11.91 | 0.84 | 4.75 | ESR*MC*TDA |
| Total | Multiple Ethnicities | 63 | 39 | 5303 | 34.27 | 12.69 | 0.85 | 4.90 | ESR*MC*TDA |
| Total | Asian | 63 | 39 | 5246 | 43.56 | 11.20 | 0.83 | 4.58 | ESR*MC*TDA |
| Total | Pacific Islander | 63 | 39 | 97 | 36.65 | 13.03 | 0.85 | 5.05 | ESR*MC*TDA |
| A | American Indian | 18 | 13 | 181 | 10.80 | 3.74 | 0.72 | 2.00 | ESR*MC |
| A | African American | 18 | 13 | 16935 | 9.44 | 3.75 | 0.71 | 2.02 | ESR*MC |
| A | Hispanic | 18 | 13 | 15702 | 9.56 | 3.91 | 0.73 | 2.02 | ESR*MC |
| A | White | 18 | 13 | 75902 | 11.74 | 3.67 | 0.70 | 1.99 | ESR*MC |
| A | Multiple Ethnicities | 18 | 13 | 5303 | 10.98 | 3.86 | 0.73 | 2.01 | ESR*MC |
| A | Asian | 18 | 13 | 5246 | 13.05 | 3.34 | 0.70 | 1.85 | ESR*MC |
| A | Pacific Islander | 18 | 13 | 97 | 11.68 | 3.72 | 0.73 | 1.92 | ESR*MC |
| B | American Indian | 20 | 16 | 181 | 11.44 | 4.81 | 0.81 | 2.07 | ESR*MC |
| B | African American | 20 | 16 | 16935 | 9.64 | 4.50 | 0.78 | 2.11 | ESR*MC |
| B | Hispanic | 20 | 16 | 15702 | 10.08 | 4.66 | 0.80 | 2.10 | ESR*MC |
| B | White | 20 | 16 | 75902 | 12.87 | 4.50 | 0.81 | 1.97 | ESR*MC |
| B | Multiple Ethnicities | 20 | 16 | 5303 | 11.71 | 4.87 | 0.83 | 2.04 | ESR*MC |
| B | Asian | 20 | 16 | 5246 | 14.92 | 4.07 | 0.81 | 1.76 | ESR*MC |
| B | Pacific Islander | 20 | 16 | 97 | 12.20 | 4.77 | 0.83 | 1.94 | ESR*MC |
| D | American Indian | 9 | 9 | 181 | 4.04 | 2.07 | 0.59 | 1.33 | MC |
| D | African American | 9 | 9 | 16935 | 3.60 | 1.88 | 0.47 | 1.37 | MC |
| D | Hispanic | 9 | 9 | 15702 | 3.77 | 1.96 | 0.51 | 1.37 | MC |
| D | White | 9 | 9 | 75902 | 4.92 | 2.14 | 0.61 | 1.34 | MC |
| D | Multiple Ethnicities | 9 | 9 | 5303 | 4.42 | 2.16 | 0.61 | 1.35 | MC |
| D | Asian | 9 | 9 | 5246 | 5.66 | 2.12 | 0.63 | 1.29 | MC |
| D | Pacific Islander | 9 | 9 | 97 | 4.86 | 2.15 | 0.60 | 1.35 | MC |
| E | American Indian | 16 | 1 | 181 | 7.12 | 4.03 | | | TDA |
| E | African American | 16 | 1 | 16935 | 5.92 | 3.70 | | | TDA |
| E | Hispanic | 16 | 1 | 15702 | 5.88 | 3.82 | | | TDA |
| E | White | 16 | 1 | 75902 | 7.96 | 3.73 | | | TDA |
| E | Multiple Ethnicities | 16 | 1 | 5303 | 7.16 | 3.89 | | | TDA |
| E | Asian | 16 | 1 | 5246 | 9.94 | 3.70 | | | TDA |
| E | Pacific Islander | 16 | 1 | 97 | 7.92 | 4.20 | | | TDA |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 21439 | 24.02 | 10.66 | 0.81 | 4.59 | ESR*MC*TDA |
| A | Y | 18 | 13 | 21439 | 8.00 | 3.65 | 0.69 | 2.03 | ESR*MC |
| B | Y | 20 | 16 | 21439 | 8.32 | 4.24 | 0.75 | 2.12 | ESR*MC |
| D | Y | 9 | 9 | 21439 | 3.15 | 1.80 | 0.44 | 1.35 | MC |
| E | Y | 16 | 1 | 21439 | 4.55 | 3.36 | | | TDA |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 63 | 39 | 4552 | 22.83 | 9.94 | 0.77 | 4.78 | ESR*MC*TDA |
| A | Y | 18 | 13 | 4552 | 7.53 | 3.36 | 0.64 | 2.02 | ESR*MC |
| B | Y | 20 | 16 | 4552 | 7.84 | 3.80 | 0.69 | 2.13 | ESR*MC |
| D | Y | 9 | 9 | 4552 | 2.96 | 1.59 | 0.26 | 1.36 | MC |
| E | Y | 16 | 1 | 4552 | 4.50 | 3.61 | | | TDA |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Y | 63 | 39 | 53059 | 30.51 | 12.06 | 0.84 | 4.85 | ESR*MC*TDA |
| A | Y | 18 | 13 | 53059 | 9.95 | 3.87 | 0.72 | 2.03 | ESR*MC |
| B | Y | 20 | 16 | 53059 | 10.40 | 4.64 | 0.80 | 2.10 | ESR*MC |
| D | Y | 9 | 9 | 53059 | 3.91 | 2.00 | 0.53 | 1.36 | MC |
| E | Y | 16 | 1 | 53059 | 6.25 | 3.76 | | | TDA |

Grade 4 Science

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|------|------|------|--------------|
| Total | All | 48 | 43 | 114497 | 26.05 | 9.81 | 0.90 | 3.05 | MC*SCR |
| A | All | 24 | 22 | 114497 | 12.96 | 5.37 | 0.84 | 2.16 | MC*SCR |
| B | All | 8 | 7 | 114497 | 4.60 | 2.00 | 0.60 | 1.26 | MC*SCR |
| C | All | 8 | 7 | 114497 | 4.19 | 1.84 | 0.54 | 1.25 | MC*SCR |
| D | All | 8 | 7 | 114497 | 4.30 | 1.88 | 0.56 | 1.24 | MC*SCR |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 48 | 43 | 56194 | 25.88 | 9.57 | 0.90 | 3.06 | MC*SCR |
| Total | Male | 48 | 43 | 58303 | 26.21 | 10.02 | 0.91 | 3.04 | MC*SCR |
| A | Female | 24 | 22 | 56194 | 12.87 | 5.29 | 0.83 | 2.17 | MC*SCR |
| A | Male | 24 | 22 | 58303 | 13.05 | 5.44 | 0.85 | 2.14 | MC*SCR |
| B | Female | 8 | 7 | 56194 | 4.63 | 1.97 | 0.59 | 1.26 | MC*SCR |
| B | Male | 8 | 7 | 58303 | 4.57 | 2.02 | 0.61 | 1.26 | MC*SCR |
| C | Female | 8 | 7 | 56194 | 4.16 | 1.79 | 0.51 | 1.25 | MC*SCR |
| C | Male | 8 | 7 | 58303 | 4.22 | 1.89 | 0.57 | 1.24 | MC*SCR |
| D | Female | 8 | 7 | 56194 | 4.22 | 1.84 | 0.54 | 1.25 | MC*SCR |
| D | Male | 8 | 7 | 58303 | 4.37 | 1.92 | 0.58 | 1.24 | MC*SCR |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | American Indian | 48 | 43 | 178 | 26.29 | 9.48 | 0.90 | 3.06 | MC*SCR |
| Total | African American | 48 | 43 | 16135 | 18.79 | 8.31 | 0.86 | 3.12 | MC*SCR |
| Total | Hispanic | 48 | 43 | 15828 | 20.73 | 8.95 | 0.88 | 3.13 | MC*SCR |
| Total | White | 48 | 43 | 71113 | 28.62 | 8.98 | 0.89 | 3.01 | MC*SCR |
| Total | Multiple Ethnicities | 48 | 43 | 5781 | 25.16 | 9.75 | 0.90 | 3.07 | MC*SCR |
| Total | Asian | 48 | 43 | 5361 | 30.39 | 9.12 | 0.90 | 2.95 | MC*SCR |
| Total | Pacific Islander | 48 | 43 | 101 | 26.26 | 9.33 | 0.89 | 3.07 | MC*SCR |
| A | American Indian | 24 | 22 | 178 | 13.24 | 5.21 | 0.82 | 2.19 | MC*SCR |
| A | African American | 24 | 22 | 16135 | 9.21 | 4.57 | 0.77 | 2.20 | MC*SCR |
| A | Hispanic | 24 | 22 | 15828 | 10.21 | 4.90 | 0.80 | 2.21 | MC*SCR |
| A | White | 24 | 22 | 71113 | 14.28 | 4.99 | 0.82 | 2.13 | MC*SCR |
| A | Multiple Ethnicities | 24 | 22 | 5781 | 12.49 | 5.35 | 0.83 | 2.18 | MC*SCR |
| A | Asian | 24 | 22 | 5361 | 15.40 | 5.02 | 0.83 | 2.09 | MC*SCR |
| A | Pacific Islander | 24 | 22 | 101 | 13.22 | 5.32 | 0.83 | 2.17 | MC*SCR |
| B | American Indian | 8 | 7 | 178 | 4.59 | 2.02 | 0.62 | 1.25 | MC*SCR |
| B | African American | 8 | 7 | 16135 | 3.33 | 1.87 | 0.50 | 1.32 | MC*SCR |
| B | Hispanic | 8 | 7 | 15828 | 3.70 | 1.93 | 0.54 | 1.31 | MC*SCR |
| B | White | 8 | 7 | 71113 | 5.05 | 1.85 | 0.56 | 1.22 | MC*SCR |
| B | Multiple Ethnicities | 8 | 7 | 5781 | 4.44 | 2.01 | 0.60 | 1.26 | MC*SCR |
| B | Asian | 8 | 7 | 5361 | 5.30 | 1.83 | 0.57 | 1.20 | MC*SCR |
| B | Pacific Islander | 8 | 7 | 101 | 4.44 | 1.93 | 0.57 | 1.26 | MC*SCR |
| C | American Indian | 8 | 7 | 178 | 4.11 | 1.78 | 0.52 | 1.24 | MC*SCR |
| C | African American | 8 | 7 | 16135 | 3.12 | 1.64 | 0.42 | 1.25 | MC*SCR |
| C | Hispanic | 8 | 7 | 15828 | 3.34 | 1.74 | 0.48 | 1.25 | MC*SCR |
| C | White | 8 | 7 | 71113 | 4.58 | 1.74 | 0.49 | 1.25 | MC*SCR |
| C | Multiple Ethnicities | 8 | 7 | 5781 | 4.05 | 1.84 | 0.54 | 1.24 | MC*SCR |
| C | Asian | 8 | 7 | 5361 | 4.82 | 1.82 | 0.56 | 1.21 | MC*SCR |
| C | Pacific Islander | 8 | 7 | 101 | 4.26 | 1.68 | 0.42 | 1.28 | MC*SCR |
| D | American Indian | 8 | 7 | 178 | 4.35 | 1.80 | 0.53 | 1.23 | MC*SCR |
| D | African American | 8 | 7 | 16135 | 3.14 | 1.72 | 0.44 | 1.29 | MC*SCR |
| D | Hispanic | 8 | 7 | 15828 | 3.47 | 1.80 | 0.49 | 1.28 | MC*SCR |
| D | White | 8 | 7 | 71113 | 4.71 | 1.77 | 0.52 | 1.22 | MC*SCR |
| D | Multiple Ethnicities | 8 | 7 | 5781 | 4.17 | 1.88 | 0.56 | 1.25 | MC*SCR |
| D | Asian | 8 | 7 | 5361 | 4.88 | 1.76 | 0.54 | 1.20 | MC*SCR |
| D | Pacific Islander | 8 | 7 | 101 | 4.35 | 1.83 | 0.55 | 1.23 | MC*SCR |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 48 | 43 | 21098 | 19.82 | 9.20 | 0.89 | 3.10 | MC*SCR |
| A | Y | 24 | 22 | 21098 | 9.68 | 4.97 | 0.81 | 2.18 | MC*SCR |
| B | Y | 8 | 7 | 21098 | 3.54 | 1.96 | 0.56 | 1.30 | MC*SCR |
| C | Y | 8 | 7 | 21098 | 3.24 | 1.78 | 0.50 | 1.25 | MC*SCR |
| D | Y | 8 | 7 | 21098 | 3.36 | 1.87 | 0.53 | 1.28 | MC*SCR |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 48 | 43 | 6311 | 18.19 | 7.97 | 0.85 | 3.14 | MC*SCR |
| A | Y | 24 | 22 | 6311 | 8.93 | 4.36 | 0.74 | 2.21 | MC*SCR |
| B | Y | 8 | 7 | 6311 | 3.26 | 1.81 | 0.47 | 1.33 | MC*SCR |
| C | Y | 8 | 7 | 6311 | 2.94 | 1.64 | 0.42 | 1.25 | MC*SCR |
| D | Y | 8 | 7 | 6311 | 3.06 | 1.70 | 0.42 | 1.30 | MC*SCR |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 48 | 43 | 54351 | 21.97 | 9.15 | 0.88 | 3.12 | MC*SCR |
| A | Y | 24 | 22 | 54351 | 10.82 | 5.00 | 0.81 | 2.21 | MC*SCR |
| B | Y | 8 | 7 | 54351 | 3.91 | 1.95 | 0.55 | 1.30 | MC*SCR |
| C | Y | 8 | 7 | 54351 | 3.58 | 1.76 | 0.49 | 1.26 | MC*SCR |
| D | Y | 8 | 7 | 54351 | 3.68 | 1.83 | 0.51 | 1.28 | MC*SCR |

Grade 8 Science

| Reporting Category | Overall | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|---------|--------------|---------|--------|-------|------|------|------|--------------|
| Total | All | 48 | 43 | 118412 | 24.82 | 9.95 | 0.91 | 3.03 | MC*SCR |
| A | All | 24 | 21 | 118412 | 12.04 | 5.07 | 0.81 | 2.20 | MC*SCR |
| B | All | 8 | 7 | 118412 | 4.48 | 2.17 | 0.70 | 1.19 | MC*SCR |
| C | All | 8 | 7 | 118412 | 4.24 | 2.14 | 0.70 | 1.17 | MC*SCR |
| D | All | 8 | 8 | 118412 | 4.06 | 1.80 | 0.52 | 1.25 | MC |

| Reporting Category | Gender | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|--------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | Female | 48 | 43 | 57003 | 25.02 | 9.49 | 0.90 | 3.03 | MC*SCR |
| Total | Male | 48 | 43 | 61409 | 24.63 | 10.35 | 0.91 | 3.03 | MC*SCR |
| A | Female | 24 | 21 | 57003 | 12.21 | 4.84 | 0.79 | 2.19 | MC*SCR |
| A | Male | 24 | 21 | 61409 | 11.87 | 5.27 | 0.83 | 2.20 | MC*SCR |
| B | Female | 8 | 7 | 57003 | 4.54 | 2.10 | 0.68 | 1.19 | MC*SCR |
| B | Male | 8 | 7 | 61409 | 4.41 | 2.22 | 0.71 | 1.19 | MC*SCR |
| C | Female | 8 | 7 | 57003 | 4.19 | 2.07 | 0.68 | 1.18 | MC*SCR |
| C | Male | 8 | 7 | 61409 | 4.30 | 2.20 | 0.73 | 1.15 | MC*SCR |
| D | Female | 8 | 8 | 57003 | 4.07 | 1.75 | 0.49 | 1.25 | MC |
| D | Male | 8 | 8 | 61409 | 4.05 | 1.84 | 0.54 | 1.25 | MC |

| Reporting Category | Ethnicity | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----------------------|--------------|---------|-------|-------|-------|------|------|--------------|
| Total | American Indian | 48 | 43 | 183 | 22.74 | 9.81 | 0.90 | 3.03 | MC*SCR |
| Total | African American | 48 | 43 | 16633 | 18.39 | 8.12 | 0.86 | 3.06 | MC*SCR |
| Total | Hispanic | 48 | 43 | 15672 | 19.79 | 8.83 | 0.88 | 3.06 | MC*SCR |
| Total | White | 48 | 43 | 75370 | 26.93 | 9.47 | 0.90 | 3.01 | MC*SCR |
| Total | Multiple Ethnicities | 48 | 43 | 5235 | 23.73 | 10.00 | 0.91 | 3.04 | MC*SCR |
| Total | Asian | 48 | 43 | 5222 | 31.07 | 9.28 | 0.90 | 2.87 | MC*SCR |
| Total | Pacific Islander | 48 | 43 | 97 | 24.99 | 10.02 | 0.91 | 3.01 | MC*SCR |
| A | American Indian | 24 | 21 | 183 | 10.97 | 4.69 | 0.78 | 2.20 | MC*SCR |
| A | African American | 24 | 21 | 16633 | 8.92 | 4.18 | 0.73 | 2.18 | MC*SCR |
| A | Hispanic | 24 | 21 | 15672 | 9.54 | 4.49 | 0.76 | 2.19 | MC*SCR |
| A | White | 24 | 21 | 75370 | 13.07 | 4.86 | 0.80 | 2.19 | MC*SCR |
| A | Multiple Ethnicities | 24 | 21 | 5235 | 11.49 | 5.07 | 0.81 | 2.20 | MC*SCR |
| A | Asian | 24 | 21 | 5222 | 15.07 | 4.82 | 0.81 | 2.10 | MC*SCR |
| A | Pacific Islander | 24 | 21 | 97 | 12.25 | 4.76 | 0.78 | 2.23 | MC*SCR |
| B | American Indian | 8 | 7 | 183 | 4.17 | 2.22 | 0.72 | 1.18 | MC*SCR |
| B | African American | 8 | 7 | 16633 | 3.20 | 1.95 | 0.59 | 1.24 | MC*SCR |
| B | Hispanic | 8 | 7 | 15672 | 3.49 | 2.08 | 0.65 | 1.23 | MC*SCR |
| B | White | 8 | 7 | 75370 | 4.90 | 2.05 | 0.68 | 1.16 | MC*SCR |
| B | Multiple Ethnicities | 8 | 7 | 5235 | 4.27 | 2.19 | 0.70 | 1.20 | MC*SCR |
| B | Asian | 8 | 7 | 5222 | 5.62 | 1.97 | 0.69 | 1.10 | MC*SCR |
| B | Pacific Islander | 8 | 7 | 97 | 4.35 | 2.17 | 0.71 | 1.17 | MC*SCR |
| C | American Indian | 8 | 7 | 183 | 3.81 | 2.31 | 0.76 | 1.14 | MC*SCR |
| C | African American | 8 | 7 | 16633 | 3.01 | 1.87 | 0.59 | 1.20 | MC*SCR |
| C | Hispanic | 8 | 7 | 15672 | 3.33 | 2.00 | 0.64 | 1.20 | MC*SCR |
| C | White | 8 | 7 | 75370 | 4.64 | 2.05 | 0.68 | 1.15 | MC*SCR |
| C | Multiple Ethnicities | 8 | 7 | 5235 | 4.02 | 2.15 | 0.70 | 1.17 | MC*SCR |
| C | Asian | 8 | 7 | 5222 | 5.44 | 1.89 | 0.69 | 1.05 | MC*SCR |
| C | Pacific Islander | 8 | 7 | 97 | 4.18 | 2.30 | 0.78 | 1.08 | MC*SCR |
| D | American Indian | 8 | 8 | 183 | 3.78 | 1.78 | 0.50 | 1.25 | MC |
| D | African American | 8 | 8 | 16633 | 3.26 | 1.60 | 0.38 | 1.26 | MC |
| D | Hispanic | 8 | 8 | 15672 | 3.43 | 1.65 | 0.42 | 1.26 | MC |
| D | White | 8 | 8 | 75370 | 4.32 | 1.77 | 0.51 | 1.24 | MC |
| D | Multiple Ethnicities | 8 | 8 | 5235 | 3.94 | 1.79 | 0.51 | 1.25 | MC |
| D | Asian | 8 | 8 | 5222 | 4.94 | 1.77 | 0.52 | 1.23 | MC |
| D | Pacific Islander | 8 | 8 | 97 | 4.22 | 1.77 | 0.50 | 1.25 | MC |

| Reporting Category | IEP | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|-----|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 48 | 43 | 21165 | 17.34 | 8.33 | 0.87 | 3.04 | MC*SCR |
| A | Y | 24 | 21 | 21165 | 8.37 | 4.30 | 0.75 | 2.17 | MC*SCR |
| B | Y | 8 | 7 | 21165 | 3.06 | 1.98 | 0.62 | 1.23 | MC*SCR |
| C | Y | 8 | 7 | 21165 | 2.81 | 1.87 | 0.59 | 1.20 | MC*SCR |
| D | Y | 8 | 8 | 21165 | 3.10 | 1.61 | 0.39 | 1.26 | MC |

| Reporting Category | EL | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|----|--------------|---------|------|-------|------|------|------|--------------|
| Total | Y | 48 | 43 | 4695 | 15.83 | 6.67 | 0.79 | 3.02 | MC*SCR |
| A | Y | 24 | 21 | 4695 | 7.74 | 3.60 | 0.64 | 2.15 | MC*SCR |
| B | Y | 8 | 7 | 4695 | 2.56 | 1.69 | 0.48 | 1.22 | MC*SCR |
| C | Y | 8 | 7 | 4695 | 2.60 | 1.64 | 0.46 | 1.20 | MC*SCR |
| D | Y | 8 | 8 | 4695 | 2.93 | 1.46 | 0.26 | 1.26 | MC |

| Reporting Category | Low Income | Total Points | N Items | N | Mean | SD | r | SEM | Item Type(s) |
|--------------------|------------|--------------|---------|-------|-------|------|------|------|--------------|
| Total | Y | 48 | 43 | 52445 | 20.87 | 9.10 | 0.89 | 3.07 | MC*SCR |
| A | Y | 24 | 21 | 52445 | 10.10 | 4.64 | 0.77 | 2.21 | MC*SCR |
| B | Y | 8 | 7 | 52445 | 3.72 | 2.09 | 0.65 | 1.23 | MC*SCR |
| C | Y | 8 | 7 | 52445 | 3.50 | 2.03 | 0.65 | 1.20 | MC*SCR |
| D | Y | 8 | 8 | 52445 | 3.56 | 1.69 | 0.45 | 1.26 | MC |

APPENDIX Q: HISTORICAL STATISTICS

The tables included in this appendix present the historical statistics for number of examinees (N Count), the mean, standard deviation (SD), and maximum (Max) for raw scores and scaled scores, in addition to the percentage of students by performance level (Below Basic, Basic, Proficient, Advanced) and the percentage of students earning either proficient or advanced scores. Scaled scores remain on the same scale of measurement, and therefore, can be compared across years. Raw scores, on the other hand, cannot be compared across tests or administrations because the difficulty of the items on a test can vary across years and also due to the reduction in test length in 2018. The asterisk (*) indicates that the maximum raw score varies between 2017 and 2018 administration years due to the reduction in test length, and also indicates that the maximum earned scaled score may vary across all administrations. Due to the Covid-19 pandemic, the PSSA was not administered in Spring 2020.

Mathematics Grade 3

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|-------|--------|
| N Count | 125309 | 125420 | 125205 | 122563 | 120604 | 91693 | 114714 |
| Raw Score Mean | 39.1 | 45.8 | 42.4 | 27.0 | 28.5 | 25.3 | 27.6 |
| Raw Score SD | 14.6 | 14.7 | 15.9 | 11.7 | 11.7 | 11.3 | 11.4 |
| Raw Score Max* | 72 | 72 | 72 | 52 | 52 | 52 | 52 |
| Scaled Score Mean | 1008.1 | 1018.1 | 1019.9 | 1017.4 | 1026.4 | 997.9 | 1003.1 |
| Scaled Score SD | 120.5 | 131.5 | 129.7 | 123.1 | 124.9 | 121.2 | 124.8 |
| Scaled Score Max* | 1594 | 1564 | 1561 | 1545 | 1530 | 1577 | 1553 |
| Percentage Bel. Basic | 28.0 | 24.6 | 25.9 | 24.5 | 22.4 | 31.0 | 28.9 |
| Percentage Basic | 23.5 | 21.0 | 19.7 | 21.4 | 21.6 | 21.7 | 23.4 |
| Percentage Proficient | 28.5 | 28.1 | 28.4 | 31.4 | 29.3 | 29.5 | 26.9 |
| Percentage Advanced | 20.0 | 26.3 | 26.0 | 22.7 | 26.7 | 17.8 | 20.9 |
| Percentage Prof. + Adv. | 48.5 | 54.4 | 54.5 | 54.1 | 56.0 | 47.3 | 47.7 |

Mathematics Grade 4

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|-------|--------|
| N Count | 124201 | 123940 | 125575 | 126481 | 123286 | 92387 | 114822 |
| Raw Score Mean | 34.6 | 42.9 | 40.5 | 25.8 | 26.7 | 24.0 | 26.5 |
| Raw Score SD | 14.3 | 15.6 | 15.1 | 11.7 | 11.3 | 10.7 | 10.8 |
| Raw Score Max* | 72 | 72 | 72 | 52 | 52 | 52 | 52 |
| Scaled Score Mean | 995.5 | 994.1 | 993.6 | 987.9 | 994.2 | 970.3 | 980.4 |
| Scaled Score SD | 108.8 | 127.7 | 118.7 | 120.5 | 124.1 | 112.0 | 122.7 |
| Scaled Score Max* | 1627 | 1518 | 1529 | 1514 | 1532 | 1553 | 1561 |
| Percentage Bel. Basic | 24.8 | 27.6 | 26.1 | 29.8 | 26.1 | 33.9 | 30.9 |
| Percentage Basic | 30.8 | 25.9 | 27.3 | 26.7 | 27.7 | 30.6 | 26.8 |
| Percentage Proficient | 27.5 | 26.7 | 28.5 | 25.8 | 27.2 | 23.4 | 25.3 |
| Percentage Advanced | 16.9 | 19.8 | 18.1 | 17.8 | 19.0 | 12.1 | 17.0 |
| Percentage Prof. + Adv. | 44.5 | 46.5 | 46.6 | 43.5 | 46.2 | 35.6 | 42.3 |

Mathematics Grade 5

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|-------|--------|
| N Count | 126683 | 122983 | 124405 | 126868 | 127592 | 90866 | 116489 |
| Raw Score Mean | 35.7 | 38.2 | 37.7 | 26.5 | 24.4 | 22.7 | 23.2 |
| Raw Score SD | 15.0 | 16.1 | 15.3 | 11.8 | 11.2 | 10.7 | 11.1 |
| Raw Score Max* | 72 | 72 | 72 | 52 | 52 | 52 | 52 |
| Scaled Score Mean | 987.2 | 993.3 | 991.8 | 991.8 | 991.8 | 971.1 | 968.8 |
| Scaled Score SD | 119.9 | 124.5 | 119.7 | 126.1 | 117.5 | 110.7 | 113.3 |
| Scaled Score Max* | 1594 | 1548 | 1550 | 1515 | 1601 | 1556 | 1541 |
| Percentage Bel. Basic | 25.9 | 28.0 | 24.8 | 28.7 | 23.3 | 31.3 | 31.1 |
| Percentage Basic | 31.3 | 27.6 | 31.4 | 26.1 | 33.7 | 32.6 | 33.5 |
| Percentage Proficient | 27.4 | 25.9 | 27.5 | 27.4 | 27.2 | 24.3 | 23.3 |
| Percentage Advanced | 15.4 | 18.5 | 16.2 | 17.8 | 15.8 | 11.8 | 12.2 |
| Percentage Prof. + Adv. | 42.8 | 44.4 | 43.8 | 45.2 | 43.1 | 36.1 | 35.4 |

Mathematics Grade 6

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|-------|--------|
| N Count | 126413 | 125305 | 123112 | 125385 | 127496 | 90563 | 115844 |
| Raw Score Mean | 38.5 | 42.0 | 36.7 | 26.6 | 25.9 | 23.9 | 24.8 |
| Raw Score SD | 13.7 | 15.9 | 15.2 | 11.3 | 11.5 | 10.1 | 11.3 |
| Raw Score Max* | 72 | 72 | 72 | 52 | 52 | 52 | 52 |
| Scaled Score Mean | 976.1 | 977.8 | 976.3 | 976.3 | 979.6 | 948.5 | 953.3 |
| Scaled Score SD | 104.7 | 129.9 | 115.6 | 117.6 | 119.4 | 104.2 | 122.9 |
| Scaled Score Max* | 1531 | 1515 | 1534 | 1490 | 1500 | 1513 | 1521 |
| Percentage Bel. Basic | 25.2 | 30.1 | 29.1 | 29.7 | 25.9 | 35.1 | 38.9 |
| Percentage Basic | 35.1 | 28.8 | 30.6 | 30.8 | 35.1 | 36.6 | 28.8 |
| Percentage Proficient | 28.4 | 24.1 | 26.1 | 24.8 | 23.2 | 20.6 | 18.9 |
| Percentage Advanced | 11.3 | 16.9 | 14.1 | 14.7 | 15.8 | 7.6 | 13.3 |
| Percentage Prof. + Adv. | 39.7 | 41.0 | 40.3 | 39.6 | 39.0 | 28.2 | 32.3 |

Mathematics Grade 7

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|-------|--------|
| N Count | 126299 | 124959 | 125584 | 124225 | 125808 | 90812 | 118357 |
| Raw Score Mean | 35.2 | 36.9 | 36.2 | 26.4 | 24.2 | 21.1 | 22.2 |
| Raw Score SD | 14.3 | 15.8 | 16.0 | 11.9 | 11.2 | 10.4 | 10.9 |
| Raw Score Max* | 72 | 72 | 72 | 52 | 52 | 52 | 52 |
| Scaled Score Mean | 961.5 | 968.1 | 968.6 | 967.3 | 965.6 | 936.2 | 945.5 |
| Scaled Score SD | 104.0 | 120.4 | 126.7 | 134.2 | 120.1 | 108.5 | 111.0 |
| Scaled Score Max* | 1536 | 1541 | 1551 | 1522 | 1536 | 1546 | 1513 |
| Percentage Bel. Basic | 33.5 | 34.9 | 37.0 | 37.8 | 35.8 | 46.1 | 43.0 |
| Percentage Basic | 33.4 | 28.1 | 25.2 | 23.3 | 26.0 | 27.1 | 30.0 |
| Percentage Proficient | 23.4 | 23.7 | 22.1 | 22.8 | 24.3 | 18.8 | 17.4 |
| Percentage Advanced | 9.6 | 13.3 | 15.7 | 16.2 | 13.9 | 8.1 | 9.7 |
| Percentage Prof. + Adv. | 33.1 | 37.0 | 37.8 | 38.9 | 38.2 | 26.9 | 27.0 |

Mathematics Grade 8

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|-------|--------|
| N Count | 128859 | 123175 | 123271 | 124780 | 123186 | 85253 | 119039 |
| Raw Score Mean | 33.2 | 37.8 | 35.9 | 26.7 | 25.6 | 22.7 | 22.9 |
| Raw Score SD | 13.4 | 14.9 | 15.2 | 11.5 | 11.5 | 10.5 | 11.3 |
| Raw Score Max* | 72 | 72 | 72 | 52 | 52 | 52 | 52 |
| Scaled Score Mean | 950.5 | 949.1 | 953.5 | 948.4 | 950.3 | 919.0 | 922.0 |
| Scaled Score SD | 101.2 | 123.0 | 118.3 | 123.4 | 116.5 | 107.0 | 112.9 |
| Scaled Score Max* | 1558 | 1662 | 1618 | 1638 | 1470 | 1495 | 1479 |
| Percentage Bel. Basic | 37.7 | 40.2 | 39.7 | 41.1 | 39.6 | 53.5 | 50.3 |
| Percentage Basic | 32.6 | 28.6 | 27.8 | 27.9 | 28.2 | 24.5 | 27.1 |
| Percentage Proficient | 21.8 | 20.7 | 21.9 | 20.2 | 22.3 | 15.8 | 15.7 |
| Percentage Advanced | 8.0 | 10.5 | 10.6 | 10.8 | 9.9 | 6.3 | 6.8 |
| Percentage Prof. + Adv. | 29.8 | 31.2 | 32.5 | 31.1 | 32.2 | 22.1 | 22.6 |

English Language Arts Grade 3

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 125160 | 125284 | 124923 | 122397 | 120564 | 90980 | 114398 |
| Raw Score Mean | 36.2 | 36.1 | 35.7 | 24.8 | 24.6 | 23.7 | 23.4 |
| Raw Score SD | 10.9 | 11.5 | 11.4 | 8.9 | 9.1 | 9.2 | 9.3 |
| Raw Score Max* | 62 | 62 | 62 | 45 | 45 | 45 | 45 |
| Scaled Score Mean | 1026.7 | 1031.5 | 1039.3 | 1042.1 | 1039 | 1024.6 | 1014.9 |
| Scaled Score SD | 102.6 | 111.5 | 111.2 | 108.3 | 108.9 | 104.2 | 108.9 |
| Scaled Score Max* | 1586 | 1628 | 1680 | 1551 | 1544 | 1536 | 1537 |
| Percentage Bel. Basic | 13.4 | 13.6 | 12.1 | 10.4 | 11.4 | 14.0 | 17.9 |
| Percentage Basic | 24.6 | 25.5 | 23.3 | 26.1 | 26.6 | 27.7 | 29.7 |
| Percentage Proficient | 49.0 | 45.7 | 47.6 | 44.4 | 45.4 | 44.1 | 40.6 |
| Percentage Advanced | 13.0 | 15.2 | 17.1 | 19.1 | 16.5 | 14.2 | 11.8 |
| Percentage Prof. + Adv. | 62.0 | 60.9 | 64.6 | 63.5 | 61.9 | 58.3 | 52.3 |

English Language Arts Grade 4

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 123986 | 123597 | 125200 | 126223 | 123172 | 91862 | 114533 |
| Raw Score Mean | 46.6 | 48.1 | 48.4 | 34.2 | 35.4 | 33.0 | 34.1 |
| Raw Score SD | 14.8 | 14.6 | 14.8 | 11.7 | 12.3 | 11.7 | 12.7 |
| Raw Score Max* | 84 | 84 | 84 | 63 | 63 | 63 | 63 |
| Scaled Score Mean | 1021.1 | 1025.3 | 1030.5 | 1029.6 | 1035 | 1015.1 | 1006.9 |
| Scaled Score SD | 112.5 | 116.8 | 112.7 | 109.9 | 112.8 | 105.7 | 121.1 |
| Scaled Score Max* | 1724 | 1798 | 1714 | 1652 | 1636 | 1621 | 1657 |
| Percentage Bel. Basic | 12.9 | 12.2 | 10.9 | 9.7 | 10.3 | 11.9 | 18.6 |
| Percentage Basic | 28.5 | 29.1 | 28.2 | 30.6 | 26.1 | 31.5 | 29.2 |
| Percentage Proficient | 37.0 | 34.0 | 35.3 | 34.7 | 36.3 | 35.2 | 30.9 |
| Percentage Advanced | 21.6 | 24.6 | 25.7 | 25.1 | 27.3 | 21.4 | 21.3 |
| Percentage Prof. + Adv. | 58.6 | 58.7 | 60.9 | 59.8 | 63.6 | 56.6 | 52.2 |

English Language Arts Grade 5

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 126501 | 122868 | 124183 | 126761 | 127550 | 91028 | 116274 |
| Raw Score Mean | 48.7 | 48.1 | 46.8 | 32.5 | 33.2 | 33.2 | 33.7 |
| Raw Score SD | 14.4 | 14.9 | 15.0 | 11.3 | 11.4 | 10.7 | 12.1 |
| Raw Score Max* | 84 | 84 | 84 | 63 | 63 | 63 | 63 |
| Scaled Score Mean | 1029.8 | 1028.9 | 1029.6 | 1029.2 | 1027.2 | 1013.2 | 1010.7 |
| Scaled Score SD | 117.5 | 116.5 | 112.3 | 104.5 | 107.2 | 96.4 | 114.4 |
| Scaled Score Max* | 1730 | 1728 | 1723 | 1685 | 1647 | 1660 | 1649 |
| Percentage Bel. Basic | 13.4 | 14.1 | 11.5 | 8.9 | 9.6 | 10.6 | 17.7 |
| Percentage Basic | 24.8 | 24.5 | 28.9 | 31.7 | 31.8 | 34.4 | 28.7 |
| Percentage Proficient | 44.1 | 45.3 | 43.2 | 45.4 | 42.7 | 46.4 | 40.3 |
| Percentage Advanced | 17.8 | 16.2 | 16.4 | 14.0 | 15.8 | 8.6 | 13.3 |
| Percentage Prof. + Adv. | 61.8 | 61.5 | 59.6 | 59.4 | 58.5 | 55 | 53.6 |

English Language Arts Grade 6

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 126331 | 125263 | 123170 | 125341 | 127560 | 90232 | 115785 |
| Raw Score Mean | 50.6 | 50.4 | 48.0 | 34.5 | 33.9 | 33.5 | 34.7 |
| Raw Score SD | 14.6 | 14.6 | 14.5 | 11.6 | 11.6 | 11.8 | 11.4 |
| Raw Score Max* | 84 | 84 | 84 | 63 | 63 | 63 | 63 |
| Scaled Score Mean | 1028.0 | 1031.1 | 1035.1 | 1041.4 | 1034.4 | 1020.2 | 1019.0 |
| Scaled Score SD | 116.5 | 113.6 | 106.2 | 110.5 | 106.8 | 102.3 | 105.4 |
| Scaled Score Max* | 1699 | 1721 | 1737 | 1754 | 1692 | 1614 | 1643 |
| Percentage Bel. Basic | 10.0 | 8.6 | 6.9 | 5.3 | 5.7 | 7.1 | 8.3 |
| Percentage Basic | 29.4 | 29.8 | 29.5 | 32.2 | 31.3 | 35.6 | 35.6 |
| Percentage Proficient | 39.4 | 38.9 | 41.4 | 36.3 | 42.2 | 39.8 | 36.7 |
| Percentage Advanced | 21.3 | 22.7 | 22.2 | 26.2 | 20.8 | 17.5 | 19.4 |
| Percentage Prof. + Adv. | 60.7 | 61.6 | 63.6 | 62.5 | 63.0 | 57.3 | 56.1 |

English Language Arts Grade 7

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 126228 | 124961 | 125744 | 124226 | 125998 | 90515 | 118352 |
| Raw Score Mean | 50.5 | 49.0 | 47.1 | 35.0 | 34.0 | 33.7 | 35.2 |
| Raw Score SD | 14.1 | 13.9 | 15.0 | 11.5 | 10.6 | 10.8 | 12.2 |
| Raw Score Max* | 84 | 84 | 84 | 63 | 63 | 63 | 63 |
| Scaled Score Mean | 1023.4 | 1028.7 | 1031.7 | 1032.5 | 1026.3 | 1009.4 | 1019.8 |
| Scaled Score SD | 112.6 | 110.4 | 113.5 | 105.8 | 96.9 | 93.7 | 115.8 |
| Scaled Score Max* | 1652 | 1720 | 1724 | 1641 | 1639 | 1616 | 1648 |
| Percentage Bel. Basic | 6.4 | 5.0 | 3.6 | 2.5 | 2.6 | 3.9 | 5.1 |
| Percentage Basic | 34.9 | 33.5 | 36.9 | 35.5 | 36.9 | 42.8 | 37.7 |
| Percentage Proficient | 41.7 | 43.3 | 40.1 | 44.3 | 45.6 | 43.5 | 39.5 |
| Percentage Advanced | 16.9 | 18.1 | 19.3 | 17.7 | 14.9 | 9.8 | 17.8 |
| Percentage Prof. + Adv. | 58.7 | 61.5 | 59.5 | 61.9 | 60.4 | 53.3 | 57.2 |

English Language Arts Grade 8

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 128889 | 123275 | 123653 | 124907 | 123503 | 85686 | 119366 |
| Raw Score Mean | 51.2 | 52.2 | 49.0 | 35.6 | 36.7 | 33.9 | 35.3 |
| Raw Score SD | 14.2 | 14.5 | 14.6 | 11.6 | 12.3 | 11.6 | 12.6 |
| Raw Score Max* | 84 | 84 | 84 | 63 | 63 | 63 | 63 |
| Scaled Score Mean | 1020.2 | 1026.0 | 1025.0 | 1027.5 | 1024.2 | 1007.7 | 1013.5 |
| Scaled Score SD | 107.3 | 116.2 | 108.9 | 101.4 | 115.8 | 105.0 | 115.0 |
| Scaled Score Max* | 1636 | 1677 | 1677 | 1640 | 1699 | 1654 | 1621 |
| Percentage Bel. Basic | 10.9 | 11.3 | 10.5 | 7.8 | 11.9 | 11.4 | 14.4 |
| Percentage Basic | 31.1 | 30.4 | 30.6 | 30.6 | 30.2 | 36.0 | 29.9 |
| Percentage Proficient | 43.5 | 40.9 | 42.9 | 47.1 | 41.9 | 41.7 | 39.7 |
| Percentage Advanced | 14.5 | 17.5 | 15.9 | 14.4 | 16.0 | 10.9 | 16.0 |
| Percentage Prof. + Adv. | 58.0 | 58.3 | 58.9 | 61.5 | 57.9 | 52.6 | 55.6 |

Science Grade 4

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 124309 | 123818 | 125488 | 126353 | 123093 | 91071 | 114497 |
| Raw Score Mean | 46.6 | 47.8 | 37.2 | 25.2 | 25.9 | 24.6 | 26.0 |
| Raw Score SD | 13.2 | 13.4 | 13.3 | 9.4 | 9.4 | 8.8 | 9.8 |
| Raw Score Max* | 68 | 68 | 68 | 48 | 48 | 48 | 48 |
| Scaled Score Mean | 1426.7 | 1424.6 | 1406.1 | 1412.6 | 1424.2 | 1395.7 | 1412.6 |
| Scaled Score SD | 198.9 | 206.3 | 170.9 | 173.6 | 174.2 | 161.8 | 186.9 |
| Scaled Score Max* | 2247 | 2208 | 2344 | 2321 | 2309 | 2313 | 2318 |
| Percentage Bel. Basic | 10.5 | 11.7 | 5.3 | 5.4 | 5.0 | 7.6 | 8.0 |
| Percentage Basic | 12.2 | 12.2 | 20.2 | 19.1 | 17.2 | 16.6 | 18.3 |
| Percentage Proficient | 36.1 | 36.7 | 41.6 | 39.7 | 39.0 | 43.5 | 36.5 |
| Percentage Advanced | 41.2 | 39.5 | 33.0 | 35.8 | 38.8 | 32.3 | 37.2 |
| Percentage Prof. + Adv. | 77.3 | 76.2 | 74.5 | 75.5 | 77.8 | 75.8 | 73.7 |

Science Grade 8

| | 2015 | 2016 | 2017 | 2018 | 2019 | 2021 | 2022 |
|-------------------------|--------|--------|--------|--------|--------|--------|--------|
| N Count | 128733 | 122955 | 122716 | 124417 | 122654 | 84244 | 118412 |
| Raw Score Mean | 45.1 | 44.5 | 34.9 | 23.9 | 25.1 | 24.0 | 24.8 |
| Raw Score SD | 13.6 | 14.1 | 13.3 | 9.2 | 8.8 | 9.6 | 9.9 |
| Raw Score Max* | 68 | 68 | 68 | 48 | 48 | 48 | 48 |
| Scaled Score Mean | 1317.1 | 1310.4 | 1299.3 | 1305.2 | 1314.9 | 1287.6 | 1289.1 |
| Scaled Score SD | 207.6 | 219.2 | 184.0 | 180.9 | 184.2 | 193.9 | 205.8 |
| Scaled Score Max* | 2230 | 2278 | 2416 | 2337 | 2406 | 2299 | 2294 |
| Percentage Bel. Basic | 23.2 | 25.6 | 25.0 | 22.2 | 20.0 | 26.7 | 28.3 |
| Percentage Basic | 18.1 | 16.8 | 22.4 | 23.9 | 21.9 | 22.5 | 20.6 |
| Percentage Proficient | 31.8 | 30.3 | 31.5 | 33.5 | 35.1 | 31.2 | 31.0 |
| Percentage Advanced | 27.0 | 27.3 | 21.2 | 20.4 | 23.1 | 19.6 | 20.1 |
| Percentage Prof. + Adv. | 58.8 | 57.6 | 52.7 | 53.9 | 58.2 | 50.8 | 51.1 |

APPENDIX R: PSSA SCORE REPORT DEVELOPMENT

PENNSYLVANIA SYSTEM OF SCHOOL ASSESSMENT (PSSA)

BACKGROUND

An important aspect of the PSSA transition to the Pennsylvania Core Standard (PCS) is the need to produce revised score reports to support the newly-aligned assessments, specifically the introduction of an English Language Arts assessment with dual reporting of the reading scores and a desire to provide greater detail for the new score reporting categories. PDE also determined that the transition represented an opportunity to reevaluate the score reports as a whole. To that end, PDE and DRC developed a plan to utilize parent and educator focus groups to guide the development of revised PSSA individual student score reports.

This document provides a high-level summary of the focus-group approach that was followed, the feedback that DRC and PDE received, and the direction in which the reports were developed as an output of the process.

THE FOCUS GROUP APPROACH

DRC facilitated seven focus groups at four different locations across the Commonwealth, chosen to provide an opportunity for “geographically-representative” participation.

- A total of 56 educators and 22 parents participated in the seven focus groups.

Prior to the focus groups, DRC collaborated with PDE to select the number and design of the score-report mock-ups that were presented at the focus group meetings.

- Two mock-up designs were selected to give participants an opportunity to visualize key differences (“Sample Student #1” and “Sample Student #2”):
 - Use of the Strength Profile versus a Just-Proficient Mean
 - Reading “Text Types” reported between Reading and Writing versus after Writing
 - ELA dual reporting footnote versions

Focus groups were scheduled for 90 minutes (with the exception of a 120-minute session with the Harrisburg educator group).

- PDE opened each focus group with an overview of the purpose.
- DRC facilitated each session using a survey-question approach (see attached).
 - Participants used the survey to record their individual feedback on particular elements of the report and were also encouraged to share their feedback during the subsequent group discussions.
 - The survey approach ultimately allowed participants to compare and contrast all elements of the two mock-up designs.
 - All written survey feedback was collected and all verbal feedback was recorded by DRC staff.

Some of the main themes of the feedback included (see table on page 4 for additional detail):

- Favorable opinion of the first page with some requests to make information easier to read (larger font, more white space)
 - There were recurring comments against the use of “superior,” “satisfactory,” “marginal,” and “inadequate” in the Performance Level descriptors.

- Consistent input that the information became “overwhelming” with the reporting category definitions appearing within the Score reporting tables
 - There were multiple requests to rewrite the descriptions or move them away from the student’s score.
- Majority of the participants preferred the Strength Profile to the Just Proficient Mean
 - Those who preferred the Just Proficient Mean were often still misinterpreting its meaning.
- Majority of the participants preferred to have the Reading Text Types reported after Writing
 - This location was perceived to provide better delineation that the text type score is additional information rather than a direct element of the total ELA score.

After the focus groups were completed, DRC compiled the feedback for PDE to review and make recommendations. A summary of the feedback is found in the table below.

| Focus Group | Strength Profile | Just Proficient Mean | Other, Both, or NR | Text Types Table Placed Directly After the Reading Table | Text Types Table Placed After the Entire ELA Reporting Table | Neither, Other, or NR | ELA Dual Reporting Footnote – Version 1 | ELA Dual Reporting Footnote – Version 2 | Neither, Other, or NR |
|------------------------------|------------------|----------------------|--------------------|--|--|-----------------------|---|---|-----------------------|
| IU #4 – Educators (13) | 11 | 2 | 0 | 1 | 8 | 4 | 2 | 9 | 2 |
| IU #4 – Parents (4) | 1 | 3 | 0 | 0 | 4 | 0 | 0 | 4 | 0 |
| IU #10 – Educators (12) | 9 | 2 | 1 | 1 | 8 | 3 | 1 | 8 | 3 |
| IU #10 – Parents (10) | 8 | 2 | 0 | 2 | 8 | 0 | 2 | 7 | 1 |
| Philadelphia – Educators (8) | 4 | 4 | 0 | 3 | 5 | 0 | 3 | 5 | 0 |
| Philadelphia – Parents (8) | 3 | 2 | 3 | 0 | 5 | 3 | 0 | 4 | 4 |
| Harrisburg – Educators (23) | 17 | 4 | 2 | 0 | 22 | 1 | 0 | 21 | 2 |
| Total | 53 | 19 | 6 | 7 | 60 | 11 | 8 | 58 | 12 |

A single, revised mock-up was produced to reflect the following PDE recommendations (“Sample Student 3”):

- Minor changes to Page 1 (re-arrangement, spacing, font size)
- Just Proficient Mean eliminated
- Reading Text Types reported after Writing
- All subjects reported on pages 2 and 3 with Reporting Category definitions moved to page 4

The educator focus group participants were invited to a WebEx to view the revised mock-up, provide input, and respond to a survey question about removing the Strength Profile altogether.

- DRC highlighted the changes on the revised mock up and reviewed an alternate design with the Strength Profile removed.
 - All final changes were viewed favorably by the WebEx attendees (especially the new placement of the Reporting Category definitions on page 4).
 - All-but one attendee voted to retain the Strength Profile.

The final mock-up reviewed at the WebEx was used as a basis for the development and production of the 2015 student reports. The following materials are found on the next several pages of this appendix.

- The Focus Group Survey (Parent version – Educator differed only in the “Participant Information”)
- Student 1 Score Report (reviewed at the focus groups)
- Student 2 Score Report (reviewed at the focus groups)
- Student 3 Score Report (reviewed with the educators at the follow-up WebEx)

SURVEY QUESTIONS FROM PARENT FOCUS GROUP

PARTICIPANT INFORMATION

Name of student's school _____

Is this school ____ rural ____ urban ____ suburban?

Grade(s) of your student(s) _____

STUDENT REPORT VERSION 1–PAGE 1

After reviewing page 1 of the PSSA Student Report version 1, please respond to questions 1–2. A group discussion will follow.

1. How easy/difficult is it to determine how the sample student performed on the PSSA for Mathematics, English Language Arts (ELA), and Science?

- _____ very difficult
- _____ somewhat difficult
- _____ somewhat easy
- _____ very easy

Please briefly explain why you rated this item as you did.

2. How would you rate the **readability** of page 1 of the PSSA report (e.g., font size, placement of student information, performance level definitions)?

- _____ not readable
- _____ somewhat readable
- _____ mostly readable
- _____ very readable

Please briefly explain why you rated this item as you did.

REPORTING TABLES VERSION 1—PAGES 2, 3, AND 4

After reviewing pages 2–4 of the PSSA Student Report version 1, please respond to questions 3–7. A group discussion will follow.

3. Overall, how easy/difficult is it to understand the information in the tables (e.g., descriptions of reporting categories, the student’s points, total points possible, strength profile)?

- very difficult
- somewhat difficult
- somewhat easy
- very easy

Please briefly explain why you rated this item as you did.

4. How well did you understand the Strength Profile (high, medium, or low) ratings and the footnote information for the Strength Profile?

- not understandable
- somewhat understandable
- mostly understandable
- very understandable

Please briefly explain why you rated this item as you did.

5. In the ELA table on page 3, points are reported for both the Reading Reporting Categories and the Reading Text Types Reporting Categories. How clear is this section of dual reporting?

- not clear
- somewhat clear
- mostly clear
- very clear

Please briefly explain why you rated this item as you did.

OVERALL REPORT FEEDBACK VERSION 1

6. How easy/difficult was it to read and move through the report, find the next section, and find supporting material to understand the student-score information?

- very difficult
- somewhat difficult
- somewhat easy
- very easy

Please briefly explain why you rated this item as you did.

7. How well did you understand the contents of the report (e.g., performance levels, footnotes, graphics)?

- not understandable
- somewhat understandable
- mostly understandable
- very understandable

Please briefly explain why you rated this item as you did.

STUDENT REPORT VERSION 2—PAGES 2, 3, AND 4

After reviewing the PSSA Student Report version 2, please respond to questions 1–5. A group discussion will follow.

1. How well did you understand the Just Proficient Mean results on pages 2–4 and the footnote information for the Just Proficient Mean?

- not understandable
- somewhat understandable
- mostly understandable
- very understandable

Please briefly explain why you rated this item as you did.

2. The reporting tables on pages 2–4 include a Just Proficient Mean for each reporting category. Now look at pages 2–4 of version 1. The reporting tables include a Strength Profile (high, medium, or low) for each reporting category. Which version of the information do you prefer and why?

- version 1
- version 2

Please explain.

ELA REPORT TABLE–PAGE 3 OF VERSION 1 OR VERSION 2?

3. Look at version 1. The Text Types Reporting Category information follows the Reading Reporting Category information. Now look at version 2. The Text Types Reporting Category information is placed at the end of the ELA table. Which version of the order of information do you prefer and why?

version 1

| Score Reporting Category | Student's Points | Total Points Possible | Strength Profile |
|--|------------------|-----------------------|------------------|
| Reading* | | | |
| Key Ideas and Details Students cite key ideas and details from a passage or passages to summarize important ideas and events, determine a theme or main idea, and draw on evidence from text to support overall inferences and understandings. | 14 | 17 | High |
| Craft and Structure Students demonstrate understanding of a passage or passages by comparing points of view and free-handwritten hand accounts of similar events; making connections within, between, and/or among texts; referring to key features to support information; and analyzing use of evidence to support overall integration of ideas and key aspects of text. | 9 | 12 | Medium |
| Vocabulary Acquisition and Use Students demonstrate understanding of vocabulary and figurative language in literature and informational texts. | 7 | 9 | Medium |
| Text Type Reporting Category | | | |
| Literature Text Students read and respond to literary passages, focusing on narrative, conflict, and/or dramatic techniques and drawing on evidence in the text to support comprehension and interpretation. | 14 | 19 | Medium |
| Informational Text Students read and respond to informational passages, focusing on the information and evidence presented on topics, ideas, or procedures and drawing on evidence in the text to support comprehension and interpretation. | 18 | 19 | High |
| Writing | | | |
| Types of Writing Students write an essay demonstrating effective techniques appropriate for type and purpose of writing. | 8 | 12 | Medium |
| Language Students demonstrate command of the conventions of standard English grammar and usage, capitalization, punctuation, and spelling, as well as use knowledge of language and its conventions for effect. | 14 | 18 | Medium |
| Text-Dependent Analysis Students write a response to literature or informational passage or passages, drawing on the evidence presented in the text to support analysis, reflection, and/or research. | 16 | 16 | High |

version 2

| Score Reporting Category | Student's Points | Total Points Possible | Test Proficient Item? |
|--|------------------|-----------------------|-----------------------|
| Reading* | | | |
| Key Ideas and Details Students cite key ideas and details from a passage or passages to summarize important ideas and events, determine a theme or main idea, and draw on evidence from text to support overall inferences and understandings. | 16 | 17 | 10.5 |
| Craft and Structure Students demonstrate understanding of a passage or passages by comparing points of view and free-handwritten hand accounts of similar events; making connections within, between, and/or among texts; referring to key features to support information; and analyzing use of evidence to support overall integration of ideas and key aspects of text. | 9 | 12 | 8.2 |
| Vocabulary Acquisition and Use Students demonstrate understanding of vocabulary and figurative language in literature and informational texts. | 7 | 9 | 5.5 |
| Writing | | | |
| Types of Writing Students write an essay demonstrating effective techniques appropriate for type and purpose of writing. | 8 | 12 | 6.9 |
| Language Students demonstrate command of the conventions of standard English grammar and usage, capitalization, punctuation, and spelling, as well as use knowledge of language and its conventions for effect. | 14 | 18 | 11.0 |
| Text-Dependent Analysis Students write a response to literature or informational passage or passages, drawing on the evidence presented in the text to support analysis, reflection, and/or research. | 16 | 16 | 9.9 |
| Text Type Reporting Category | | | |
| Literature Text Students read and respond to literary passages, focusing on narrative, conflict, and/or dramatic techniques and drawing on evidence in the text to support comprehension and interpretation. | 14 | 19 | 13.3 |
| Informational Text Students read and respond to informational passages, focusing on the information and evidence presented on topics, ideas, or procedures and drawing on evidence in the text to support comprehension and interpretation. | 18 | 19 | 7 |

Please explain.

4. Which version of the ELA dual reporting footnote do you prefer and why?

version 1

The English Language Arts PSSA Reading section includes passages with a set of questions measuring the Reading Reporting Categories above. Passages are either Literature Text or Informational Text. Therefore, each PSSA Reading question measures one of the Reading Reporting Categories and one of the Text Type Reporting Categories. Each PSSA Reading question counts only once in determining the student's scale score.

version 2

In the box below, all points in the Literature Text Reporting Category and all points in the Informational Text Reporting Category are included within the Reading Reporting Categories above. Each PSSA Reading question counts only once in determining the student's scale score.

Please explain.

REPORT OPTIONS—VERSION 1 OR VERSION 2?

5. Now that you have reviewed the two reports, please select the preferred option from each group below.

Strength Profile information

Just Proficient Mean information

Reading Text Type table placement directly after the Reading score reporting table

Reading Text Type table placement directly after the entire ELA score reporting table

ELA dual reporting footnote – version 1

ELA dual reporting footnote – version 2

Additional Comments and Recommendations

APPENDIX S: INVESTIGATION OF PERSON FIT BY MODE AND SUBGROUP

The PSSA is administered as both a paper-pencil test (PPT) and a computer-based test (CBT). In the Standards for Educational and Psychological Testing, comparability of scores across testing conditions is emphasized to support fairness in testing, stating that, “Comparability of scores enables test users to make comparable inferences based on the scores for all test takers” (AERA et al., 2014, p. 59). Whether students are administered a PPT or CBT, test users must be able to make the same interpretations about student knowledge and skills based on students’ scores. Therefore, in any testing program it is important to examine the degree to which mode may influence results.

Although there are several ways to examine the relationship between mode and student scores, sample size undoubtedly impacts the robustness of the results. In 2021 and 2022, there was a much higher proportion of CBT administrations than in previous years. Specifically, between 3% and 7% of all administrations were CBTs in 2019 whereas between 23% and 33% of all administrations were CBTs in 2022. For each subject and grade level, all forms are offered as paper-pencil based tests and three forms are offered in a computer-based format. Furthermore, most accommodated forms are administered as CBTs, thus providing additional limitations in the results of a formal mode study. For these reasons, traditional approaches to mode studies may not be feasible or appropriate. The count and proportion of PPT and CBT are shown in Table S–1. Chapter Ten provides additional information of PSSA administrations by mode, accommodations, and student characteristics.

Table S–1. Final N-Counts and Proportion by Mode, 2022

| Subject | Grade | Count Paper | Proportion Paper (%) | Count CBT | Proportion CBT (%) |
|-------------|-------|-------------|----------------------|-----------|--------------------|
| Mathematics | 3 | 88092 | 76.79 | 26622 | 23.21 |
| Mathematics | 4 | 86352 | 75.21 | 28470 | 24.79 |
| Mathematics | 5 | 84594 | 72.62 | 31895 | 27.38 |
| Mathematics | 6 | 80974 | 69.90 | 34870 | 30.10 |
| Mathematics | 7 | 81269 | 68.66 | 37088 | 31.34 |
| Mathematics | 8 | 81741 | 68.67 | 37298 | 31.33 |
| ELA | 3 | 87974 | 76.90 | 26424 | 23.10 |
| ELA | 4 | 86321 | 75.37 | 28212 | 24.63 |
| ELA | 5 | 84554 | 72.72 | 31720 | 27.28 |
| ELA | 6 | 80589 | 69.60 | 35196 | 30.40 |
| ELA | 7 | 80424 | 67.95 | 37928 | 32.05 |
| ELA | 8 | 81071 | 67.92 | 38295 | 32.08 |
| Science | 4 | 84943 | 74.19 | 29554 | 25.81 |
| Science | 8 | 79645 | 67.26 | 38767 | 32.74 |

Until online participation reaches sufficiently large sample sizes, any true population differences between scores on the paper- and computer-based modes may be difficult to distinguish from differences that are attributable to sampling and random error. However, in the interim, an analysis of person fit statistics was conducted to gain insight into whether evidence of mode or student subgroup effects exist.

METHOD

Engelhard (2009) provided a framework and methods for defining measurement quality in terms of measurement invariance across conditions and subpopulations as measured by model fit (by item—differential item function and by person—differential person functioning). The method employed used residual analysis to explore differences between observed and expected responses by individuals and groups, under different conditions, and given a specified item response theory (IRT) model. Although they are not exact tests of fit, these methods allow for insight into the invariance properties of an assessment through these types of fit analyses. In this study, the preliminary focus is to examine person fit on the test level.

The IRT model used for the PSSA is based on the work of Georg Rasch. The Rasch partial credit model (RPCM; Wright & Masters, 1982) was used to calibrate PSSA data because both dichotomous multiple-choice (MC) and polytomously scored items (e.g., open-ended and evidence-based selected-response) were part of the assessment. The RPCM extends the Rasch model (Rasch, 1960) for dichotomous (0, 1) items so that it accommodates the polytomous OE item data. Under the RPCM, for a given item i with score categories, the probability of person n scoring x ($x = 0, 1, 2, \dots, m_i$) is given by:

$$P_{ni}(X = x) = \frac{\exp \sum_{j=0}^x (\theta_n - D_{ij})}{\sum_{k=0}^{m_i} \exp \sum_{j=0}^k (\theta_n - D_{ij})},$$

where θ_n represents a student's proficiency (ability) level, and D_{ij} is the step difficulty of step j on item i . For dichotomous MC items, the RPCM reduces to the standard Rasch model and the single step difficulty is referred to as the item's difficulty. The Rasch model predicts the probability of person n getting item i correct as follows:

$$P_{ni}(X = 1) = \frac{\exp(\theta_n - D_{ij})}{1 + \exp(\theta_n - D_{ij})}.$$

The Rasch model places both student ability and item difficulty (estimated in terms of log-odds or logits) on the same continuum. When the model assumptions are met, the Rasch model provides estimates of a person's ability which are independent of the items employed in the assessment, and conversely, estimates item difficulty independently of the sample of examinees. Item calibration was implemented via WINSTEPS (Linacre, 2019), which employs unconditional (UCON), joint-maximum-likelihood estimation (JMLE).

To produce person fit values, residuals of IRT model (essentially the differences between observed and expected responses) are summarized to create the mean square error statistics (MSE) of Infit and Outfit for items and persons. In this study, we use the unstandardized measures of Infit and Outfit, which are essentially MSE residuals and have expected values of 1.0 and a standard deviation of about 0.2 (Bond, & Fox, 2007). Such values represent adequate fit, whereas values greater than 2.0 represent more variability than expected, and less than 1.0 can mean students did not independently respond to items. In this study, person infit and outfit statistics were produced in WINSTEPS.

To assess the relationship between testing mode (i.e., computer-based or paper-pencil based) and PSSA performance, we examined differences in person infit and outfit with respect to student characteristics (e.g., whether students have an individualized educational plan (IEP)) and test characteristics (e.g., whether forms were administered as CBT or PPT). The dependent variables were person infit and person outfit, and the independent (predictor) variables included mode, whether students had an IEP, whether students were ELs, and the interaction of mode and EL, and mode and IEP.

RESULTS

Means and standard deviations were computed for infit and outfit for each student subgroup and mode. Tables S–2M, S–2E, and S–2S display a summary of person fit means, standard deviations by Mode and group (EL and IEP) for mathematics, ELA, and science, respectively. As the table shows, there are minimal differences in the means and standard deviations for each group by mode, and person fit statistics are within acceptable ranges.

Table S–2M. Person Infit and Outfit Descriptive Statistics by Mathematics Grade, Mode, and Group

| Grade | Group | Mode | N | Infit Mean | Infit SD | Outfit Mean | Outfit SD |
|-------|---------------|------|---------------|-------------|-------------|-------------|-------------|
| 3 | EL (non-EL) | CBT | 1481 (25141) | 0.98 (0.98) | 0.18 (0.20) | 1.07 (1.02) | 0.28 (0.29) |
| 3 | EL (non-EL) | PPT | 4953 (83139) | 1.02 (0.99) | 0.19 (0.21) | 1.12 (1.02) | 0.31 (0.31) |
| 3 | IEP (non-IEP) | CBT | 5092 (21530) | 1.03 (0.97) | 0.19 (0.20) | 1.15 (1.00) | 0.32 (0.28) |
| 3 | IEP (non-IEP) | PPT | 15217 (72875) | 1.03 (0.98) | 0.19 (0.21) | 1.13 (1.01) | 0.32 (0.30) |
| 4 | EL (non-EL) | CBT | 1426 (27044) | 1.04 (1.00) | 0.19 (0.22) | 1.09 (1.00) | 0.27 (0.29) |
| 4 | EL (non-EL) | PPT | 4895 (81457) | 1.07 (1.02) | 0.20 (0.23) | 1.13 (1.03) | 0.29 (0.31) |
| 4 | IEP (non-IEP) | CBT | 5586 (22884) | 1.07 (0.98) | 0.20 (0.21) | 1.13 (0.97) | 0.30 (0.28) |
| 4 | IEP (non-IEP) | PPT | 15602 (70750) | 1.07 (1.01) | 0.20 (0.23) | 1.14 (1.02) | 0.31 (0.31) |
| 5 | EL (non-EL) | CBT | 1364 (30531) | 1.08 (1.04) | 0.18 (0.19) | 1.21 (1.08) | 0.29 (0.25) |
| 5 | EL (non-EL) | PPT | 4314 (80280) | 1.08 (1.04) | 0.18 (0.21) | 1.18 (1.06) | 0.25 (0.23) |
| 5 | IEP (non-IEP) | CBT | 6352 (25543) | 1.11 (1.02) | 0.18 (0.19) | 1.25 (1.04) | 0.28 (0.22) |
| 5 | IEP (non-IEP) | PPT | 15382 (69212) | 1.08 (1.03) | 0.18 (0.21) | 1.19 (1.04) | 0.27 (0.22) |
| 6 | EL (non-EL) | CBT | 1218 (33652) | 1.04 (0.99) | 0.15 (0.19) | 1.09 (1.00) | 0.20 (0.23) |
| 6 | EL (non-EL) | PPT | 3788 (77186) | 1.04 (0.98) | 0.14 (0.19) | 1.09 (0.99) | 0.2 (0.23) |
| 6 | IEP (non-IEP) | CBT | 7080 (27790) | 1.06 (0.98) | 0.15 (0.19) | 1.12 (0.97) | 0.22 (0.22) |
| 6 | IEP (non-IEP) | PPT | 14181 (66793) | 1.04 (0.97) | 0.15 (0.19) | 1.10 (0.97) | 0.21 (0.22) |
| 7 | EL (non-EL) | CBT | 1160 (35928) | 1.03 (0.98) | 0.10 (0.15) | 1.08 (1.00) | 0.16 (0.18) |
| 7 | EL (non-EL) | PPT | 3609 (77660) | 1.03 (0.98) | 0.11 (0.17) | 1.08 (1.00) | 0.16 (0.19) |
| 7 | IEP (non-IEP) | CBT | 7427 (29661) | 1.03 (0.96) | 0.11 (0.16) | 1.08 (0.98) | 0.17 (0.17) |
| 7 | IEP (non-IEP) | PPT | 13865 (67404) | 1.02 (0.97) | 0.12 (0.17) | 1.08 (0.99) | 0.17 (0.18) |
| 8 | EL (non-EL) | CBT | 1112 (36186) | 1.02 (0.98) | 0.12 (0.16) | 1.10 (1.01) | 0.18 (0.18) |
| 8 | EL (non-EL) | PPT | 3608 (78133) | 1.02 (0.99) | 0.13 (0.18) | 1.10 (1.02) | 0.19 (0.19) |
| 8 | IEP (non-IEP) | CBT | 7339 (29959) | 1.02 (0.97) | 0.13 (0.17) | 1.10 (1.00) | 0.18 (0.17) |
| 8 | IEP (non-IEP) | PPT | 13974 (67767) | 1.03 (0.98) | 0.14 (0.18) | 1.11 (1.00) | 0.19 (0.19) |

Table S–2E. Person Infit and Outfit Descriptive Statistics by ELA Grade, Mode, and Group

| Grade | Group | Mode | N | Infit Mean | Infit SD | Outfit Mean | Outfit SD |
|-------|---------------|------|---------------|-------------|-------------|-------------|-------------|
| 3 | EL (non-EL) | CBT | 1474 (24950) | 1.06 (1.04) | 0.21 (0.23) | 1.15 (1.05) | 0.32 (0.30) |
| 3 | EL (non-EL) | PPT | 4702 (83272) | 1.08 (1.05) | 0.22 (0.23) | 1.18 (1.05) | 0.37 (0.31) |
| 3 | IEP (non-IEP) | CBT | 5038 (21386) | 1.06 (1.03) | 0.21 (0.23) | 1.19 (1.02) | 0.36 (0.27) |
| 3 | IEP (non-IEP) | PPT | 15240 (72734) | 1.07 (1.04) | 0.21 (0.23) | 1.19 (1.03) | 0.39 (0.30) |
| 4 | EL (non-EL) | CBT | 1437 (26775) | 1.08 (1.04) | 0.31 (0.41) | 1.16 (1.05) | 0.36 (0.42) |
| 4 | EL (non-EL) | PPT | 4653 (81668) | 1.11 (1.04) | 0.32 (0.41) | 1.2 (1.04) | 0.38 (0.43) |
| 4 | IEP (non-IEP) | CBT | 5499 (22713) | 1.09 (1.04) | 0.31 (0.43) | 1.19 (1.02) | 0.38 (0.42) |
| 4 | IEP (non-IEP) | PPT | 15651 (70670) | 1.09 (1.04) | 0.32 (0.42) | 1.18 (1.02) | 0.40 (0.43) |
| 5 | EL (non-EL) | CBT | 1392 (30328) | 1.06 (1.04) | 0.32 (0.39) | 1.19 (1.08) | 0.41 (0.4) |
| 5 | EL (non-EL) | PPT | 4075 (80479) | 1.07 (1.01) | 0.32 (0.35) | 1.2 (1.05) | 0.40 (0.38) |
| 5 | IEP (non-IEP) | CBT | 6280 (25440) | 1.08 (1.03) | 0.33 (0.40) | 1.21 (1.05) | 0.41 (0.39) |
| 5 | IEP (non-IEP) | PPT | 15455 (69099) | 1.04 (1.00) | 0.31 (0.35) | 1.16 (1.03) | 0.40 (0.37) |
| 6 | EL (non-EL) | CBT | 1320 (33876) | 1.05 (0.96) | 0.29 (0.29) | 1.11 (1.01) | 0.29 (0.30) |
| 6 | EL (non-EL) | PPT | 3478 (77111) | 1.02 (0.95) | 0.27 (0.26) | 1.10 (1.00) | 0.29 (0.29) |
| 6 | IEP (non-IEP) | CBT | 7125 (28071) | 1.03 (0.95) | 0.28 (0.29) | 1.10 (0.99) | 0.29 (0.3) |
| 6 | IEP (non-IEP) | PPT | 14186 (66403) | 1.00 (0.94) | 0.26 (0.26) | 1.07 (0.99) | 0.27 (0.29) |
| 7 | EL (non-EL) | CBT | 1273 (36655) | 0.97 (1.02) | 0.25 (0.42) | 1.12 (1.06) | 0.33 (0.42) |
| 7 | EL (non-EL) | PPT | 3283 (77141) | 1.01 (1.01) | 0.29 (0.41) | 1.14 (1.06) | 0.33 (0.45) |
| 7 | IEP (non-IEP) | CBT | 7512 (30416) | 0.98 (1.03) | 0.27 (0.45) | 1.11 (1.05) | 0.32 (0.44) |
| 7 | IEP (non-IEP) | PPT | 13811 (66613) | 0.98 (1.02) | 0.27 (0.42) | 1.09 (1.06) | 0.31 (0.47) |
| 8 | EL (non-EL) | CBT | 1215 (37080) | 0.99 (0.98) | 0.26 (0.34) | 1.21 (1.06) | 0.38 (0.39) |
| 8 | EL (non-EL) | PPT | 3337 (77734) | 1.00 (0.99) | 0.27 (0.37) | 1.17 (1.05) | 0.36 (0.42) |
| 8 | IEP (non-IEP) | CBT | 7513 (30782) | 0.98 (0.98) | 0.26 (0.36) | 1.17 (1.04) | 0.37 (0.39) |
| 8 | IEP (non-IEP) | PPT | 13926 (67145) | 0.97 (0.99) | 0.27 (0.39) | 1.13 (1.04) | 0.35 (0.43) |

Table S–2S. Person Infit and Outfit Descriptive Statistics by Science Grade, Mode, and Group

| Grade | Group | Mode | N | Infit Mean | Infit SD | Outfit Mean | Outfit SD |
|-------|---------------|------|---------------|-------------|-------------|-------------|-------------|
| 4 | EL (non-EL) | CBT | 1467 (28087) | 1.07 (1.02) | 0.15 (0.14) | 1.10 (1.00) | 0.20 (0.18) |
| 4 | EL (non-EL) | PPT | 4844 (80099) | 1.07 (1.01) | 0.14 (0.14) | 1.11 (1.00) | 0.20 (0.18) |
| 4 | IEP (non-IEP) | CBT | 5768 (23786) | 1.06 (1.01) | 0.15 (0.14) | 1.09 (0.99) | 0.20 (0.17) |
| 4 | IEP (non-IEP) | PPT | 15330 (69613) | 1.05 (1.00) | 0.14 (0.14) | 1.08 (0.99) | 0.20 (0.17) |
| 8 | EL (non-EL) | CBT | 1235 (37532) | 1.06 (0.99) | 0.12 (0.14) | 1.13 (0.98) | 0.21 (0.21) |
| 8 | EL (non-EL) | PPT | 3460 (76185) | 1.05 (0.99) | 0.13 (0.15) | 1.12 (0.98) | 0.23 (0.21) |
| 8 | IEP (non-IEP) | CBT | 7477 (31290) | 1.05 (0.98) | 0.13 (0.14) | 1.1 (0.96) | 0.23 (0.19) |
| 8 | IEP (non-IEP) | PPT | 13688 (65957) | 1.06 (0.98) | 0.14 (0.15) | 1.11 (0.96) | 0.23 (0.20) |

To further analyze differences in person fit, we conducted multivariate analyses in SAS to examine the main effect of mode, IEP and EL status, and interaction effects of mode and IEP, and mode and EL status. For multivariate analyses, we included forms that are offered both as PPT and CBT (forms 1, 2 and 3 for each subject and grade level). Table S–3 summarizes the overall results from the generalized linear model using mean-square infit and mean-square outfit as the dependent variables. Statistics reported include the F Value, the associated significance value (Sig.), and the amount of variance explained by the model (R^2) or effect size. Although all significance values are less than .05, indicating statistical significance of the models, the R-square values indicate that the model explains very little variation in person fit (min = .001, max = .102). Meaning, mode, EL and IEP explain very little of person infit and outfit and therefore person fit cannot be reliably predicted by mode. After analyzing individual results, mode is a significant predictor in 16 of the 28 models, split across infit and outfit models, often occurring within the same subject and grade level. For example, mode was a significant predictor of person infit and outfit for mathematics grade 5 ($p = .001$, and $p < .0001$, respectively). Furthermore, although mode for mathematics and science tended to be a stronger predictor for person fit than ELA, mode explains very little variance in person fit. R-squared values provide an indication of effect size of significant findings, effect sizes less than .1 are very small.

Table S-3. Multivariate Regression Model Results by Subject and Grade Level

| Subject | Grade | Person Fit | F Value | Sig. | R-Square |
|-------------|-------|------------|---------|--------|----------|
| Mathematics | 3 | Infit | 167.51 | <.0001 | 0.015 |
| Mathematics | 3 | Outfit | 467.20 | <.0001 | 0.040 |
| Mathematics | 4 | Infit | 292.73 | <.0001 | 0.025 |
| Mathematics | 4 | Outfit | 535.50 | <.0001 | 0.044 |
| Mathematics | 5 | Infit | 257.15 | <.0001 | 0.021 |
| Mathematics | 5 | Outfit | 1367.84 | <.0001 | 0.102 |
| Mathematics | 6 | Infit | 414.19 | <.0001 | 0.032 |
| Mathematics | 6 | Outfit | 872.01 | <.0001 | 0.065 |
| Mathematics | 7 | Infit | 335.44 | <.0001 | 0.025 |
| Mathematics | 7 | Outfit | 787.99 | <.0001 | 0.057 |
| Mathematics | 8 | Infit | 215.73 | <.0001 | 0.016 |
| Mathematics | 8 | Outfit | 847.87 | <.0001 | 0.061 |
| ELA | 3 | Infit | 35.11 | <.0001 | 0.004 |
| ELA | 3 | Outfit | 534.82 | <.0001 | 0.052 |
| ELA | 4 | Infit | 40.80 | <.0001 | 0.004 |
| ELA | 4 | Outfit | 321.88 | <.0001 | 0.031 |
| ELA | 5 | Infit | 63.79 | <.0001 | 0.006 |
| ELA | 5 | Outfit | 339.33 | <.0001 | 0.031 |
| ELA | 6 | Infit | 157.13 | <.0001 | 0.014 |
| ELA | 6 | Outfit | 256.51 | <.0001 | 0.023 |
| ELA | 7 | Infit | 26.24 | <.0001 | 0.002 |
| ELA | 7 | Outfit | 43.51 | <.0001 | 0.004 |
| ELA | 8 | Infit | 6.32 | <.0001 | 0.001 |
| ELA | 8 | Outfit | 220.46 | <.0001 | 0.018 |
| Science | 4 | Infit | 330.50 | <.0001 | 0.031 |
| Science | 4 | Outfit | 710.84 | <.0001 | 0.065 |
| Science | 8 | Infit | 528.74 | <.0001 | 0.043 |
| Science | 8 | Outfit | 1175.98 | <.0001 | 0.090 |

CONCLUSION AND FUTURE DIRECTIONS

Until the volume of CBT administrations increases, traditional mode analyses may not be feasible or appropriate. The analyses conducted here provide preliminary evidence that there is little influence of mode on person infit and outfit, suggesting that the data fit the model regardless of mode, EL, and IEP status. Although the results show statistical significance, there is very little practical significance in the results of the study. In nearly all the models analyzed, less than 10% of the variance in infit and outfit was explained by the predictors.

APPENDIX T: PRE-EQUATING VERIFICATION RESULTS

PRE-EQUATING VERIFICATION RESULTS

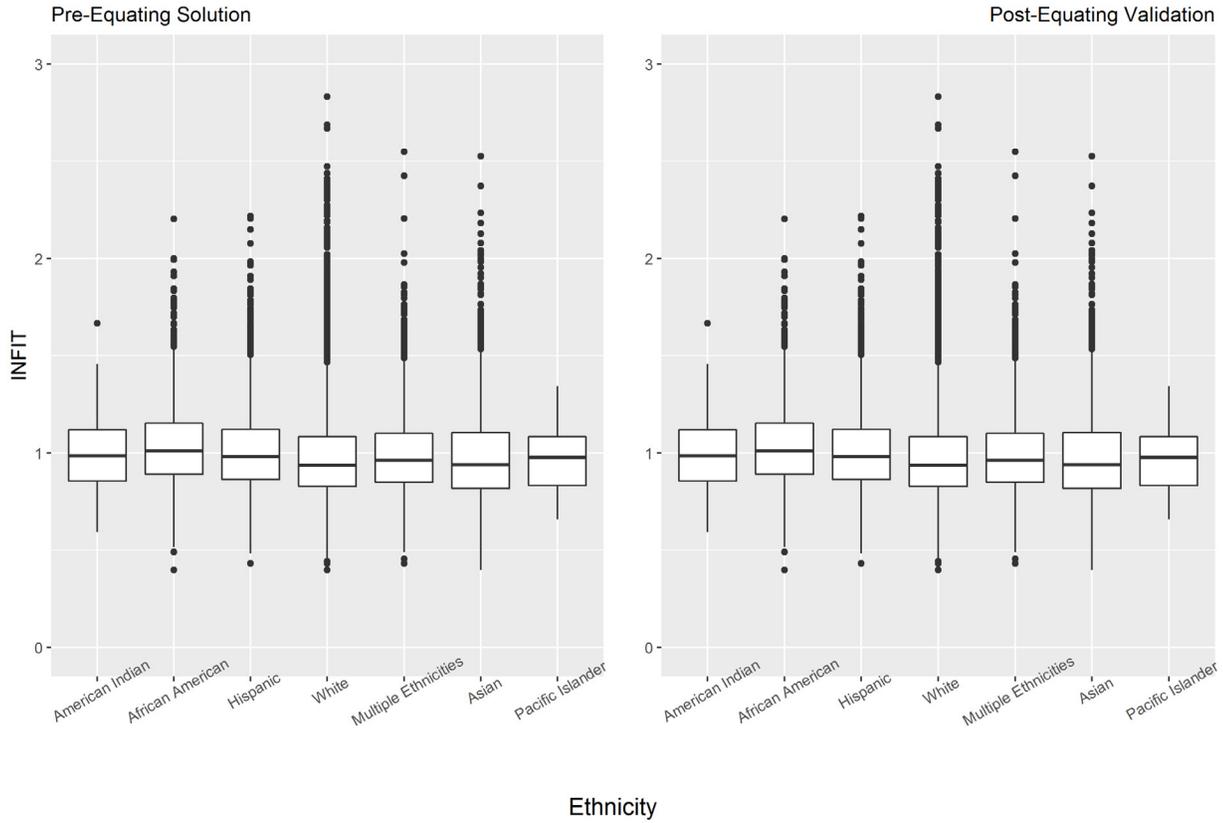
Appendix T contains information and results based on the data used for the pre-equating verification. Results are presented for the fully-anchored pre-equating solution (hereinafter “pre-equating”) and the partially anchored pre-equating solution when misfitting items were freely calibrated (hereinafter “post-equating”). The results presented in this appendix provide support for utilizing the pre-equated solution for all student reporting. A complete description of the pre-equating verification process is discussed in Chapter Fifteen.

Figure T–1 shows person infit boxplots for pre-equated (left) and post-equated (right) solutions by subject and grade.

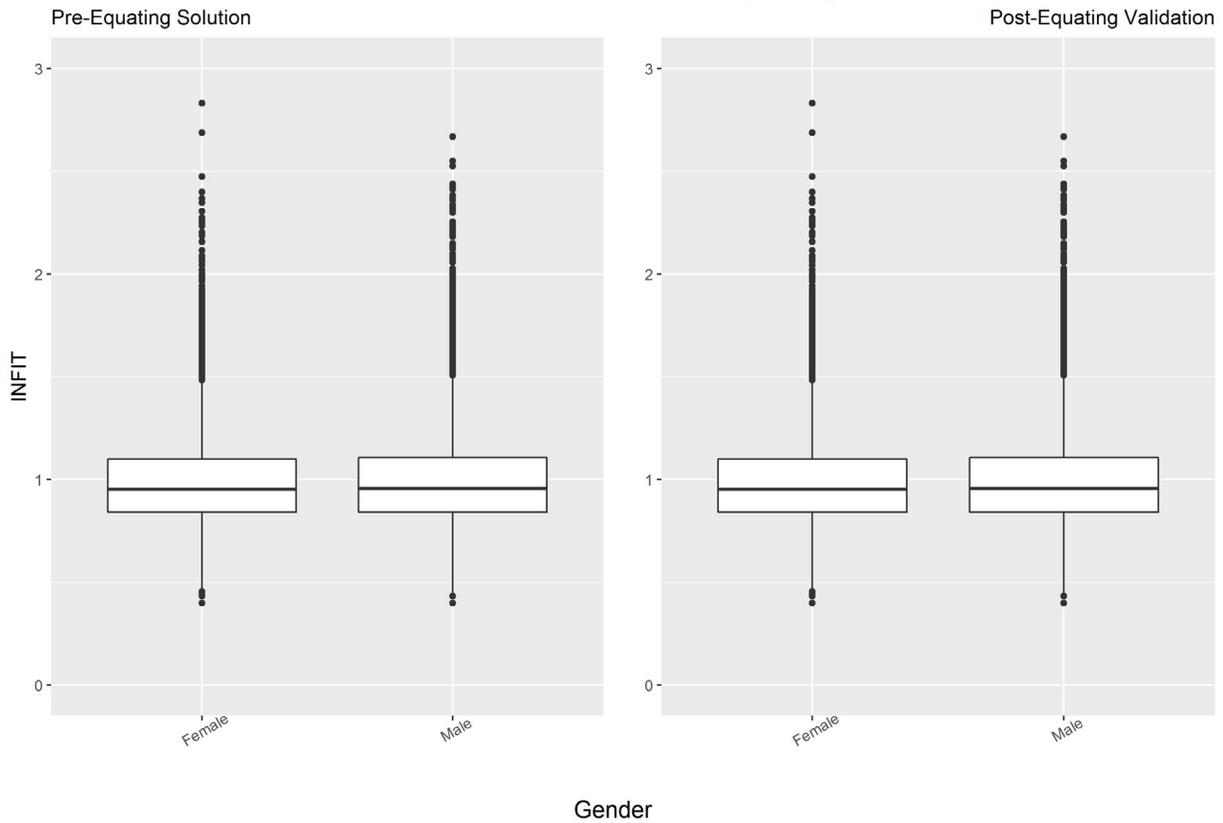
Figure T-1. Person Infit Boxplots by Subject and Grade for Pre- and Post-Equated Solutions

Mathematics Grade 3

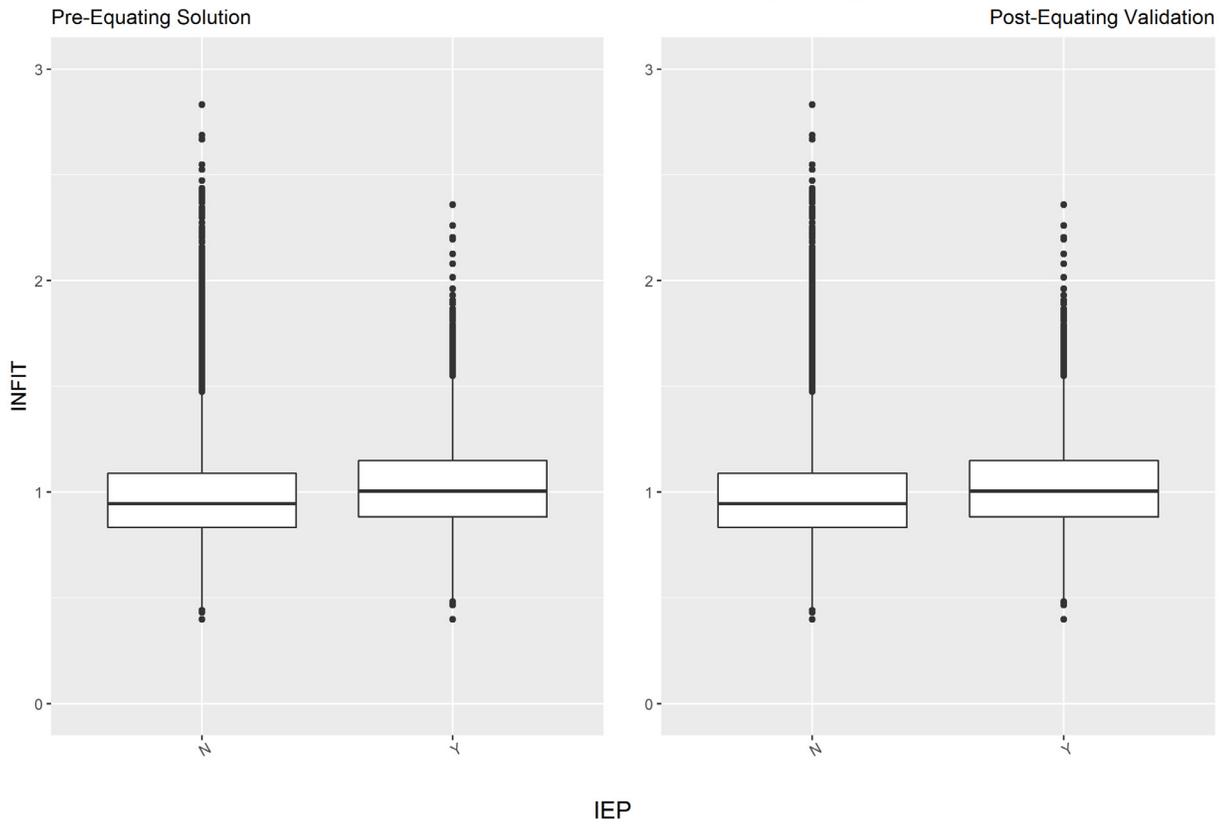
Mathematics Grade 3 Person Infit Boxplots by Ethnicity



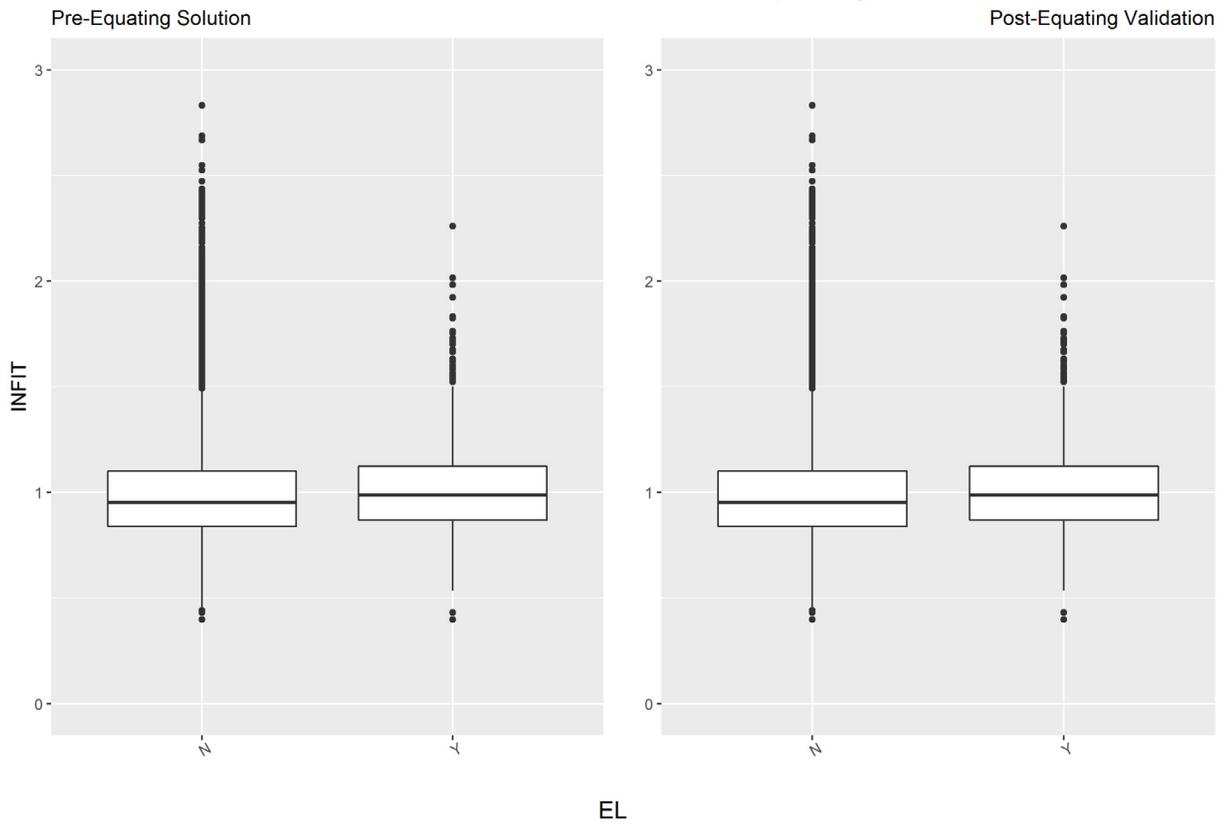
Mathematics Grade 3 Person Infit Boxplots by Gender



Mathematics Grade 3 Person Infit Boxplots by IEP

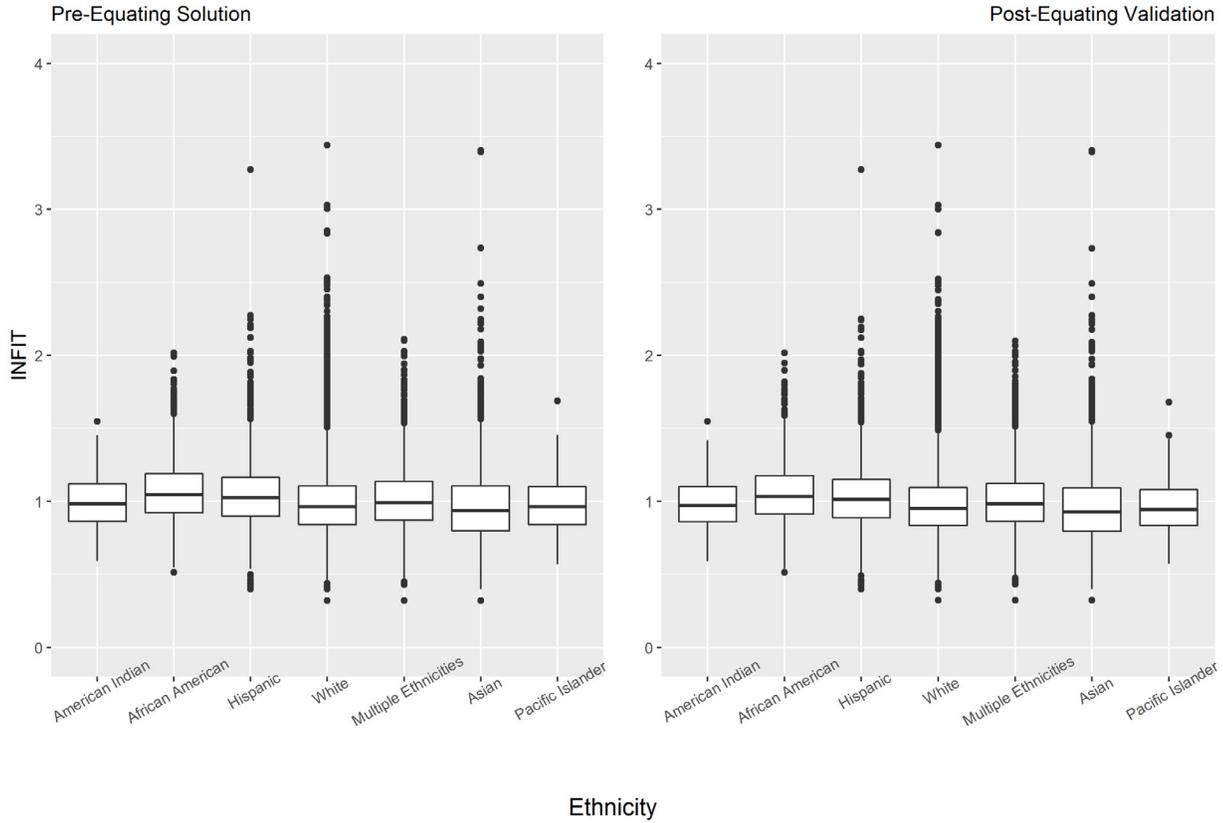


Mathematics Grade 3 Person Infit Boxplots by EL

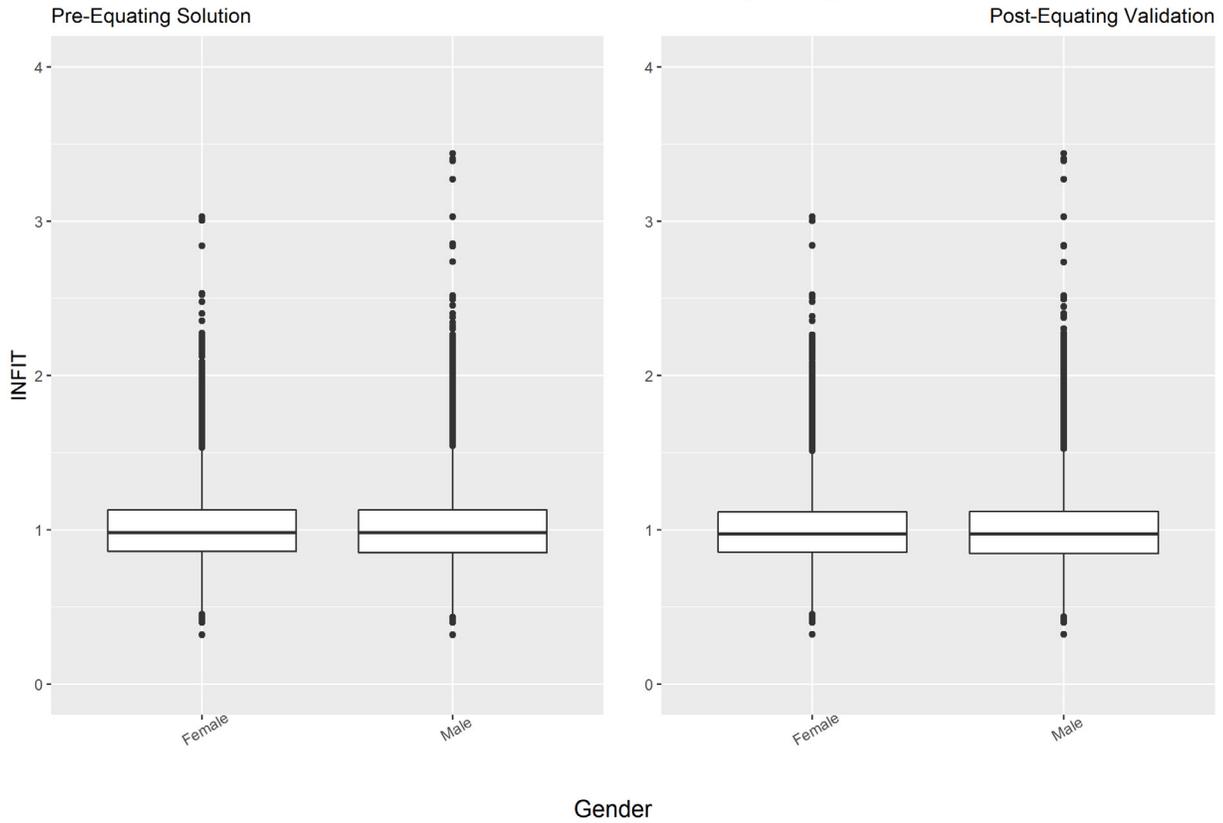


Mathematics Grade 4

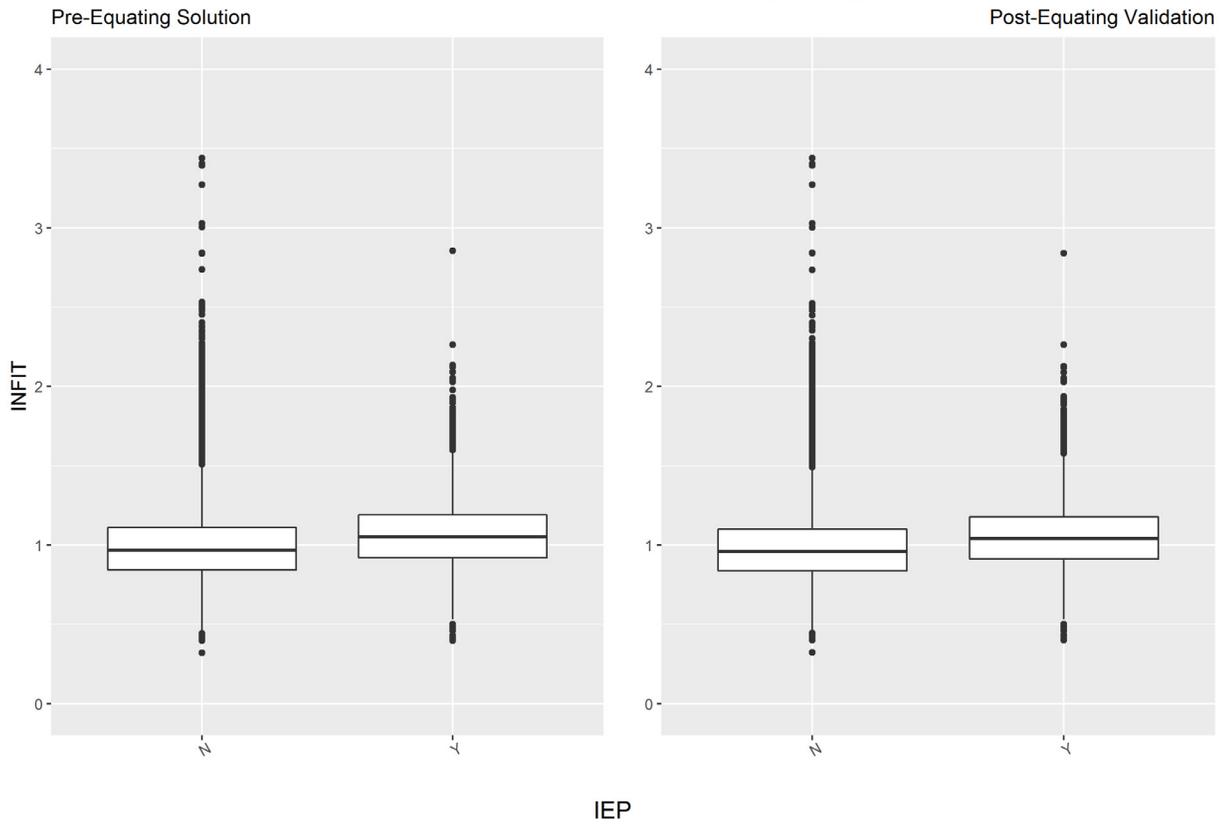
Mathematics Grade 4 Person Infit Boxplots by Ethnicity



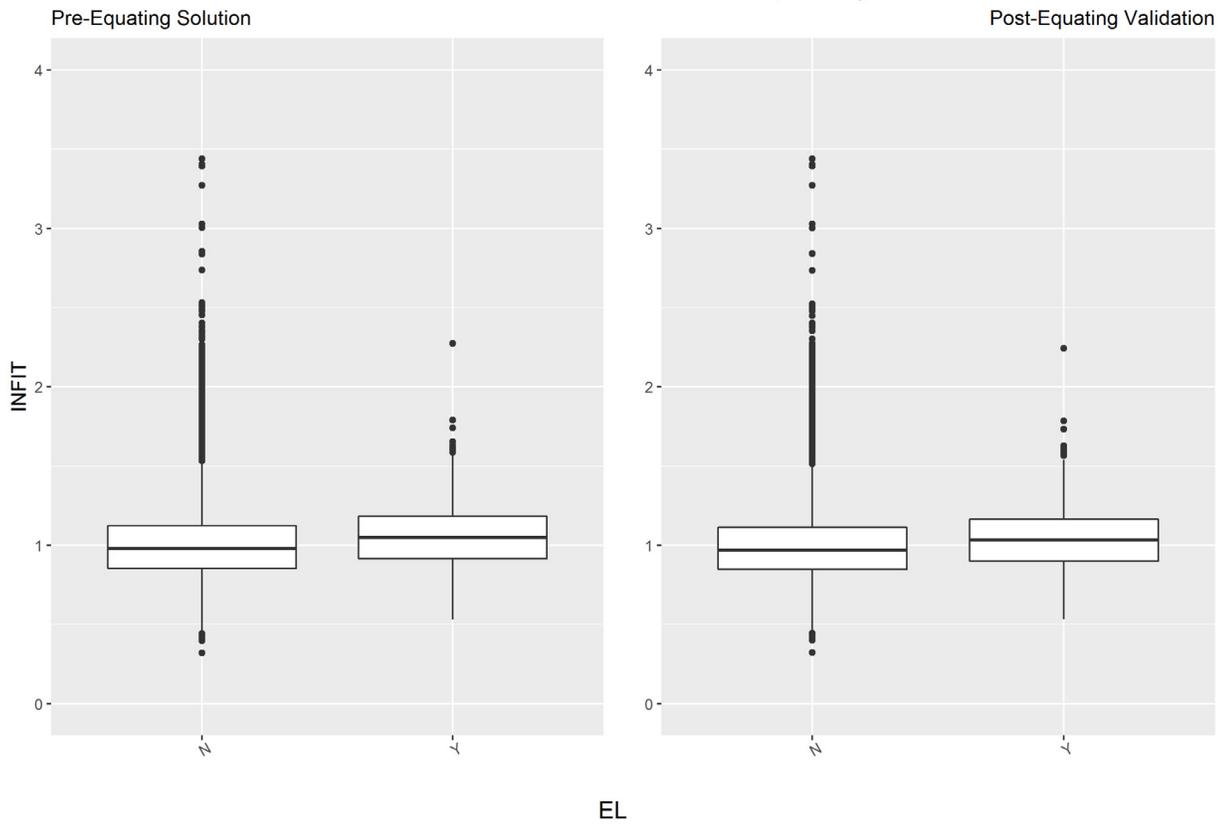
Mathematics Grade 4 Person Infit Boxplots by Gender



Mathematics Grade 4 Person Infit Boxplots by IEP

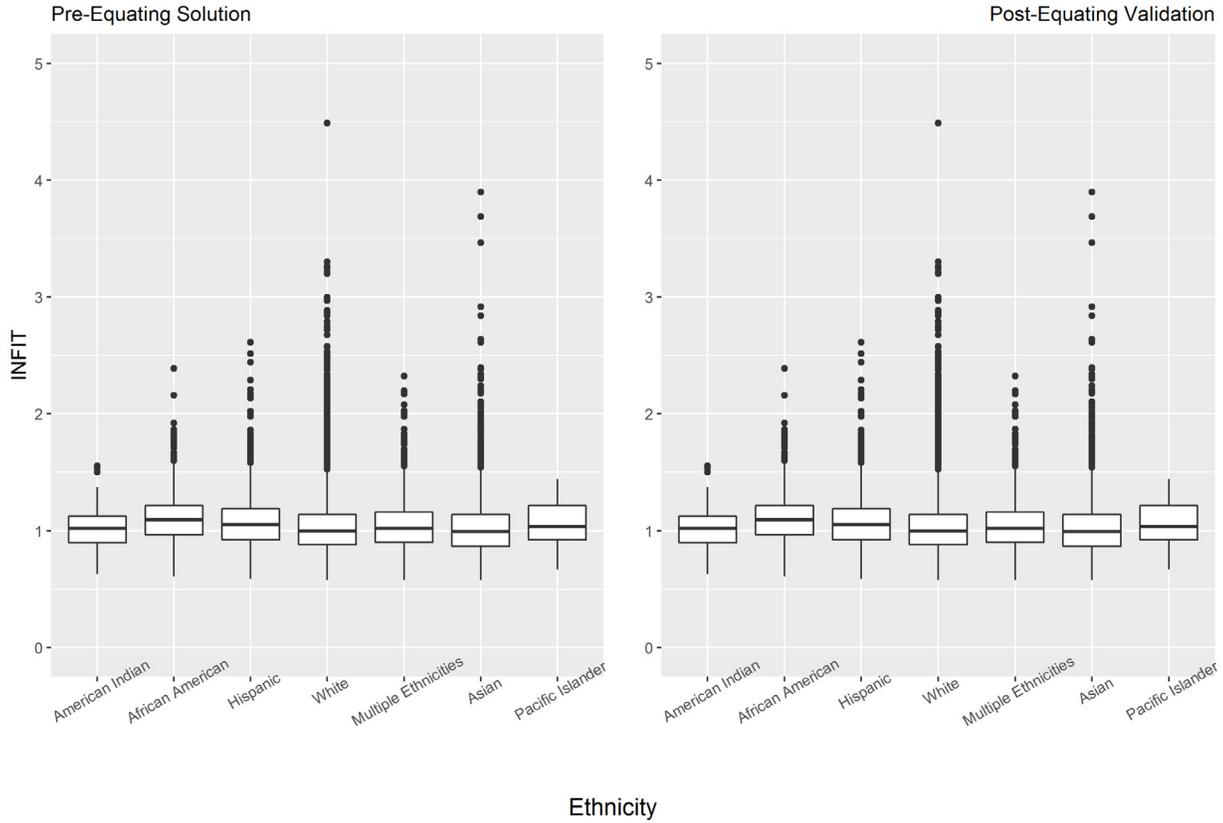


Mathematics Grade 4 Person Infit Boxplots by EL

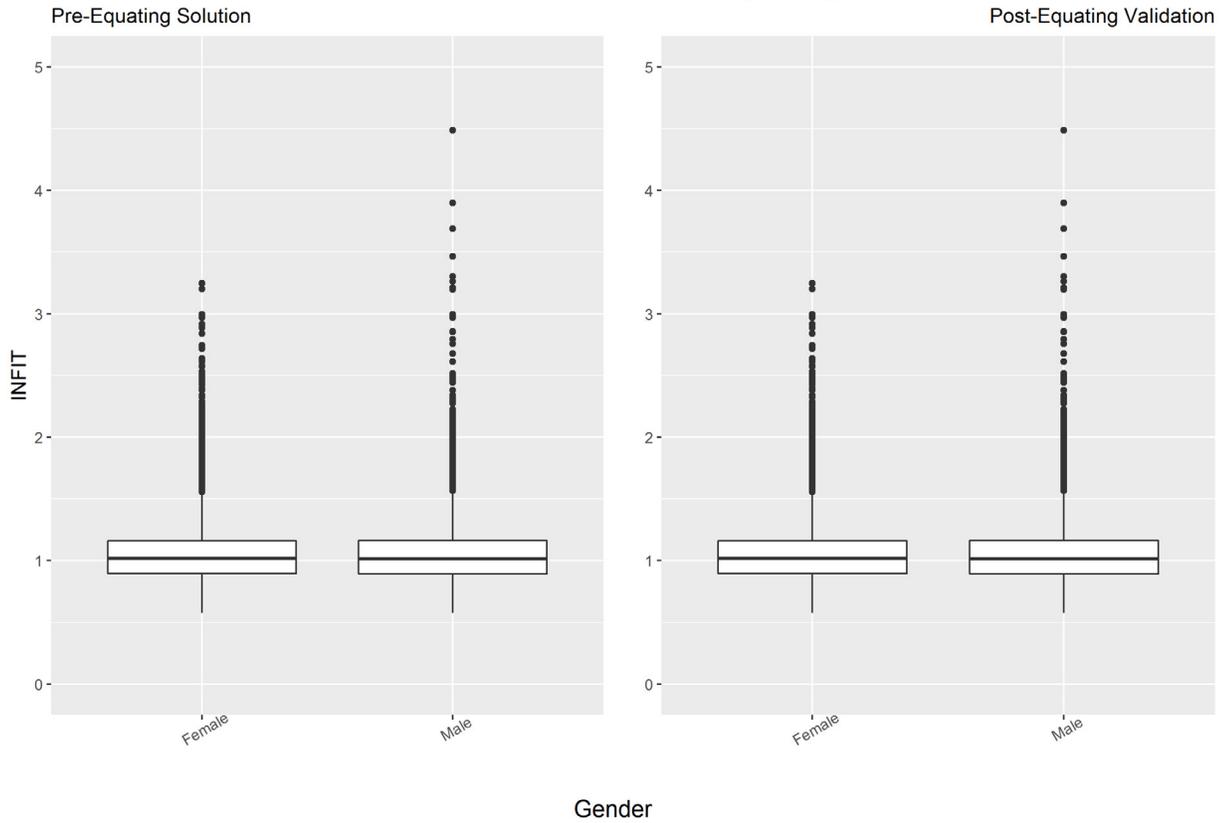


Mathematics Grade 5

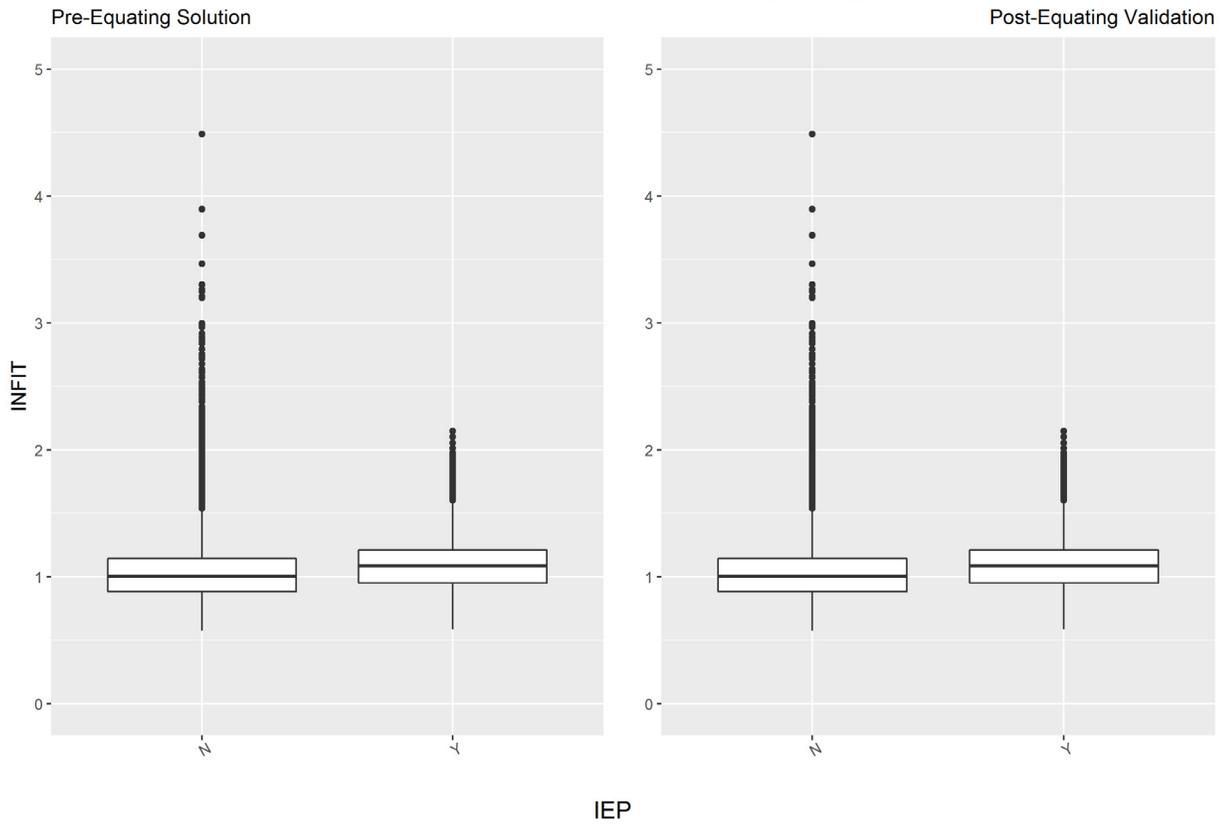
Mathematics Grade 5 Person Infit Boxplots by Ethnicity



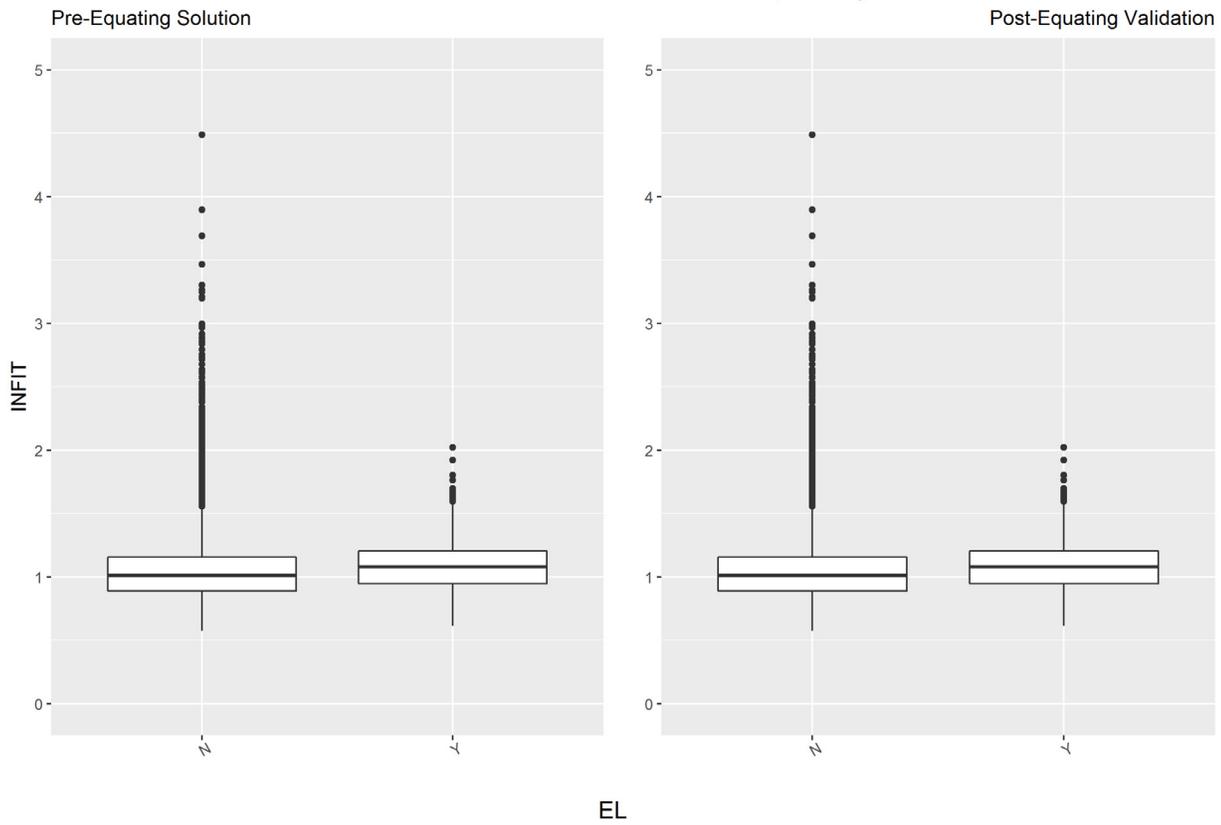
Mathematics Grade 5 Person Infit Boxplots by Gender



Mathematics Grade 5 Person Infit Boxplots by IEP

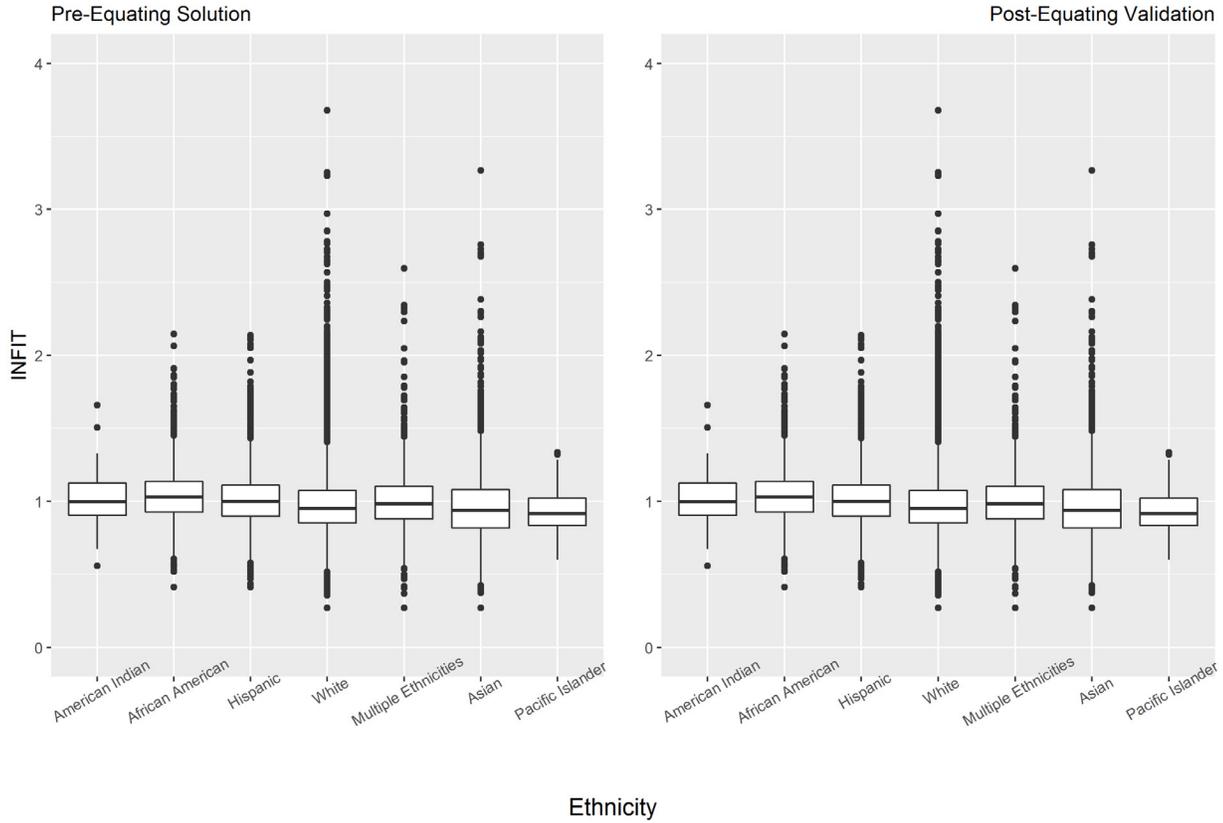


Mathematics Grade 5 Person Infit Boxplots by EL

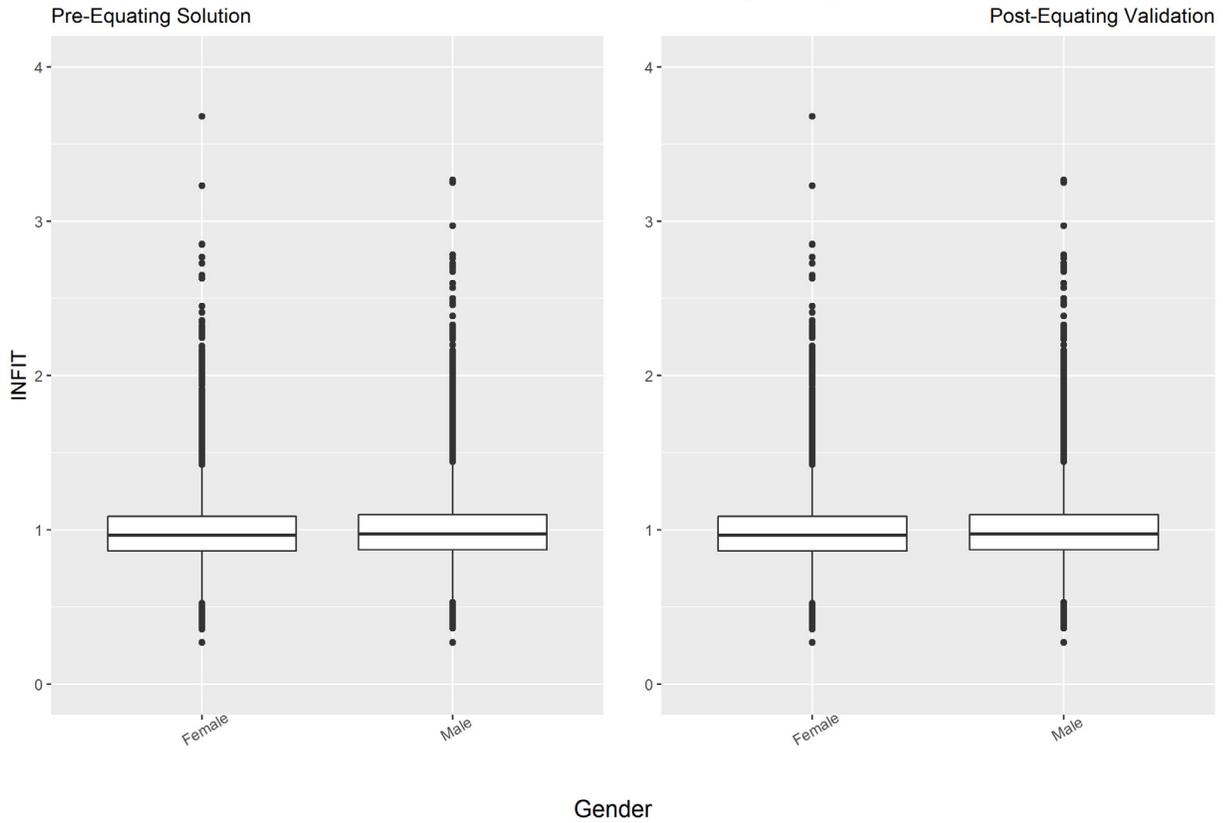


Mathematics Grade 6

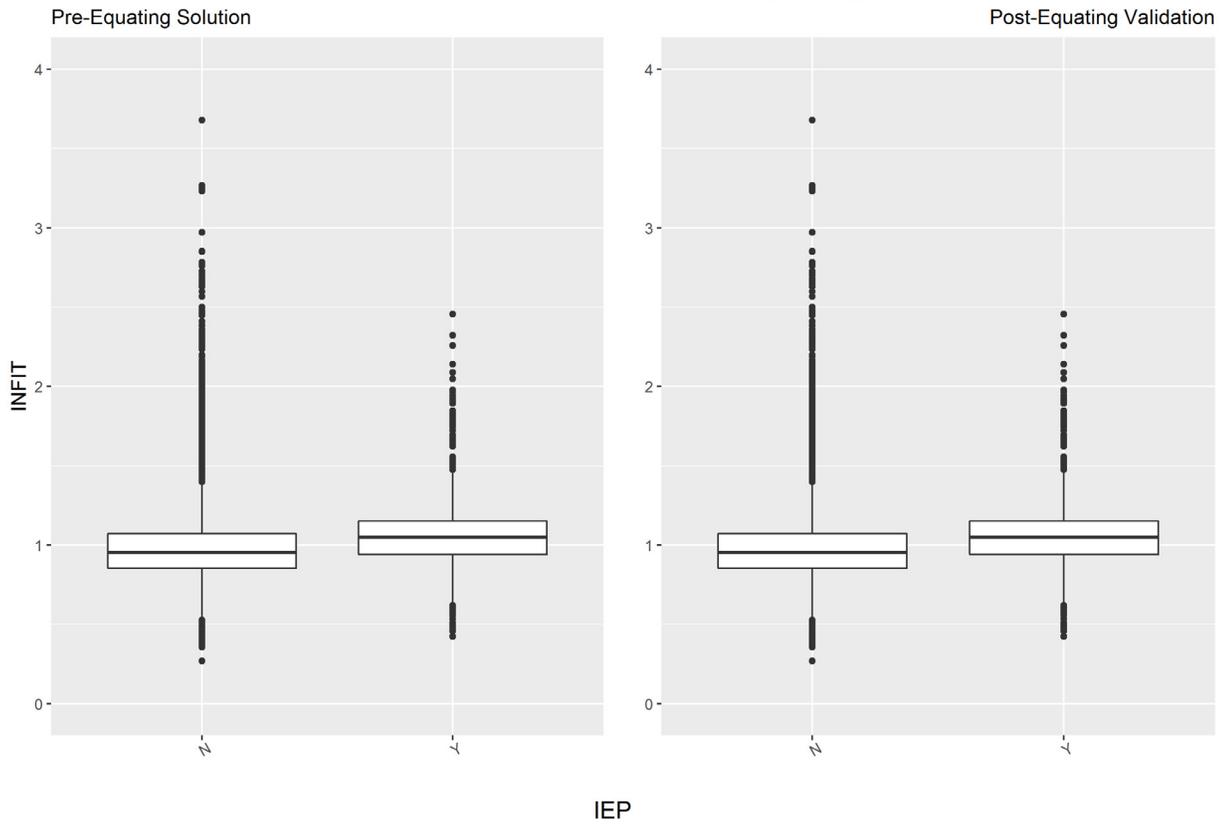
Mathematics Grade 6 Person Infit Boxplots by Ethnicity



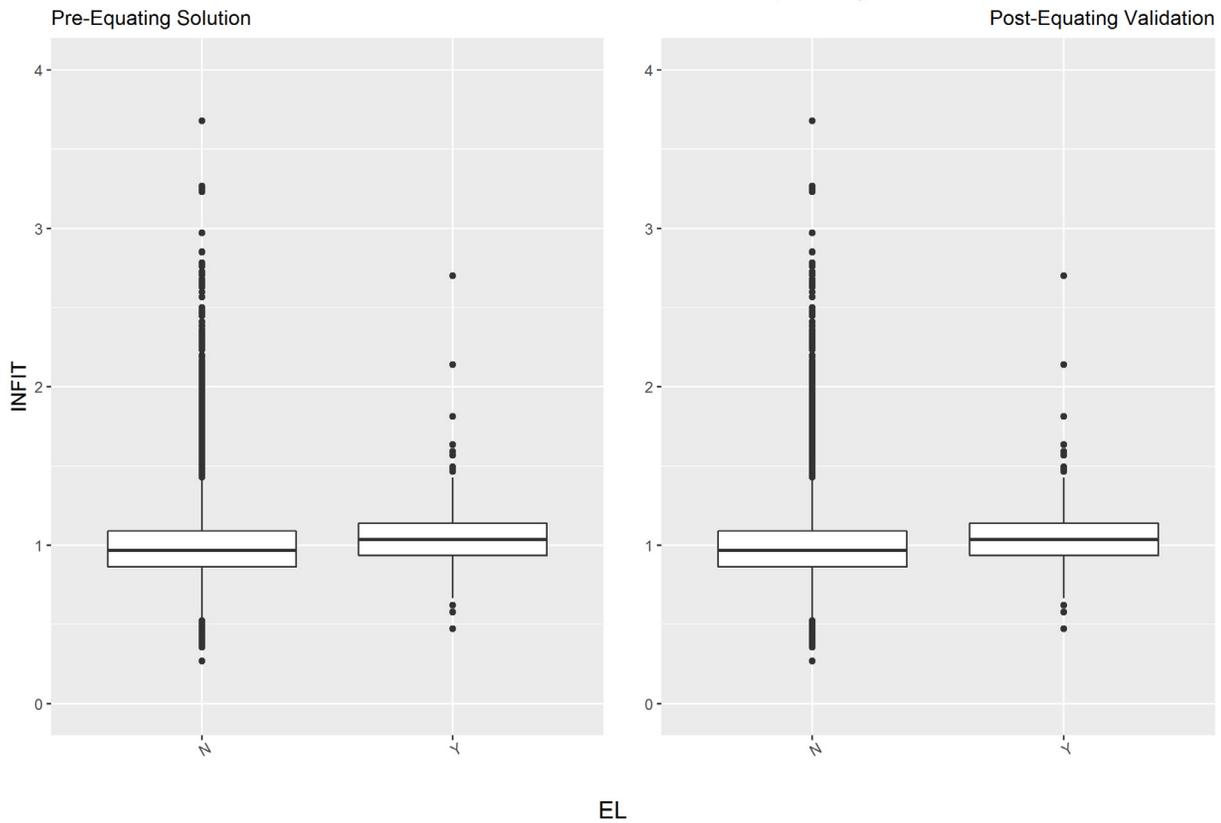
Mathematics Grade 6 Person Infit Boxplots by Gender



Mathematics Grade 6 Person Infit Boxplots by IEP

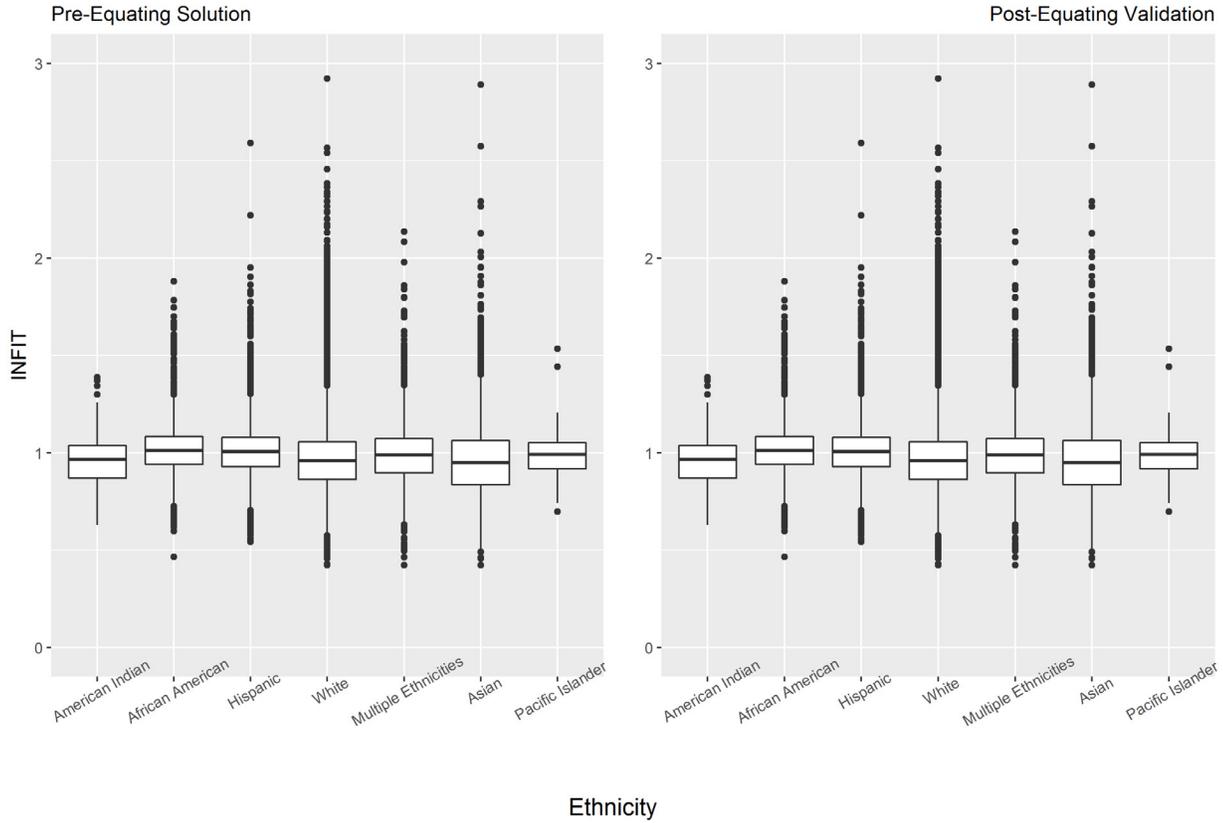


Mathematics Grade 6 Person Infit Boxplots by EL

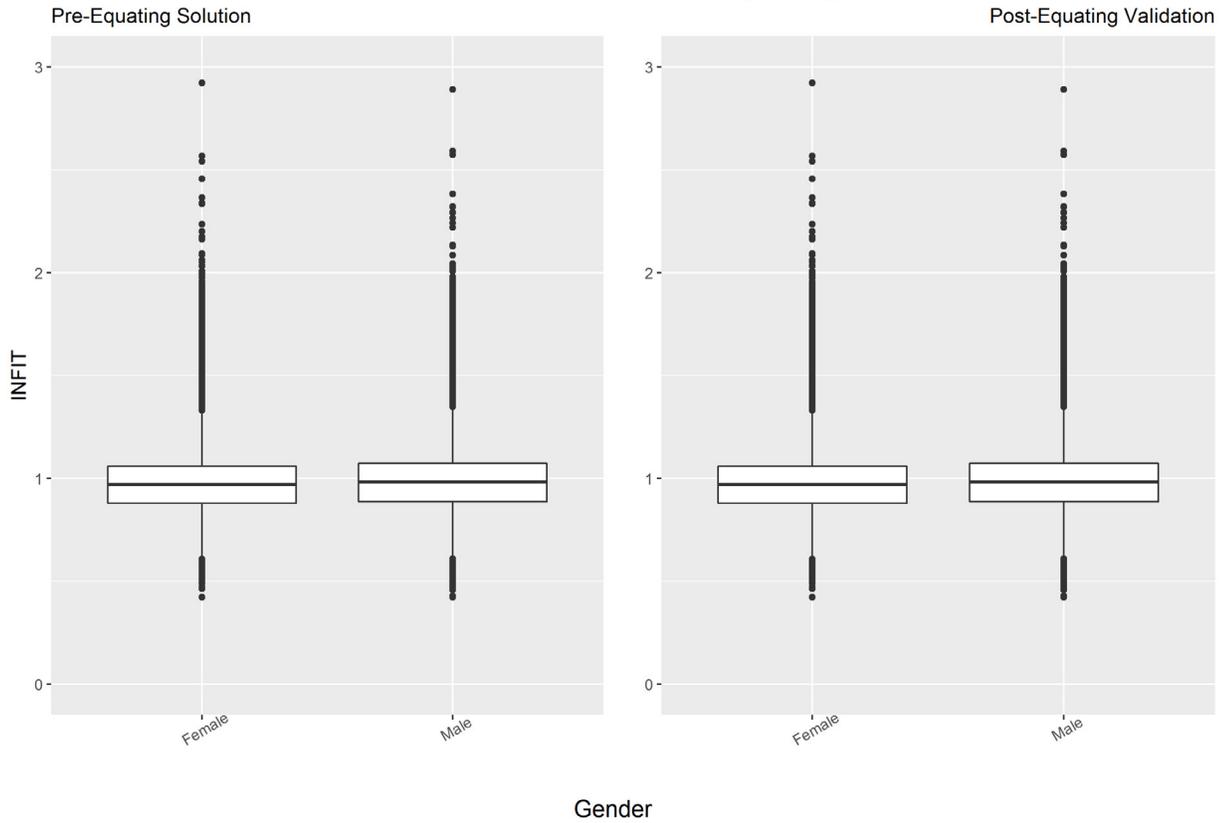


Mathematics Grade 7

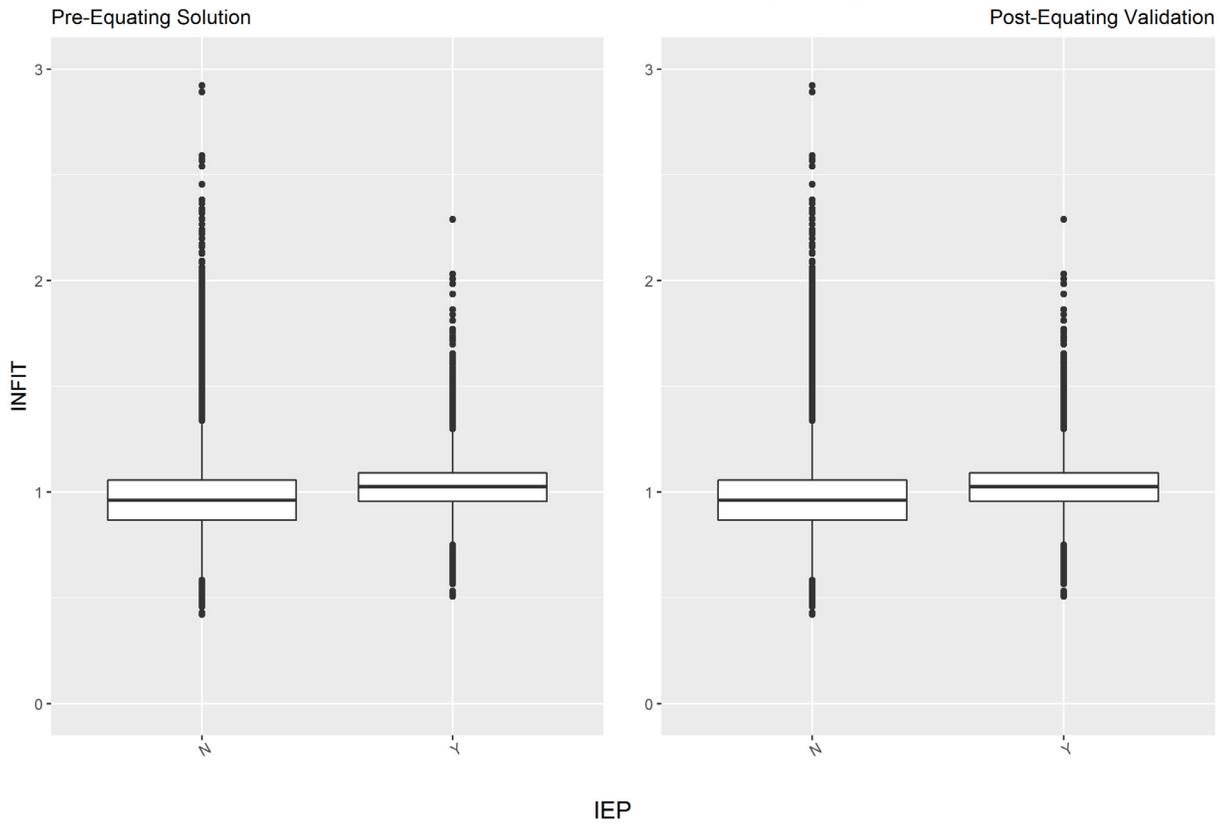
Mathematics Grade 7 Person Infit Boxplots by Ethnicity



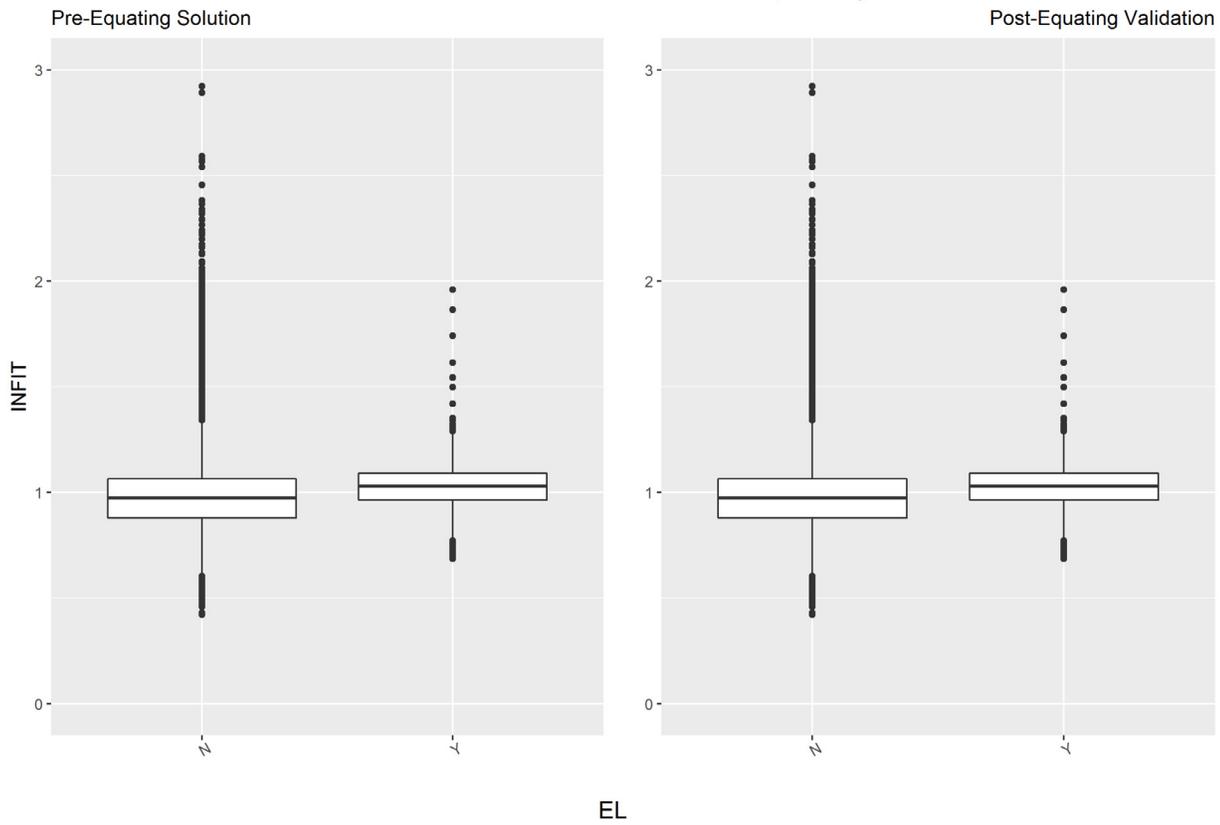
Mathematics Grade 7 Person Infit Boxplots by Gender



Mathematics Grade 7 Person Infit Boxplots by IEP

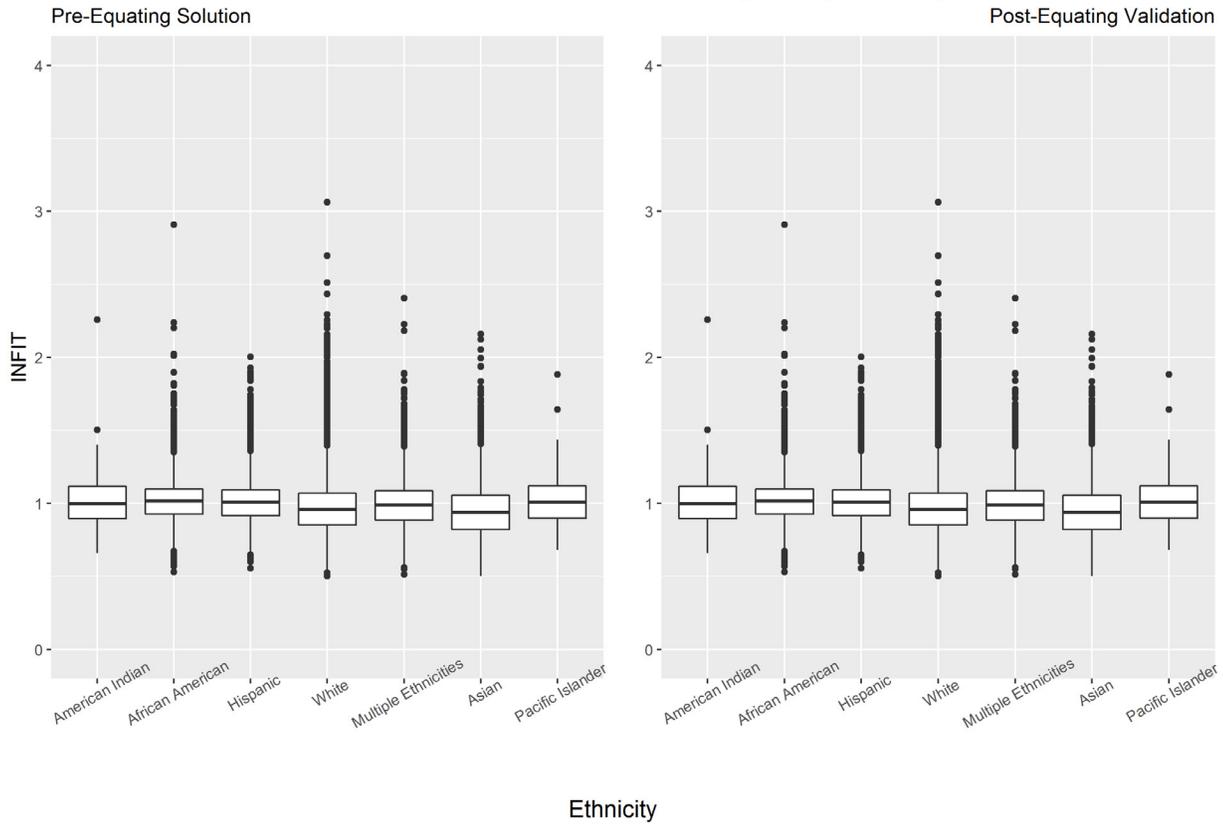


Mathematics Grade 7 Person Infit Boxplots by EL

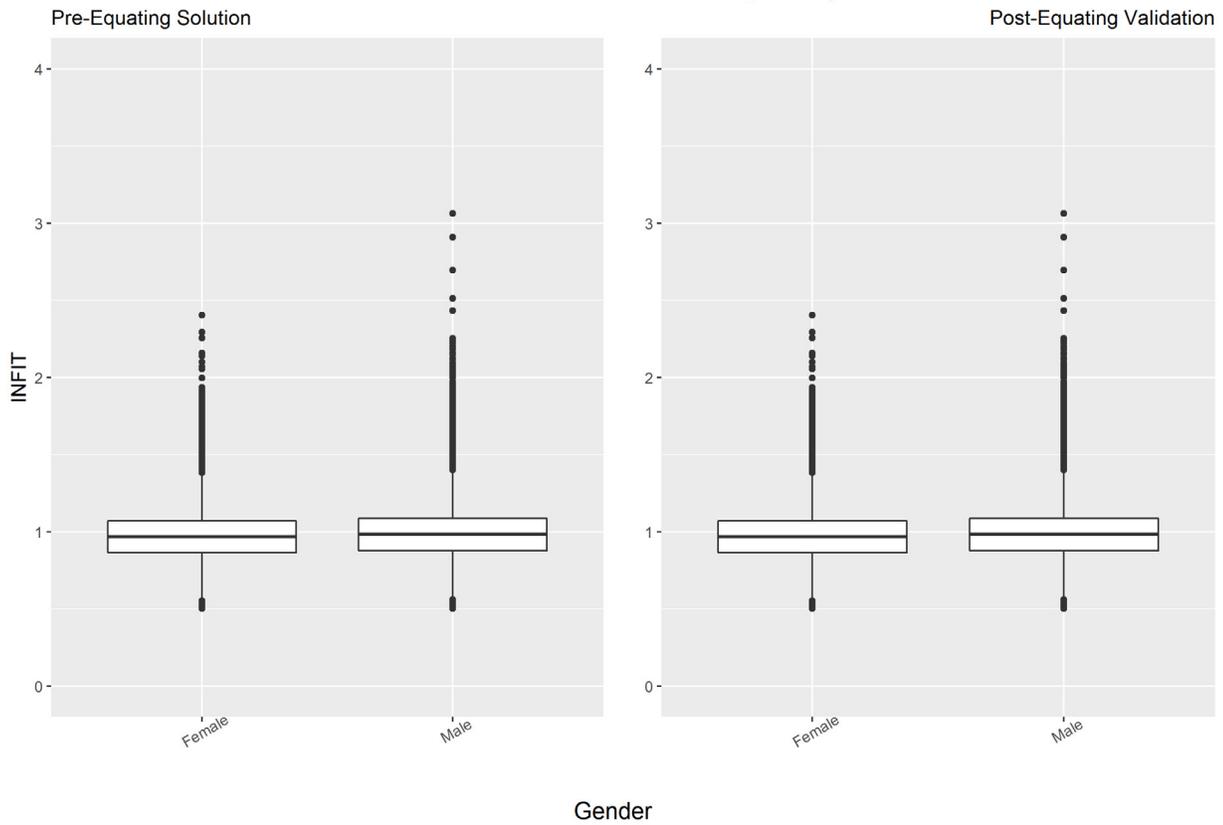


Mathematics Grade 8

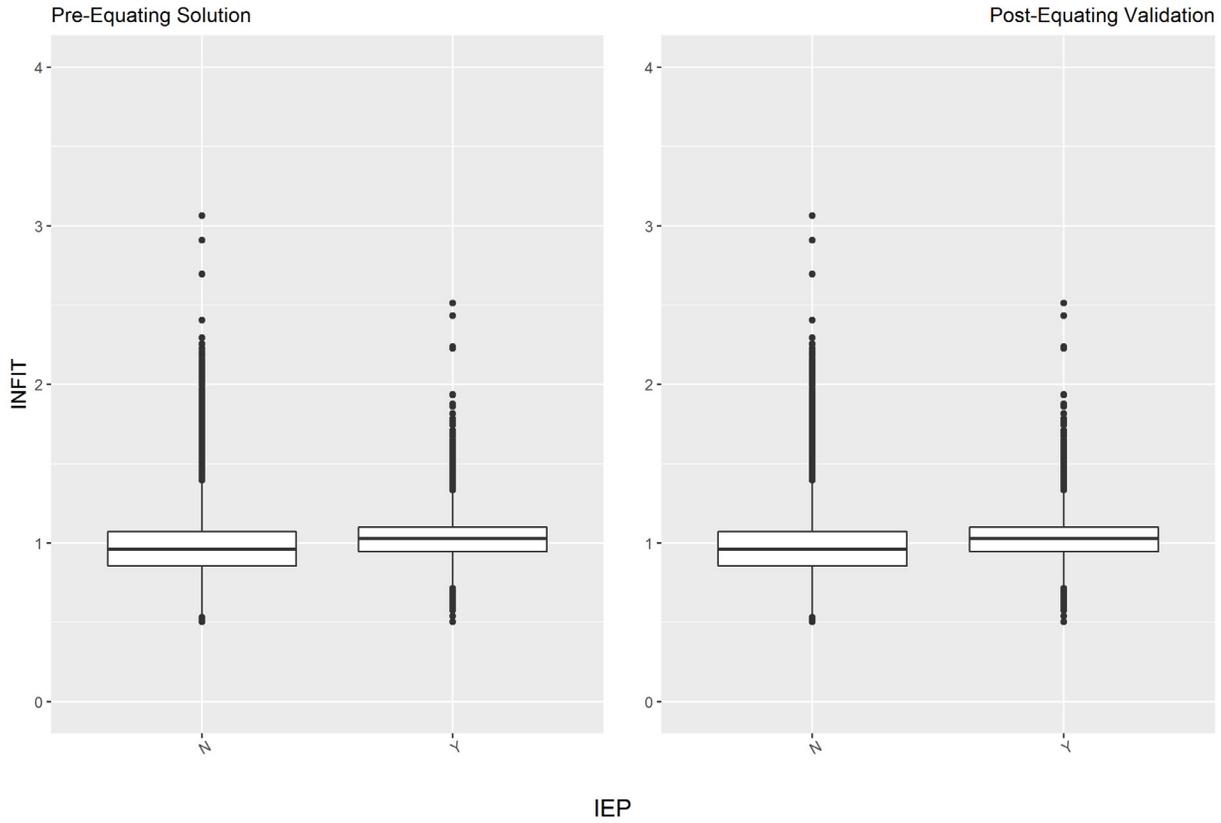
Mathematics Grade 8 Person Infit Boxplots by Ethnicity



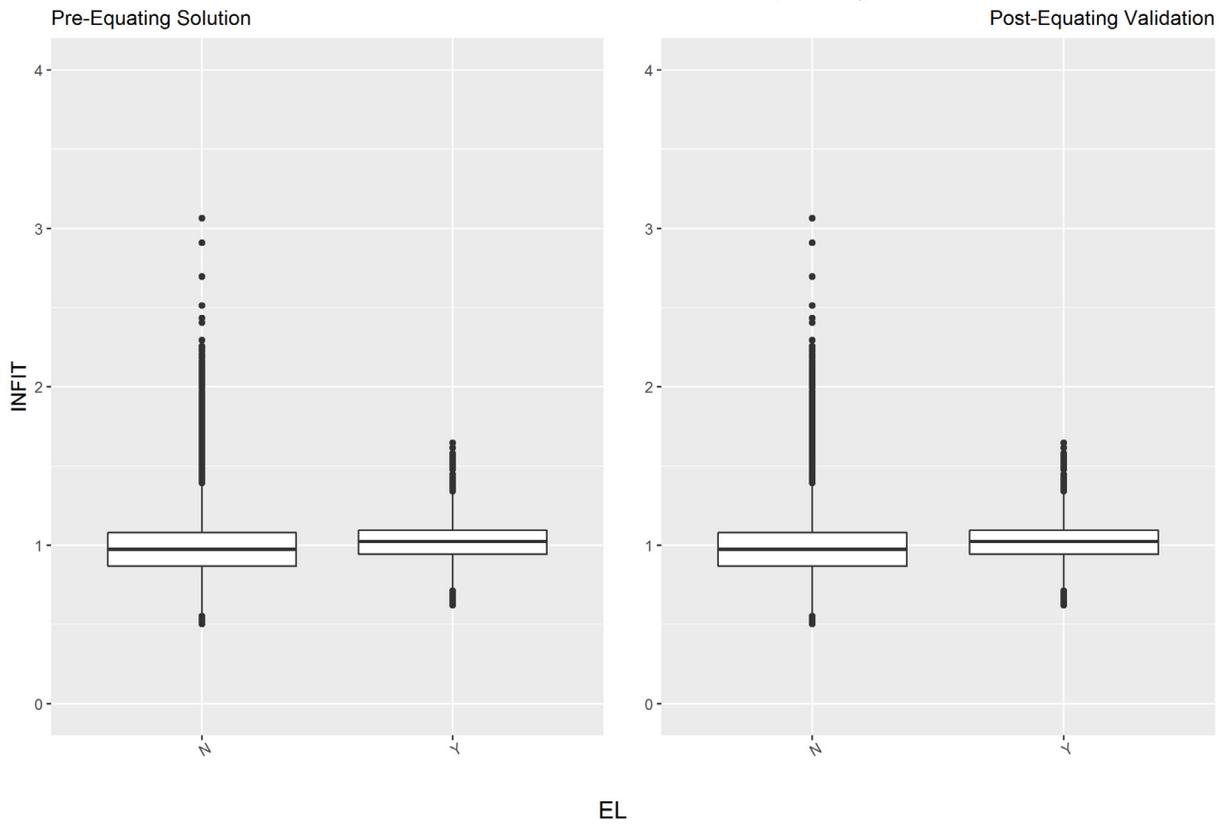
Mathematics Grade 8 Person Infit Boxplots by Gender



Mathematics Grade 8 Person Infit Boxplots by IEP

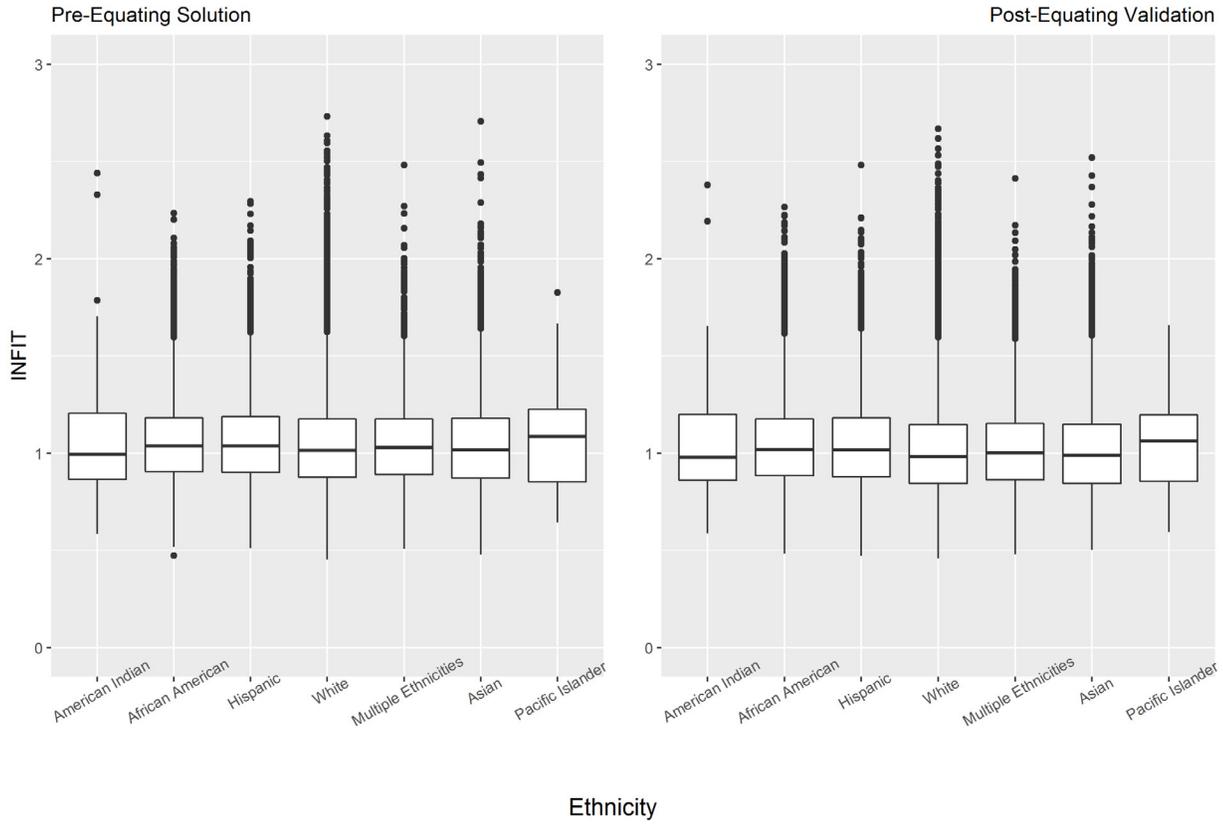


Mathematics Grade 8 Person Infit Boxplots by EL

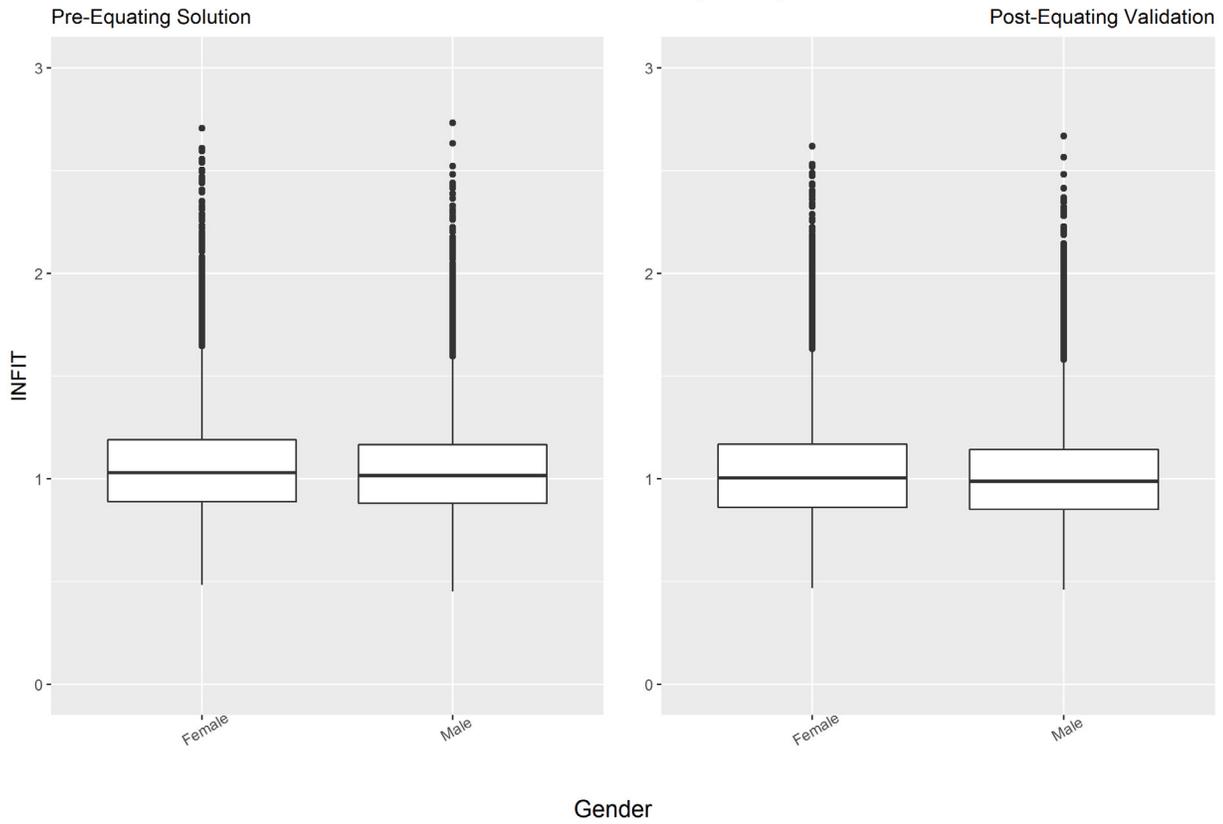


ELA Grade 3

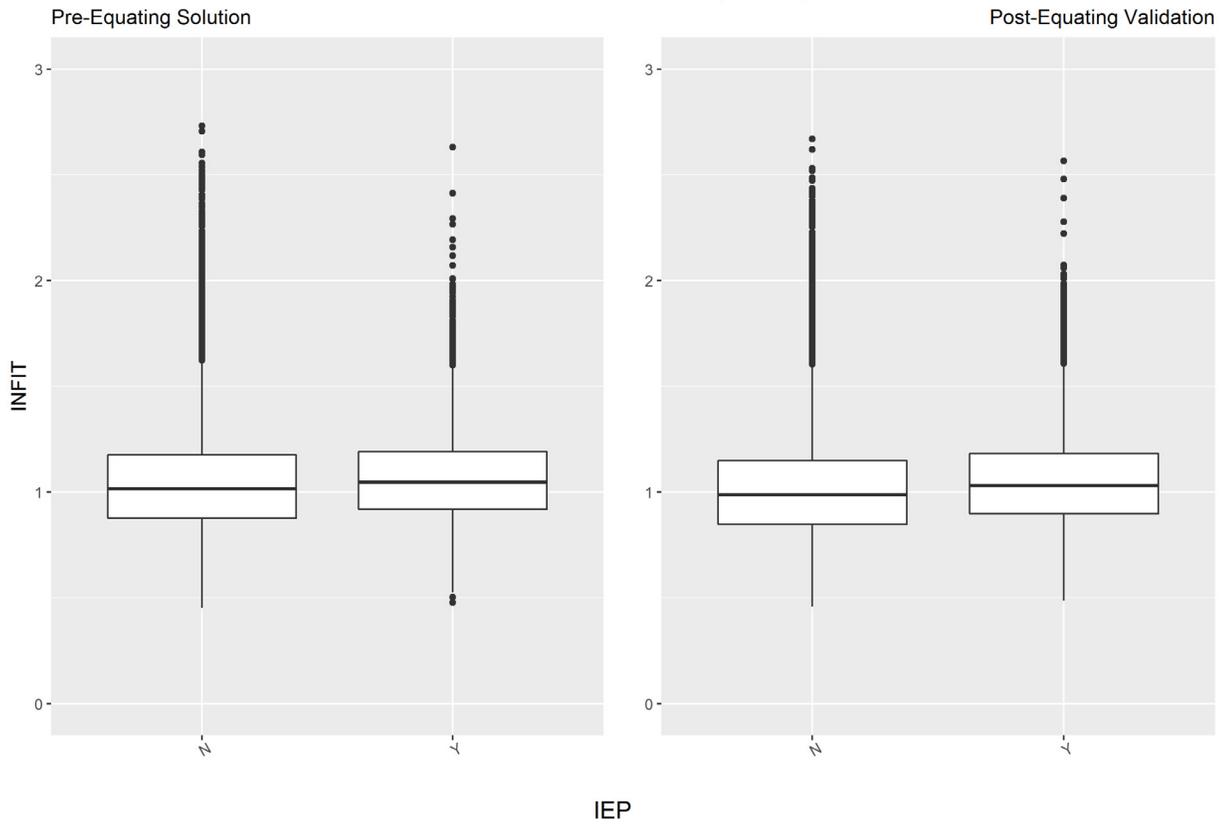
ELA Grade 3 Person Infit Boxplots by Ethnicity



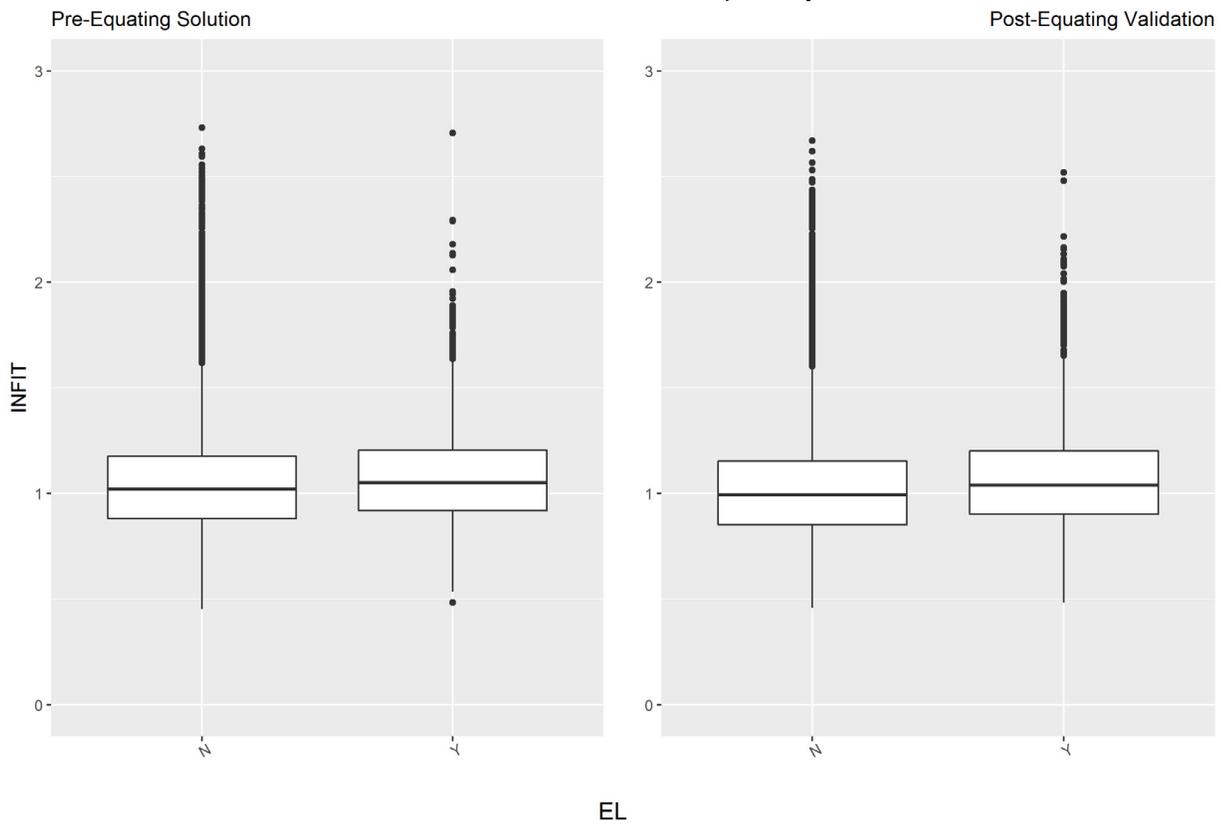
ELA Grade 3 Person Infit Boxplots by Gender



ELA Grade 3 Person Infit Boxplots by IEP

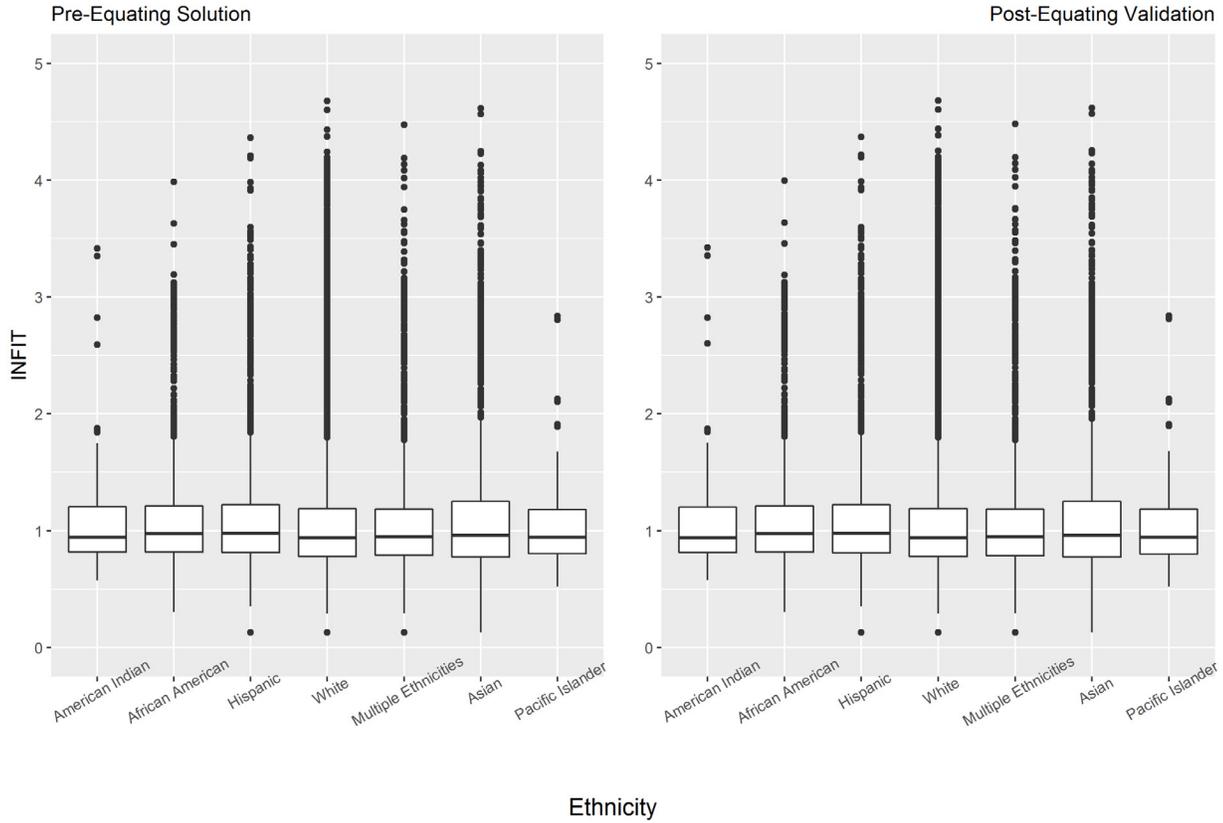


ELA Grade 3 Person Infit Boxplots by EL

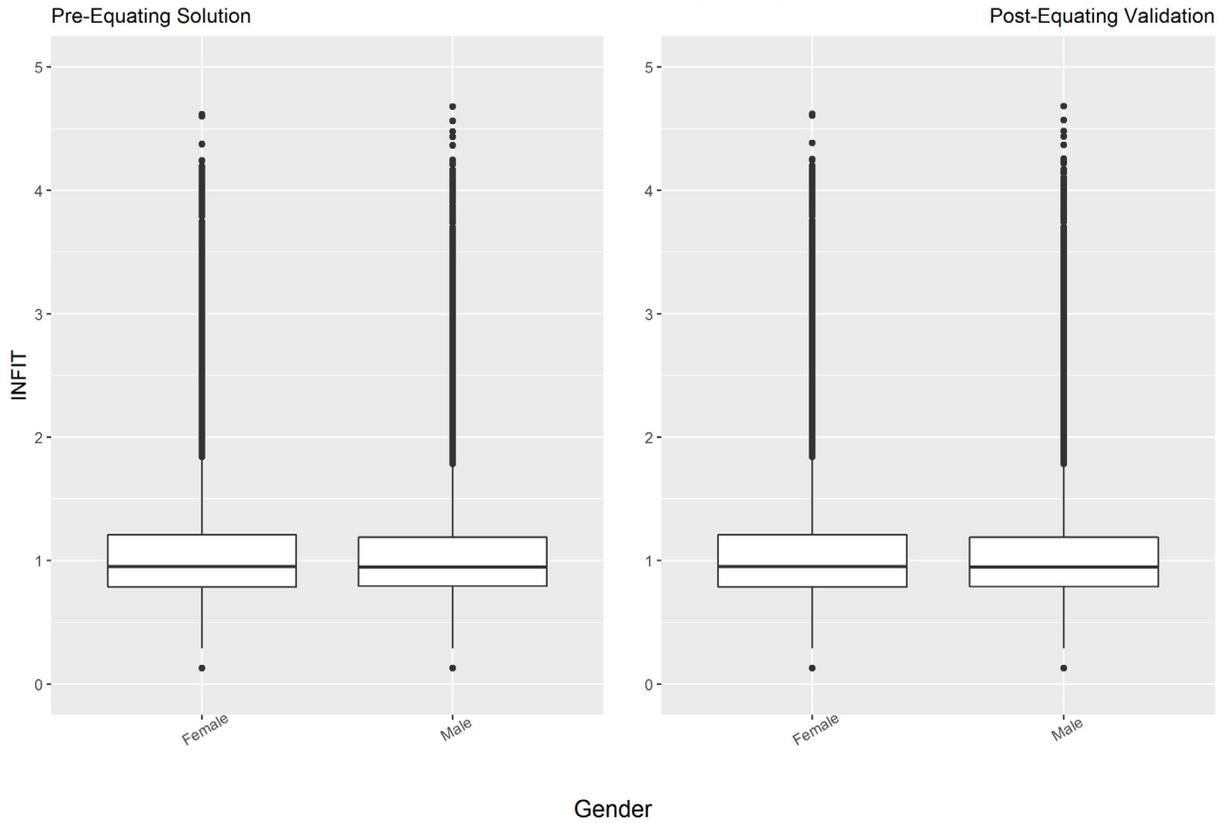


ELA Grade 4

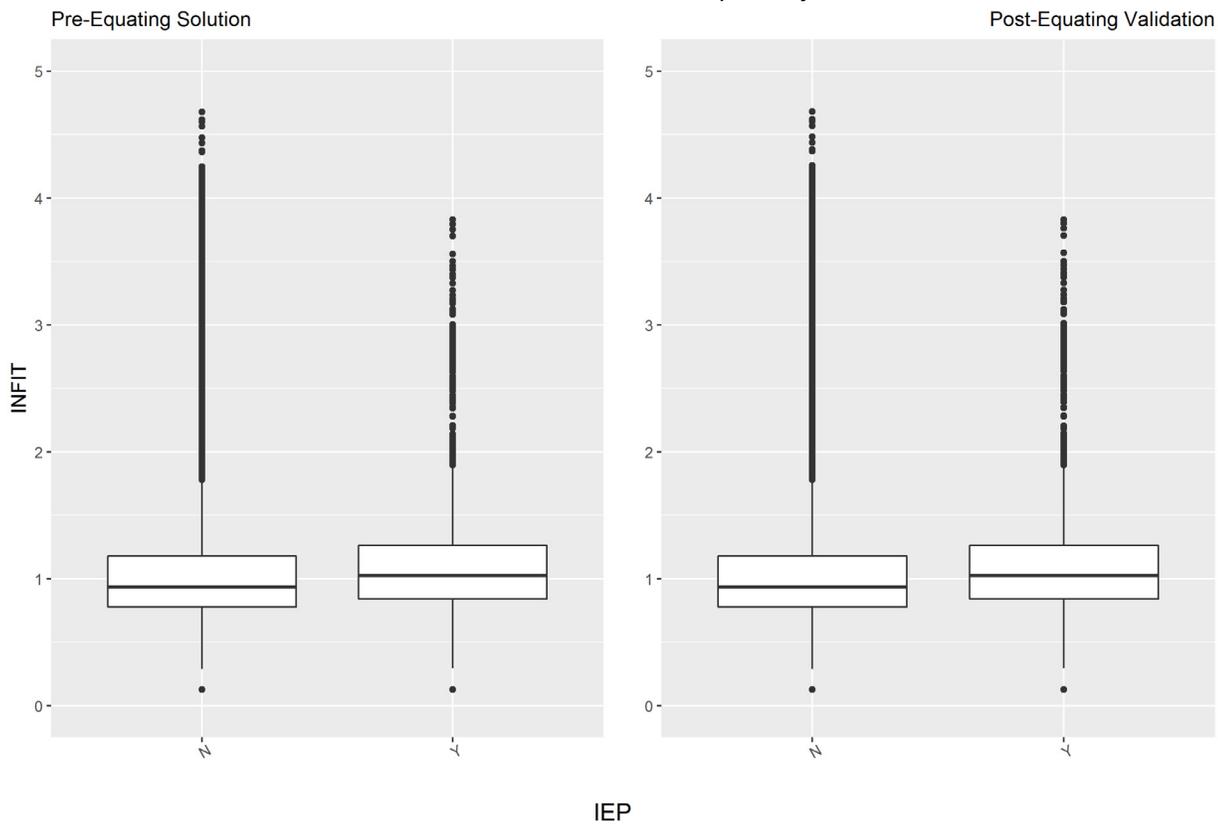
ELA Grade 4 Person Infit Boxplots by Ethnicity



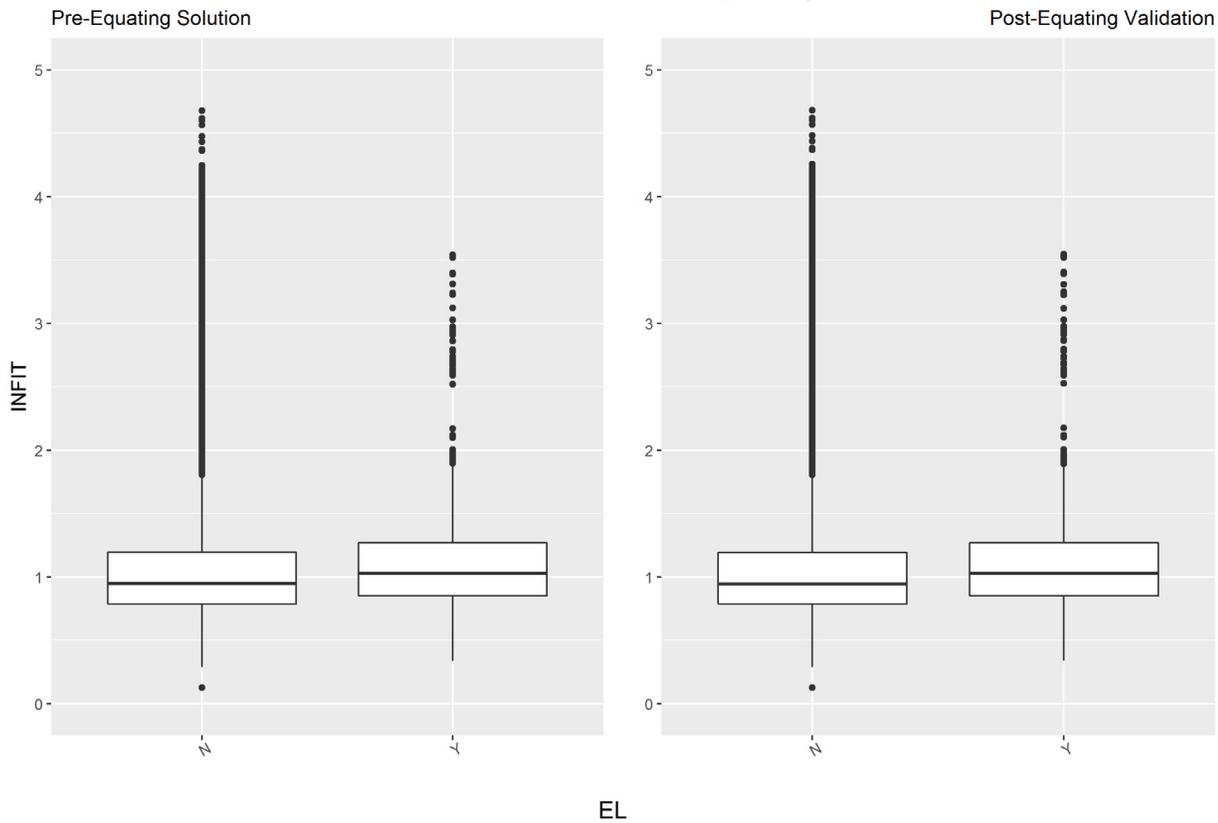
ELA Grade 4 Person Infit Boxplots by Gender



ELA Grade 4 Person Infit Boxplots by IEP

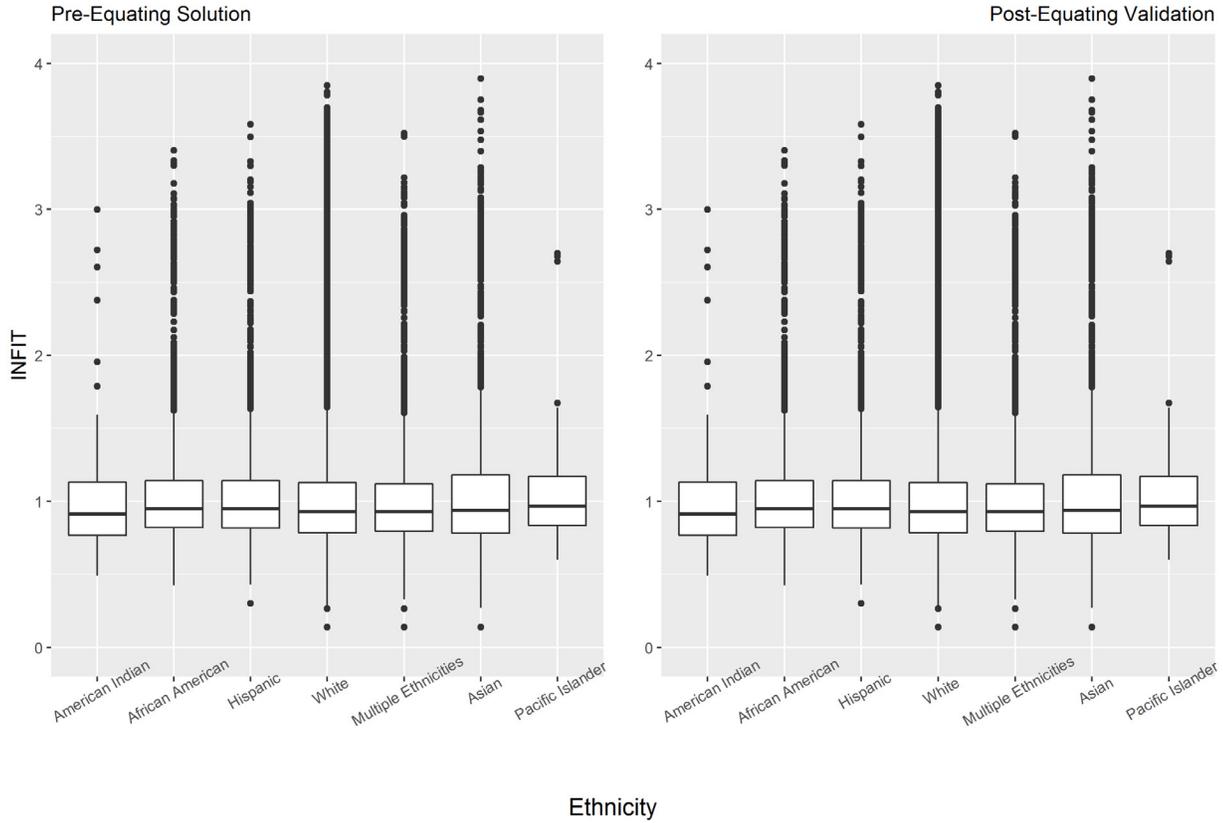


ELA Grade 4 Person Infit Boxplots by EL

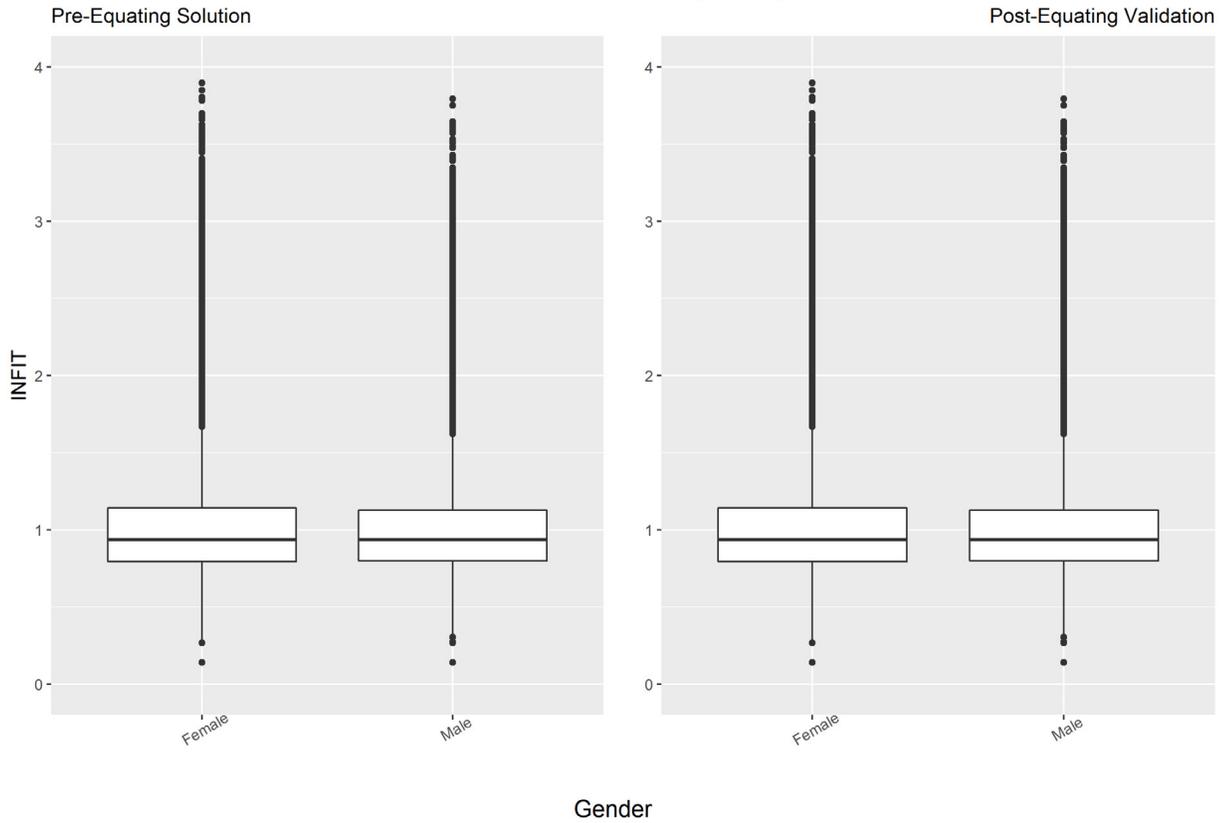


ELA Grade 5

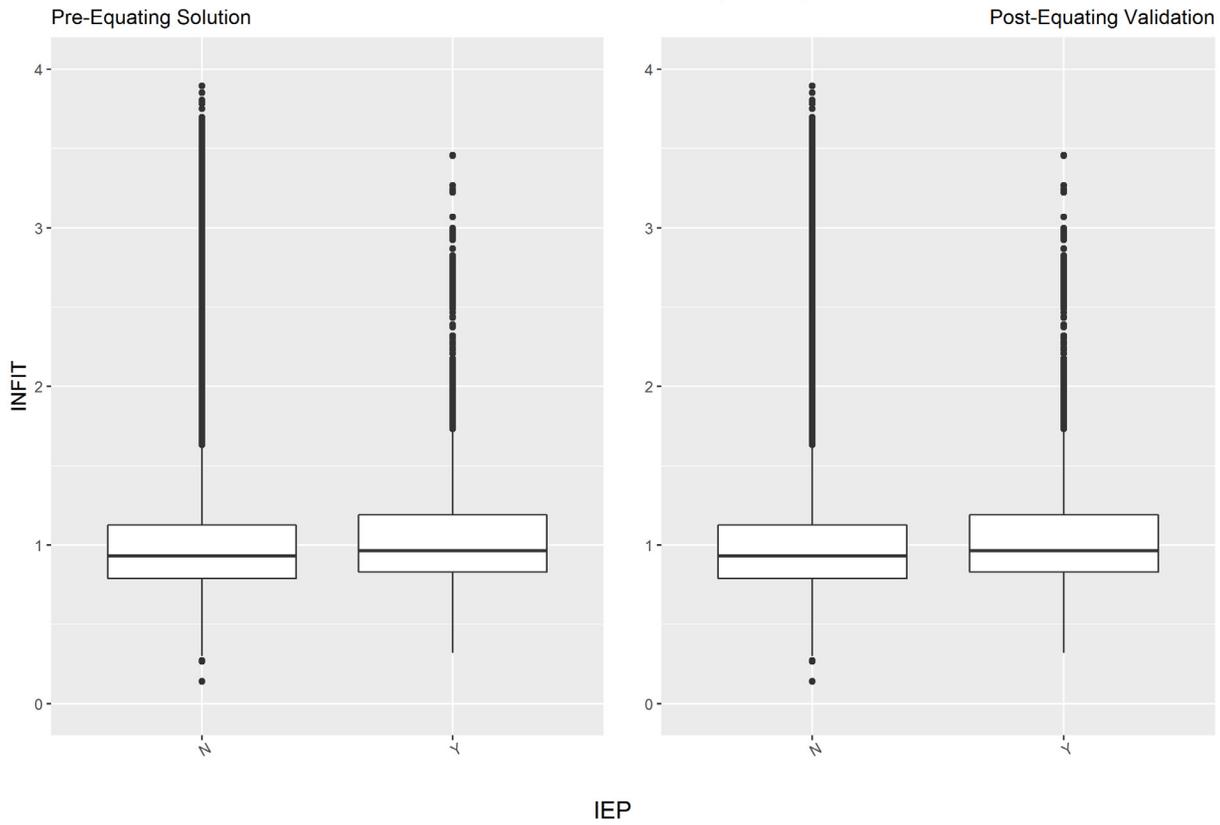
ELA Grade 5 Person Infit Boxplots by Ethnicity



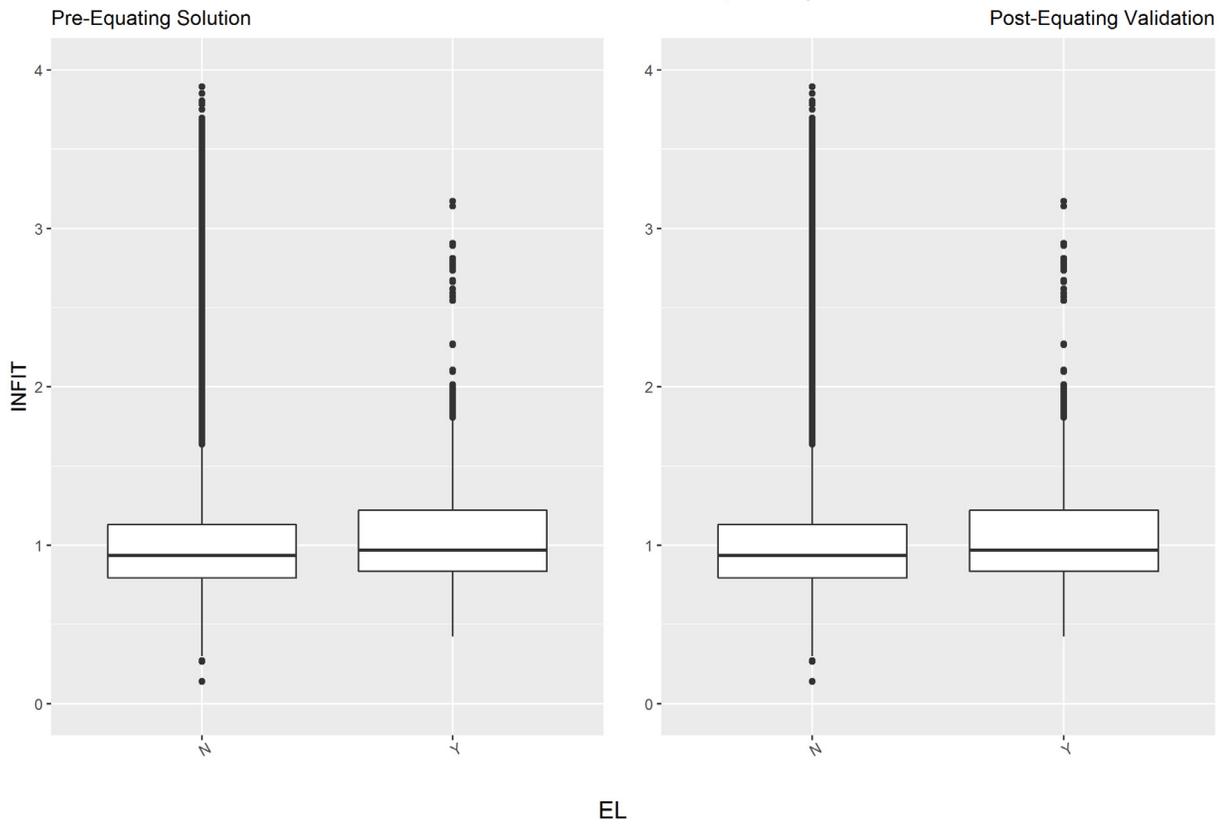
ELA Grade 5 Person Infit Boxplots by Gender



ELA Grade 5 Person Infit Boxplots by IEP

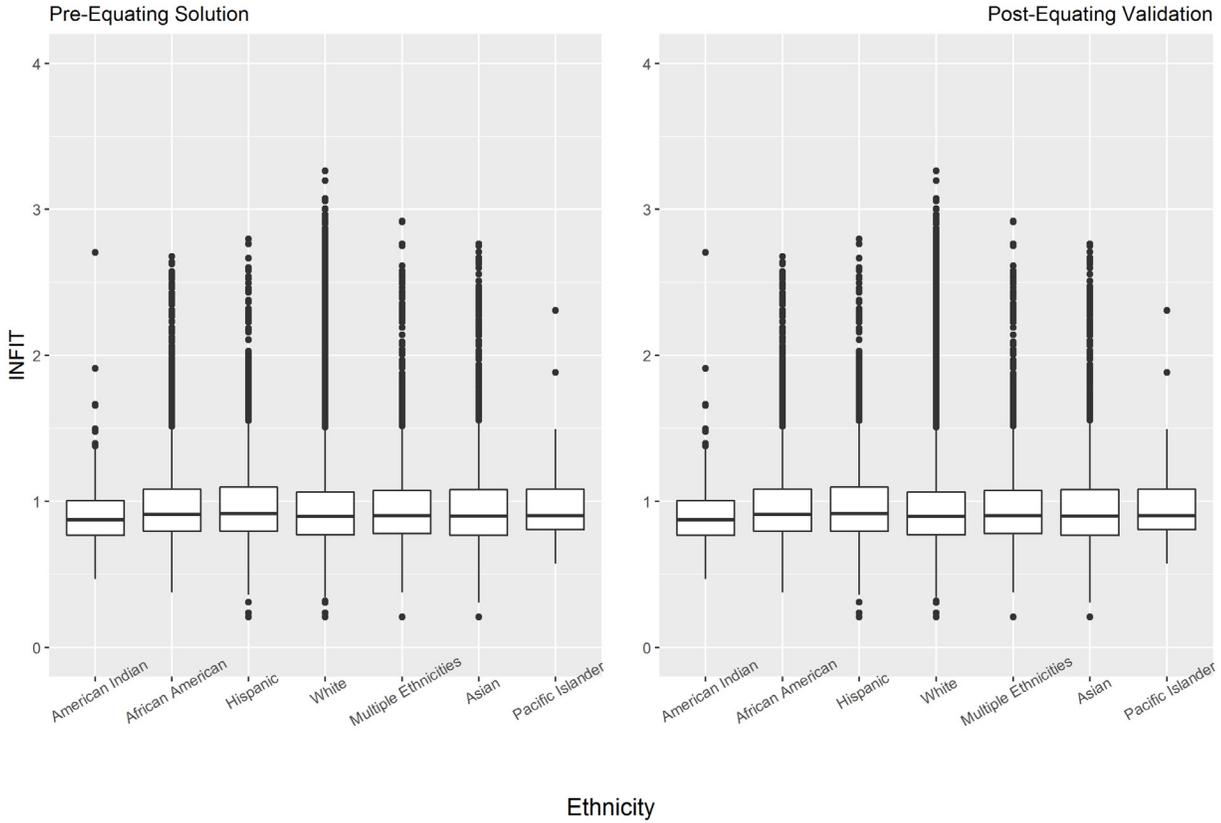


ELA Grade 5 Person Infit Boxplots by EL

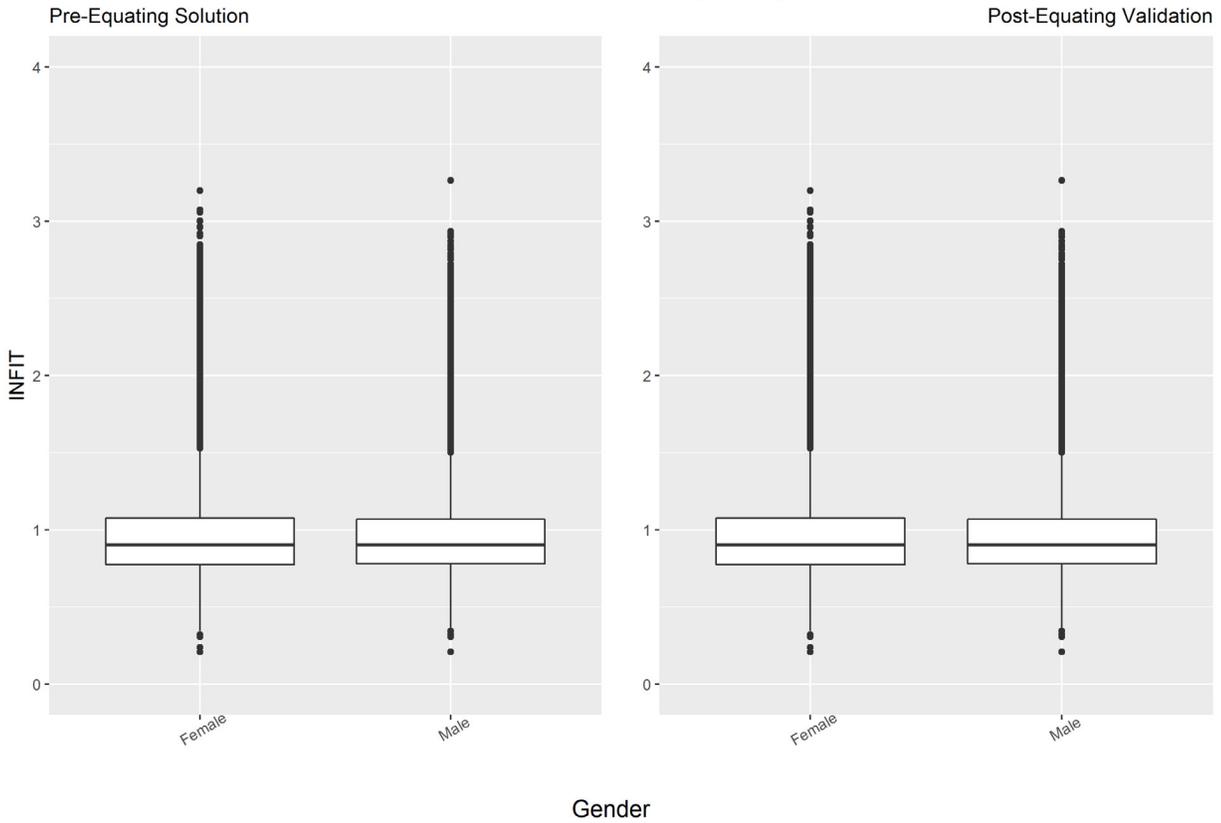


ELA Grade 6

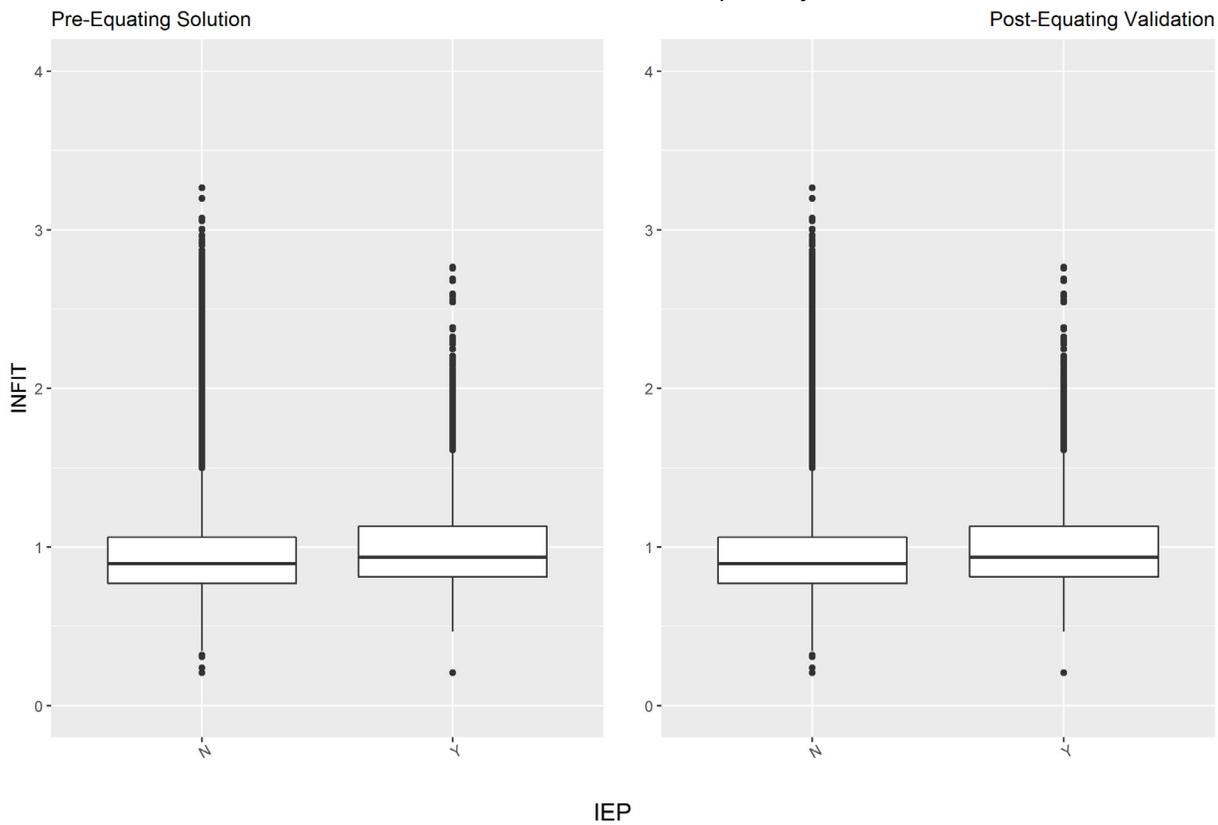
ELA Grade 6 Person Infit Boxplots by Ethnicity



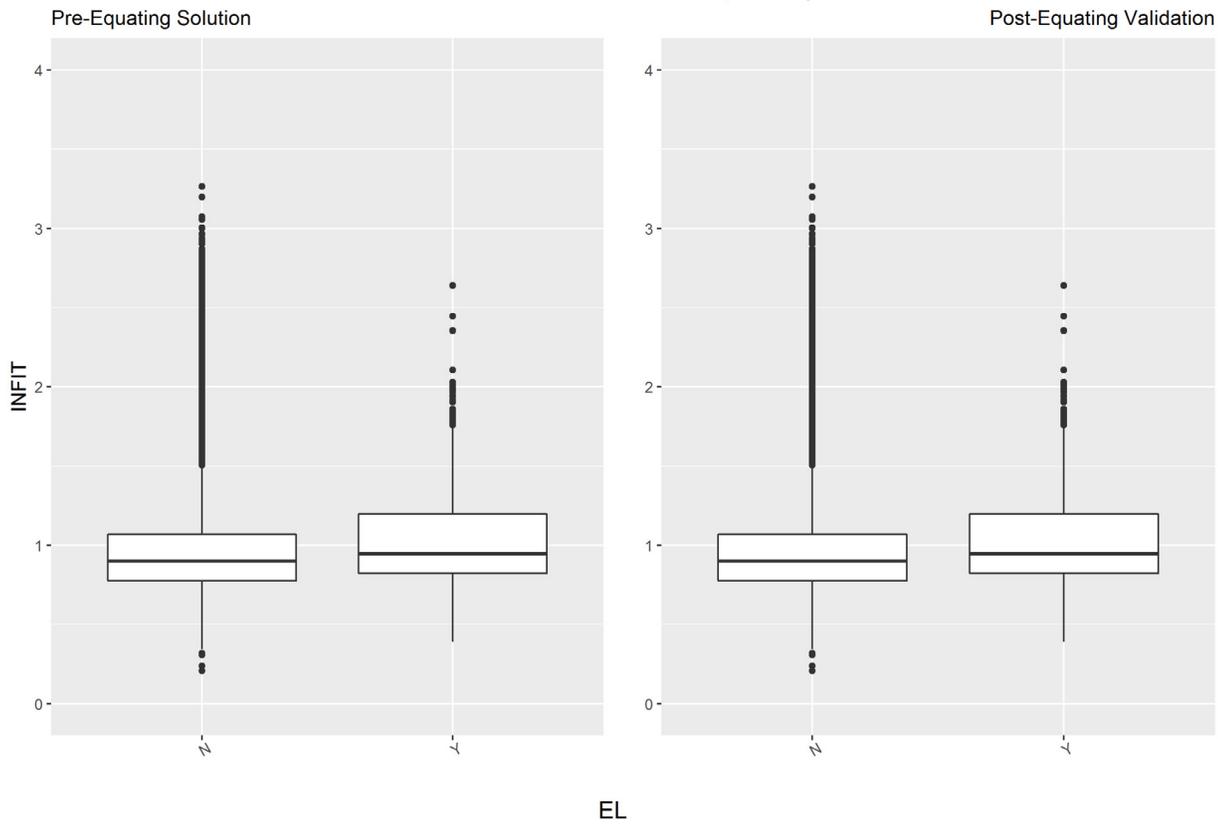
ELA Grade 6 Person Infit Boxplots by Gender



ELA Grade 6 Person Infit Boxplots by IEP

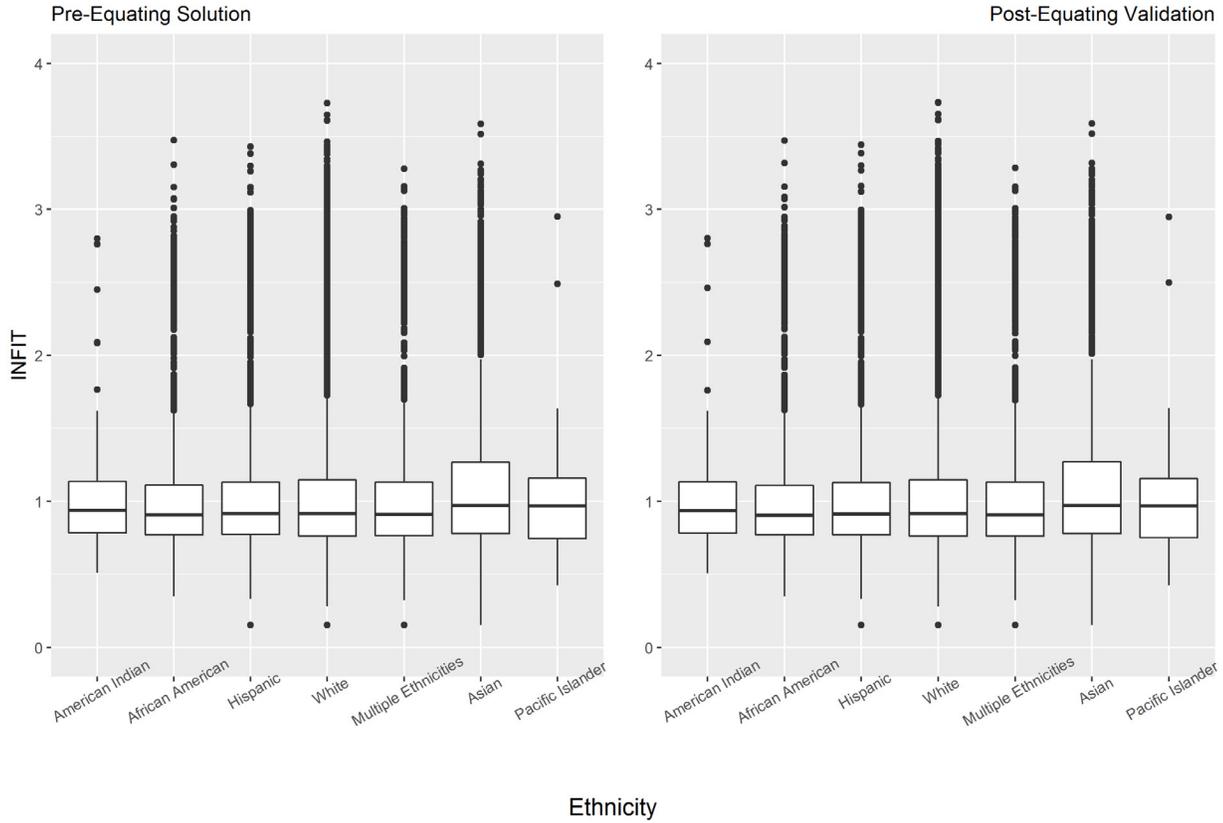


ELA Grade 6 Person Infit Boxplots by EL

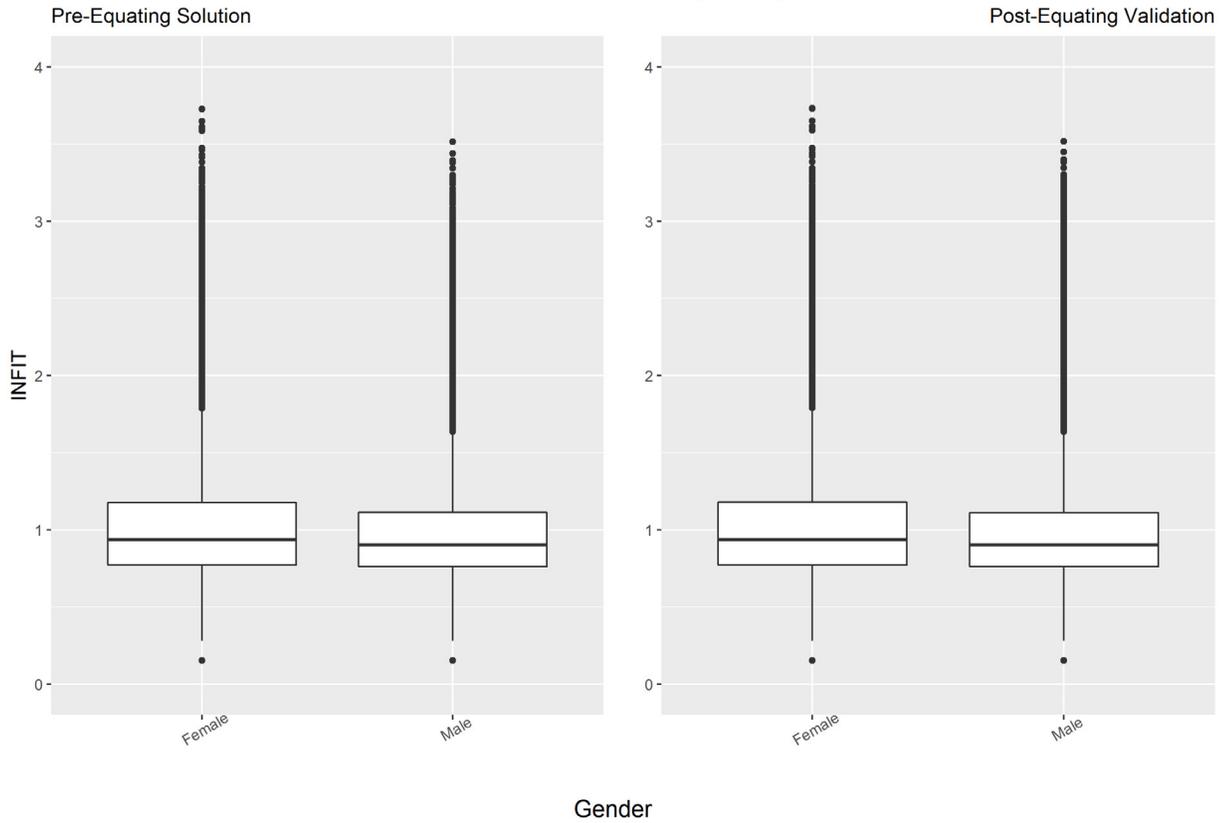


ELA Grade 7

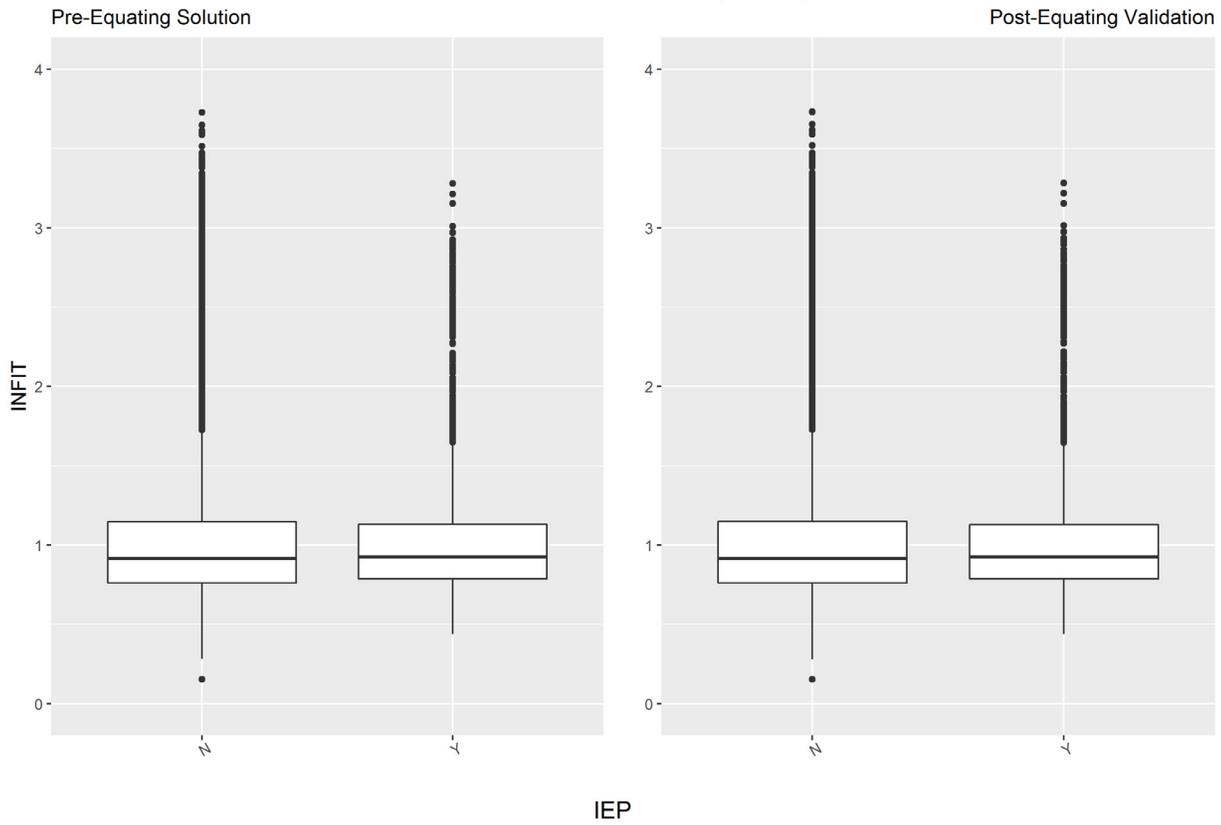
ELA Grade 7 Person Infit Boxplots by Ethnicity



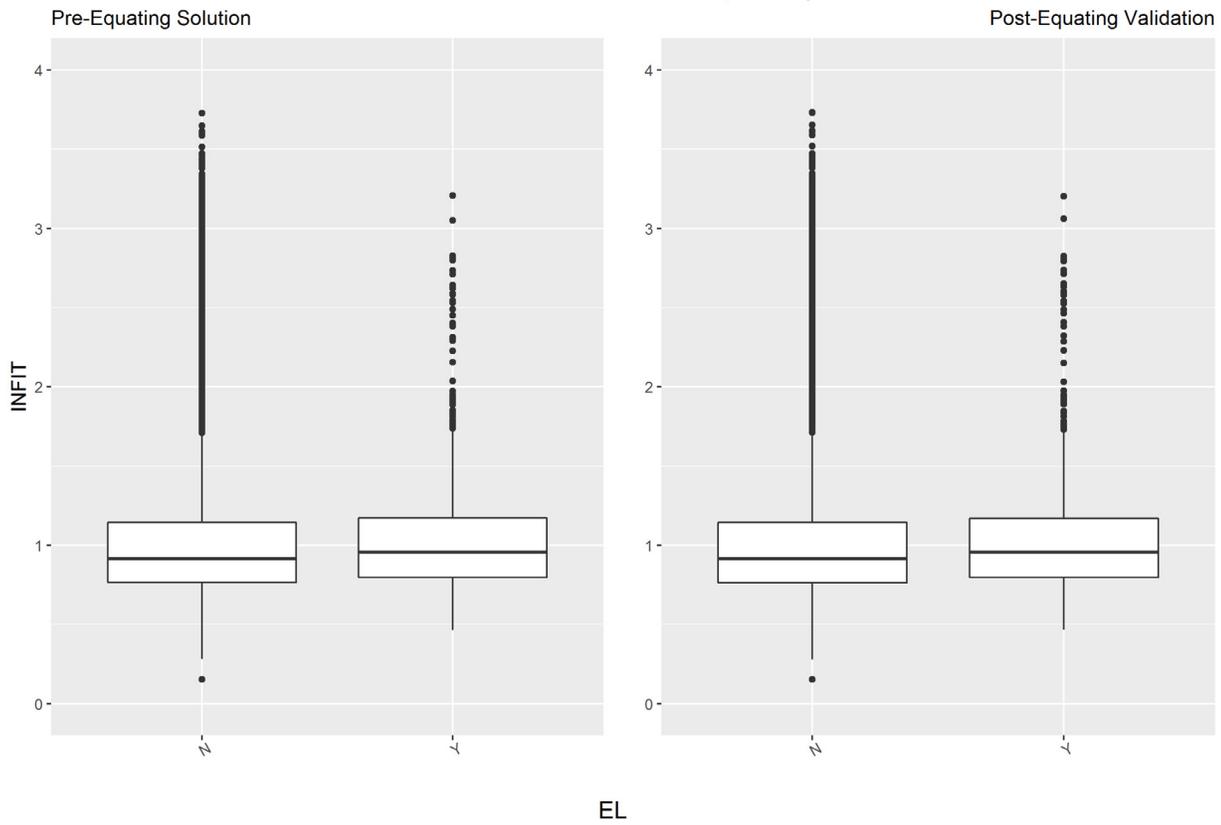
ELA Grade 7 Person Infit Boxplots by Gender



ELA Grade 7 Person Infit Boxplots by IEP

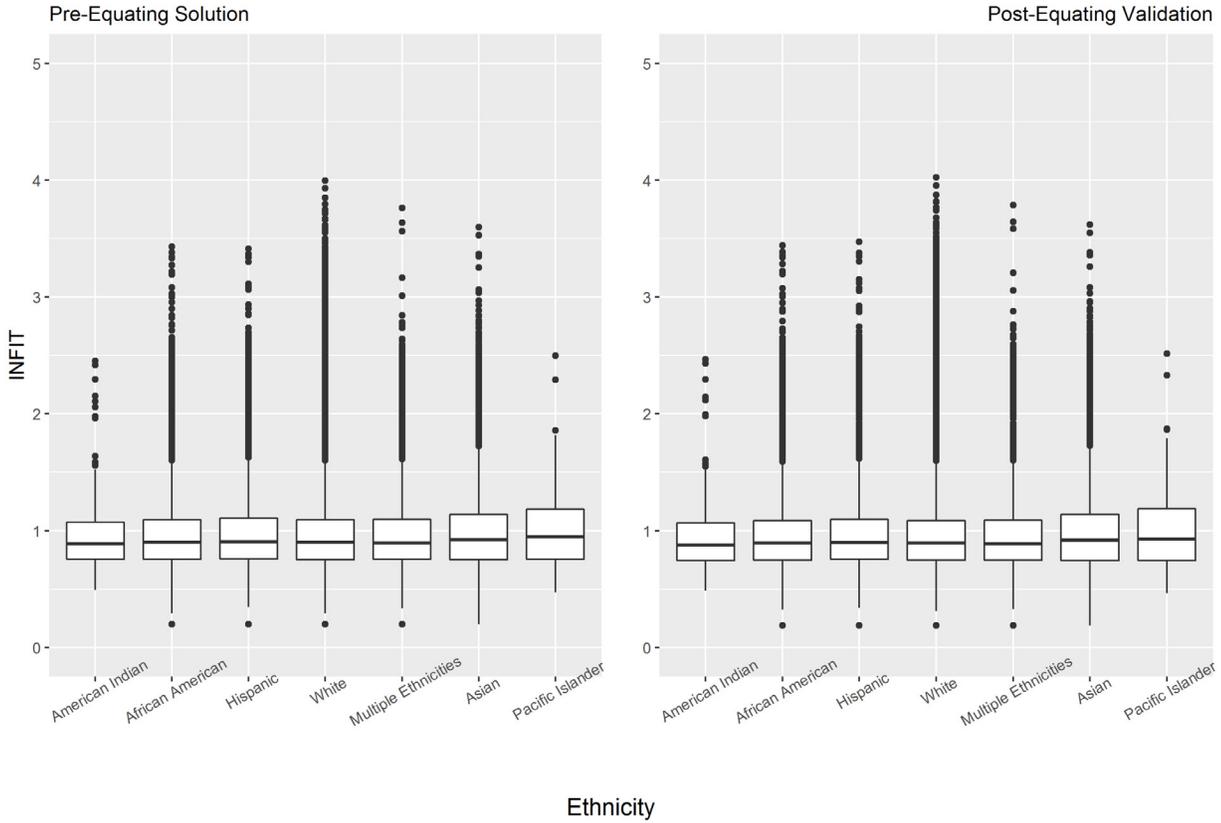


ELA Grade 7 Person Infit Boxplots by EL

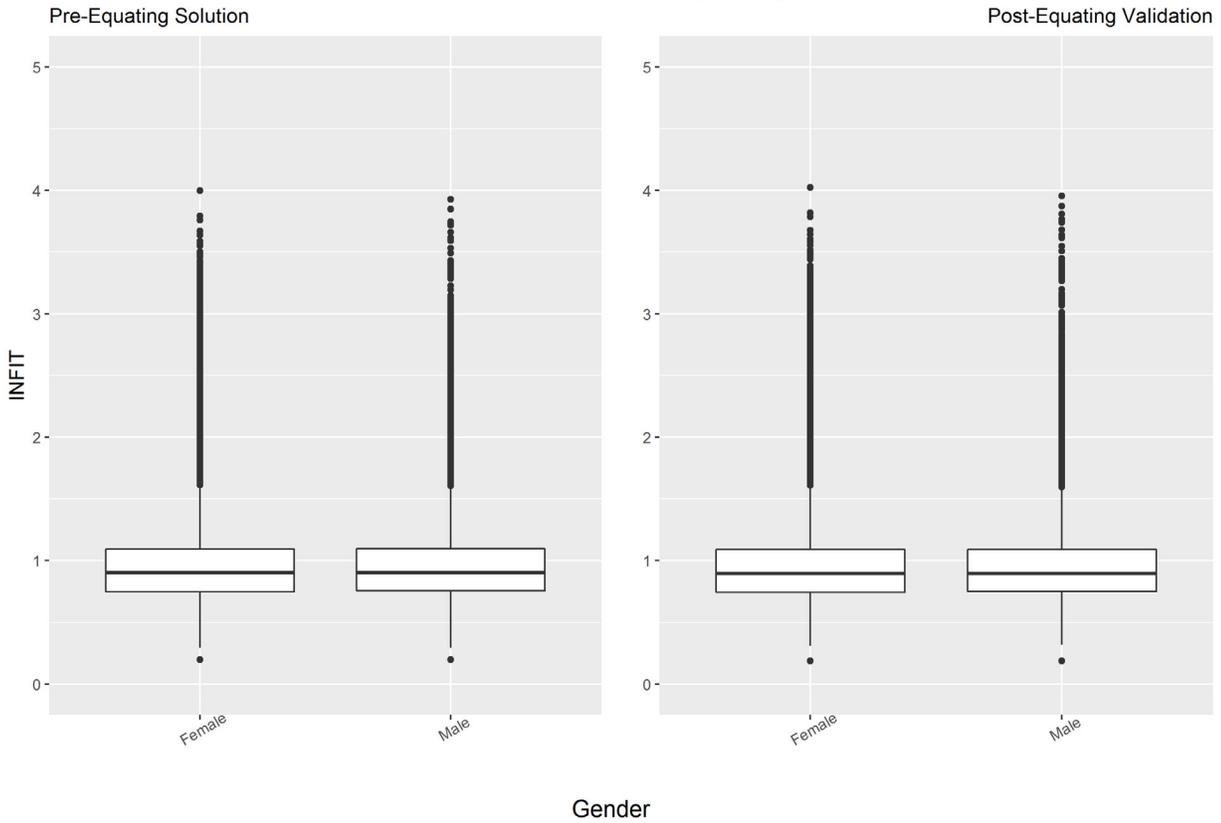


ELA Grade 8

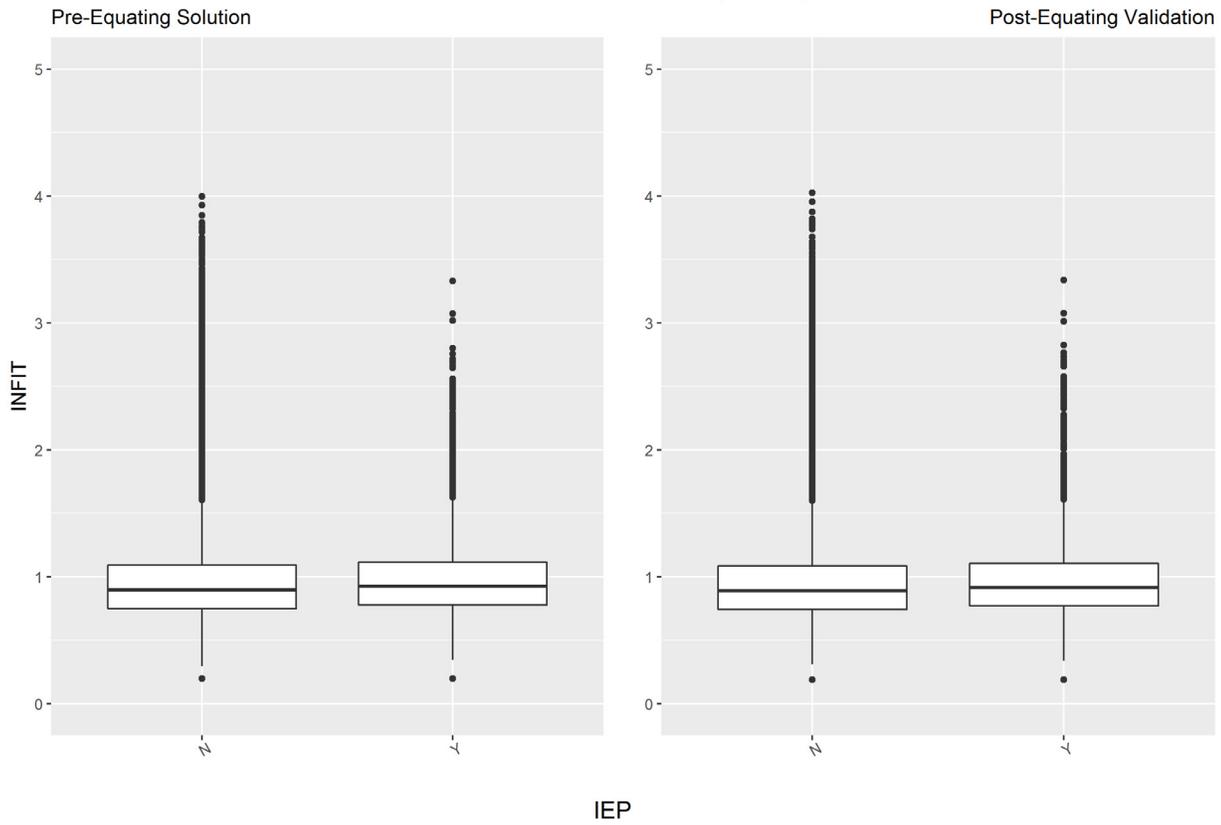
ELA Grade 8 Person Infit Boxplots by Ethnicity



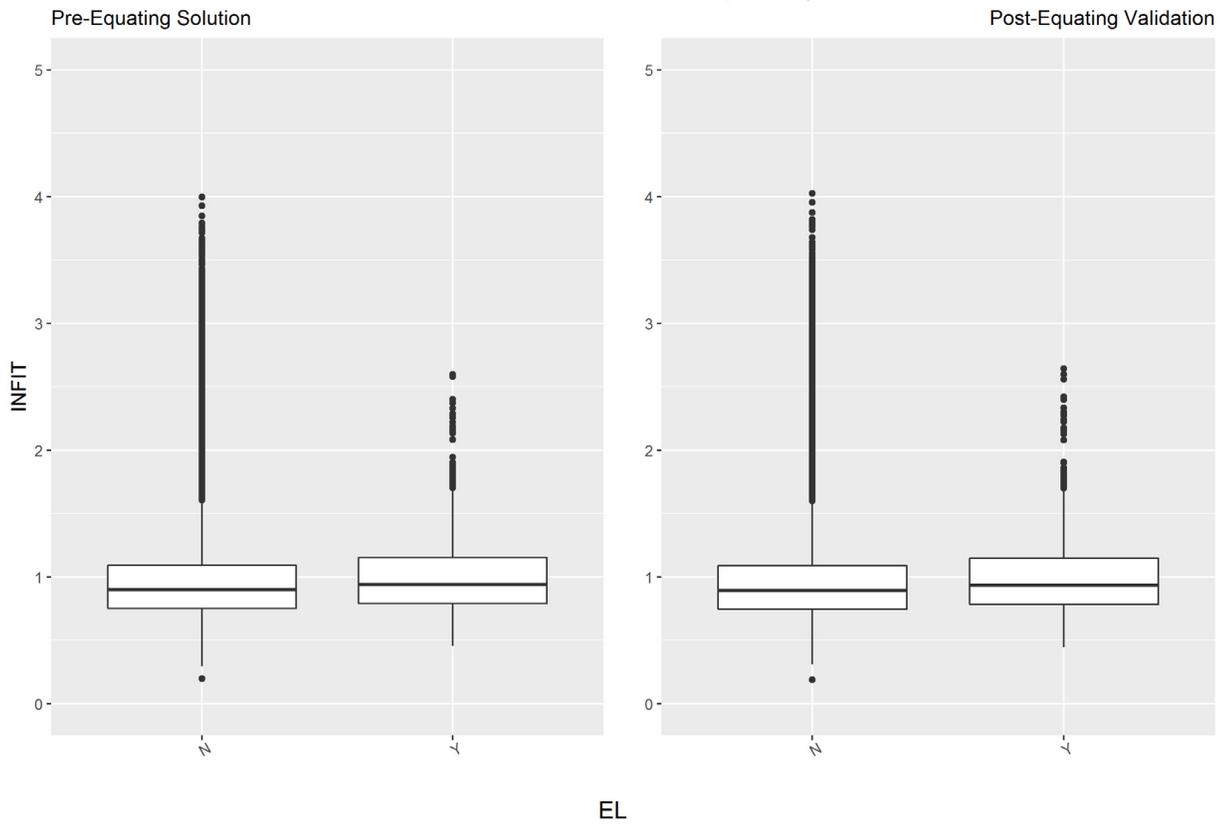
ELA Grade 8 Person Infit Boxplots by Gender



ELA Grade 8 Person Infit Boxplots by IEP

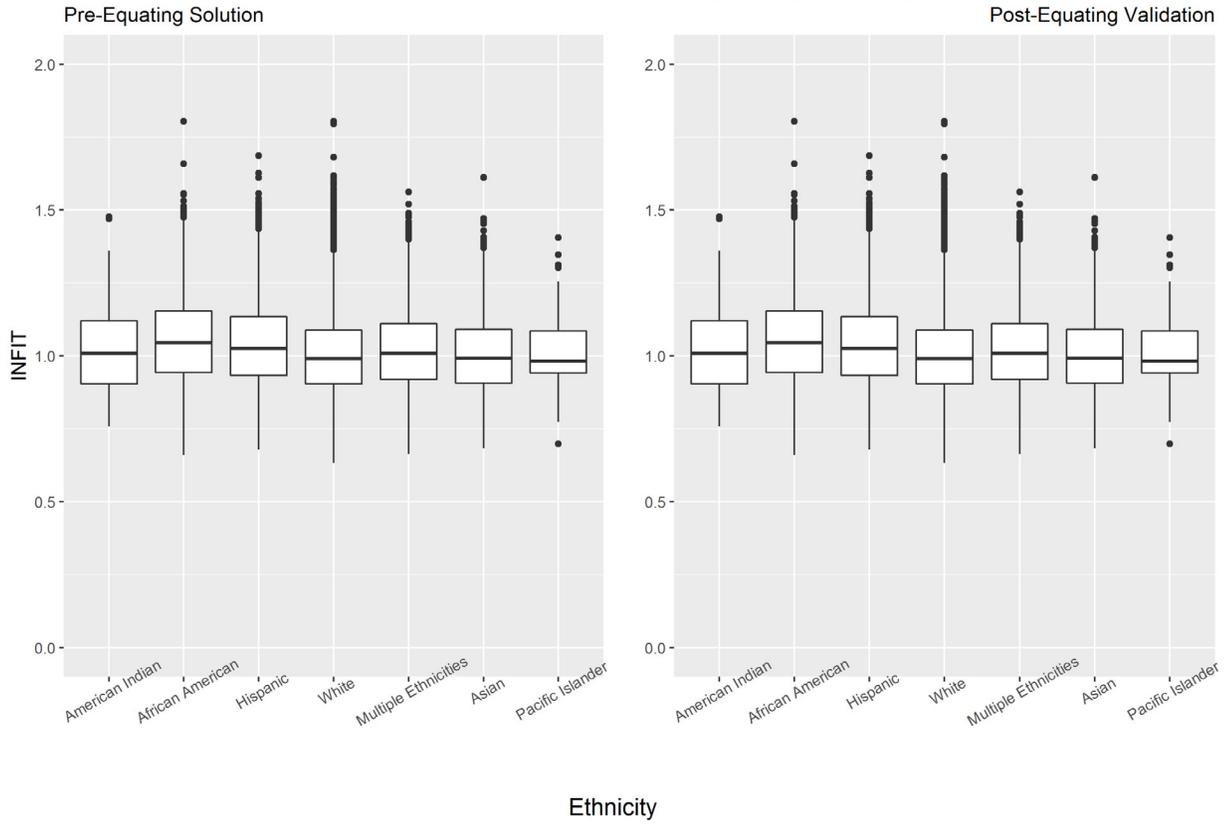


ELA Grade 8 Person Infit Boxplots by EL

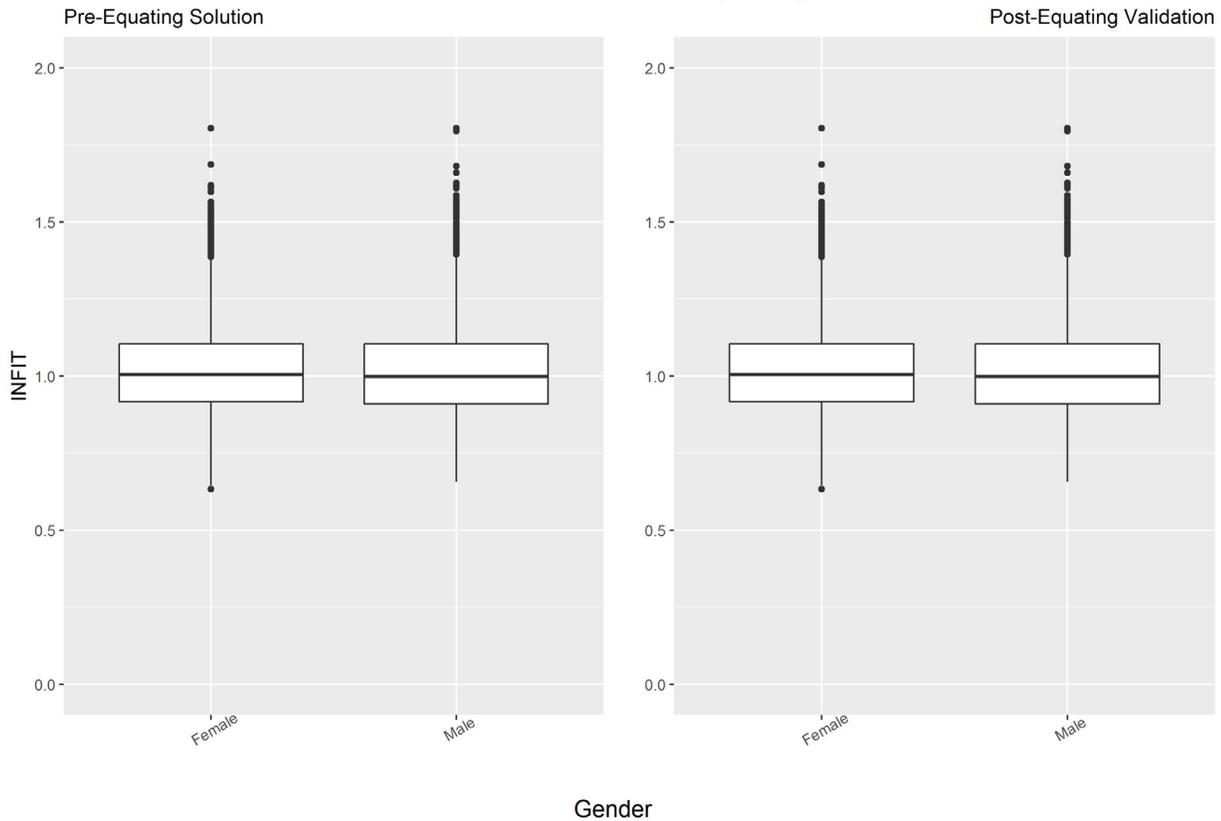


Science Grade 4

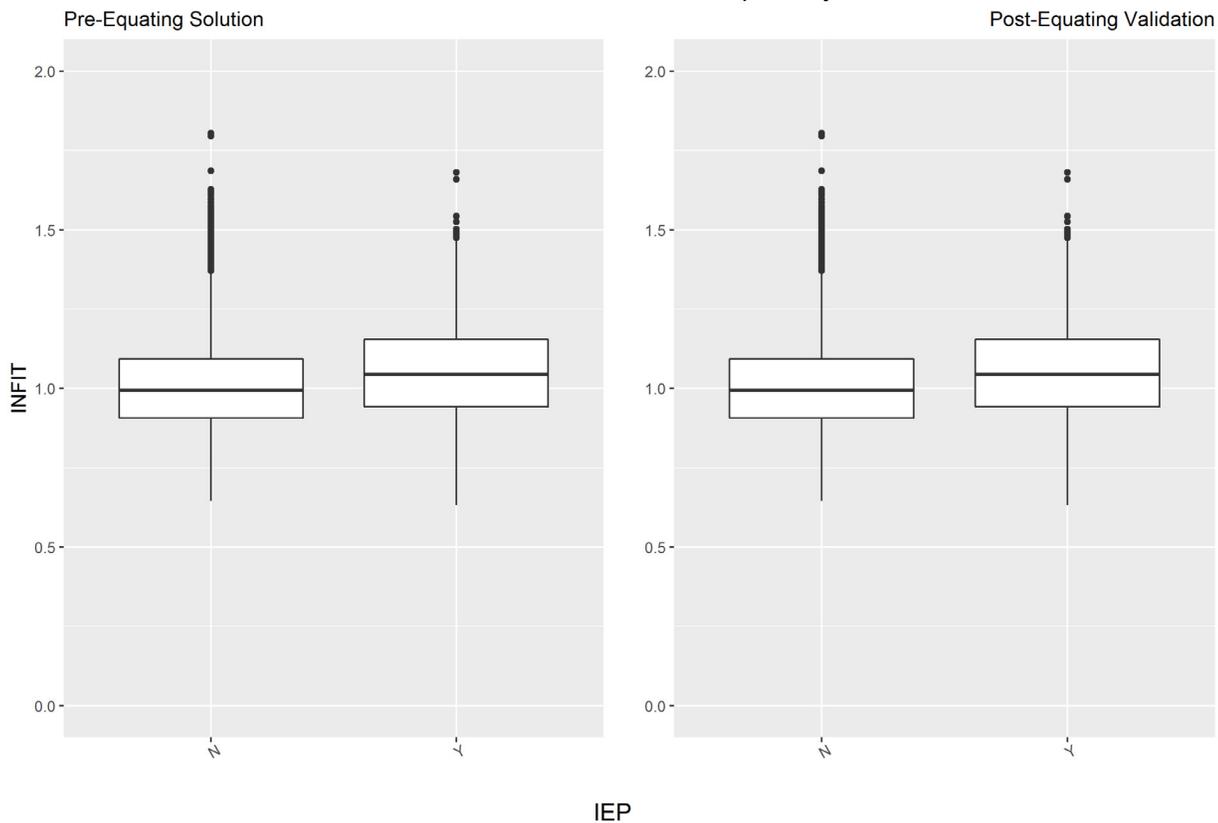
Science Grade 4 Person Infit Boxplots by Ethnicity



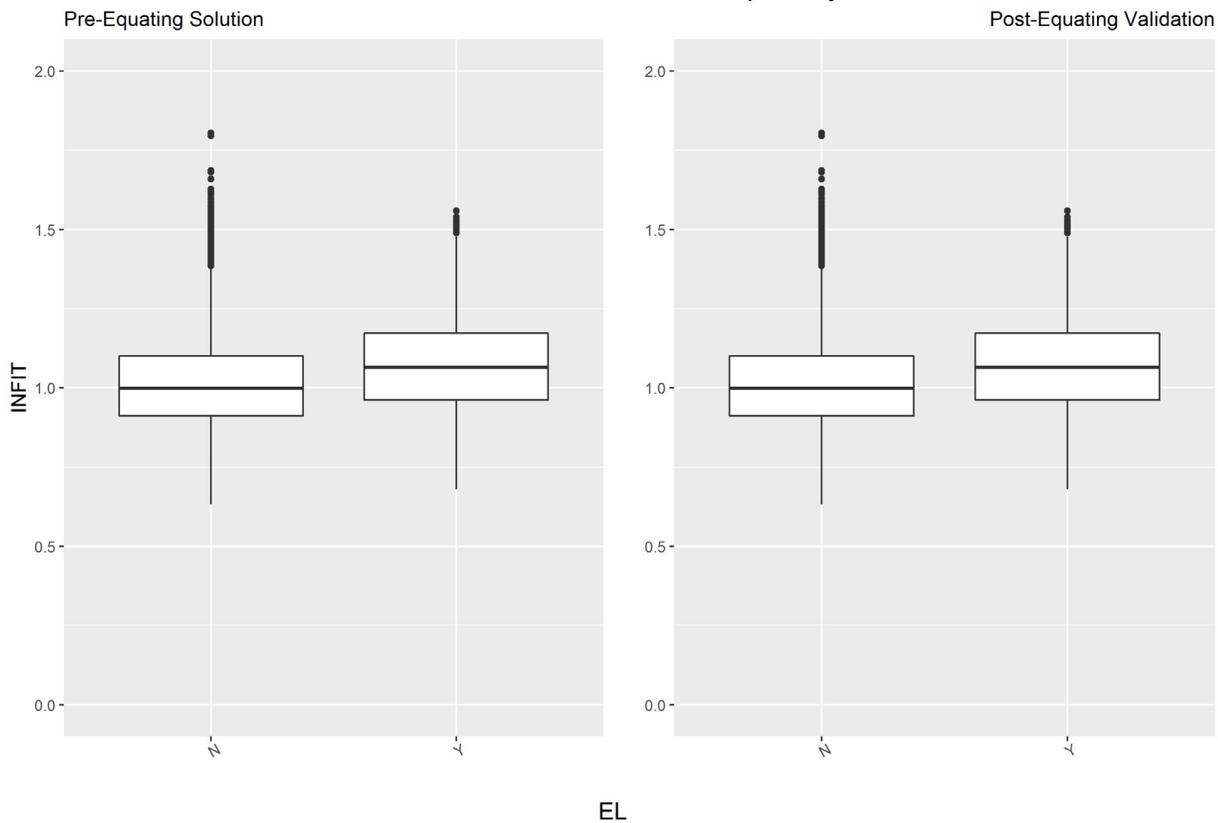
Science Grade 4 Person Infit Boxplots by Gender



Science Grade 4 Person Infit Boxplots by IEP

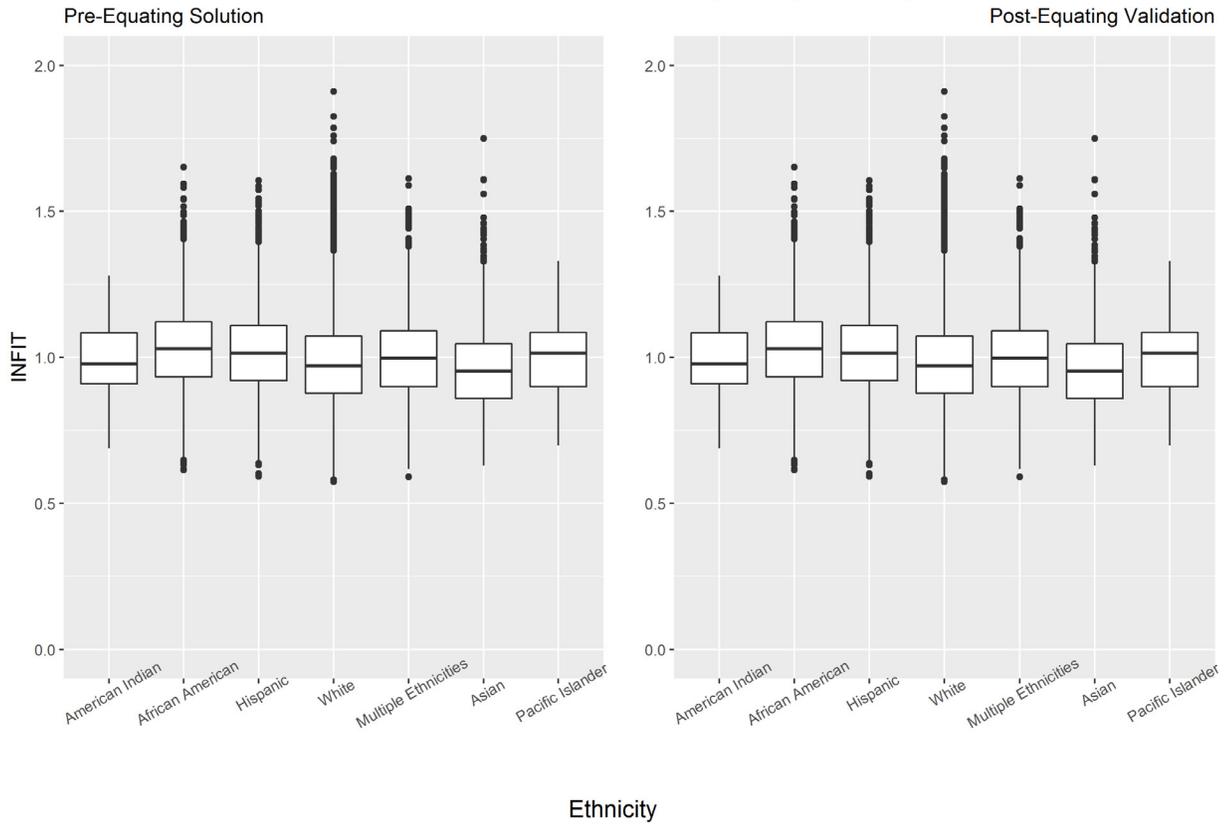


Science Grade 4 Person Infit Boxplots by EL

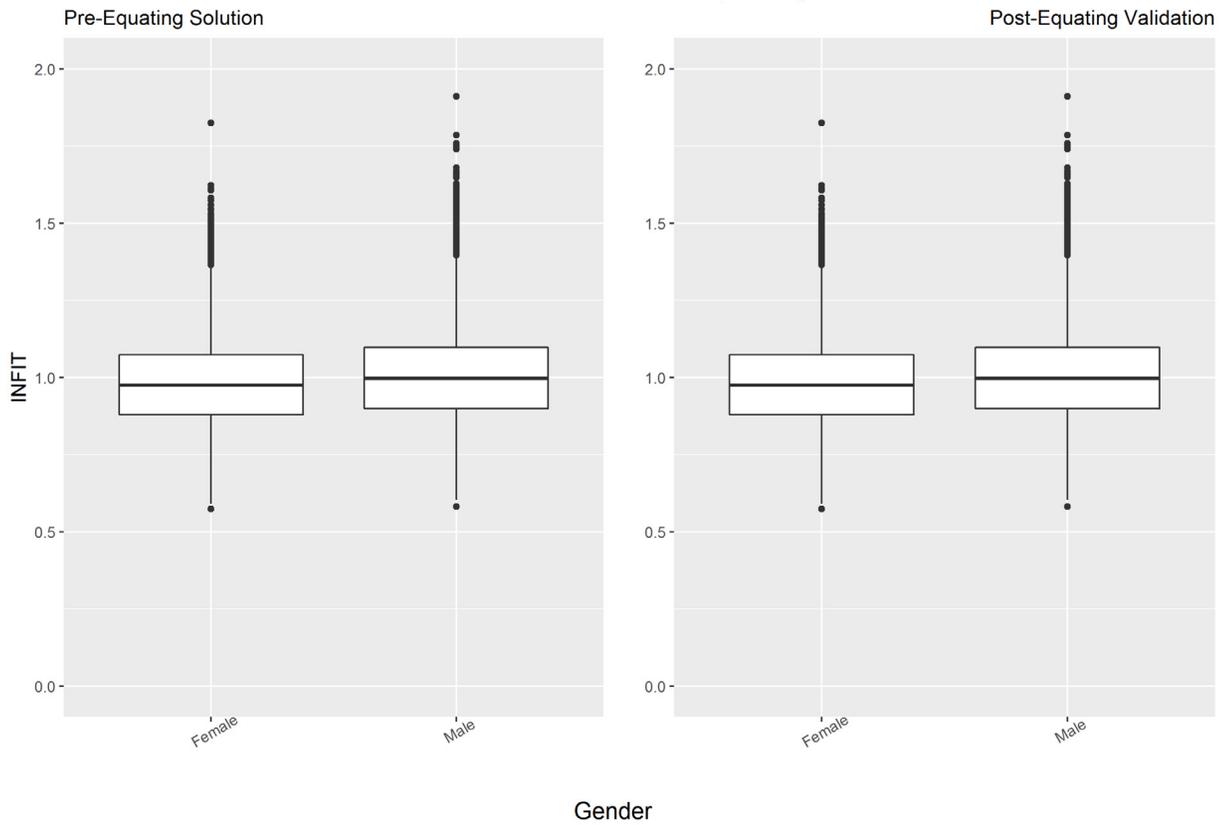


Science Grade 8

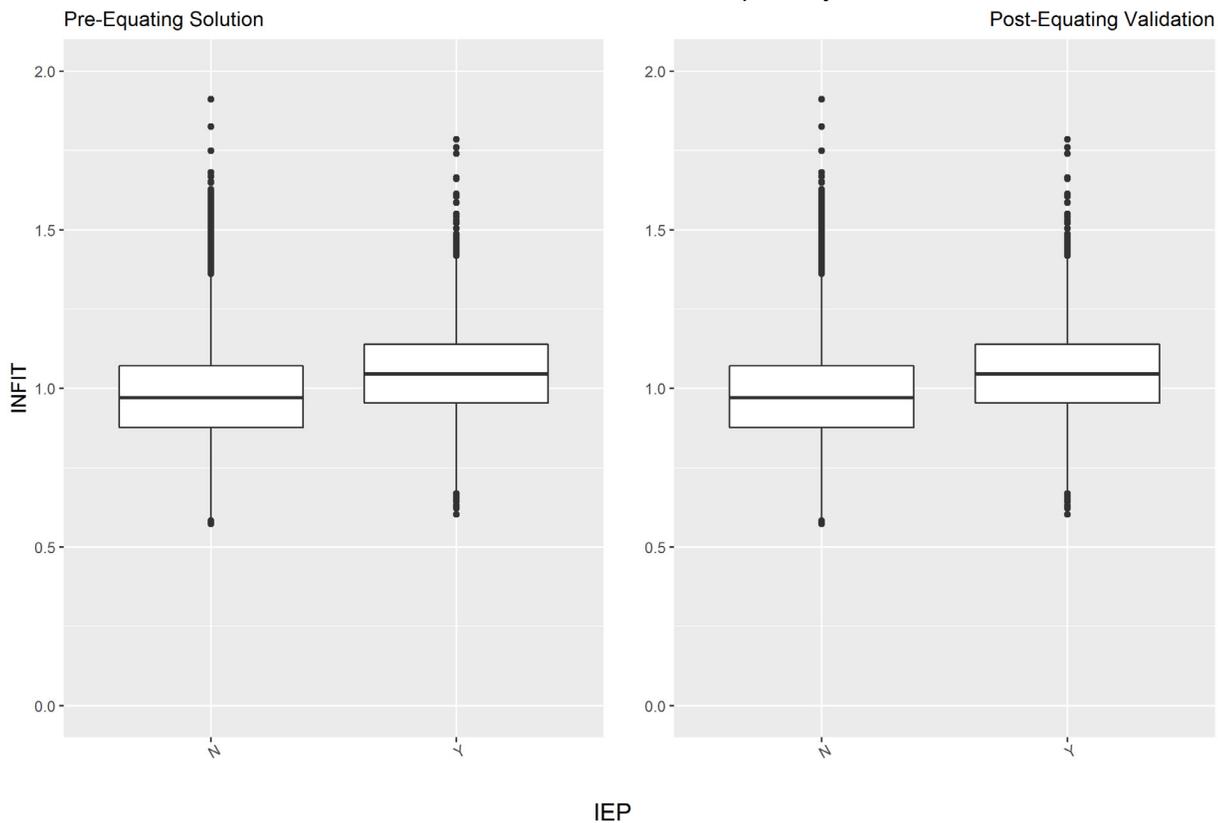
Science Grade 8 Person Infit Boxplots by Ethnicity



Science Grade 8 Person Infit Boxplots by Gender



Science Grade 8 Person Infit Boxplots by IEP



Science Grade 8 Person Infit Boxplots by EL

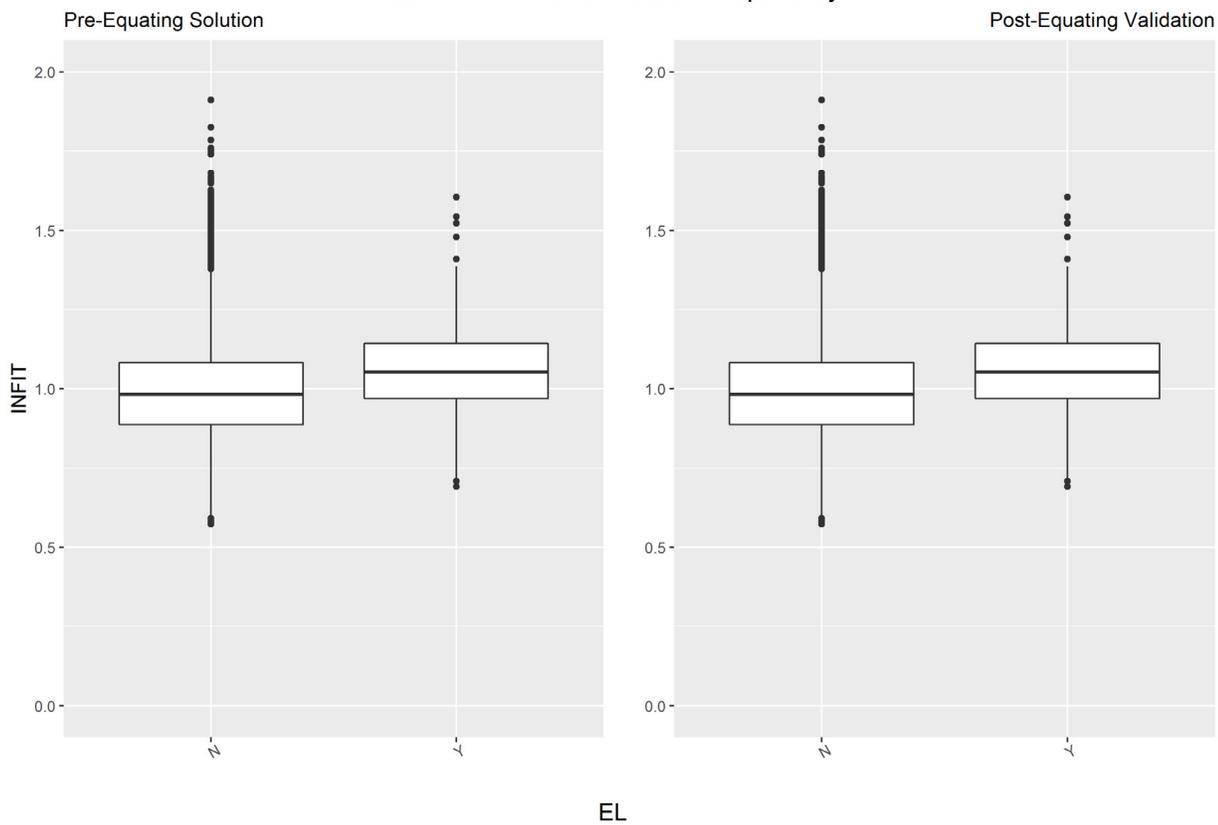
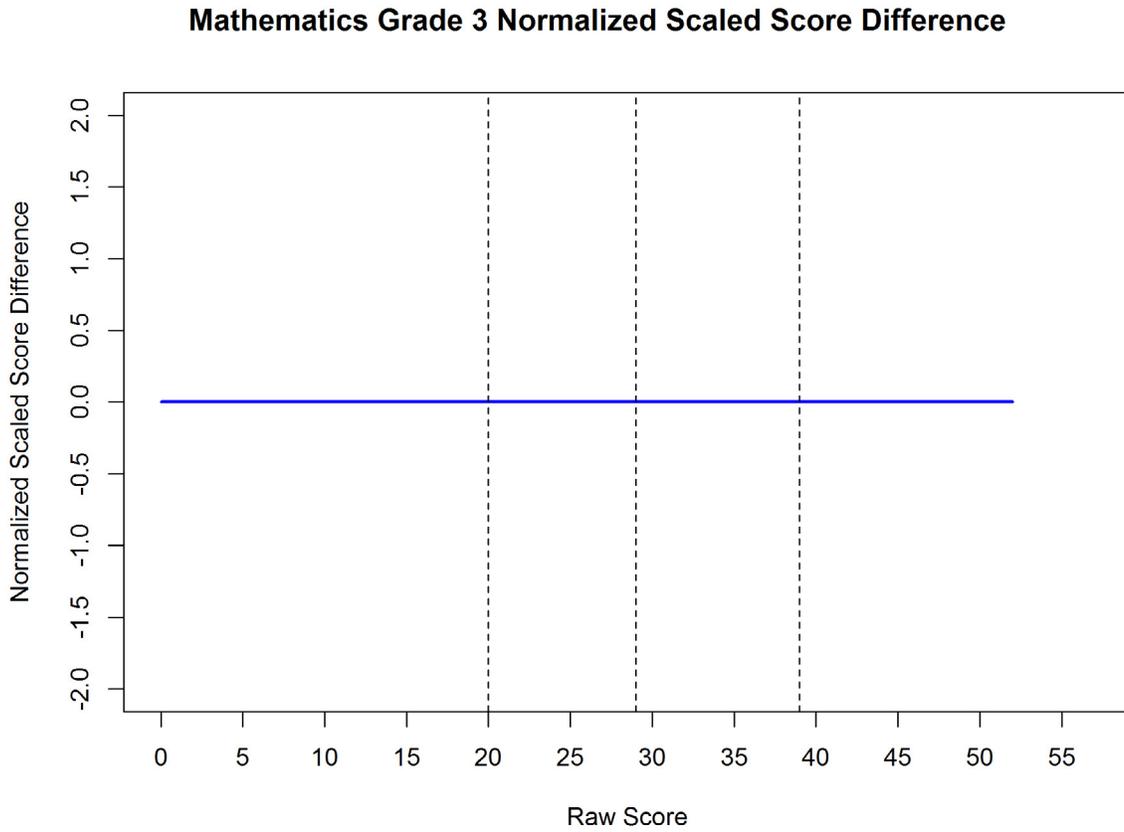
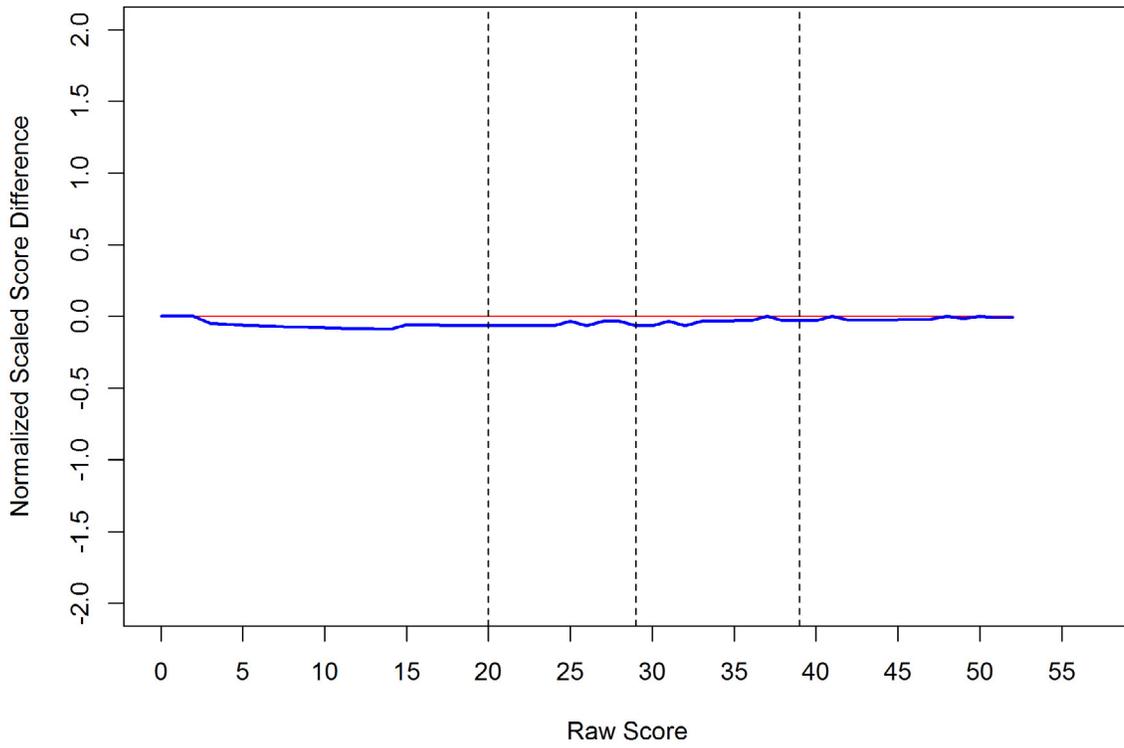


Figure T-2 displays the normalized scale score distributions by subject and grade across raw score points. The blue line represents the normalized scaled score difference between pre- and post-equated solutions at each raw score point. The red line represents no change between the solutions and the black dotted vertical lines represent the original raw cut-scores for each performance level classification (Basic, Proficient, and Advanced). If no red line is shown, then there were no differences between pre- and post-equated solutions.

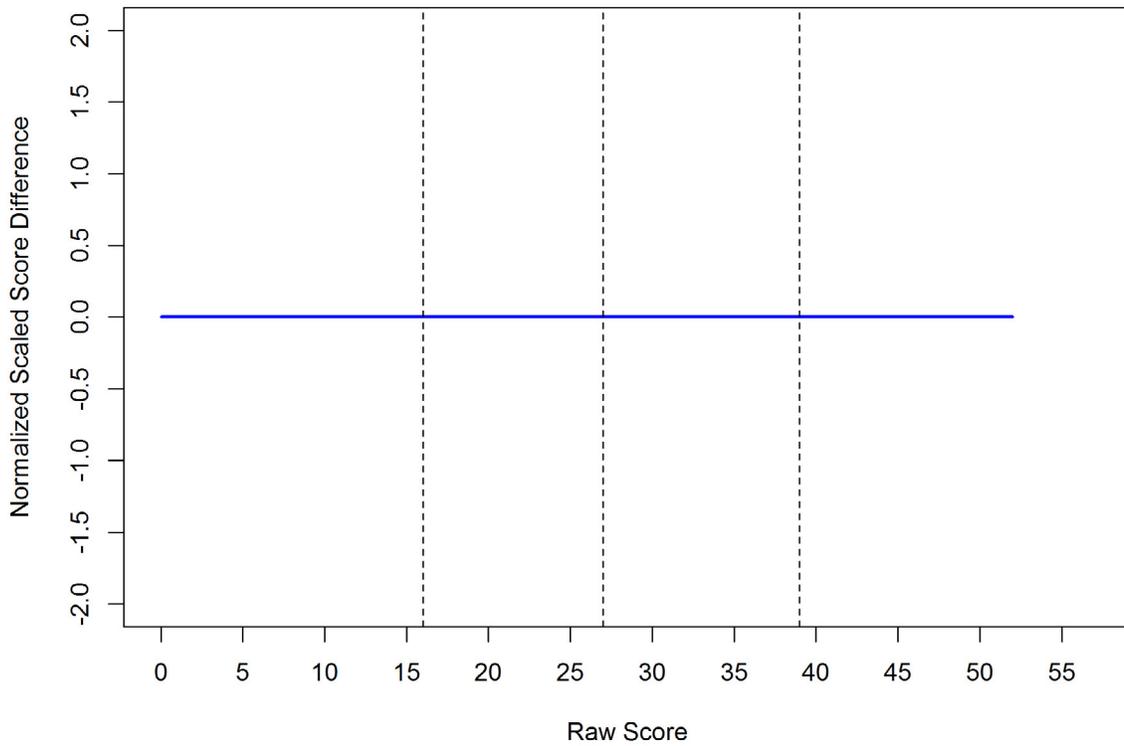
Figure T-2. Normalized Scale Score Distributions by Subject and Grade



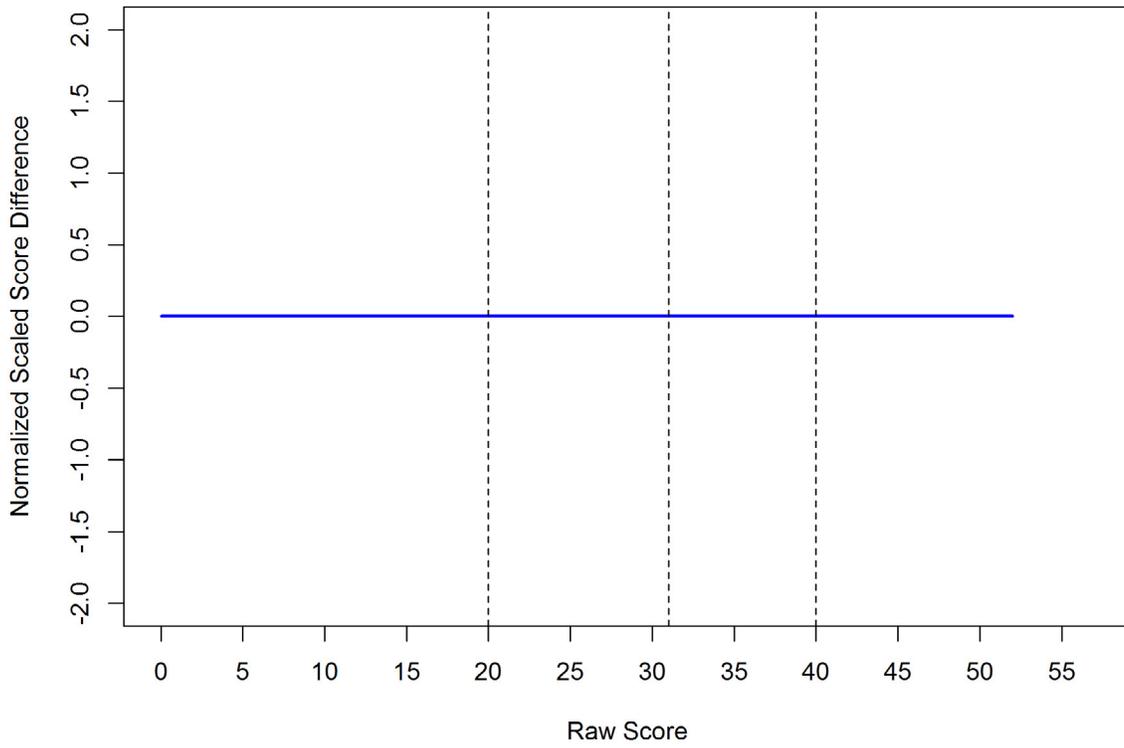
Mathematics Grade 4 Normalized Scaled Score Difference



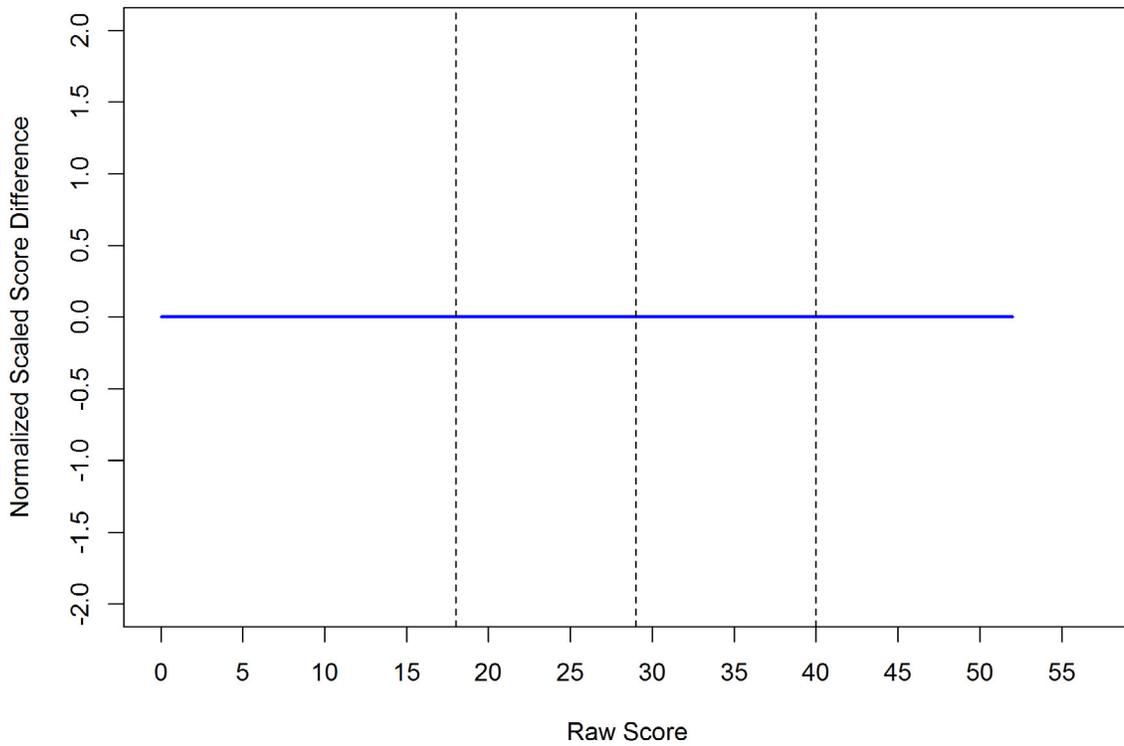
Mathematics Grade 5 Normalized Scaled Score Difference



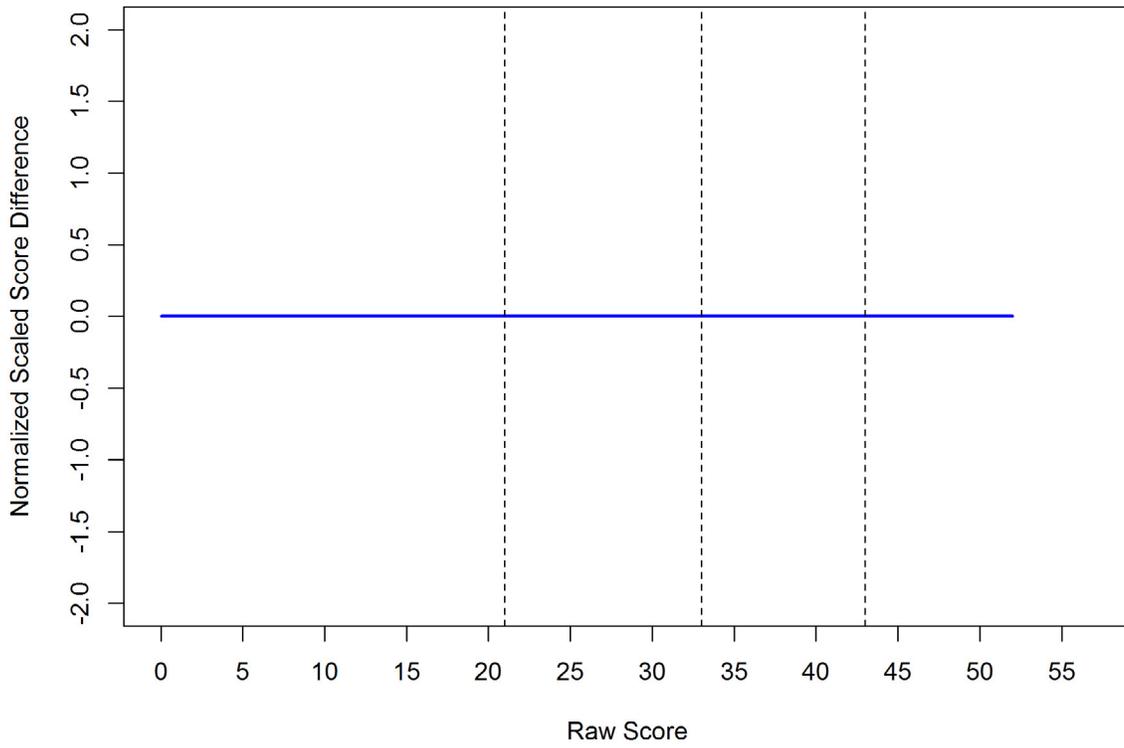
Mathematics Grade 6 Normalized Scaled Score Difference



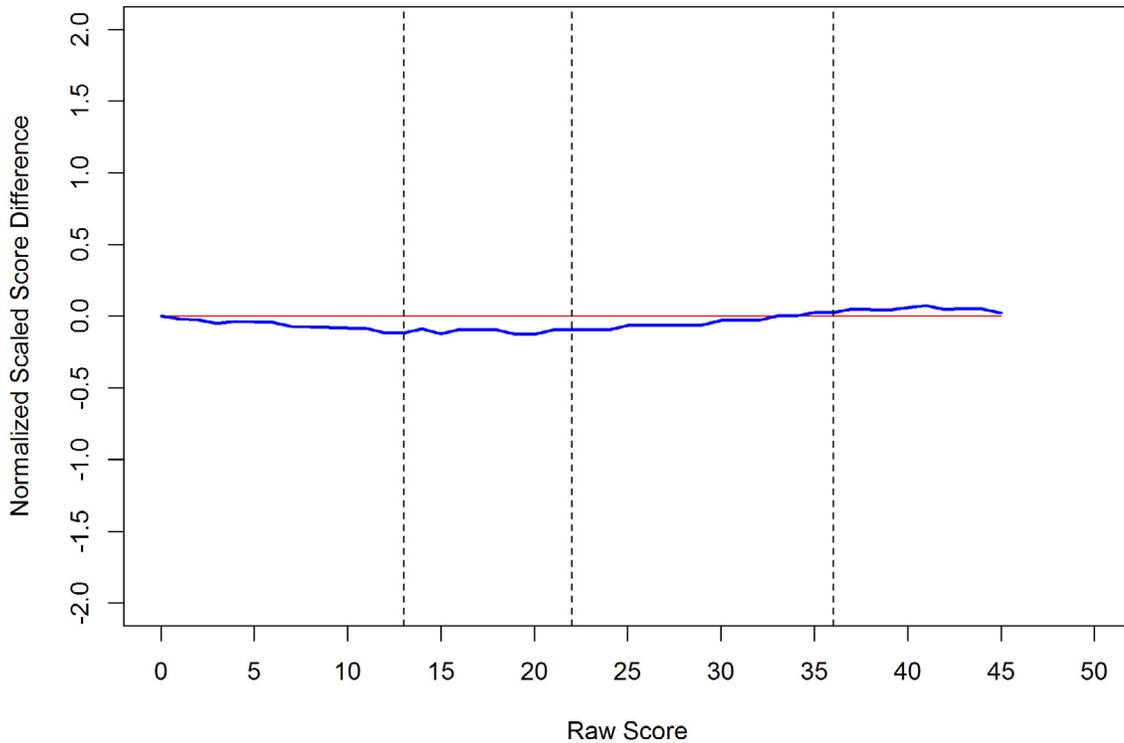
Mathematics Grade 7 Normalized Scaled Score Difference



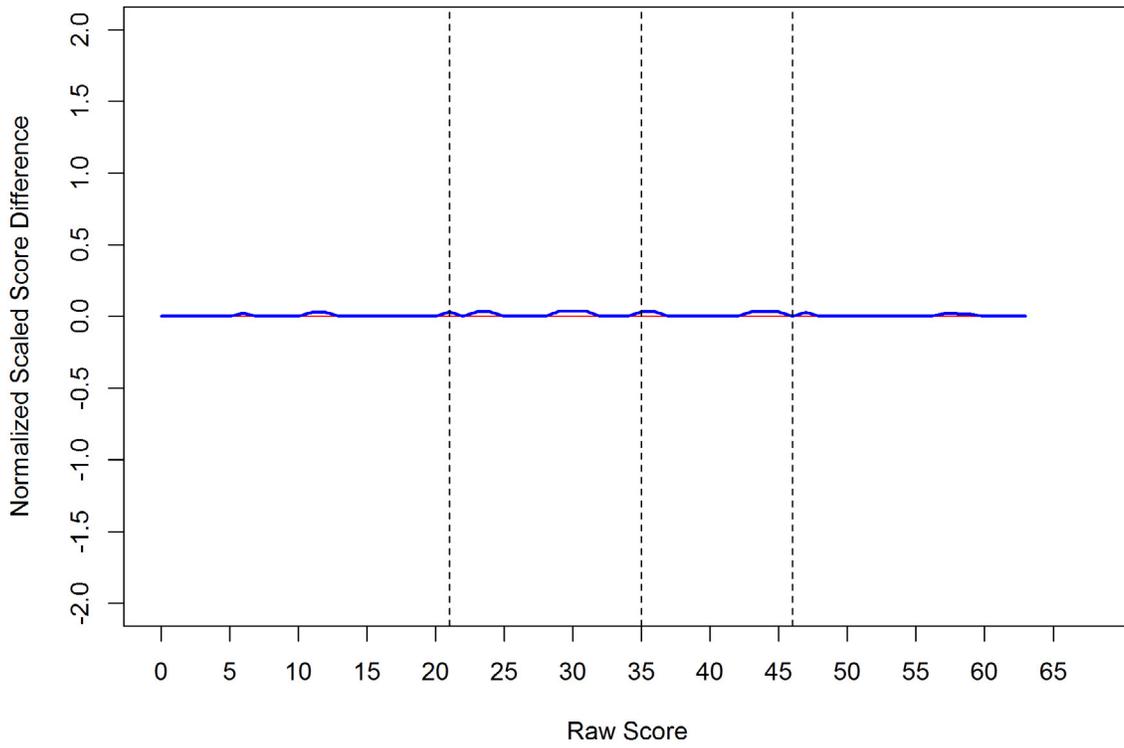
Mathematics Grade 8 Normalized Scaled Score Difference



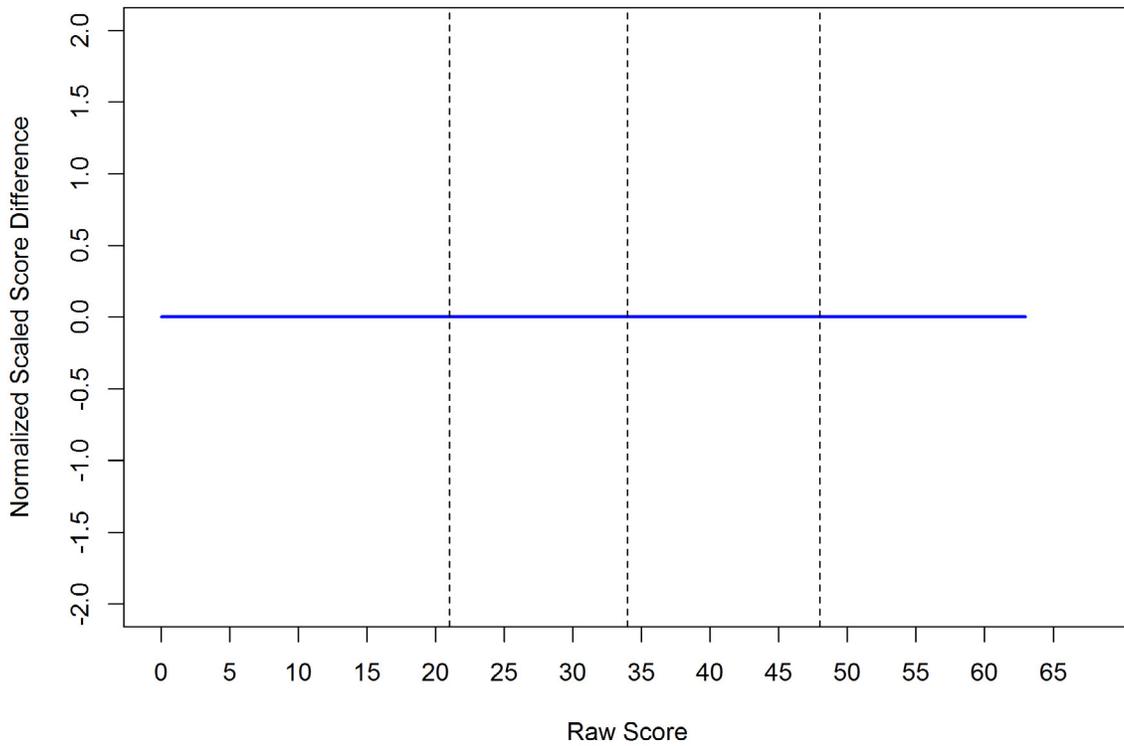
ELA Grade 3 Normalized Scaled Score Difference



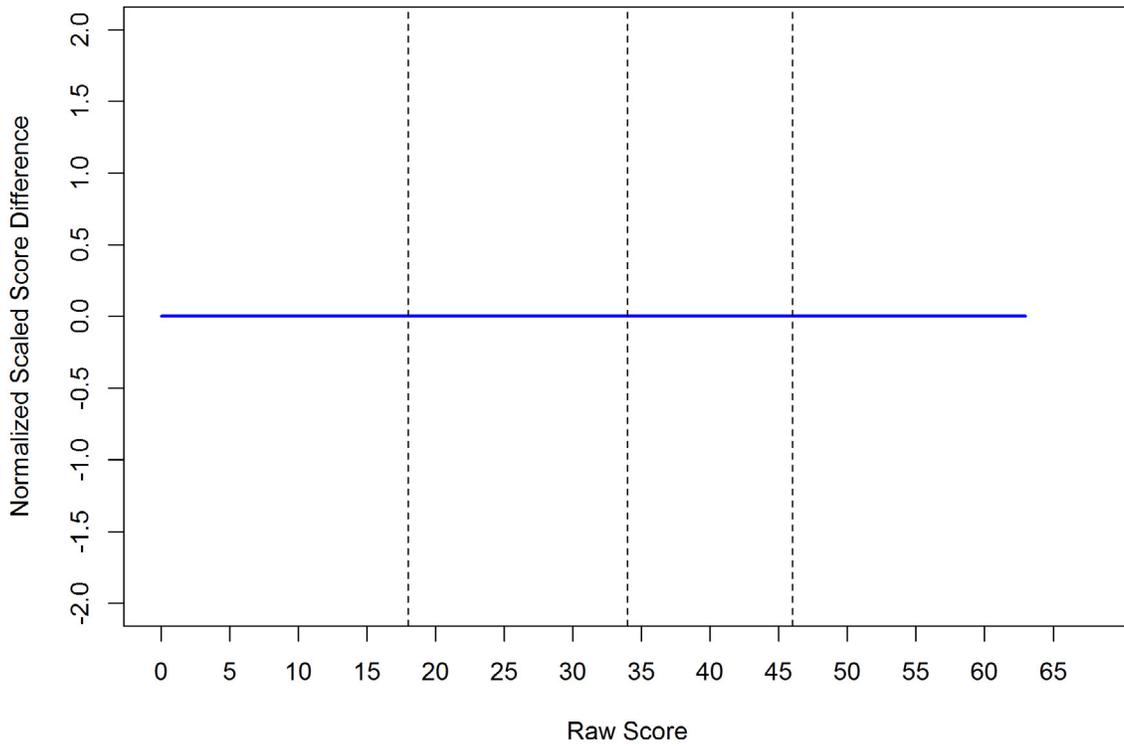
ELA Grade 4 Normalized Scaled Score Difference



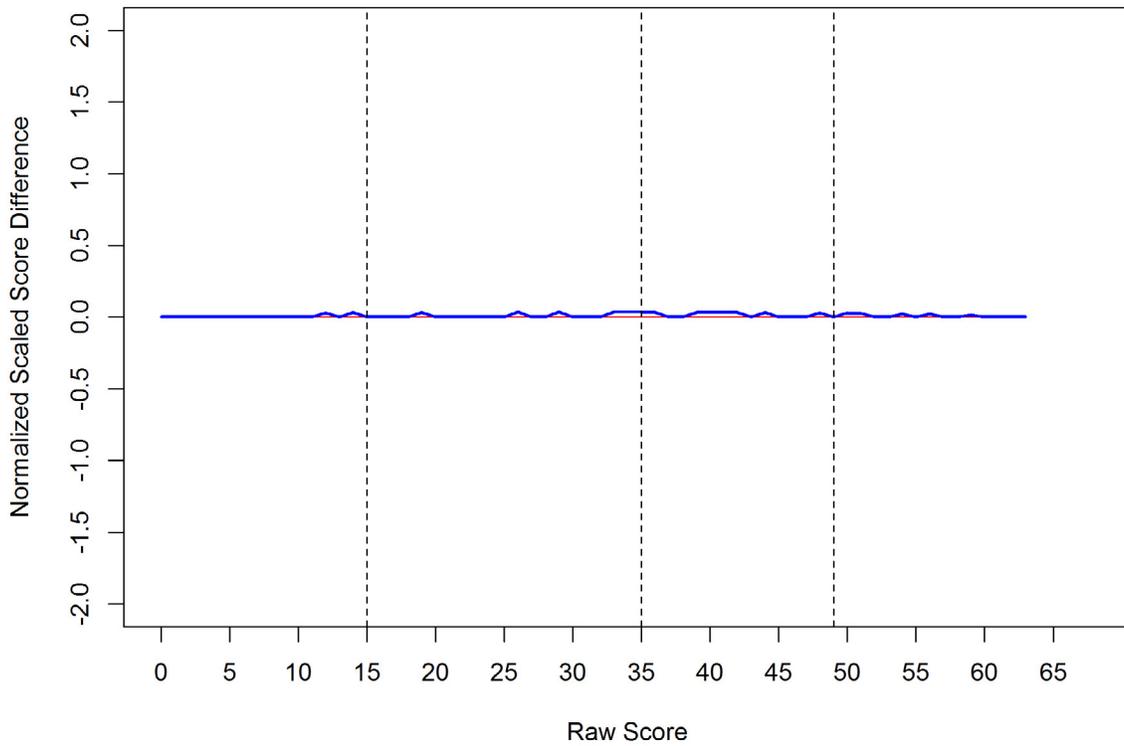
ELA Grade 5 Normalized Scaled Score Difference



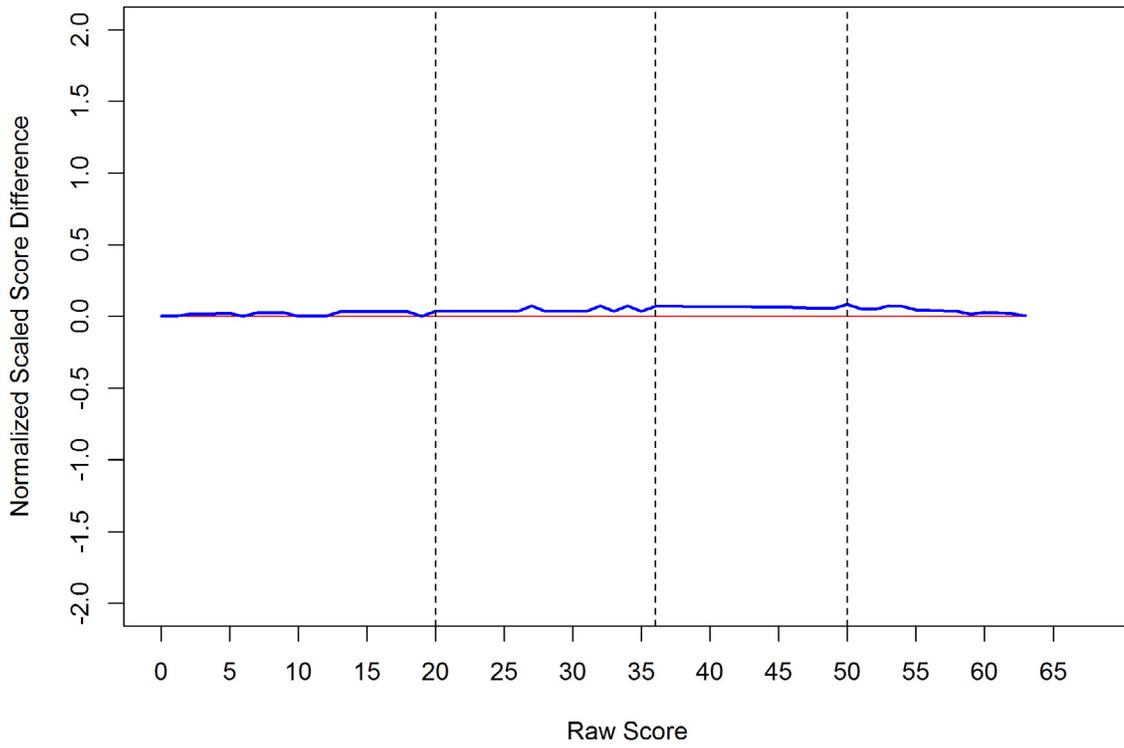
ELA Grade 6 Normalized Scaled Score Difference



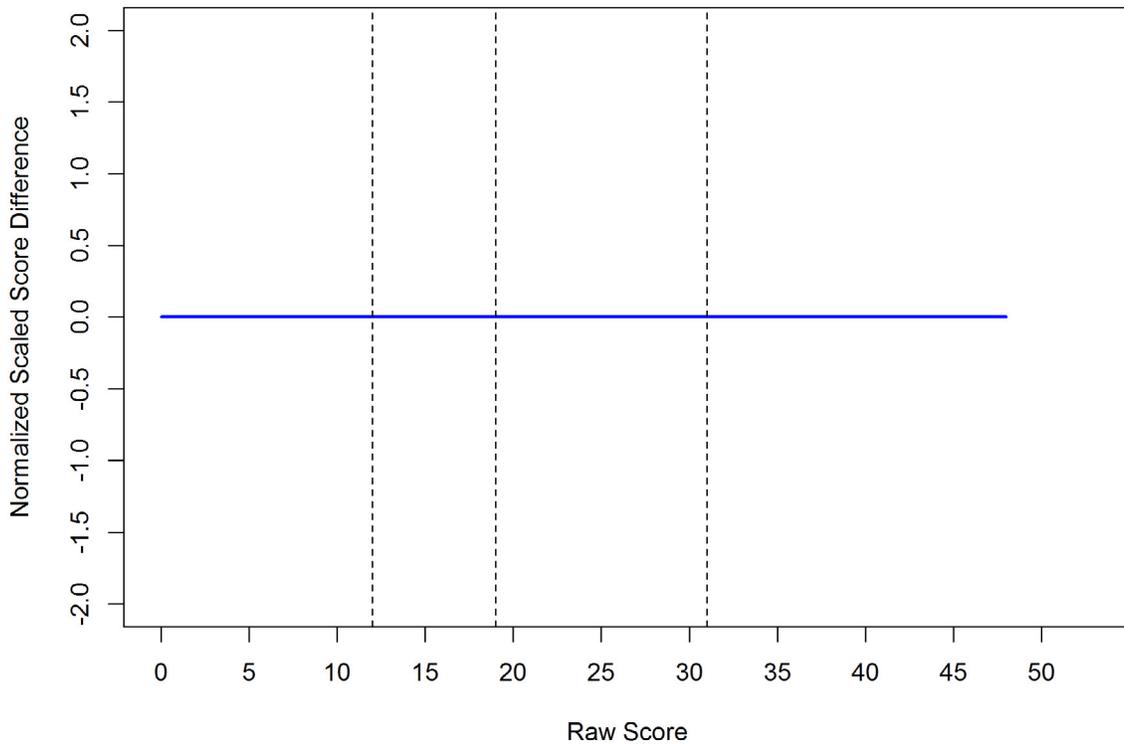
ELA Grade 7 Normalized Scaled Score Difference



ELA Grade 8 Normalized Scaled Score Difference



Science Grade 4 Normalized Scaled Score Difference



Science Grade 8 Normalized Scaled Score Difference

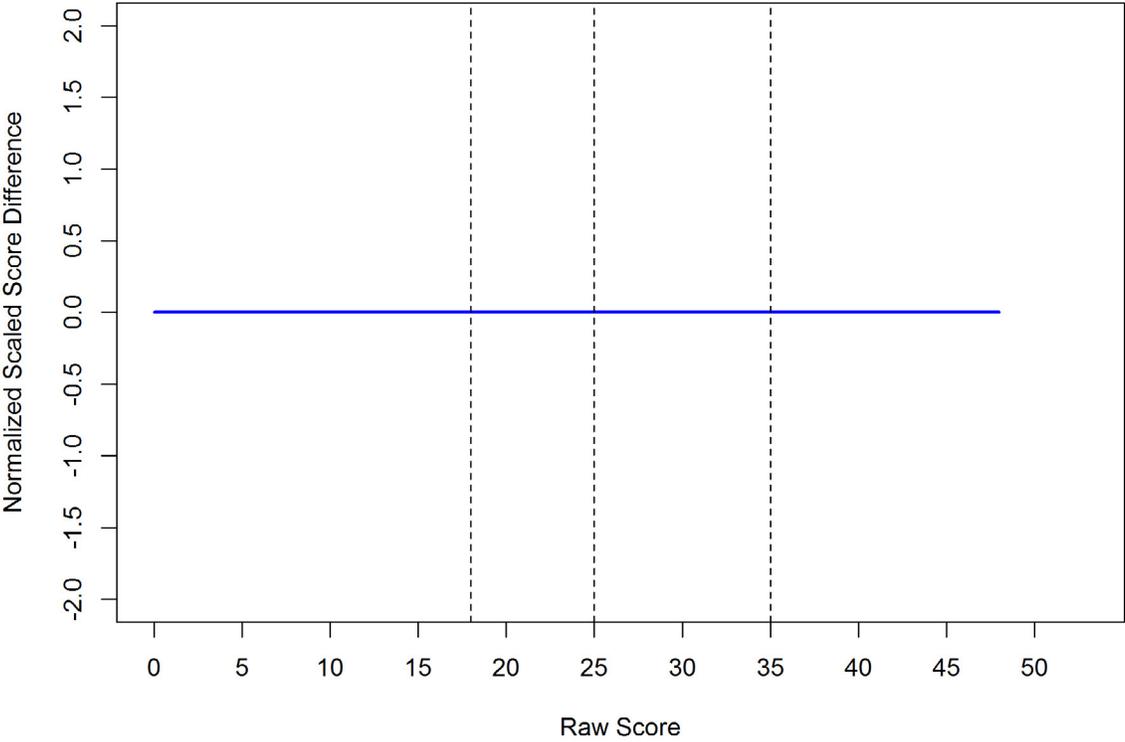


Table T-1. Pre- and Post-Equated Conversion Tables by Subject and Grade

Mathematics Grade 3 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 184 | 184 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 102 | 102 | BB | BB | 0.0 | True |
| 2 | 629 | 629 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 673 | 673 | 61 | 61 | BB | BB | 0.0 | True |
| 4 | 706 | 706 | 53 | 53 | BB | BB | 0.1 | True |
| 5 | 731 | 731 | 48 | 48 | BB | BB | 0.2 | True |
| 6 | 753 | 753 | 45 | 45 | BB | BB | 0.3 | True |
| 7 | 772 | 772 | 42 | 42 | BB | BB | 0.6 | True |
| 8 | 789 | 789 | 40 | 40 | BB | BB | 0.9 | True |
| 9 | 804 | 804 | 38 | 38 | BB | BB | 1.3 | True |
| 10 | 818 | 818 | 37 | 37 | BB | BB | 1.9 | True |
| 11 | 832 | 832 | 36 | 36 | BB | BB | 2.1 | True |
| 12 | 844 | 844 | 35 | 35 | BB | BB | 2.3 | True |
| 13 | 856 | 856 | 34 | 34 | BB | BB | 2.6 | True |
| 14 | 867 | 867 | 33 | 33 | BB | BB | 2.6 | True |
| 15 | 878 | 878 | 33 | 33 | BB | BB | 2.5 | True |
| 16 | 888 | 888 | 32 | 32 | BB | BB | 2.7 | True |
| 17 | 898 | 898 | 32 | 32 | BB | BB | 2.5 | True |
| 18 | 908 | 908 | 31 | 31 | BB | BB | 2.4 | True |
| 19 | 918 | 918 | 31 | 31 | BB | BB | 2.4 | True |
| 20 | 927 | 927 | 31 | 31 | B | B | 2.5 | True |
| 21 | 937 | 937 | 30 | 30 | B | B | 2.5 | True |
| 22 | 946 | 946 | 30 | 30 | B | B | 2.5 | True |
| 23 | 955 | 955 | 30 | 30 | B | B | 2.6 | True |
| 24 | 964 | 964 | 30 | 30 | B | B | 2.6 | True |
| 25 | 973 | 973 | 30 | 30 | B | B | 2.6 | True |
| 26 | 982 | 982 | 30 | 30 | B | B | 2.7 | True |
| 27 | 991 | 991 | 30 | 30 | B | B | 2.7 | True |
| 28 | 999 | 999 | 30 | 30 | B | B | 2.7 | True |
| 29 | 1009 | 1009 | 30 | 30 | P | P | 2.7 | True |
| 30 | 1018 | 1018 | 30 | 30 | P | P | 2.9 | True |
| 31 | 1027 | 1027 | 31 | 31 | P | P | 2.8 | True |
| 32 | 1036 | 1036 | 31 | 31 | P | P | 2.8 | True |
| 33 | 1046 | 1046 | 31 | 31 | P | P | 2.8 | True |
| 34 | 1056 | 1056 | 32 | 32 | P | P | 2.7 | True |
| 35 | 1066 | 1066 | 32 | 32 | P | P | 2.7 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 36 | 1077 | 1077 | 33 | 33 | P | P | 2.6 | True |
| 37 | 1087 | 1087 | 33 | 33 | P | P | 2.6 | True |
| 38 | 1099 | 1099 | 34 | 34 | P | P | 2.7 | True |
| 39 | 1111 | 1111 | 35 | 35 | A | A | 2.6 | True |
| 40 | 1123 | 1123 | 36 | 36 | A | A | 2.5 | True |
| 41 | 1137 | 1137 | 37 | 37 | A | A | 2.4 | True |
| 42 | 1151 | 1151 | 39 | 39 | A | A | 2.3 | True |
| 43 | 1166 | 1166 | 40 | 40 | A | A | 2.3 | True |
| 44 | 1183 | 1183 | 42 | 42 | A | A | 2.2 | True |
| 45 | 1202 | 1202 | 44 | 44 | A | A | 1.9 | True |
| 46 | 1222 | 1222 | 47 | 47 | A | A | 1.7 | True |
| 47 | 1246 | 1246 | 51 | 51 | A | A | 1.4 | True |
| 48 | 1274 | 1274 | 55 | 55 | A | A | 1.1 | True |
| 49 | 1308 | 1308 | 62 | 62 | A | A | 0.8 | True |
| 50 | 1354 | 1354 | 75 | 75 | A | A | 0.6 | True |
| 51 | 1429 | 1429 | 103 | 103 | A | A | 0.3 | True |
| 52 | 1553 | 1553 | 184 | 184 | A | A | 0.1 | True |

Mathematics Grade 4 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 184 | 184 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 103 | 103 | BB | BB | 0.0 | True |
| 2 | 600 | 600 | 74 | 74 | BB | BB | 0.0 | True |
| 3 | 643 | 646 | 62 | 62 | BB | BB | 0.0 | True |
| 4 | 676 | 679 | 55 | 55 | BB | BB | 0.1 | True |
| 5 | 703 | 706 | 50 | 50 | BB | BB | 0.1 | True |
| 6 | 726 | 729 | 46 | 46 | BB | BB | 0.3 | True |
| 7 | 746 | 749 | 44 | 43 | BB | BB | 0.5 | True |
| 8 | 764 | 767 | 41 | 41 | BB | BB | 0.8 | True |
| 9 | 781 | 784 | 40 | 40 | BB | BB | 1.2 | True |
| 10 | 796 | 799 | 38 | 38 | BB | BB | 1.4 | True |
| 11 | 810 | 813 | 37 | 37 | BB | BB | 1.9 | True |
| 12 | 823 | 826 | 36 | 36 | BB | BB | 2.0 | True |
| 13 | 836 | 839 | 35 | 35 | BB | BB | 2.3 | True |
| 14 | 848 | 851 | 34 | 34 | BB | BB | 2.5 | True |
| 15 | 860 | 862 | 34 | 34 | BB | BB | 2.8 | True |
| 16 | 871 | 873 | 33 | 33 | BB | BB | 2.9 | True |
| 17 | 882 | 884 | 33 | 33 | BB | BB | 3.0 | True |
| 18 | 893 | 895 | 32 | 32 | BB | BB | 3.0 | True |
| 19 | 903 | 905 | 32 | 32 | BB | BB | 3.1 | True |
| 20 | 913 | 915 | 32 | 32 | B | B | 3.1 | True |
| 21 | 923 | 925 | 32 | 31 | B | B | 3.1 | True |
| 22 | 933 | 935 | 31 | 31 | B | B | 3.2 | True |
| 23 | 943 | 945 | 31 | 31 | B | B | 3.0 | True |
| 24 | 953 | 955 | 31 | 31 | B | B | 3.1 | True |
| 25 | 963 | 964 | 31 | 31 | B | B | 3.1 | True |
| 26 | 972 | 974 | 31 | 31 | B | B | 3.1 | True |
| 27 | 982 | 983 | 31 | 31 | B | B | 2.9 | True |
| 28 | 992 | 993 | 31 | 31 | B | B | 2.9 | True |
| 29 | 1001 | 1003 | 31 | 31 | P | P | 2.8 | True |
| 30 | 1011 | 1013 | 31 | 31 | P | P | 2.8 | True |
| 31 | 1021 | 1022 | 32 | 32 | P | P | 2.8 | True |
| 32 | 1031 | 1033 | 32 | 32 | P | P | 2.8 | True |
| 33 | 1042 | 1043 | 32 | 32 | P | P | 2.7 | True |
| 34 | 1052 | 1053 | 32 | 32 | P | P | 2.6 | True |
| 35 | 1063 | 1064 | 33 | 33 | P | P | 2.6 | True |
| 36 | 1073 | 1074 | 33 | 33 | P | P | 2.5 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1085 | 1085 | 34 | 34 | P | P | 2.5 | True |
| 38 | 1096 | 1097 | 34 | 34 | P | P | 2.4 | True |
| 39 | 1108 | 1109 | 35 | 35 | A | A | 2.3 | True |
| 40 | 1120 | 1121 | 36 | 36 | A | A | 2.3 | True |
| 41 | 1134 | 1134 | 37 | 37 | A | A | 2.3 | True |
| 42 | 1147 | 1148 | 38 | 38 | A | A | 2.0 | True |
| 43 | 1162 | 1163 | 39 | 39 | A | A | 1.9 | True |
| 44 | 1178 | 1179 | 41 | 41 | A | A | 1.6 | True |
| 45 | 1196 | 1197 | 43 | 43 | A | A | 1.4 | True |
| 46 | 1216 | 1217 | 46 | 46 | A | A | 1.3 | True |
| 47 | 1239 | 1240 | 50 | 50 | A | A | 1.0 | True |
| 48 | 1267 | 1267 | 56 | 56 | A | A | 0.8 | True |
| 49 | 1302 | 1303 | 64 | 64 | A | A | 0.5 | True |
| 50 | 1351 | 1351 | 77 | 77 | A | A | 0.3 | True |
| 51 | 1431 | 1432 | 106 | 106 | A | A | 0.2 | True |
| 52 | 1561 | 1562 | 187 | 187 | A | A | 0.0 | True |

Mathematics Grade 5 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 101 | 101 | BB | BB | 0.0 | True |
| 2 | 653 | 653 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 697 | 697 | 60 | 60 | BB | BB | 0.1 | True |
| 4 | 728 | 728 | 53 | 53 | BB | BB | 0.1 | True |
| 5 | 753 | 753 | 48 | 48 | BB | BB | 0.4 | True |
| 6 | 775 | 775 | 44 | 44 | BB | BB | 0.6 | True |
| 7 | 793 | 793 | 42 | 42 | BB | BB | 1.2 | True |
| 8 | 809 | 809 | 39 | 39 | BB | BB | 1.9 | True |
| 9 | 824 | 824 | 38 | 38 | BB | BB | 2.5 | True |
| 10 | 838 | 838 | 36 | 36 | BB | BB | 3.1 | True |
| 11 | 850 | 850 | 35 | 35 | BB | BB | 3.4 | True |
| 12 | 862 | 862 | 34 | 34 | BB | BB | 3.8 | True |
| 13 | 873 | 873 | 33 | 33 | BB | BB | 3.8 | True |
| 14 | 884 | 884 | 32 | 32 | BB | BB | 3.9 | True |
| 15 | 894 | 894 | 32 | 32 | BB | BB | 3.8 | True |
| 16 | 904 | 904 | 31 | 31 | B | B | 3.6 | True |
| 17 | 914 | 914 | 31 | 31 | B | B | 3.5 | True |
| 18 | 923 | 923 | 30 | 30 | B | B | 3.4 | True |
| 19 | 932 | 932 | 30 | 30 | B | B | 3.1 | True |
| 20 | 941 | 941 | 30 | 30 | B | B | 3.2 | True |
| 21 | 950 | 950 | 30 | 30 | B | B | 3.0 | True |
| 22 | 959 | 959 | 29 | 29 | B | B | 2.9 | True |
| 23 | 967 | 967 | 29 | 29 | B | B | 2.9 | True |
| 24 | 976 | 976 | 29 | 29 | B | B | 2.9 | True |
| 25 | 984 | 984 | 29 | 29 | B | B | 2.6 | True |
| 26 | 993 | 993 | 29 | 29 | B | B | 2.6 | True |
| 27 | 1001 | 1001 | 29 | 29 | P | P | 2.4 | True |
| 28 | 1010 | 1010 | 29 | 29 | P | P | 2.3 | True |
| 29 | 1019 | 1019 | 29 | 29 | P | P | 2.3 | True |
| 30 | 1027 | 1027 | 30 | 30 | P | P | 2.1 | True |
| 31 | 1036 | 1036 | 30 | 30 | P | P | 2.2 | True |
| 32 | 1045 | 1045 | 30 | 30 | P | P | 2.0 | True |
| 33 | 1054 | 1054 | 30 | 30 | P | P | 2.0 | True |
| 34 | 1063 | 1063 | 31 | 31 | P | P | 2.0 | True |
| 35 | 1073 | 1073 | 31 | 31 | P | P | 1.9 | True |
| 36 | 1083 | 1083 | 32 | 32 | P | P | 1.8 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1093 | 1093 | 32 | 32 | P | P | 1.8 | True |
| 38 | 1103 | 1103 | 33 | 33 | P | P | 1.7 | True |
| 39 | 1114 | 1114 | 34 | 34 | A | A | 1.6 | True |
| 40 | 1126 | 1126 | 35 | 35 | A | A | 1.6 | True |
| 41 | 1138 | 1138 | 36 | 36 | A | A | 1.4 | True |
| 42 | 1151 | 1151 | 37 | 37 | A | A | 1.4 | True |
| 43 | 1165 | 1165 | 38 | 38 | A | A | 1.3 | True |
| 44 | 1181 | 1181 | 40 | 40 | A | A | 1.2 | True |
| 45 | 1198 | 1198 | 42 | 42 | A | A | 1.1 | True |
| 46 | 1217 | 1217 | 45 | 45 | A | A | 1.0 | True |
| 47 | 1239 | 1239 | 49 | 49 | A | A | 0.9 | True |
| 48 | 1265 | 1265 | 54 | 54 | A | A | 0.7 | True |
| 49 | 1298 | 1298 | 61 | 61 | A | A | 0.5 | True |
| 50 | 1343 | 1343 | 74 | 74 | A | A | 0.4 | True |
| 51 | 1417 | 1417 | 102 | 102 | A | A | 0.2 | True |
| 52 | 1541 | 1541 | 184 | 184 | A | A | 0.1 | True |

Mathematics Grade 6 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 102 | 102 | BB | BB | 0.0 | True |
| 2 | 609 | 609 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 652 | 652 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 684 | 684 | 53 | 53 | BB | BB | 0.1 | True |
| 5 | 710 | 710 | 48 | 48 | BB | BB | 0.2 | True |
| 6 | 731 | 731 | 45 | 45 | BB | BB | 0.5 | True |
| 7 | 750 | 750 | 42 | 42 | BB | BB | 0.9 | True |
| 8 | 767 | 767 | 40 | 40 | BB | BB | 1.4 | True |
| 9 | 782 | 782 | 38 | 38 | BB | BB | 2.0 | True |
| 10 | 796 | 796 | 37 | 37 | BB | BB | 2.6 | True |
| 11 | 809 | 809 | 36 | 36 | BB | BB | 3.1 | True |
| 12 | 821 | 821 | 35 | 35 | BB | BB | 3.4 | True |
| 13 | 833 | 833 | 34 | 34 | BB | BB | 3.3 | True |
| 14 | 844 | 844 | 33 | 33 | BB | BB | 3.6 | True |
| 15 | 855 | 855 | 33 | 33 | BB | BB | 3.3 | True |
| 16 | 865 | 865 | 32 | 32 | BB | BB | 3.3 | True |
| 17 | 875 | 875 | 32 | 32 | BB | BB | 3.2 | True |
| 18 | 885 | 885 | 31 | 31 | BB | BB | 3.0 | True |
| 19 | 895 | 895 | 31 | 31 | BB | BB | 3.0 | True |
| 20 | 904 | 904 | 31 | 31 | B | B | 2.9 | True |
| 21 | 914 | 914 | 31 | 31 | B | B | 2.7 | True |
| 22 | 923 | 923 | 30 | 30 | B | B | 2.9 | True |
| 23 | 932 | 932 | 30 | 30 | B | B | 2.6 | True |
| 24 | 942 | 942 | 30 | 30 | B | B | 2.7 | True |
| 25 | 951 | 951 | 30 | 30 | B | B | 2.6 | True |
| 26 | 960 | 960 | 30 | 30 | B | B | 2.5 | True |
| 27 | 969 | 969 | 31 | 31 | B | B | 2.4 | True |
| 28 | 979 | 979 | 31 | 31 | B | B | 2.6 | True |
| 29 | 988 | 988 | 31 | 31 | B | B | 2.5 | True |
| 30 | 998 | 998 | 31 | 31 | B | B | 2.4 | True |
| 31 | 1008 | 1008 | 31 | 31 | P | P | 2.3 | True |
| 32 | 1017 | 1017 | 32 | 32 | P | P | 2.3 | True |
| 33 | 1028 | 1028 | 32 | 32 | P | P | 2.5 | True |
| 34 | 1038 | 1038 | 32 | 32 | P | P | 2.3 | True |
| 35 | 1049 | 1049 | 33 | 33 | P | P | 2.3 | True |
| 36 | 1060 | 1060 | 33 | 33 | P | P | 2.3 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1071 | 1071 | 34 | 34 | P | P | 2.0 | True |
| 38 | 1083 | 1083 | 35 | 35 | P | P | 1.9 | True |
| 39 | 1095 | 1095 | 35 | 35 | P | P | 2.0 | True |
| 40 | 1108 | 1108 | 36 | 36 | A | A | 1.9 | True |
| 41 | 1122 | 1122 | 37 | 37 | A | A | 2.0 | True |
| 42 | 1136 | 1136 | 38 | 38 | A | A | 1.8 | True |
| 43 | 1151 | 1151 | 40 | 40 | A | A | 1.6 | True |
| 44 | 1167 | 1167 | 41 | 41 | A | A | 1.6 | True |
| 45 | 1185 | 1185 | 43 | 43 | A | A | 1.3 | True |
| 46 | 1205 | 1205 | 45 | 45 | A | A | 1.1 | True |
| 47 | 1227 | 1227 | 49 | 49 | A | A | 1.0 | True |
| 48 | 1252 | 1252 | 53 | 53 | A | A | 0.8 | True |
| 49 | 1284 | 1284 | 60 | 60 | A | A | 0.5 | True |
| 50 | 1327 | 1327 | 72 | 72 | A | A | 0.4 | True |
| 51 | 1399 | 1399 | 101 | 101 | A | A | 0.1 | True |
| 52 | 1521 | 1521 | 183 | 183 | A | A | 0.1 | True |

Mathematics Grade 7 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 101 | 101 | BB | BB | 0.0 | True |
| 2 | 635 | 635 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 679 | 679 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 711 | 711 | 53 | 53 | BB | BB | 0.1 | True |
| 5 | 736 | 736 | 48 | 48 | BB | BB | 0.3 | True |
| 6 | 757 | 757 | 45 | 45 | BB | BB | 0.7 | True |
| 7 | 776 | 776 | 42 | 42 | BB | BB | 1.2 | True |
| 8 | 793 | 793 | 40 | 40 | BB | BB | 1.9 | True |
| 9 | 808 | 808 | 38 | 38 | BB | BB | 2.6 | True |
| 10 | 822 | 822 | 37 | 37 | BB | BB | 3.5 | True |
| 11 | 835 | 835 | 35 | 35 | BB | BB | 4.1 | True |
| 12 | 847 | 847 | 34 | 34 | BB | BB | 4.6 | True |
| 13 | 858 | 858 | 33 | 33 | BB | BB | 5.0 | True |
| 14 | 869 | 869 | 33 | 33 | BB | BB | 4.9 | True |
| 15 | 880 | 880 | 32 | 32 | BB | BB | 4.8 | True |
| 16 | 890 | 890 | 32 | 32 | BB | BB | 4.5 | True |
| 17 | 900 | 900 | 31 | 31 | BB | BB | 4.1 | True |
| 18 | 909 | 909 | 31 | 31 | B | B | 3.8 | True |
| 19 | 919 | 919 | 30 | 30 | B | B | 3.4 | True |
| 20 | 928 | 928 | 30 | 30 | B | B | 3.3 | True |
| 21 | 937 | 937 | 30 | 30 | B | B | 3.2 | True |
| 22 | 946 | 946 | 30 | 30 | B | B | 2.8 | True |
| 23 | 954 | 954 | 30 | 30 | B | B | 2.6 | True |
| 24 | 963 | 963 | 29 | 29 | B | B | 2.5 | True |
| 25 | 972 | 972 | 29 | 29 | B | B | 2.5 | True |
| 26 | 980 | 980 | 29 | 29 | B | B | 2.3 | True |
| 27 | 989 | 989 | 29 | 29 | B | B | 2.1 | True |
| 28 | 997 | 997 | 29 | 29 | B | B | 2.1 | True |
| 29 | 1006 | 1006 | 29 | 29 | P | P | 2.0 | True |
| 30 | 1015 | 1015 | 30 | 30 | P | P | 1.9 | True |
| 31 | 1023 | 1023 | 30 | 30 | P | P | 1.8 | True |
| 32 | 1032 | 1032 | 30 | 30 | P | P | 1.7 | True |
| 33 | 1041 | 1041 | 30 | 30 | P | P | 1.7 | True |
| 34 | 1050 | 1050 | 30 | 30 | P | P | 1.5 | True |
| 35 | 1060 | 1060 | 31 | 31 | P | P | 1.5 | True |
| 36 | 1069 | 1069 | 31 | 31 | P | P | 1.5 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1079 | 1079 | 32 | 32 | P | P | 1.3 | True |
| 38 | 1089 | 1089 | 32 | 32 | P | P | 1.3 | True |
| 39 | 1100 | 1100 | 33 | 33 | P | P | 1.2 | True |
| 40 | 1111 | 1111 | 34 | 34 | A | A | 1.2 | True |
| 41 | 1122 | 1122 | 35 | 35 | A | A | 1.1 | True |
| 42 | 1135 | 1135 | 36 | 36 | A | A | 1.2 | True |
| 43 | 1148 | 1148 | 37 | 37 | A | A | 1.0 | True |
| 44 | 1162 | 1162 | 39 | 39 | A | A | 1.0 | True |
| 45 | 1178 | 1178 | 41 | 41 | A | A | 0.9 | True |
| 46 | 1196 | 1196 | 44 | 44 | A | A | 0.8 | True |
| 47 | 1217 | 1217 | 48 | 48 | A | A | 0.7 | True |
| 48 | 1242 | 1242 | 53 | 53 | A | A | 0.6 | True |
| 49 | 1274 | 1274 | 60 | 60 | A | A | 0.5 | True |
| 50 | 1317 | 1317 | 73 | 73 | A | A | 0.3 | True |
| 51 | 1390 | 1390 | 102 | 102 | A | A | 0.2 | True |
| 52 | 1513 | 1513 | 184 | 184 | A | A | 0.1 | True |

Mathematics Grade 8 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 101 | 101 | BB | BB | 0.0 | True |
| 2 | 609 | 609 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 653 | 653 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 685 | 685 | 53 | 53 | BB | BB | 0.1 | True |
| 5 | 710 | 710 | 48 | 48 | BB | BB | 0.3 | True |
| 6 | 731 | 731 | 44 | 44 | BB | BB | 0.6 | True |
| 7 | 750 | 750 | 42 | 42 | BB | BB | 1.2 | True |
| 8 | 766 | 766 | 40 | 40 | BB | BB | 1.9 | True |
| 9 | 781 | 781 | 38 | 38 | BB | BB | 2.9 | True |
| 10 | 795 | 795 | 36 | 36 | BB | BB | 3.6 | True |
| 11 | 808 | 808 | 35 | 35 | BB | BB | 4.2 | True |
| 12 | 820 | 820 | 34 | 34 | BB | BB | 4.7 | True |
| 13 | 831 | 831 | 33 | 33 | BB | BB | 4.7 | True |
| 14 | 842 | 842 | 32 | 32 | BB | BB | 4.5 | True |
| 15 | 852 | 852 | 32 | 32 | BB | BB | 4.3 | True |
| 16 | 862 | 862 | 31 | 31 | BB | BB | 3.9 | True |
| 17 | 871 | 871 | 31 | 31 | BB | BB | 3.6 | True |
| 18 | 881 | 881 | 30 | 30 | BB | BB | 3.5 | True |
| 19 | 890 | 890 | 30 | 30 | BB | BB | 3.1 | True |
| 20 | 898 | 898 | 29 | 29 | BB | BB | 3.0 | True |
| 21 | 907 | 907 | 29 | 29 | B | B | 2.7 | True |
| 22 | 915 | 915 | 29 | 29 | B | B | 2.6 | True |
| 23 | 924 | 924 | 29 | 29 | B | B | 2.5 | True |
| 24 | 932 | 932 | 29 | 29 | B | B | 2.4 | True |
| 25 | 940 | 940 | 29 | 29 | B | B | 2.4 | True |
| 26 | 948 | 948 | 28 | 28 | B | B | 2.3 | True |
| 27 | 956 | 956 | 28 | 28 | B | B | 2.2 | True |
| 28 | 964 | 964 | 28 | 28 | B | B | 2.1 | True |
| 29 | 973 | 973 | 29 | 29 | B | B | 2.1 | True |
| 30 | 981 | 981 | 29 | 29 | B | B | 2.1 | True |
| 31 | 989 | 989 | 29 | 29 | B | B | 2.1 | True |
| 32 | 997 | 997 | 29 | 29 | B | B | 2.0 | True |
| 33 | 1006 | 1006 | 29 | 29 | P | P | 1.8 | True |
| 34 | 1015 | 1015 | 30 | 30 | P | P | 1.8 | True |
| 35 | 1023 | 1023 | 30 | 30 | P | P | 1.7 | True |
| 36 | 1033 | 1033 | 31 | 31 | P | P | 1.7 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1042 | 1042 | 31 | 31 | P | P | 1.6 | True |
| 38 | 1052 | 1052 | 32 | 32 | P | P | 1.6 | True |
| 39 | 1063 | 1063 | 33 | 33 | P | P | 1.4 | True |
| 40 | 1074 | 1074 | 34 | 34 | P | P | 1.4 | True |
| 41 | 1085 | 1085 | 35 | 35 | P | P | 1.4 | True |
| 42 | 1098 | 1098 | 36 | 36 | P | P | 1.2 | True |
| 43 | 1111 | 1111 | 38 | 38 | A | A | 1.2 | True |
| 44 | 1126 | 1126 | 39 | 39 | A | A | 1.0 | True |
| 45 | 1142 | 1142 | 42 | 42 | A | A | 0.9 | True |
| 46 | 1161 | 1161 | 44 | 44 | A | A | 0.8 | True |
| 47 | 1182 | 1182 | 48 | 48 | A | A | 0.7 | True |
| 48 | 1207 | 1207 | 53 | 53 | A | A | 0.6 | True |
| 49 | 1239 | 1239 | 61 | 61 | A | A | 0.5 | True |
| 50 | 1283 | 1283 | 73 | 73 | A | A | 0.4 | True |
| 51 | 1356 | 1356 | 102 | 102 | A | A | 0.3 | True |
| 52 | 1479 | 1479 | 184 | 184 | A | A | 0.1 | True |

ELA Grade 3 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 184 | 184 | BB | BB | 0.0 | True |
| 1 | 600 | 602 | 102 | 102 | BB | BB | 0.0 | True |
| 2 | 673 | 675 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 717 | 720 | 61 | 61 | BB | BB | 0.0 | True |
| 4 | 750 | 752 | 54 | 54 | BB | BB | 0.1 | True |
| 5 | 776 | 778 | 49 | 49 | BB | BB | 0.3 | True |
| 6 | 798 | 800 | 45 | 45 | BB | BB | 0.5 | True |
| 7 | 817 | 820 | 42 | 43 | BB | BB | 0.9 | True |
| 8 | 834 | 837 | 40 | 41 | BB | BB | 1.4 | True |
| 9 | 850 | 853 | 39 | 39 | BB | BB | 2.0 | True |
| 10 | 864 | 867 | 37 | 37 | BB | BB | 2.6 | True |
| 11 | 878 | 881 | 36 | 36 | BB | BB | 2.8 | True |
| 12 | 890 | 894 | 35 | 35 | BB | BB | 3.1 | True |
| 13 | 902 | 906 | 34 | 35 | BB | B | 3.2 | False |
| 14 | 914 | 917 | 34 | 34 | B | B | 3.3 | True |
| 15 | 925 | 929 | 33 | 33 | B | B | 3.3 | True |
| 16 | 936 | 939 | 33 | 33 | B | B | 3.3 | True |
| 17 | 947 | 950 | 32 | 32 | B | B | 3.3 | True |
| 18 | 957 | 960 | 32 | 32 | B | B | 3.3 | True |
| 19 | 967 | 971 | 32 | 32 | B | B | 3.2 | True |
| 20 | 977 | 981 | 32 | 32 | B | B | 3.3 | True |
| 21 | 987 | 990 | 31 | 31 | B | B | 3.2 | True |
| 22 | 997 | 1000 | 31 | 31 | B | P | 3.4 | False |
| 23 | 1007 | 1010 | 31 | 31 | P | P | 3.3 | True |
| 24 | 1017 | 1020 | 32 | 31 | P | P | 3.3 | True |
| 25 | 1027 | 1029 | 32 | 31 | P | P | 3.2 | True |
| 26 | 1037 | 1039 | 32 | 31 | P | P | 3.3 | True |
| 27 | 1047 | 1049 | 32 | 32 | P | P | 3.2 | True |
| 28 | 1057 | 1059 | 32 | 32 | P | P | 3.2 | True |
| 29 | 1068 | 1070 | 33 | 32 | P | P | 3.2 | True |
| 30 | 1079 | 1080 | 33 | 33 | P | P | 3.3 | True |
| 31 | 1090 | 1091 | 34 | 33 | P | P | 3.2 | True |
| 32 | 1102 | 1103 | 35 | 34 | P | P | 3.3 | True |
| 33 | 1114 | 1114 | 35 | 35 | P | P | 3.0 | True |
| 34 | 1127 | 1127 | 36 | 36 | P | P | 2.9 | True |
| 35 | 1141 | 1140 | 38 | 37 | P | P | 2.8 | True |
| 36 | 1156 | 1155 | 39 | 39 | A | A | 2.6 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1172 | 1170 | 41 | 40 | A | A | 2.3 | True |
| 38 | 1189 | 1187 | 43 | 43 | A | A | 2.0 | True |
| 39 | 1209 | 1207 | 46 | 45 | A | A | 1.8 | True |
| 40 | 1232 | 1229 | 50 | 49 | A | A | 1.4 | True |
| 41 | 1259 | 1255 | 55 | 54 | A | A | 1.0 | True |
| 42 | 1292 | 1289 | 62 | 62 | A | A | 0.6 | True |
| 43 | 1338 | 1334 | 74 | 74 | A | A | 0.4 | True |
| 44 | 1413 | 1408 | 103 | 103 | A | A | 0.2 | True |
| 45 | 1537 | 1533 | 184 | 184 | A | A | 0.0 | True |

ELA Grade 4 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 102 | 102 | BB | BB | 0.0 | True |
| 2 | 600 | 600 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 638 | 638 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 670 | 670 | 53 | 53 | BB | BB | 0.0 | True |
| 5 | 695 | 695 | 48 | 48 | BB | BB | 0.1 | True |
| 6 | 717 | 716 | 45 | 45 | BB | BB | 0.1 | True |
| 7 | 735 | 735 | 42 | 42 | BB | BB | 0.2 | True |
| 8 | 752 | 752 | 40 | 40 | BB | BB | 0.3 | True |
| 9 | 767 | 767 | 38 | 38 | BB | BB | 0.5 | True |
| 10 | 781 | 781 | 36 | 36 | BB | BB | 0.7 | True |
| 11 | 794 | 793 | 35 | 35 | BB | BB | 0.9 | True |
| 12 | 806 | 805 | 34 | 34 | BB | BB | 1.1 | True |
| 13 | 817 | 817 | 33 | 33 | BB | BB | 1.3 | True |
| 14 | 828 | 828 | 33 | 33 | BB | BB | 1.4 | True |
| 15 | 838 | 838 | 32 | 32 | BB | BB | 1.5 | True |
| 16 | 848 | 848 | 31 | 31 | BB | BB | 1.6 | True |
| 17 | 858 | 858 | 31 | 31 | BB | BB | 1.7 | True |
| 18 | 867 | 867 | 30 | 30 | BB | BB | 1.7 | True |
| 19 | 876 | 876 | 30 | 30 | BB | BB | 1.7 | True |
| 20 | 885 | 885 | 30 | 30 | BB | BB | 1.8 | True |
| 21 | 894 | 893 | 29 | 29 | B | B | 1.8 | True |
| 22 | 902 | 902 | 29 | 29 | B | B | 1.7 | True |
| 23 | 911 | 910 | 29 | 29 | B | B | 1.8 | True |
| 24 | 919 | 918 | 29 | 29 | B | B | 1.8 | True |
| 25 | 927 | 927 | 28 | 28 | B | B | 1.9 | True |
| 26 | 935 | 935 | 28 | 28 | B | B | 1.9 | True |
| 27 | 943 | 943 | 28 | 28 | B | B | 2.1 | True |
| 28 | 951 | 951 | 28 | 28 | B | B | 2.0 | True |
| 29 | 959 | 958 | 28 | 28 | B | B | 2.2 | True |
| 30 | 967 | 966 | 28 | 28 | B | B | 2.2 | True |
| 31 | 975 | 974 | 28 | 28 | B | B | 2.2 | True |
| 32 | 982 | 982 | 28 | 28 | B | B | 2.3 | True |
| 33 | 990 | 990 | 28 | 28 | B | B | 2.4 | True |
| 34 | 998 | 998 | 28 | 28 | B | B | 2.5 | True |
| 35 | 1007 | 1006 | 29 | 29 | P | P | 2.6 | True |
| 36 | 1015 | 1014 | 29 | 29 | P | P | 2.7 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1023 | 1023 | 29 | 29 | P | P | 2.8 | True |
| 38 | 1031 | 1031 | 29 | 29 | P | P | 2.9 | True |
| 39 | 1040 | 1040 | 29 | 29 | P | P | 2.8 | True |
| 40 | 1049 | 1049 | 30 | 30 | P | P | 2.8 | True |
| 41 | 1058 | 1058 | 30 | 30 | P | P | 3.0 | True |
| 42 | 1067 | 1067 | 31 | 31 | P | P | 3.1 | True |
| 43 | 1077 | 1076 | 31 | 31 | P | P | 3.0 | True |
| 44 | 1087 | 1086 | 32 | 32 | P | P | 3.0 | True |
| 45 | 1097 | 1096 | 32 | 32 | P | P | 3.0 | True |
| 46 | 1107 | 1107 | 33 | 33 | A | A | 2.9 | True |
| 47 | 1119 | 1118 | 34 | 34 | A | A | 2.7 | True |
| 48 | 1130 | 1130 | 35 | 35 | A | A | 2.6 | True |
| 49 | 1143 | 1143 | 36 | 36 | A | A | 2.4 | True |
| 50 | 1156 | 1156 | 37 | 37 | A | A | 2.2 | True |
| 51 | 1170 | 1170 | 38 | 38 | A | A | 2.0 | True |
| 52 | 1185 | 1185 | 40 | 40 | A | A | 1.7 | True |
| 53 | 1202 | 1202 | 42 | 42 | A | A | 1.5 | True |
| 54 | 1220 | 1220 | 44 | 44 | A | A | 1.2 | True |
| 55 | 1240 | 1240 | 46 | 46 | A | A | 1.0 | True |
| 56 | 1262 | 1262 | 49 | 49 | A | A | 0.8 | True |
| 57 | 1288 | 1287 | 52 | 52 | A | A | 0.6 | True |
| 58 | 1317 | 1316 | 56 | 56 | A | A | 0.4 | True |
| 59 | 1351 | 1350 | 61 | 61 | A | A | 0.3 | True |
| 60 | 1392 | 1392 | 68 | 68 | A | A | 0.2 | True |
| 61 | 1445 | 1445 | 79 | 79 | A | A | 0.2 | True |
| 62 | 1528 | 1528 | 106 | 106 | A | A | 0.1 | True |
| 63 | 1657 | 1657 | 186 | 186 | A | A | 0.0 | True |

ELA Grade 5 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 184 | 184 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 102 | 102 | BB | BB | 0.0 | True |
| 2 | 600 | 600 | 74 | 74 | BB | BB | 0.0 | True |
| 3 | 636 | 636 | 61 | 61 | BB | BB | 0.0 | True |
| 4 | 669 | 669 | 54 | 54 | BB | BB | 0.0 | True |
| 5 | 696 | 696 | 49 | 49 | BB | BB | 0.0 | True |
| 6 | 718 | 718 | 45 | 45 | BB | BB | 0.1 | True |
| 7 | 737 | 737 | 43 | 43 | BB | BB | 0.2 | True |
| 8 | 755 | 755 | 40 | 40 | BB | BB | 0.3 | True |
| 9 | 770 | 770 | 39 | 39 | BB | BB | 0.4 | True |
| 10 | 785 | 785 | 37 | 37 | BB | BB | 0.6 | True |
| 11 | 798 | 798 | 36 | 36 | BB | BB | 0.8 | True |
| 12 | 810 | 810 | 35 | 35 | BB | BB | 1.0 | True |
| 13 | 822 | 822 | 34 | 34 | BB | BB | 1.2 | True |
| 14 | 833 | 833 | 33 | 33 | BB | BB | 1.4 | True |
| 15 | 844 | 844 | 32 | 32 | BB | BB | 1.6 | True |
| 16 | 854 | 854 | 32 | 32 | BB | BB | 1.7 | True |
| 17 | 864 | 864 | 31 | 31 | BB | BB | 1.8 | True |
| 18 | 874 | 874 | 31 | 31 | BB | BB | 1.8 | True |
| 19 | 883 | 883 | 30 | 30 | BB | BB | 2.0 | True |
| 20 | 892 | 892 | 30 | 30 | BB | BB | 1.9 | True |
| 21 | 901 | 901 | 29 | 29 | B | B | 1.9 | True |
| 22 | 909 | 909 | 29 | 29 | B | B | 1.9 | True |
| 23 | 918 | 918 | 29 | 29 | B | B | 1.9 | True |
| 24 | 926 | 926 | 29 | 29 | B | B | 2.1 | True |
| 25 | 934 | 934 | 29 | 29 | B | B | 2.0 | True |
| 26 | 942 | 942 | 28 | 28 | B | B | 2.1 | True |
| 27 | 950 | 950 | 28 | 28 | B | B | 2.2 | True |
| 28 | 958 | 958 | 28 | 28 | B | B | 2.2 | True |
| 29 | 966 | 966 | 28 | 28 | B | B | 2.2 | True |
| 30 | 974 | 974 | 28 | 28 | B | B | 2.4 | True |
| 31 | 982 | 982 | 28 | 28 | B | B | 2.5 | True |
| 32 | 991 | 991 | 28 | 28 | B | B | 2.6 | True |
| 33 | 999 | 999 | 28 | 28 | B | B | 2.6 | True |
| 34 | 1007 | 1007 | 29 | 29 | P | P | 2.7 | True |
| 35 | 1015 | 1015 | 29 | 29 | P | P | 2.7 | True |
| 36 | 1023 | 1023 | 29 | 29 | P | P | 3.0 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1032 | 1032 | 29 | 29 | P | P | 3.0 | True |
| 38 | 1040 | 1040 | 29 | 29 | P | P | 2.9 | True |
| 39 | 1049 | 1049 | 30 | 30 | P | P | 3.0 | True |
| 40 | 1058 | 1058 | 30 | 30 | P | P | 3.1 | True |
| 41 | 1067 | 1067 | 31 | 31 | P | P | 3.1 | True |
| 42 | 1077 | 1077 | 31 | 31 | P | P | 3.1 | True |
| 43 | 1087 | 1087 | 32 | 32 | P | P | 3.1 | True |
| 44 | 1097 | 1097 | 32 | 32 | P | P | 2.9 | True |
| 45 | 1107 | 1107 | 33 | 33 | P | P | 2.9 | True |
| 46 | 1118 | 1118 | 34 | 34 | P | P | 2.7 | True |
| 47 | 1130 | 1130 | 34 | 34 | P | P | 2.6 | True |
| 48 | 1142 | 1142 | 35 | 35 | A | A | 2.3 | True |
| 49 | 1155 | 1155 | 36 | 36 | A | A | 2.1 | True |
| 50 | 1168 | 1168 | 37 | 37 | A | A | 2.0 | True |
| 51 | 1182 | 1182 | 39 | 39 | A | A | 1.7 | True |
| 52 | 1198 | 1198 | 40 | 40 | A | A | 1.3 | True |
| 53 | 1214 | 1214 | 42 | 42 | A | A | 1.1 | True |
| 54 | 1232 | 1232 | 43 | 43 | A | A | 0.9 | True |
| 55 | 1252 | 1252 | 45 | 45 | A | A | 0.7 | True |
| 56 | 1273 | 1273 | 48 | 48 | A | A | 0.6 | True |
| 57 | 1297 | 1297 | 50 | 50 | A | A | 0.4 | True |
| 58 | 1324 | 1324 | 54 | 54 | A | A | 0.3 | True |
| 59 | 1356 | 1356 | 58 | 58 | A | A | 0.2 | True |
| 60 | 1394 | 1394 | 65 | 65 | A | A | 0.1 | True |
| 61 | 1443 | 1443 | 77 | 77 | A | A | 0.1 | True |
| 62 | 1522 | 1522 | 105 | 105 | A | A | 0.0 | True |
| 63 | 1649 | 1649 | 185 | 185 | A | A | 0.0 | True |

ELA Grade 6 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 101 | 101 | BB | BB | 0.0 | True |
| 2 | 609 | 609 | 73 | 73 | BB | BB | 0.0 | True |
| 3 | 652 | 652 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 683 | 683 | 53 | 53 | BB | BB | 0.0 | True |
| 5 | 708 | 708 | 48 | 48 | BB | BB | 0.0 | True |
| 6 | 729 | 729 | 44 | 44 | BB | BB | 0.1 | True |
| 7 | 748 | 748 | 41 | 41 | BB | BB | 0.1 | True |
| 8 | 764 | 764 | 39 | 39 | BB | BB | 0.2 | True |
| 9 | 779 | 779 | 37 | 37 | BB | BB | 0.3 | True |
| 10 | 792 | 792 | 36 | 36 | BB | BB | 0.4 | True |
| 11 | 805 | 805 | 35 | 35 | BB | BB | 0.6 | True |
| 12 | 816 | 816 | 34 | 34 | BB | BB | 0.7 | True |
| 13 | 827 | 827 | 33 | 33 | BB | BB | 0.9 | True |
| 14 | 838 | 838 | 32 | 32 | BB | BB | 1.0 | True |
| 15 | 848 | 848 | 31 | 31 | BB | BB | 1.2 | True |
| 16 | 858 | 858 | 31 | 31 | BB | BB | 1.3 | True |
| 17 | 867 | 867 | 30 | 30 | BB | BB | 1.4 | True |
| 18 | 876 | 876 | 30 | 30 | B | B | 1.5 | True |
| 19 | 885 | 885 | 30 | 30 | B | B | 1.7 | True |
| 20 | 894 | 894 | 29 | 29 | B | B | 1.8 | True |
| 21 | 902 | 902 | 29 | 29 | B | B | 1.9 | True |
| 22 | 910 | 910 | 29 | 29 | B | B | 2.0 | True |
| 23 | 919 | 919 | 29 | 29 | B | B | 2.0 | True |
| 24 | 927 | 927 | 28 | 28 | B | B | 2.1 | True |
| 25 | 935 | 935 | 28 | 28 | B | B | 2.2 | True |
| 26 | 943 | 943 | 28 | 28 | B | B | 2.2 | True |
| 27 | 951 | 951 | 28 | 28 | B | B | 2.4 | True |
| 28 | 958 | 958 | 28 | 28 | B | B | 2.4 | True |
| 29 | 966 | 966 | 28 | 28 | B | B | 2.5 | True |
| 30 | 974 | 974 | 28 | 28 | B | B | 2.6 | True |
| 31 | 982 | 982 | 28 | 28 | B | B | 2.8 | True |
| 32 | 990 | 990 | 28 | 28 | B | B | 2.8 | True |
| 33 | 998 | 998 | 28 | 28 | B | B | 3.0 | True |
| 34 | 1006 | 1006 | 28 | 28 | P | P | 2.9 | True |
| 35 | 1014 | 1014 | 29 | 29 | P | P | 3.0 | True |
| 36 | 1022 | 1022 | 29 | 29 | P | P | 3.1 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1031 | 1031 | 29 | 29 | P | P | 3.1 | True |
| 38 | 1039 | 1039 | 29 | 29 | P | P | 3.1 | True |
| 39 | 1048 | 1048 | 30 | 30 | P | P | 3.2 | True |
| 40 | 1057 | 1057 | 30 | 30 | P | P | 3.1 | True |
| 41 | 1066 | 1066 | 30 | 30 | P | P | 3.2 | True |
| 42 | 1075 | 1075 | 31 | 31 | P | P | 3.1 | True |
| 43 | 1085 | 1085 | 31 | 31 | P | P | 3.0 | True |
| 44 | 1095 | 1095 | 32 | 32 | P | P | 3.0 | True |
| 45 | 1105 | 1105 | 32 | 32 | P | P | 2.9 | True |
| 46 | 1116 | 1116 | 33 | 33 | A | A | 2.7 | True |
| 47 | 1127 | 1127 | 34 | 34 | A | A | 2.6 | True |
| 48 | 1139 | 1139 | 35 | 35 | A | A | 2.4 | True |
| 49 | 1151 | 1151 | 36 | 36 | A | A | 2.3 | True |
| 50 | 1164 | 1164 | 37 | 37 | A | A | 1.9 | True |
| 51 | 1178 | 1178 | 38 | 38 | A | A | 1.7 | True |
| 52 | 1193 | 1193 | 39 | 39 | A | A | 1.5 | True |
| 53 | 1208 | 1208 | 41 | 41 | A | A | 1.2 | True |
| 54 | 1226 | 1226 | 42 | 42 | A | A | 0.9 | True |
| 55 | 1245 | 1245 | 44 | 44 | A | A | 0.8 | True |
| 56 | 1265 | 1265 | 47 | 47 | A | A | 0.5 | True |
| 57 | 1289 | 1289 | 50 | 50 | A | A | 0.4 | True |
| 58 | 1315 | 1315 | 54 | 54 | A | A | 0.2 | True |
| 59 | 1347 | 1347 | 59 | 59 | A | A | 0.1 | True |
| 60 | 1385 | 1385 | 66 | 66 | A | A | 0.1 | True |
| 61 | 1435 | 1435 | 78 | 78 | A | A | 0.0 | True |
| 62 | 1515 | 1515 | 105 | 105 | A | A | 0.0 | True |
| 63 | 1643 | 1643 | 185 | 185 | A | A | 0.0 | True |

ELA Grade 7 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 101 | 101 | BB | BB | 0.0 | True |
| 2 | 609 | 609 | 72 | 72 | BB | BB | 0.0 | True |
| 3 | 652 | 652 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 683 | 683 | 52 | 52 | BB | BB | 0.0 | True |
| 5 | 708 | 708 | 48 | 48 | BB | BB | 0.0 | True |
| 6 | 729 | 729 | 44 | 44 | BB | BB | 0.1 | True |
| 7 | 747 | 747 | 41 | 41 | BB | BB | 0.1 | True |
| 8 | 763 | 763 | 39 | 39 | BB | BB | 0.2 | True |
| 9 | 777 | 777 | 37 | 37 | BB | BB | 0.3 | True |
| 10 | 791 | 791 | 36 | 36 | BB | BB | 0.5 | True |
| 11 | 803 | 803 | 34 | 34 | BB | BB | 0.7 | True |
| 12 | 815 | 814 | 33 | 33 | BB | BB | 0.8 | True |
| 13 | 825 | 825 | 32 | 32 | BB | BB | 1.0 | True |
| 14 | 836 | 835 | 32 | 32 | BB | BB | 1.2 | True |
| 15 | 845 | 845 | 31 | 31 | B | B | 1.3 | True |
| 16 | 855 | 855 | 30 | 30 | B | B | 1.5 | True |
| 17 | 864 | 864 | 30 | 30 | B | B | 1.6 | True |
| 18 | 873 | 873 | 30 | 30 | B | B | 1.7 | True |
| 19 | 882 | 881 | 29 | 29 | B | B | 1.8 | True |
| 20 | 890 | 890 | 29 | 29 | B | B | 1.8 | True |
| 21 | 898 | 898 | 29 | 29 | B | B | 1.9 | True |
| 22 | 906 | 906 | 28 | 28 | B | B | 2.0 | True |
| 23 | 914 | 914 | 28 | 28 | B | B | 1.9 | True |
| 24 | 922 | 922 | 28 | 28 | B | B | 2.0 | True |
| 25 | 930 | 930 | 28 | 28 | B | B | 2.1 | True |
| 26 | 938 | 937 | 28 | 28 | B | B | 2.1 | True |
| 27 | 945 | 945 | 28 | 28 | B | B | 2.2 | True |
| 28 | 953 | 953 | 28 | 28 | B | B | 2.1 | True |
| 29 | 961 | 960 | 28 | 28 | B | B | 2.2 | True |
| 30 | 968 | 968 | 28 | 28 | B | B | 2.4 | True |
| 31 | 976 | 976 | 28 | 28 | B | B | 2.4 | True |
| 32 | 984 | 984 | 28 | 28 | B | B | 2.5 | True |
| 33 | 992 | 991 | 28 | 28 | B | B | 2.6 | True |
| 34 | 1000 | 999 | 28 | 28 | P | B | 2.6 | False |
| 35 | 1008 | 1007 | 28 | 28 | P | P | 2.7 | True |
| 36 | 1016 | 1015 | 29 | 29 | P | P | 2.8 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1024 | 1024 | 29 | 29 | P | P | 2.8 | True |
| 38 | 1032 | 1032 | 29 | 29 | P | P | 2.9 | True |
| 39 | 1041 | 1040 | 29 | 29 | P | P | 2.9 | True |
| 40 | 1050 | 1049 | 30 | 30 | P | P | 2.9 | True |
| 41 | 1059 | 1058 | 30 | 30 | P | P | 2.9 | True |
| 42 | 1068 | 1067 | 30 | 30 | P | P | 2.9 | True |
| 43 | 1077 | 1077 | 31 | 31 | P | P | 2.9 | True |
| 44 | 1087 | 1086 | 31 | 31 | P | P | 2.9 | True |
| 45 | 1097 | 1097 | 32 | 32 | P | P | 2.9 | True |
| 46 | 1107 | 1107 | 33 | 33 | P | P | 2.7 | True |
| 47 | 1118 | 1118 | 34 | 34 | P | P | 2.6 | True |
| 48 | 1130 | 1129 | 34 | 34 | A | P | 2.6 | False |
| 49 | 1142 | 1142 | 35 | 35 | A | A | 2.2 | True |
| 50 | 1155 | 1154 | 36 | 36 | A | A | 2.2 | True |
| 51 | 1169 | 1168 | 38 | 38 | A | A | 2.0 | True |
| 52 | 1183 | 1183 | 39 | 39 | A | A | 1.7 | True |
| 53 | 1199 | 1199 | 41 | 41 | A | A | 1.5 | True |
| 54 | 1217 | 1216 | 43 | 43 | A | A | 1.4 | True |
| 55 | 1236 | 1236 | 45 | 45 | A | A | 1.2 | True |
| 56 | 1258 | 1257 | 48 | 48 | A | A | 0.9 | True |
| 57 | 1282 | 1282 | 51 | 51 | A | A | 0.7 | True |
| 58 | 1310 | 1310 | 55 | 55 | A | A | 0.6 | True |
| 59 | 1344 | 1343 | 60 | 60 | A | A | 0.4 | True |
| 60 | 1384 | 1384 | 67 | 67 | A | A | 0.3 | True |
| 61 | 1437 | 1437 | 79 | 79 | A | A | 0.2 | True |
| 62 | 1519 | 1519 | 106 | 106 | A | A | 0.1 | True |
| 63 | 1648 | 1648 | 186 | 186 | A | A | 0.0 | True |

ELA Grade 8 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 600 | 600 | 183 | 183 | BB | BB | 0.0 | True |
| 1 | 600 | 600 | 101 | 101 | BB | BB | 0.0 | True |
| 2 | 616 | 615 | 72 | 72 | BB | BB | 0.0 | True |
| 3 | 659 | 658 | 60 | 60 | BB | BB | 0.0 | True |
| 4 | 690 | 689 | 52 | 52 | BB | BB | 0.0 | True |
| 5 | 714 | 713 | 47 | 47 | BB | BB | 0.0 | True |
| 6 | 734 | 734 | 43 | 43 | BB | BB | 0.1 | True |
| 7 | 752 | 751 | 41 | 41 | BB | BB | 0.2 | True |
| 8 | 768 | 767 | 38 | 38 | BB | BB | 0.3 | True |
| 9 | 782 | 781 | 37 | 37 | BB | BB | 0.5 | True |
| 10 | 794 | 794 | 35 | 35 | BB | BB | 0.6 | True |
| 11 | 806 | 806 | 34 | 34 | BB | BB | 0.8 | True |
| 12 | 817 | 817 | 33 | 33 | BB | BB | 1.1 | True |
| 13 | 828 | 827 | 32 | 32 | BB | BB | 1.2 | True |
| 14 | 838 | 837 | 31 | 31 | BB | BB | 1.3 | True |
| 15 | 847 | 846 | 30 | 30 | BB | BB | 1.5 | True |
| 16 | 856 | 855 | 30 | 30 | BB | BB | 1.5 | True |
| 17 | 865 | 864 | 29 | 29 | BB | BB | 1.6 | True |
| 18 | 873 | 872 | 29 | 29 | BB | BB | 1.6 | True |
| 19 | 881 | 881 | 28 | 28 | BB | BB | 1.7 | True |
| 20 | 889 | 888 | 28 | 28 | B | B | 1.7 | True |
| 21 | 897 | 896 | 28 | 28 | B | B | 1.7 | True |
| 22 | 905 | 904 | 28 | 27 | B | B | 1.7 | True |
| 23 | 912 | 911 | 27 | 27 | B | B | 1.7 | True |
| 24 | 920 | 919 | 27 | 27 | B | B | 1.7 | True |
| 25 | 927 | 926 | 27 | 27 | B | B | 1.8 | True |
| 26 | 934 | 933 | 27 | 27 | B | B | 1.9 | True |
| 27 | 942 | 940 | 27 | 27 | B | B | 1.9 | True |
| 28 | 949 | 948 | 27 | 27 | B | B | 2.0 | True |
| 29 | 956 | 955 | 27 | 27 | B | B | 2.1 | True |
| 30 | 963 | 962 | 27 | 27 | B | B | 2.1 | True |
| 31 | 970 | 969 | 27 | 27 | B | B | 2.3 | True |
| 32 | 978 | 976 | 27 | 27 | B | B | 2.4 | True |
| 33 | 985 | 984 | 27 | 27 | B | B | 2.5 | True |
| 34 | 993 | 991 | 27 | 27 | B | B | 2.4 | True |
| 35 | 1000 | 999 | 28 | 28 | P | B | 2.6 | False |
| 36 | 1008 | 1006 | 28 | 28 | P | P | 2.8 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1016 | 1014 | 28 | 28 | P | P | 2.8 | True |
| 38 | 1024 | 1022 | 28 | 28 | P | P | 2.8 | True |
| 39 | 1032 | 1030 | 29 | 29 | P | P | 3.0 | True |
| 40 | 1040 | 1038 | 29 | 29 | P | P | 3.0 | True |
| 41 | 1049 | 1047 | 30 | 29 | P | P | 3.0 | True |
| 42 | 1058 | 1056 | 30 | 30 | P | P | 3.0 | True |
| 43 | 1067 | 1065 | 30 | 30 | P | P | 3.0 | True |
| 44 | 1076 | 1074 | 31 | 31 | P | P | 3.1 | True |
| 45 | 1086 | 1084 | 32 | 32 | P | P | 2.9 | True |
| 46 | 1096 | 1094 | 32 | 32 | P | P | 2.8 | True |
| 47 | 1107 | 1105 | 33 | 33 | P | P | 2.7 | True |
| 48 | 1118 | 1116 | 34 | 34 | P | P | 2.6 | True |
| 49 | 1130 | 1128 | 35 | 35 | A | P | 2.4 | False |
| 50 | 1143 | 1140 | 36 | 36 | A | A | 2.3 | True |
| 51 | 1156 | 1154 | 37 | 37 | A | A | 2.1 | True |
| 52 | 1170 | 1168 | 39 | 39 | A | A | 1.8 | True |
| 53 | 1186 | 1183 | 40 | 40 | A | A | 1.6 | True |
| 54 | 1203 | 1200 | 42 | 42 | A | A | 1.3 | True |
| 55 | 1221 | 1219 | 44 | 44 | A | A | 1.2 | True |
| 56 | 1242 | 1240 | 47 | 47 | A | A | 1.0 | True |
| 57 | 1265 | 1263 | 50 | 50 | A | A | 0.7 | True |
| 58 | 1292 | 1290 | 54 | 54 | A | A | 0.5 | True |
| 59 | 1323 | 1322 | 59 | 59 | A | A | 0.4 | True |
| 60 | 1362 | 1360 | 66 | 66 | A | A | 0.3 | True |
| 61 | 1413 | 1411 | 78 | 78 | A | A | 0.2 | True |
| 62 | 1493 | 1491 | 105 | 105 | A | A | 0.1 | True |
| 63 | 1621 | 1620 | 185 | 186 | A | A | 0.0 | True |

Science Grade 4 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 1050 | 1050 | 324 | 324 | BB | BB | 0.0 | True |
| 1 | 1050 | 1050 | 180 | 180 | BB | BB | 0.0 | True |
| 2 | 1050 | 1050 | 129 | 129 | BB | BB | 0.0 | True |
| 3 | 1050 | 1050 | 107 | 107 | BB | BB | 0.0 | True |
| 4 | 1050 | 1050 | 94 | 94 | BB | BB | 0.1 | True |
| 5 | 1050 | 1050 | 86 | 86 | BB | BB | 0.2 | True |
| 6 | 1050 | 1050 | 79 | 79 | BB | BB | 0.4 | True |
| 7 | 1050 | 1050 | 75 | 75 | BB | BB | 0.6 | True |
| 8 | 1057 | 1057 | 71 | 71 | BB | BB | 0.9 | True |
| 9 | 1084 | 1084 | 68 | 68 | BB | BB | 1.3 | True |
| 10 | 1109 | 1109 | 65 | 65 | BB | BB | 1.7 | True |
| 11 | 1133 | 1133 | 63 | 63 | BB | BB | 1.9 | True |
| 12 | 1155 | 1155 | 62 | 62 | B | B | 2.2 | True |
| 13 | 1176 | 1176 | 60 | 60 | B | B | 2.3 | True |
| 14 | 1196 | 1196 | 59 | 59 | B | B | 2.4 | True |
| 15 | 1215 | 1215 | 58 | 58 | B | B | 2.5 | True |
| 16 | 1234 | 1234 | 57 | 57 | B | B | 2.5 | True |
| 17 | 1252 | 1252 | 56 | 56 | B | B | 2.5 | True |
| 18 | 1270 | 1270 | 56 | 56 | B | B | 2.7 | True |
| 19 | 1287 | 1287 | 55 | 55 | P | P | 2.6 | True |
| 20 | 1304 | 1304 | 55 | 55 | P | P | 2.8 | True |
| 21 | 1321 | 1321 | 54 | 54 | P | P | 2.7 | True |
| 22 | 1338 | 1338 | 54 | 54 | P | P | 2.9 | True |
| 23 | 1354 | 1354 | 54 | 54 | P | P | 2.9 | True |
| 24 | 1371 | 1371 | 54 | 54 | P | P | 3.0 | True |
| 25 | 1387 | 1387 | 54 | 54 | P | P | 3.1 | True |
| 26 | 1404 | 1404 | 54 | 54 | P | P | 3.0 | True |
| 27 | 1420 | 1420 | 54 | 54 | P | P | 3.2 | True |
| 28 | 1437 | 1437 | 55 | 55 | P | P | 3.2 | True |
| 29 | 1454 | 1454 | 55 | 55 | P | P | 3.3 | True |
| 30 | 1472 | 1472 | 56 | 56 | P | P | 3.6 | True |
| 31 | 1489 | 1489 | 56 | 56 | A | A | 3.4 | True |
| 32 | 1508 | 1508 | 57 | 57 | A | A | 3.6 | True |
| 33 | 1526 | 1526 | 58 | 58 | A | A | 3.8 | True |
| 34 | 1546 | 1546 | 59 | 59 | A | A | 3.5 | True |
| 35 | 1566 | 1566 | 60 | 60 | A | A | 3.4 | True |
| 36 | 1587 | 1587 | 62 | 62 | A | A | 3.4 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1609 | 1609 | 64 | 64 | A | A | 3.3 | True |
| 38 | 1633 | 1633 | 66 | 66 | A | A | 3.2 | True |
| 39 | 1658 | 1658 | 68 | 68 | A | A | 2.9 | True |
| 40 | 1686 | 1686 | 71 | 71 | A | A | 2.5 | True |
| 41 | 1716 | 1716 | 75 | 75 | A | A | 2.1 | True |
| 42 | 1750 | 1750 | 80 | 80 | A | A | 1.7 | True |
| 43 | 1789 | 1789 | 86 | 86 | A | A | 1.1 | True |
| 44 | 1835 | 1835 | 95 | 95 | A | A | 0.8 | True |
| 45 | 1892 | 1892 | 108 | 108 | A | A | 0.4 | True |
| 46 | 1971 | 1971 | 130 | 130 | A | A | 0.2 | True |
| 47 | 2100 | 2100 | 180 | 180 | A | A | 0.1 | True |
| 48 | 2318 | 2318 | 325 | 325 | A | A | 0.0 | True |

Science Grade 8 Raw-to-Scaled Score Comparison for Pre-Equated and Post-Equated Solutions

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 0 | 925 | 925 | 352 | 352 | BB | BB | 0.0 | True |
| 1 | 925 | 925 | 195 | 195 | BB | BB | 0.0 | True |
| 2 | 925 | 925 | 140 | 140 | BB | BB | 0.0 | True |
| 3 | 925 | 925 | 116 | 116 | BB | BB | 0.0 | True |
| 4 | 925 | 925 | 102 | 102 | BB | BB | 0.1 | True |
| 5 | 925 | 925 | 93 | 93 | BB | BB | 0.3 | True |
| 6 | 925 | 925 | 86 | 86 | BB | BB | 0.5 | True |
| 7 | 925 | 925 | 81 | 81 | BB | BB | 0.9 | True |
| 8 | 927 | 927 | 77 | 77 | BB | BB | 1.5 | True |
| 9 | 957 | 957 | 74 | 74 | BB | BB | 1.9 | True |
| 10 | 984 | 984 | 71 | 71 | BB | BB | 2.4 | True |
| 11 | 1009 | 1009 | 69 | 69 | BB | BB | 2.7 | True |
| 12 | 1033 | 1033 | 67 | 67 | BB | BB | 3.1 | True |
| 13 | 1056 | 1056 | 65 | 65 | BB | BB | 3.1 | True |
| 14 | 1078 | 1078 | 64 | 64 | BB | BB | 3.1 | True |
| 15 | 1099 | 1099 | 63 | 63 | BB | BB | 3.1 | True |
| 16 | 1120 | 1120 | 62 | 62 | BB | BB | 3.0 | True |
| 17 | 1139 | 1139 | 61 | 61 | BB | BB | 3.0 | True |
| 18 | 1159 | 1159 | 60 | 60 | B | B | 2.9 | True |
| 19 | 1177 | 1177 | 60 | 60 | B | B | 2.9 | True |
| 20 | 1196 | 1196 | 59 | 59 | B | B | 2.9 | True |
| 21 | 1214 | 1214 | 59 | 59 | B | B | 2.9 | True |
| 22 | 1232 | 1232 | 59 | 59 | B | B | 2.9 | True |
| 23 | 1250 | 1250 | 59 | 59 | B | B | 2.9 | True |
| 24 | 1268 | 1268 | 59 | 59 | B | B | 3.1 | True |
| 25 | 1286 | 1286 | 59 | 59 | P | P | 3.1 | True |
| 26 | 1304 | 1304 | 59 | 59 | P | P | 3.1 | True |
| 27 | 1322 | 1322 | 59 | 59 | P | P | 3.1 | True |
| 28 | 1341 | 1341 | 59 | 59 | P | P | 3.4 | True |
| 29 | 1359 | 1359 | 60 | 60 | P | P | 2.9 | True |
| 30 | 1378 | 1378 | 60 | 60 | P | P | 3.2 | True |
| 31 | 1397 | 1397 | 61 | 61 | P | P | 3.1 | True |
| 32 | 1417 | 1417 | 62 | 62 | P | P | 3.2 | True |
| 33 | 1437 | 1437 | 63 | 63 | P | P | 3.1 | True |
| 34 | 1458 | 1458 | 64 | 64 | P | P | 3.0 | True |
| 35 | 1480 | 1480 | 65 | 65 | A | A | 2.8 | True |
| 36 | 1503 | 1503 | 67 | 67 | A | A | 2.7 | True |

| Raw Score | Pre-SS | Post-SS | Pre-SEM | Post-SEM | Pre-PL | Post-PL | Proportion (%) | Same PL |
|-----------|--------|---------|---------|----------|--------|---------|----------------|---------|
| 37 | 1527 | 1527 | 69 | 69 | A | A | 2.6 | True |
| 38 | 1552 | 1552 | 71 | 71 | A | A | 2.3 | True |
| 39 | 1580 | 1580 | 74 | 74 | A | A | 2.1 | True |
| 40 | 1609 | 1609 | 77 | 77 | A | A | 1.8 | True |
| 41 | 1642 | 1642 | 81 | 81 | A | A | 1.6 | True |
| 42 | 1679 | 1679 | 86 | 86 | A | A | 1.2 | True |
| 43 | 1721 | 1721 | 93 | 93 | A | A | 0.9 | True |
| 44 | 1770 | 1770 | 103 | 103 | A | A | 0.6 | True |
| 45 | 1833 | 1833 | 117 | 117 | A | A | 0.4 | True |
| 46 | 1918 | 1918 | 141 | 141 | A | A | 0.3 | True |
| 47 | 2058 | 2058 | 195 | 195 | A | A | 0.1 | True |
| 48 | 2294 | 2294 | 352 | 352 | A | A | 0.0 | True |

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