

TECHNICAL REPORT



**for the
Pennsylvania
System of School Assessment**

**2007 Writing
Grades 5, 8, and 11**

**Provided by
Data Recognition Corporation**

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PREFACE: An Overview of Recent and Future Assessments

The period from 2003 through 2006 brought significant structural changes in 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 in the operational assessment. Included in this process was the development and implementation of assessments in additional grade levels.

For reading and mathematics, 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, 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 present technical report, along with grades 4 through 8, and 11.

Changes in the writing assessment 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 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 contributed to a more valid 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*.

To assist the reader in navigating through the year-to-year changes in all aspects of the PSSA, tables are presented along with explanatory text. Provided is an overview of 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).

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 grade 6 and grade 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
	Standalone field test in mathematics and reading	April/May 2004
6	Operational writing	October 2004
8	Operational mathematics and reading	April 2004
	Standalone field test in mathematics and reading	April/May 2004
9	Operational writing	October 2004
11	Operational mathematics and reading	April 2004
	Standalone field test in mathematics and reading	April/May 2004
	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 through 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 reassessed 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. The writing assessment also 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
	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
	Standalone field test in writing	February 2005
11	Operational mathematics and reading with embedded field test	April 2005
	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 from grades 3 through 8 and at 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 process 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 this year while the grade 11 writing assessment continued in the same February test window. New this year 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
	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
	Operational writing with embedded field test	February 2006
11	Operational mathematics and reading with embedded field test	March 2006
	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 that occurred during the 2006–07 school year. Note that the mathematics and reading assessments ran consecutively from grades 3 through 8 and at 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 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 completed. As in the previous years, the retest opportunity at grade 12 will continue.

The operational assessment for writing at grades 5, 8, and 11 continued in the same February test 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 and reading and mathematics, a separate, “standalone” field test in science occurred 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
	Standalone field test in science	April/May 2007
5	Operational mathematics and reading with embedded field test	March 2007
	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
	Operational writing with embedded field test	February 2007
	Standalone field test in science	April/May 2007
11	Operational mathematics and reading with embedded field test	March 2007
	Operational writing with embedded field test	February 2007
	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 PLANNED FOR THE 2007–08 SCHOOL YEAR

Table P–5 shows the assessment plan for the 2007–08 school year. The mathematics and reading assessments will be operational for grades 3 through 8 and at grade 11. Field testing for mathematics and reading will continue to be embedded as part of the operational assessments at each grade level. As in the previous years, the retest opportunity at grade 12 will continue.

The operational assessment for writing at grades 5, 8, and 11 continues in a February test window using mode-specific scoring guidelines; stimulus-based, multiple-choice items; and a grade-specific emphasis in writing modes assessed. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts will be field tested in 2008. However, new multiple-choice items will be field tested in the 2008 writing assessment.

The first operational assessment in science will be fully implemented in April/May. Similar to the other operational assessments, field testing for science will be embedded as part of the operational assessments at each grade level.

**Table P–5. Operational Assessment and Field Testing
During the 2007–08 School Year (Planned)**

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
	Operational science with embedded field test	April/May 2008
5	Operational mathematics and reading with embedded field test	March/April 2008
	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
	Operational writing with embedded field test	February 2008
	Operational science with embedded field test	April/May 2008
11	Operational mathematics and reading with embedded field test	March/April 2008
	Operational writing with embedded field test	February 2008
	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, writing, or science	October/ November 2007

Chapter One: Background of Pennsylvania System of School Assessment (PSSA)

This brief overview of assessment in Pennsylvania describes the original and subsequent legislative mandates, previous assessment programs, 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.

THE ORIGIN OF STATE ASSESSMENT IN PENNSYLVANIA

State assessment of student achievement came about as a result of legislation enacted in 1963. Generally known as the School District Reorganization Act (Act 299), the issue of whether large or small district size provided a better quality education led to the development of Section 299.1 of Act 299, which required the State Board of Education to

. . . develop or cause to be developed an evaluation procedure designed to measure objectively the adequacy and efficiency of the educational program offered by the public schools of the Commonwealth . . . The evaluation procedure shall be so constructed and developed as to provide each school district with relevant comparative data to enable directors and administrators to more readily appraise the educational performance and to effectuate without delay the strengthening of the district's educational program. Tests developed . . . shall be used for the purpose of providing a uniform evaluation of each school district . . .

In response to the legislative mandate, the State Board of Education contracted with Educational Testing Service of Princeton, New Jersey, to engage in a two-year process of surveying and interviewing stakeholders in business, industry, education, and the general public as to what constituted a quality education. This led to the State Board adoption of *The Goals of Quality Education* in 1965. In 1967, the Department of Education formed an organizational unit along with staff to begin developing appropriate measures and engaging in extensive field testing during the 1967–68 and 1968–69 school years.

EDUCATIONAL QUALITY ASSESSMENT (EQA) PROGRAM

The first state assessment of students in Pennsylvania took place in the 1969–70 school year. Initially, state assessment was a purely school-based evaluation in the form of the *Educational Quality Assessment (EQA)* program, which reported grade 5 and 11 school-level results in ten goal areas. Grade 8 was added in 1974. Measuring both cognitive and non-cognitive areas, the program operated from 1970 through 1988. As the program evolved, a matrix sampling design was used in measuring and reporting school results in subject areas such as reading, language arts, mathematics, science, health, social studies, and analytical thinking. Initially, it operated as a voluntary program, but in 1974 it became mandatory on a cyclical basis.

TESTING FOR ESSENTIAL LEARNING AND LITERACY SKILLS (TELLS)

The next major revision in state assessment was the advent of the state’s first mandated competency testing program, *Testing for Essential Learning and Literacy Skills (TELLS)* in the 1984–85 school year. The impetus for a statewide essential skills test evolved from an October 1983 document entitled *Turning the Tide: An Agenda for Excellence in Pennsylvania Public Schools*. A two-pronged approach was advocated, calling for:

1. competency testing in grades 3, 5, and 8 as an “early warning system” to identify students with reading and mathematics difficulties and
2. state-funded remedial instruction to provide needed additional help.

In response to this and other recommendations, the State Board of Education added *Chapter 3: Student Testing* to its regulations on June 14, 1984. It required all public school students in grades 3, 5, and 8 to be given criterion-referenced tests in reading and mathematics. The second part of the program, remedial instruction, was mandated by Act 93-1984, and required districts to provide remedial instruction programs to students identified by the tests given under the State Board regulation. Subsequently, funds were distributed to districts and intermediate units for this part of the program. The *TELLS* and *EQA* testing programs coexisted until the *EQA* was concluded in 1988. The *TELLS* program continued through the spring of 1991.

THE PENNSYLVANIA SYSTEM OF SCHOOL ASSESSMENT (PSSA)

The Pennsylvania System of School Assessment (PSSA) program was instituted in 1992. The PSSA returned to 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. Reading and mathematics were assessed at grades 5, 8, and 11; districts could choose to participate in the writing assessment at grades 6 and 9. State Board revisions to Chapter 5 in November 1994 brought major changes to the PSSA, beginning with the spring 1995 assessment. These changes included

1. all districts were required to participate in the reading and mathematics assessment each year,
2. student-level reports were generated in addition to school reports, and
3. the grades 6 and 9 writing assessment became mandatory on a three-year cycle corresponding to the district’s strategic planning cycle.

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). 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. Reading and mathematics 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.

ASSESSMENT ANCHOR CONTENT STANDARDS, CONTENT STRUCTURE, AND NEW GRADE LEVELS

Assessment in 2005 was marked by major structural changes in 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. The third year of calculations for AYP were conducted and reported for grades 5, 8, and 11.

The 2006 operational reading and mathematics assessment incorporated grades 4, 6, and 7 for the first time. The assessed grade levels for 2006 included grades 3 through 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 in grade 3.

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

PURPOSES OF THE PSSA

As outlined in Chapter 4 of the State Board Regulations, the purposes of the statewide assessment component of the PSSA are as follows:

1. Provide students, parents, educators, and citizens with an understanding of student and school performance.
2. Determine the degree to which school programs enable students to attain proficiency of Academic Standards.
3. Provide results to school districts (including charter schools) and Area Vocational Technical Schools (AVTSs) for consideration in the development of strategic plans.
4. Provide information to state policymakers, including the State Senate, the General Assembly, and the State Board, on how effective schools are in promoting and demonstrating student proficiency of Academic Standards.
5. Provide information to the general public on school performance.
6. Provide results to school districts (including charter schools and AVTSs) based upon the aggregate performance of all students, for students with an Individualized Education Program (IEP), and for those without an IEP.

The broad purpose of the state assessments is to provide information to teachers and schools to guide the improvement of curricula and instructional strategies to enable students to reach proficiency in the Academic Standards.

THE PENNSYLVANIA WRITING ASSESSMENT

In 1990 the state initiated an on-demand writing assessment in which students wrote an essay in response to a particular topic or prompt. Offered to school districts on a voluntary basis, the writing assessment consisted of three modes of writing: narrative, informational, and persuasive. The test administration for grades 6 and 9 used a matrix sampling design; nine prompts (three per mode) were administered to students within a school, although each student responded to just one randomly distributed prompt. Scoring was based on a six-point holistic scale. Student results were aggregated and reported at the school level only. In 1992 the writing assessment was incorporated as part of the PSSA. Beginning in 1995, districts were required to participate in the writing assessment every third year in accordance with their strategic planning cycle. However, districts were also given the choice to participate more frequently. As a result, participation rose dramatically from the expected 167 districts (one-third) in any given year to 235 (47%) in 1995, 306 (61%) in 1996, 412 (82%) in 1997, 445 (89%) in 1998, and 449 (90%) in 1999.

With the advent of the Pennsylvania Academic Standards in 1999, major changes took place in the writing assessment, including alignment to the Academic Standards as well as changes in scoring method, prompts, testing date, and reporting. These changes, which are summarized below, were implemented in the 2000–01 school year and were followed by performance level reporting in the 2001–02 school year.

- The writing assessment became mandatory for all districts every year.
- Administration of the grades 6 and 9 writing assessment was changed from February to October.
- Scoring changed to a 4-point scale for each of five domains (focus, content, organization, style, and conventions).
- Prompts were different for grade 6 and grade 9 rather than being identical at the two grade levels.
- Within a grade level all students responded to two common prompts.
- The reporting model was greatly revised, and individual student reports were issued for the first time.
- A writing assessment for grade 11 was administered for the first time in February 2001.
- In 2002, performance levels were adopted for writing and implemented in the reporting of total writing results for the February grade 11 and fall 2002 grades 6 and 9 writing assessment.

The 2006 PSSA operational writing assessment featured additional revisions that included the following enhancements:

- A shift from grades 6 and 9 to grades 5 and 8, to provide better alignment to the end of elementary school and middle school.
- Grades 5 and 8 joined grade 11 in a February test window rather than the October window used previously for grades 6 and 9.
- Students responded to two writing prompts, which were evaluated in terms of (1) a mode-specific scoring guideline and (2) a conventions scoring guideline instead of the former domain scoring.
- Stimulus-based revising/editing multiple-choice items were incorporated to provide a more reliable and valid measure of the Conventions Academic Standard.

The 2007 PSSA operational writing assessment continued with the same structure and time of year as in 2006.

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 is scheduled for 2008.

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

- 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 *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:

- A. The Nature of Science,
- B. Biological Sciences,
- C. Physical Sciences, and
- D. Earth and Space Sciences.

At grade 4, test questions consist of standalone multiple-choice and two-point short answer open-ended items, and at grade 8 and 11 test questions also consist of sets of multiple-choice questions associated with science scenarios. Grade 11 also has four-point open-ended items associated with the science scenarios. A science scenario consists of a description of a class project, an experiment, or other research. Scenarios typically contain text, graphs, charts and/or tables. Students use their content knowledge and science process skills to answer a set of multiple-

choice items and, at grade 11 only, a four-point extended open-ended item related to the scenario. More information may be found in the following two Pennsylvania Department of Education publications available on the PDE website: *Science Assessment Handbook* and *2006–2007 Science Item and Scoring Sampler*.

An extensive description of the science test development activities, field testing, and statistical analyses may be found in the *2008 PSSA Preliminary Technical Report for Science*.

Chapter Two: New Test Development for Writing

The second PSSA operational writing test to include both multiple-choice items and writing prompts, aligned with the Academic Standards, was administered in the spring of 2007 to students in grades 5, 8, and 11. The multiple-choice items administered were field tested in the spring of 2006 (embedded in the first operational writing test) and the writing prompts were field tested in the spring of 2005. The new writing assessment represents several fundamental changes over the previous operational assessment. The changes in the PSSA writing test include the development of writing tests at each grade level (5, 8, and 11) that are in alignment with the Academic Standard 1.4 (Types of Writing [Mode]) and Academic Standard 1.5 (Quality of Writing [Revising and Editing]). Below is a more detailed description of these changes and their rationale.

GRADE LEVEL

Starting with the 2006 operational assessment and continuing with the 2007 assessment, students in grades 5, 8, and 11 are administered the writing test. The assessment of students in grades 5 and 8 (rather than grades 6 and 9) provides a clearer alignment with the end of elementary and middle school. Further, this allows schools to use information from the writing assessment to evaluate the effectiveness of their writing programs and to assess the needs of incoming students.

MULTIPLE-CHOICE ITEMS

Starting with the 2006 operational assessment and continuing with the 2007 assessment, students at each grade level respond to twelve multiple-choice, stimulus-based revising/editing items. The use of multiple-choice items allows for a more reliable and valid measure of conventions (which include revising and editing) because it provides focused, predictable opportunities to assess students' skills in using conventions of language and writing.

WRITING PROMPT

Starting with the 2006 operational assessment and continuing with the 2007 assessment, students at each grade level respond to two writing prompts. Students at grade 5 respond to prompts at two of the three modes (narrative, informational, persuasive). Each year, PDE selects two of the three modes for use in the test. Students at grades 8 and 11 respond to prompts at only the informational and persuasive modes. This change aligns with the expository forms of writing most often used in middle and high school curriculums, and it reflects the expectations for writing that occur in post-secondary classrooms and in the workplace.

WRITING ASSESSMENT MEASURES

In 1999, Pennsylvania adopted academic standards for writing (*Academic Standards for Reading, Writing, Speaking and Listening*) that describe what students should know and be able to do with the English language at a grade level. Within the framework of the new assessment, the writing prompts are measured under Academic Standards 1.4.A Narrative, 1.4.B Informational, and 1.4.C Persuasive, thus providing the responses to the eligible modes the prompts are designed to elicit. The writing prompts are also measured under Academic Standard 1.5.A–F Editing. The stimulus-based, multiple-choice items are measured under the Academic Standards 1.5.E Revising, and 1.5.F Editing.

OVERVIEW OF THE WRITING TEST

Multiple-Choice Items

Each multiple-choice item on the writing test is associated with an embedded passage containing errors. Starting with the 2006 operational assessment and continuing with the 2007 assessment, four multiple-choice items are associated with each passage. Multiple revising and editing instances are incorporated within each passage and require that a student demonstrate both passive (recognizing and identifying grammatical and mechanical errors in text, i.e., misspellings, errors in word choice, errors in verb tense or pronoun usage) and active (choosing the appropriate correction of an embedded error, i.e., deleting an irrelevant detail, changing the sequence of details, placing correct marks of punctuation) revising and editing skills.

All multiple-choice items have four response options that include one single 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.

Writing Prompts

At each assessed grade level, students respond to writing prompts developed to measure composition of writing as specified in the Academic Standards 1.4.A–C and further clarified in Academic Standards 1.5 A–G. The student response to a prompt requires approximately 60 minutes per prompt, though students are allowed more time to finish their responses if necessary. The writing prompts were field tested in 2005 with only one field test prompt being administered per student. Prompt modes were spiraled across the total number of available forms. Spiraling is accomplished by administering each student one of many available prompts in a sequential manner. For example, the first student received Prompt 1, the second student Prompt 2, and so on until every prompt was administered. If there were more students than prompts, the sequence was repeated starting with the first prompt until every student was assigned a prompt. This process ensures that each prompt was administered to approximately equal and representative student populations in regard to demographics like gender, ethnicity, school size, and location in the state.

Beginning with the operational assessment in 2006 and continuing in 2007, students in grade 5 respond to two prompts selected across three modes: narrative, informational, and persuasive. The narrative prompt can be story/fiction or personal narrative/recount, which aligns with Academic Standard 1.4.A. The informational prompt can be sequence (process analysis) or simple definition, which aligns with Academic Standard 1.4.B. The persuasive prompt can be problem/solution or evaluation, which aligns with Academic Standard 1.4.C. No writing prompts were field tested in 2006 or 2007.

Beginning with the operational assessment in 2006 and continuing in 2007, students in grade 8 respond to two prompts: informational and persuasive. The informational prompt can be sequence (process analysis), illustration, conceptual definition, cause/effect, classification, or compare/contrast, which aligns with Academic Standard 1.4.B. The persuasive prompt can be problem/solution or evaluation, which aligns with Academic Standard 1.4.C. No writing prompts were field tested in 2006 or 2007.

Academic writing is the focus for the grade 11 PSSA writing assessment, including writing required for students who wish to pursue post-secondary educational and/or career opportunities. Beginning with the operational assessment in 2006 and continuing in 2007, students in grade 11 respond to two prompts: informational and persuasive. The informational prompt can be advanced sequence (process analysis), illustration, definition, cause/effect, classification, or compare/contrast, which aligns with Academic Standard 1.4.B. The persuasive prompt can be problem/solution or evaluation, which aligns with Academic Standard 1.4.C. No writing prompts were field tested in 2006 or 2007.

Beginning with the field test in 2005 and continuing through 2007, the responses to writing prompts are scored twice using two different scoring guidelines developed especially for the PSSA. The first score is based on the application of a mode-specific scoring guideline, and the second score is based on the application of a conventions scoring guideline. The mode-specific scoring guideline is designed to evaluate first-draft, on-demand responses. It identifies the essential criteria for successfully responding to a particular mode of writing relating to the core areas of writing: focus, development of content, organization, and style. In contrast, the conventions scoring guideline measures the demonstrated level of control of sentence formation, grammar, usage, spelling, and punctuation. For more information on the application of the new scoring guidelines, see the current *Writing Item and Scoring Sampler*, available on the PDE Web site.

Copies of the scoring guidelines used to score the mode and the conventions are contained in Appendix A.

Chapter Three: Item/Test Development Process

Key activities in the development process of the multiple-choice portion of the 2007 operational writing test include initial item development, review of newly developed items, bias/fairness/sensitivity review, field testing of new multiple-choice items in 2006, field test item review with data, and final selection of items for the 2007 Writing PSSA. Table 3–1 provides a timeline of these major activities, which are described in this chapter and in *Chapter Five: Field Test Procedures*.

Table 3–1. General Timeline Associated with 2006 MULTIPLE-CHOICE FIELD TEST and 2007 Operational Assessment of Writing at Grades 5, 8, and 11

Activities in the MULTIPLE-CHOICE Item/Test Development Process		Timeframe
Field Test	Test Blueprint Developed / Finalized	February 2005
	Initial Multiple-Choice Item Development Conducted	March–June 2005
	PDE, with Pennsylvania Educators and Consultants, Reviewed Sample Multiple-Choice Items	June 2005
	Newly Developed Multiple-Choice Items Reviewed with PA Educators (New Item Review)	July 2005
	Multiple-Choice Items Reviewed for Bias, Fairness, and Sensitivity with PA Educators (Bias Review)	July 2005
	Field Test Forms Constructed	August–November 2005
	Test Materials Printed, Packaged, and Shipped	November 2005–January 2006
	Window for Test Administration	February 2006
Core / Operational	Multiple-Choice Field Test Results/Data Reviewed with PA Educators (Data Analysis)	July 2006
	Operational Test Form Constructed	August–November 2006
	Test Materials Printed, Packaged, and Shipped	November 2006–January 2007
	Test Administration Window	February 2007

Key activities in the development process of the writing prompt portion of the 2007 operational writing test include initial item development, review of newly developed items, bias/fairness/sensitivity review, field testing of new prompts in 2005, field test item review with data, and final selection of items for the 2007 Writing PSSA. While new multiple-choice items have been field tested each year, a total of 90 writing prompts was field tested in 2005. Each year since, PDE has selected the writing prompt that appears on the current year’s assessment. Table 3–2 provides a timeline of these major activities, which are described in this chapter and in *Chapter Five: Field Test Procedures*.

Table 3–2. General Timeline Associated with 2005 WRITING PROMPT FIELD TEST and 2007 Operational Assessment of Writing at Grades 5, 8, and 11

Activities in the WRITING PROMPT/Test Development Process		Timeframe
Field Test	Test Blueprint Developed / Finalized	February–May 2004
	Initial Writing Prompt Development Conducted	May–September 2004
	PDE, with Pennsylvania Educators and Consultants, Reviewed Sample Items	June 2004
	Newly Developed Writing Prompts Reviewed with PA Educators (New Item Review)	October 2004
	Writing Prompts Reviewed for Bias, Fairness, and Sensitivity with PA Educators (Bias Review)	October 2004
	Field Test Forms Constructed	October–November 2004
	Test Materials Printed, Packaged, and Shipped	November 2004–January 2005
	Window for Test Administration	February 2005
	Rangefinding of Writing Prompt Field Test Items Conducted	March 2005
	Writing Prompt Field Test Items Scored	May–June 2005
Core Operational	Field Test Results/Data Reviewed with PA Educators (Data Analysis)	July 2005
	Operational Test Form Constructed	August–November 2006
	Test Materials Printed, Packaged, and Shipped	November 2006–January 2007
	Test Administration Window	February 2007
	Supplemental Rangefinding of Operational Writing Prompts Conducted	March 2007
Operational Writing Prompts Scored	May–June 2007	

TEST CONTENT BLUEPRINT FOR 2007

As indicated in Chapter One and Chapter Two, the PSSA is based on the Pennsylvania Academic Standards for Reading, Writing, Speaking, and Listening. The writing test specifically measures Academic Standards 1.4 (Types of Writing) and 1.5 (Quality of Writing). The Reading, Writing, Speaking and Listening Standards were designed to show what students should know and be able to do with the English language at a grade level. The Standards establish an outline for what can be assessed on the PSSA writing test and help to communicate the range of knowledge and skills from which the PSSA items would be designed.

The PSSA writing test for grades 5, 8, and 11 in 2006 and 2007 followed this content blueprint and testing plan in order to reflect the Academic Standards.

2007 OPERATIONAL LAYOUT FOR WRITING

The PSSA operational layout was developed through the collaborative efforts of Data Recognition Corporation (DRC), the National Center for Improvement of Educational Assessment (NCIEA), and the Pennsylvania Department of Education. The layout was subsequently evaluated and approved by PDE. The writing test book is scannable and includes fields for student demographic data, stimuli (embedded error passages) linked to multiple-choice (MC) items, and writing prompts (WP). All MC items are worth 1 point. Responses to WP items receive a maximum of 4 points (on a scale of 1–4) for mode and also receive a maximum of 4 points (on a scale of 1–4) for conventions.

Multiple-Choice Items

Each test form contains a common set of operational items (i.e., each student takes an identical set of items) along with matrix/embedded field test items. The matrix and embedded field test items are unique across form.

Writing Prompts

Each test form contains two common operational writing prompts. These prompts are taken by all students at a grade level. Neither the 2006 or 2007 operational forms contained matrix or embedded field test writing prompt.

Forms

The 2007 Writing PSSA is comprised of ten forms at each grade. All of the forms contain the common items identical for all students and sets of unique (“matrix”) items that fulfill several purposes. These purposes include

- expanding the total pool of items for school-level reporting.
- field testing new items.
- using items from the previous year’s assessment for the purpose of equating/linking.

Tables 3–3 and 3–4 display the design for the writing test forms. The column entries for these tables denote:

- E. No. of Core Revising and Editing (R&E) Stimulus-based MC Items per Form**—Each multiple-choice item is associated with a stimulus-passage. This column provides the number of core (common) operational revising and editing multiple-choice items that appear per form. These items appear in every test form at a grade level.
- F. No. of Matrix R&E Stimulus-based MC Items per Form**—Each multiple-choice item is associated with a stimulus-passage. This column provides the number of matrix revising and editing multiple-choice items that appear per form. These items include linking MC items and field test MC items. Matrix items will be used for equating.
- G. Total No. of R&E MC Items per Form**—This column provides the total number of multiple-choice items that appear in one test form (Column A plus Column B).
- H. No. of Pre-equated Core 4-pt. Writing Prompts (WPs) per Form**—This column provides the number of operational core writing prompts. These prompts appear in every test form at a grade level. Pre-equating means that all of the prompts are on the same metric or scale before they are administered on an operational form.
- I. Total No. of Forms**—This column provides the total number of forms at a grade level. The values in this column are used as a multiplier to calculate figures in Column H and Column J.
- J. Total No. of Core R&E Stimulus-based MC Items per 10 Forms**—This column provides the total number of stimulus-based, multiple-choice items that appear in all core positions of all test forms. Since core items are identical across all forms, this number should equal the core figure provided in Column A.
- K. Total No. of Matrix R&E Stimulus-based MC Items per 10 Forms (Linking & Embedded FT)**—This column provides the total number of revising and editing multiple-choice items that appear in all matrix positions in all test forms. This figure is found by multiplying the number of matrix MC items shown in Column B by the total number of forms found in Column E. The matrix positions shown in Column H are further broken out into the number of Matrix Linking and the number of Embedded Field Test Matrix items. The total number of Matrix MC items is equal to the number of Matrix items and Matrix Linking items added to the number of Embedded Field Test Matrix items.
- L. Total No. of R&E Stimulus-based MC Items (Core + FT) per 10 Forms**—This column provides the total number of multiple-choice items that will appear in all MC positions in all forms regardless of role. This figure is found by adding the total in Column G to the total in Column H.
- M. Total No. of Pre-equated Core 4-pt. Writing Prompts (WPs) per 10 Forms**—This column provides the total number of writing prompts that appear in all forms. Since all writing prompts are core, the figure in Column K equals the figure in Column D.

Table 3–3. 2007 Writing Test Plan, per Operational Form per Grade

A	B	C	D	E
No. of Core R&E Stimulus-based MC Items per Form	No. of Matrix R&E Stimulus-based MC Items per Form	Total No. of R&E MC Items per Form	No. of Pre-equated Core 4-pt. Writing Prompts (WP) per Form	Total No. of Forms
12	8	20	2	10

Table 3–4. 2007 Writing Test Plan, per 10 Operational Forms per Grade

F	G	H	I
Total No. of Core R&E Stimulus-based MC Items per 10 Forms	Total No. of Matrix R&E Stimulus-based MC Items per 10 Forms (Linking & Embedded FT)	Total No. of R&E Stimulus-based MC Items (Core + FT) per 10 Forms	Total No. of Pre-equated Core 4-pt. Writing Prompts (WP) per 10 Forms
12	80 (16 & 64)	92	2

Core Points

Since an individual student’s score is based solely on the common, or core items, the total number of operational points is 100. The total score is obtained by combining the points from the core MC and WP portions of the test as displayed in Table 3–5.

Table 3–5. Maximum Eligible Core Points for Writing Prompts

Multiple-choice	Writing Prompts		Totals
	Conventions	Mode	
12	8	80	100
12 items × 1 point each (12×1)	2 items each worth a maximum of 4 points each (2×4)	2 items each worth a maximum of 4 points each. The raw score is then multiplied by 10. (2×4)×10	(12 + 8 + 80)

TEST SESSIONS AND TIMING

The test window for the 2007 operational assessment was from February 12 through February 23, including make-ups. The writing assessment consists of three sections. Test administration requires each complete section to be scheduled as one assessment session, although schools are permitted to combine multiple sections as a single session. Administration guidelines stipulate that the sections be administered in the sequence in which they are printed in the test book.

Table 3–6 outlines the assessment schedule and estimated times for each section.

Table 3–6. Writing—All Grades

Section	Contents	Suggested Time*
1	20 Multiple-choice	50 Minutes
2	1 Writing Prompt	60 Minutes
3	1 Writing Prompt	60 Minutes
Total Time		150 Minutes

*These are approximate times. All students are entitled to extra time if needed. Students may request an extended assessment period if they indicate that they have not completed the task. Such requests are granted if the assessment administrator finds the request to be educationally valid.

REPORTING CATEGORIES AND POINT DISTRIBUTION

The writing assessment results will be reported in two categories:

- Composition – Academic Standard 1.4, Types of Writing
- Revising and Editing – Academic Standard 1.5, Quality of Writing

Academic Standards A, B, and C are associated with Composition. Academic Standards E and F are associated with Revising and Editing. The distribution of core items into these two categories is shown in Table 3–7.

Table 3–7. Core Points Distribution

<i>Reporting Category</i>	<i>Composition</i>	<i>Revising and Editing</i>	
<i>Academic Standards</i>	<i>1.4A, 1.4B, 1.4C</i>	<i>1.5E and 1.5F</i>	
Multiple-choice Items	N/A	12	12
Writing Prompt 1	4 (Mode)	4 (Conventions)	8
Writing Prompt 2	4 (Mode)	4 (Conventions)	8
Raw Sub-total	8	20	28
<i>Weighting Factor applied to Raw Score</i>	<i>x10</i>	<i>x1</i>	
Total Possible Points	80	20	100

For more information concerning the process used to converting the operational layout into forms (form construction), see Chapter Six. For more information about operational layout across forms and across years (form equivalency), see Chapter Ten.

TEST DEVELOPMENT CONSIDERATIONS

Achieving strong alignment of the items with the PSSA Academic Standards involves several components:

- grade-level appropriateness (reading/interest level, etc.)
- Webb’s Depth of Knowledge (cognitive level, item/task level of complexity)
- estimated difficulty level
- relevancy of context
- rationale for distractors
- style
- accuracy
- correct terminology

The inclusion of multiple components such as these greatly enhances the comprehensiveness and utility of alignment (Bhola, Impara & Buckendahl, 2003). *The Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999) and the *Principles of Universal Design* (Thompson, Johnstone & Thurlow, 2002) guided the development process. In addition, DRC’s *Bias, Fairness, and Sensitivity Guidelines* were used for developing items free of issues of bias, fairness, and sensitivity. All items were reviewed for fairness by bias and sensitivity committees and for content by Pennsylvania educators and field specialists.

Bias, Fairness, and Sensitivity

At every stage of the item and test development process, DRC employs procedures that are designed to ensure that items and tests meet Standard 7.4 of the *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999).

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.

In meeting Standard 7.4, DRC employs a series of internal quality steps. DRC provides specific training for our 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). Our 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, experiential, and biases against a particular age group (ageism) and against 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

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:

1. Items measure what they are intended to measure.
2. Items respect the diversity of the assessment population.
3. Items have a clear format for text.
4. Items have concise and readable text.
5. Items allow changes to format, such as Braille, without changing meaning or difficulty.
6. 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 Universal Design principles is described in Chapter Four.

Depth of Knowledge (DOK)

Important in statewide assessment is the alignment between the overall assessment system and the state's standards. A Depth of Knowledge (cognitive complexity) methodology developed by 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 dealing with content. Within the content category is a useful set of levels for evaluating DOK. According to Webb (1999, p.7–8) "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." The four levels of cognitive complexity (Depth of Knowledge) are:

- **Level 1: Recall**—the student can recall information and facts.
- **Level 2: Skill/Concept**—the student can use information and facts in new situations.
- **Level 3: Strategic Thinking**—the student can use reason and strategic thinking to develop a plan.
- **Level 4: Extended Thinking**—the student can use extended thinking and investigation to solve a problem.

DOK levels were incorporated in the item writing and review process, and items were coded with respect to the level they represented. For the writing assessment, multiple-choice items are written to DOK levels 1 and 2. Students will either recall information they have learned (level 1) or apply learned information to a new context (level 2). For example, an item that asks students to identify a capitalization error (What is the capitalization rule for this word?) would be considered DOK level 1 because it requires learned facts. An item that asks students to insert a new sentence into an existing passage would be considered DOK level 2 because it requires more than mere recollection to arrive at the correct answer. The writing prompts are considered DOK level 3 because the student must create a unique piece of writing.

General Process of Item Construction

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 standards. They also assessed each item to make certain that it was appropriate to the intended grade and that it provided and cued only one correct answer. In addition, the difficulty level, Depth of Knowledge, graphics, language demand, and distractors were also evaluated. Other elements considered in this process include, but are not limited to: Universal Design, bias/fairness/sensitivity, source of challenge, grammar/punctuation, and PSSA style.

A flow chart summarizing the item and test development processes used appears in Appendix B. Additional details about the process are discussed below.

Sample Item Review: June 2004

Before training item writers to construct items, passages, and prompts for the new Pennsylvania writing test, DRC assessment and content experts developed a draft item construction orientation manual specifically for the PSSA writing assessment. This manual provided guidelines for the types of items and the character of the items to be developed for the assessment. In conjunction with this manual, DRC prepared a series of sample passages, prompts, and items that illustrated the initial view of what the future test items might look like.

A group of Pennsylvania educators was convened in Harrisburg on June 29 and 30, 2004, to review the proposed training materials and the samples of proposed item types. The Sample Item Review committee consisted of Pennsylvania teachers and subject-area supervisors from school districts throughout the Commonwealth of Pennsylvania, including some with post-secondary university affiliations. During this review, DRC received valuable feedback on the range and character of the items that Pennsylvania educators expected on the upcoming assessment. Committee members suggested revisions and made recommendations for reclassification of items. The committee also reviewed the items for adherence to the Principles of Universal Design, including language demand and issues of bias, fairness, and sensitivity.

Following this review, DRC consulted with PDE regarding the suggestions made by the committee members and made agreed-upon revisions to the training materials. This manual and DRC's standard item writing manual were then used to train item writers to construct items for the Pennsylvania assessment for subsequent years of item development for the writing assessment.

Test Item Writers and Training in Item Writing: Constructing Prompts, Passages, and Multiple-Choice Items

The prompts, embedded-error passages, and multiple-choice items were developed by DRC ELA/writing test development specialists, scoring directors, and writers who have experience writing prompts and items for English language arts and writing assessments. Qualified writers were professionals with language arts classroom experience or writers who demonstrated appropriate grade-level content knowledge. Writers attended a one-day training workshop and were provided with a detailed instruction manual. As they wrote and revised their passages and items, writers also received personalized feedback from DRC test development content specialists. Prompts were written only in 2004, while the multiple-choice items used operationally in 2007 were written in 2005.

Before developing items for the PSSA, the item writers were also trained in the following:

- Pennsylvania Academic Standards
- Webb’s Four Levels of Cognitive Complexity: Recall, Basic Application of Skill/Concept, Strategic Thinking, and Extended Thinking
- General scoring guidelines
- Specific and general guidelines for item writing
- Bias, fairness, and sensitivity
- Principles of Universal Design
- Item quality technical style guidelines
- Reference information
- Sample items

In addition to the above, the training for passage, prompt, and item writing included guidelines on appropriate length, grade-level interest, and grade-level vocabulary. The training for multiple-choice items also included guidelines on proportionate distribution of items addressing each standard at each grade level, and general item construction guidelines to meet PDE’s stated preferences. (For example, writers were told to use the phrase “incomplete sentence” rather than “sentence fragment.”) The training for prompts also included special emphasis on Universal Design, clarity, validity, reliability, structure, format, interest, content, and vocabulary.

DRC sought and obtained from its item writers about twice as many passages and items as were needed to actually appear on the field test. The extra items allow future review committees to reject items and also allow DRC to select only the best items to move forward at each stage of development.

To ensure that the items were sufficient in number and adequately distributed across subcategories and levels of difficulty, writers were assigned a specific number of items to create and attach to each passage.

Since all passages were written on commission, the passages were purchased outright, eliminating the need to seek costly permissions later when the passages reached publication.

Accepted passages and items then underwent an internal review by test development content specialists, content editors, and testing experts to judge their merit with regard to the following criteria:

- Passages and prompts have interest value for students.
- Passages and prompts as a whole demonstrate topical variety.
- Passages, prompts, and items are grade appropriate in terms of vocabulary, length, and language characteristics.
- Passages, prompts, and items are free of bias, fairness, and sensitivity issues.
- Passages contain common, grade-appropriate errors.

- Prompts and items measure only one standard.
- Prompts and items are clear, concise, and parallel in structure.
- Items are, as much as possible, passage dependent.
- Items provide for a range of difficulty.
- Prompts are rich enough to elicit measurable responses.

Once through the internal DRC review process, those passages, prompts, and items deemed potentially acceptable were then reviewed and approved by two PDE-sponsored committees: the New Item Review Writing Content Committee and the Bias, Fairness, and Sensitivity Committee.

Writing Prompt Content Review: October 2004

Before field testing, all newly developed writing prompts were submitted to content committees for review. The content committees consisted of Pennsylvania teachers and subject-area supervisors from school districts throughout the Commonwealth of Pennsylvania, some with post-secondary university affiliations. The primary responsibility of the content committee was to evaluate writing prompts with regard to quality and content classification, including grade-level appropriateness, estimated difficulty, and DOK. The committee members suggested revisions and made recommendations for reclassification of writing prompts. In some cases a writing prompt was deleted, and the committee suggested a replacement writing prompt and/or reviewed a suggested replacement writing prompt provided by the facilitators. The committee also reviewed the writing prompts for adherence to the Principles of Universal Design, including language demand and issues of bias, fairness, and sensitivity.

The content review was held October 4–7, 2004. Committee members were PDE-approved. PDE internal staff members and DRC testing experts were also in attendance. The meeting commenced with an overview of the test development process by Patricia McDivitt, Vice President of Test Development (DRC). Ms. McDivitt also provided training on the procedures and forms to be used for writing prompt content review.

DRC assessment specialists in writing facilitated the reviews. Committee members, grouped by grade level, worked through and reviewed the prompts for quality and content, as well as for the following categories designated on a generic Item Review Form, which may be found in Appendix C:

- Content Alignment
- Rigor Level Alignment
- Technical Design

Within these three areas, reviewers checked the standard (mode) being assessed, the grade level appropriateness, and DOK. DRC assessment specialists recorded focused information on this form and on the item cards themselves.

The committee members then assigned each writing prompt a status: Accept or Edit. If a writing prompt was revised, committee members agreed on the revision. All comments were recorded, collected, and filed.

Security during the meetings was addressed by adhering to a strict set of procedures. Writing prompts in numbered binders were distributed for committee review and signed in and out by each member on a daily basis. All attendees, with the exception of PDE staff, were required to sign a Confidentiality Agreement. Secure materials that did not need to be retained after the meetings were deposited in secure barrels, and their contents were shredded.

Bias, Fairness, and Sensitivity Reviews—Writing Prompts

Before field testing, all newly developed writing prompts for grades 5, 8, and 11 were submitted to a Bias, Fairness, and Sensitivity Committee for review. This took place on October 5–8, 2004. The committee’s primary responsibility was to evaluate writing prompts as to acceptability with regard to bias, fairness, and sensitivity issues. They made recommendations for changes or deletion of writing prompts to address bias, fairness, and/or sensitivity. An expert multi-ethnic committee composed of men and women was trained by a DRC test development director to review writing prompts for bias, fairness, and sensitivity issues. Training materials included a manual developed by DRC (DRC, 2003–2007). One committee member had expertise with special needs students. Another member worked for the Pennsylvania Department of Education in the curriculum department. Most of the writing prompts were read by all members, and some 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 card, if needed, for clarification. All comments were then compiled and decisions on the actions to be taken were made by the DRC writing test development specialists in consultation with PDE. This review followed the same security procedures as outlined above, except that the materials were locked and stored at the DRC offices in Harrisburg while in use and then shredded at the meeting’s adjournment.

The results from the Bias, Fairness, and Sensitivity committee review are summarized in Table 3–8.

Table 3–8. 2004 Bias, Fairness, and Sensitivity Committee Review of Writing Prompts

Grade	Prompts Accepted As Is	Prompts Accepted With Revision	Prompts Rejected
5	39	11	10
8	21	22	17
11	37	8	15
Total	97	41	42

Passage and Multiple-Choice Item Content Review: July 2005

Before field testing, all newly developed test items were submitted to content committees for review. The content committees consisted of Pennsylvania teachers and subject-area supervisors from school districts throughout the Commonwealth of Pennsylvania, some with post-secondary 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, DOK, and source of challenge. The committee members suggested revisions and made recommendations for reclassification of items. In some cases an item was deleted, and 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 July 11–13, 2005. Committee members were PDE-approved. PDE internal staff members and DRC testing experts were also in attendance. DRC assessment specialists in writing facilitated the reviews. Committee members, grouped by grade level, worked through and reviewed the passages, prompts, and items for quality and content, as well as for the following categories designated on a generic Item Review Form, which may be found in Appendix C:

- Content Alignment
- Rigor Level Alignment
- Technical Design

Within these three areas, reviewers checked the standard being assessed, the grade level appropriateness, DOK, source of challenge issues, and the validity of the answer options. DRC assessment specialists recorded focused information on this form and on the item cards themselves.

The committee members then assigned each item a status: Accept or Edit. If a passage or item was revised, committee members agreed on the revision. All comments were recorded, collected, and filed.

Security during the meetings was addressed by adhering to a strict set of procedures. Passages and items in numbered binders were distributed for committee review and signed in and out by each member on a daily basis. All attendees, with the exception of PDE staff, were required to sign a Confidentiality Agreement. Secure materials that did not need to be retained after the meetings were deposited in secure barrels, and their contents were shredded.

Bias, Fairness, and Sensitivity Reviews—Multiple-Choice Items

Before field testing, all newly developed writing test items for grades 5, 8, and 11 were submitted to a Bias, Fairness, and Sensitivity Committee for review. This took place on July 12–13, 2005. The committee’s primary responsibility was to evaluate items as to acceptability with regard to bias, fairness, and sensitivity issues. They made recommendations for changes or deletion of items to address bias, fairness, and/or sensitivity. Included in the review were proposed writing passages used as stimuli for the multiple-choice items. An expert multi-ethnic committee composed of men and women was trained by a DRC test development director to review items for bias, fairness, and sensitivity issues. Training materials included a manual developed by DRC (DRC, 2003–2007). One committee member had expertise with special needs students. Another member worked for the Pennsylvania Department of Education in the curriculum department. Most of the writing items were read by all members, and some 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. All comments were then compiled and decisions on the actions to be taken were made by the DRC writing test development specialists in consultation with PDE. This review followed the same security procedures as outlined above, except that the materials were locked and stored at the DRC offices in Harrisburg while in use and then shredded at the meeting’s adjournment.

The results from the Bias, Fairness, and Sensitivity committee review are summarized in Table 3–9.

Table 3–9. 2004 Bias, Fairness, and Sensitivity Committee Review of Multiple-Choice Items

Grade	Stimulus Passages			Multiple-Choice Items		
	Accepted As Is	Accepted With Revision	Rejected	Accepted As Is	Accepted With Revision	Rejected
5	12	0	0	143	1	0
8	12	0	0	144	0	0
11	11	0	1	130	1	1
Total	35	0	1	417	2	1

ITEM AUTHORIZING AND TRACKING

Initially, items are prepared on PSSA Item Cards and used for preliminary sorting and review. Although very similar, the PSSA Item Card for multiple-choice items differs from the PSSA Item Card for passages in that the former has a location at the bottom of the card for comments regarding the distractors. Blank examples of these two cards are shown in Appendix D. In both instances, a column against the right margin provides for codes to identify the subject area, grade, content categories, passage information, item type, DOK, estimated difficulty, and answer key (MC items).

All items undergoing field testing were entered into the DRC Item Viewer and Authoring Network™ (IVAN), which is a comprehensive, secure, online item banking system. It accommodates item writing, item viewing and reviewing, and item tracking and versioning. IVAN 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 IVAN Item Card is presented in Appendix D.

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, or race (Thompson, Johnstone & Thurlow, 2002). At every stage of the item and test development process, including the 2005 writing field test and 2006 and 2007 operational tests, procedures were employed to ensure that items and subsequent tests were designed and developed using the elements of universally designed assessments that were developed by the National Center on 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)(1)]. Both Title 1 and IDEA regulations call for universally designed assessments that are accessible and valid for all students, including students with disabilities and students with limited English proficiency. The benefits of universally designed assessments not only apply to these groups of students, but to all individuals with wide-ranging characteristics.

Committees involved in content and bias reviews included members familiar with the unique needs of students with disabilities and students with limited English proficiency.

What follows are the Universal Design guidelines followed during all stages of the item development process for the PSSA writing field test and operational test.

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 guided 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 every student 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 Academic Standards provide clear descriptions of the constructs to be measured by the PSSA at an assessed grade level. 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. Item 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 that accessibility was woven into the fabric of the test rather than being added after the fact.
- **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 universally designed assessment requires that the test is compatible with accommodations and a variety of widely used adaptive equipment and assistive technology. (See Assessment Accommodations on page 29.)
- **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. Knowledge questions that are posed within 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 that text is maximally readable and comprehensible. Readability and comprehensibility are affected by many characteristics, 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.
 - Reduce excessive length
 - Use common words (unless necessary in context of the measurement of the item)
 - Avoid ambiguous words
 - Avoid inconsistent naming and graphic conventions
 - Avoid 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 results 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 (DRC, 2004–2007) was used, with PDE approval, that 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.

- 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 Academic Standards. During all phases of test development, items were presented with content standard information to ensure that each item reflected the intended standard. 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.
- 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 typefaces and sizes were used with minimal use of italics, which is far less legible and is read considerably more slowly than standard typefaces. Captions, footnotes, keys, and legends were at least a 12-point size. Legibility was enhanced by sufficient spacing between letters, words, and lines. Blank space around paragraphs and ragged right margins were used.
- 4. 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 assessed.
 - Technical terms and abbreviations were used only if related to the standard 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.
- 5. Items allow changes to format without changing meaning or difficulty.** A Large Print and a Braille version of the PSSA were available at each assessed grade. 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.

- 6. The test has an overall appearance that is clean and organized.** Text that may not be necessary and may be potentially distracting to students was avoided. Also avoided were purely decorative features that did not serve a purpose. Information was organized in a manner consistent with an academic English framework with a left-right, top-bottom flow.

ITEM DEVELOPMENT

DRC works closely with the Pennsylvania Department of Education to help ensure that PSSA tests comply with nationally recognized Principles of Universal Design. We support the implementation of accommodations on large-scale statewide assessments for students with disabilities. In addition to the Principles of Universal Design as described in the Pennsylvania Technical Report, DRC applies the standards for test accessibility as described in *Tests Access: Making Tests Accessible for Students with Visual Impairments—A Guide for Test Publishers, and State Assessment Personnel* (Allman, 2004). To this end, we embrace the following precepts:

- Test directions are carefully worded to allow for alternate responses to writing prompts.
- During item and bias reviews, test committee members are made aware of the Principles of Universal Design and of issues that may adversely affect students with disabilities with the goal of ensuring that PSSA tests are bias free for all students.
- DRC special education content specialists review items with the goal of ensuring that they are universally designed and accessible.
- With the goal of ensuring that the PSSA tests are accessible to the widest range of diverse student populations, PDE instructs DRC to limit item types that are difficult to format in Braille, and that may become distorted when published in large print. DRC is instructed to limit the following on the PSSA.
 - Unnecessary boxes and framing of text, unless enclosing the text provides necessary context for the student
 - Use of italics (limited to only when it is absolutely necessary).

ITEM FORMATTING

DRC formats PSSA tests to maximize accessibility for all students by using text that is in a point size and font style that is easily readable. We limit spacing and number of items per page so that there is sufficient white space on each page. Whenever possible, we ensure that tables are positioned on the page with the associated test items. We use high contrast for text and background where possible to convey pertinent information. Tests are published on dull-finish paper to avoid the glare encountered on glossy paper. DRC pays close attention to the binding of the PSSA test booklets to ensure that they lie flat for two-page viewing and ease of reading and handling.

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

- High contrast and clarity is used to convey detailed information.
- Typically, shading is avoided; when necessary for content purposes, 10% screens are used as the standard.
- Overlaid print is avoided.
- Tables are clearly labeled with titles and with short descriptions where applicable.
- Only relevant information is included in tables.
- Symbols used are meaningful and provide reasonable representations of the topic they depict.

ASSESSMENT ACCOMMODATIONS

While universally designed assessments provide for participation of the widest range of students, many students require accommodations to participate in the regular assessment. The intent of providing accommodations for students is to ensure that they 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. An accommodations manual entitled *2007 Accommodations Guidelines* (PDE, January 2007) was developed for use with the 2007 PSSA.

Chapter Five: Field Test Procedures

PROMPT FIELD TEST

Field test forms construction for the writing prompts took place from October through December of 2004, after the Item/Prompt Content Review. All prompts without an “Accepted” status were revised according to committee recommendation and then approved by PDE. DRC designed the field test format and received PDE approval. Thirty forms, labeled 01–30, were then constructed for each grade, with ten multiple-choice field test items and one field test prompt. Grade 11 forms also contained two operational prompts.

Prompt Field Test Plan: 2005 Standalone Field Test at Grades 5 and 8

Each student taking the 2005 standalone field test was administered one writing prompt (along with two short stimulus passages, with five stimulus-based revising and editing multiple-choice items per passage). The writing prompt was administered after the stimulus passage, with multiple-choice items. The standalone field test yielded enough writing prompts for the development of the spring 2006–2009 operational and breach tests.

Prompt Field Test Plan: 2005 Embedded Field Test at Grade 11 (Transition Plan)

The transition plan for grade 11 included the administration of the existing grade 11 writing test in the spring of 2005. This was the last administration of the existing grade 11 writing assessment. In addition, the spring 2005 operational grade 11 writing test included embedded field test writing prompts (along with embedded stimulus-based multiple-choice items). The embedded field test yielded enough writing prompts for the development of the spring 2006–2009 operational and breach tests.

Multiple-Choice Field Test Plan: 2006 and 2007 Embedded Field Test

For 2006 and 2007, the writing tests included embedded stimulus-based multiple-choice field test items. The embedded stimulus-based multiple-choice field test items provided for the development of one operational form for each subsequent year. The administration was divided into three sections as follows:

- Section one included 5 passages linked to 20 multiple-choice items. Three of these stimulus-based passages were operational; two were matrix (serving as core replenishment items for following administrations). Each passage was linked to 4 multiple-choice items. (approximately 50 minutes)
- Section two included one pre-equated 4-pt. prompt (approximately 60 minutes)
- Section three included one pre-equated 4-pt. prompt (approximately 60 minutes)

Within the matrix replenishment portion of each 2006 and 2007 test form, each student was administered short, field test stimulus passages with four field test stimulus-based revising and editing multiple-choice items per passage. More information on the 2006 embedded field test process can be found in *Chapter Three: Item/Test Development Process* and *Chapter Six: Operational Forms Construction for 2007*.

STATISTICAL ANALYSIS OF ITEM DATA

All field tested items were analyzed statistically following conventional item analysis methods. For MC items the classical item statistics computed included the point-biserial correlation (Pt Bis) for the correct and incorrect responses, percent correct (P-value), and the percent responding to incorrect responses (distractors). For OE items the statistical indices included the item-total test correlation, the point-biserial correlation for each score level, percent in each score category or level, and the percent of non-scorable responses.

With any psychometric model, an item analysis is a search for unexpected results. 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 items are 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 problems is through the point-biserial correlation coefficient for dichotomous (MC) items and the item-total correlation for polytomous (OE) items. 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 OE item score) and negative when the reverse is true.

Item statistics are used as a means of detecting items that deserve closer scrutiny, rather than being a mechanism for automatic retention or rejection. Toward this end, a set of criteria was used as a screening tool to identify items that needed a closer review by committees of Pennsylvania educators. MC items were flagged if they met any of the following criteria:

- Point-biserial correlation for the correct response of less than 0.25
- Point-biserial correlation for any incorrect response greater than 0.0
- Percent correct less than 30% or greater than 90%
- Percent responding to any incorrect response greater than the percent correct

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

- Item-total correlation less than 0.40
- Percent in any score category less than 10% or greater than 40%
- Non-scorable responses greater than 10 percent

Item analysis results for 2006 and 2007 embedded multiple-choice field test items are presented in Appendices E through J.

DIFFERENTIAL ITEM FUNCTIONING

Differential item functioning (DIF) occurs when two examinees with the same ability level but different group membership do not have the same probability of answering the item correctly. As a statistical concept it can be differentiated from item bias, which is a content issue that can arise when an item presents negative group stereotypes, uses language that is more familiar to one subpopulation than to another, or is presented in a format that disadvantages certain learning styles. While the source of item bias is usually plain to trained judges, DIF may have no clear cause. However, studying how DIF arises and how it presents itself has an effect on how best to detect and correct it.

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 to organize the review so the effort is concentrated on the most problematic cases; however, no items should be automatically rejected simply because a statistical method flagged them or accepted because they were not flagged.

There have been a variety of methods proposed for detecting DIF, but no one statistic can be considered either necessary or sufficient. Different methods are more or less successful depending on the situation. No analysis can guarantee that a test is free of bias, but almost any thoughtful analysis will uncover the most flagrant problems.

A fundamental shortcoming of all of the 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 will locate the problems. If, however, all items on the test show consistent DIF to the disadvantage of a given subpopulation, a statistical analysis of the items will not be able to separate DIF effects from true differences in achievement.

Mantel-Haenszel Procedure for Differential Item Functioning

The *Mantel-Haenszel* procedure for detecting differential item functioning 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 total score to organize 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 or the group most apt to be disadvantaged by a biased measurement is typically defined as the focal group. In the PSSA analyses, female and non-white students were designated as focal groups for gender- and ethnicity-based DIF, respectively, while male and white students were designated as the reference groups. The Mantel-Haenszel (MH) statistic (Mantel & Haenszel, 1959) for each item is computed from a contingency table. It has two groups (focal and reference) and two outcomes (right or wrong). The ability groups are defined by the score distribution for the total examinee populations.

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 constructed-response items, a comparable statistic is computed based on the standardized mean difference (SMD) (Dorans, Schmitt & Bleistein, 1992), 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 of A, B, or C based on the magnitude of the MH statistic. The plus sign indicates that the item favors the focal group and a minus sign indicates that the item favors the reference group. Items classified as A have little or no statistical indication of differential item functioning. Therefore, A, A+, and A- DIF items are collapsed into the A category because group favoritism is not informative for items showing small levels of DIF. Items classified as B+ or B- have some indication of DIF and may not require revision. Items classified as C+ or C- have strong evidence of DIF and should be reviewed and revised if they are to be used again.

Counts of the number of items from each grade and content area that were assigned to each severity code are shown below in Table 5–1.

Table 5–1. 2006/2007 DIF Summary
Multiple-Choice Male/Female DIF Counts

2006						
	A	B-	B+	C-	C+	Total
5	64	0	0	0	0	64
8	63	0	1	0	0	64
11	63	0	0	0	1	64

2007						
	A	B-	B+	C-	C+	Total
5	64	0	0	0	0	64
8	58	2	4	0	0	64
11	60	0	4	0	0	64

Multiple-Choice White/Black DIF Counts

2006						
	A	B-	B+	C-	C+	Total
5	51	12	0	1	0	64
8	59	4	0	1	0	64
11	54	7	0	3	0	64

2007						
	A	B-	B+	C-	C+	Total
5	51	9	0	4	0	64
8	41	16	0	7	0	64
11	37	16	0	11	0	64

REVIEW OF ITEMS WITH DATA

In the preceding section on Statistical Analysis of Item Data, it was stated that test development content-area specialists used certain statistics from item and DIF analyses of the 2006 field test to identify items for further review. Specific flagging criteria for this purpose were specified in the section above. Items not identified for this review were those that had good statistical characteristics and consequently were regarded as statistically acceptable. Likewise, items of extremely poor statistical quality were regarded as unacceptable and needed no further review. However, there were some items, relatively few in number, which DRC content-area test development specialists deemed as needing further review by a committee of Pennsylvania educators. The intent was to capture all items that needed a closer look; thus the criteria employed tended to over-identify rather than under-identify items.

The review of the items with data was conducted by subject-area content committees composed of 14 Pennsylvania educators and PDE staff. The review took place on July 11, 2005. In this session committee members were first trained by Dr. Ronald Mead, DRC Senior Psychometrician, 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 (such as possible bias, grade appropriateness, instructional issues, etc.) and a decision regarding acceptance. DRC content-area test development specialists facilitated the review of the items.

REVIEW OF PROMPTS WITH DATA

In the preceding section on Statistical Analysis of Item Data, it was stated that test development content-area specialists used certain statistics from item (prompt) and DIF analyses of the field test(s) to identify prompts for further review. Specific flagging criteria for this purpose were specified in the section above. Prompts not identified for this review were those that had good statistical characteristics and, consequently, regarded as statistically acceptable. Likewise, prompts of extremely poor statistical quality were easily regarded as unacceptable and needed no further review. However, there were some prompts, relatively few in number, which DRC content-area test development specialists deemed as needing further review by a committee of Pennsylvania educators. The intent was to capture all prompts that needed a closer look; thus the criteria employed tended to over-identify rather than under-identify prompts.

The review of the prompts with data was conducted by subject-area content committees composed of Pennsylvania educators. The review took place on July 11, 2005. In this session committee members were first trained by Dr. Ronald Mead, DRC Senior Psychometrician, with regard to the statistical indices used in prompt evaluation. This was followed by a discussion with examples concerning reasons that a prompt might be retained regardless of the statistics. The committee review process involved a brief exploration of possible reasons for the statistical profile of a prompt (such as possible bias, grade appropriateness, instructional issues, etc.) and a decision regarding acceptance. DRC content-area test development specialists facilitated the review of the prompts.

REVIEW OF MULTIPLE-CHOICE ITEMS WITH DATA

In the preceding section on Statistical Analysis of Item Data, it was stated that test development content-area specialists used certain statistics from item and DIF analyses of the field test(s) to identify items for further review. Specific flagging criteria for this purpose were specified in the section above. Items not identified for this review were those that had good statistical characteristics and, consequently, regarded as statistically acceptable. Likewise, items of extremely poor statistical quality were easily regarded as unacceptable and needed no further review. However, there were some items, relatively few in number, which DRC content-area test development specialists deemed as needing further review by a committee of Pennsylvania educators. The intent was to capture all items that needed a closer look; thus the criteria employed tended to over-identify rather than under-identify items.

The review of the items with data was conducted by subject-area content committees composed of Pennsylvania educators and PDE staff. The review took place on July 11, 2006. In this session committee members were first trained by Dr. Ronald Mead, DRC Senior Psychometrician, 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 (such as possible bias, grade appropriateness, instructional issues, etc.) and a decision regarding acceptance. DRC content-area test development specialists facilitated the review of the items.

Chapter Six: Operational Forms Construction for 2007

FINAL SELECTION OF ITEMS AND 2007 PSSA FORMS CONSTRUCTION

When the final selection of items for the operational 2007 test was ready to begin, the candidate items that emerged from the spring 2005 and 2006 field tests had undergone multiple reviews, including:

- Reviews by DRC content-area test development specialists and curriculum specialists
- Formal bias, fairness, and sensitivity review by the Bias, Fairness, and Sensitivity Committee consisting of an expert, multi-ethnic group of men and women with members also having expertise with special needs students and English Language Learners
- Formal review by the content committees consisting of Pennsylvania educators
- PDE review
- Item data review by members of the PDE subject-area teacher committees

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” were candidates to be selected for the 2007 PSSA. To have an item status code of “Acceptable” meant that the item met the following criteria:

- Appropriately aligned with its Academic Standard
- Acceptable in terms of bias/fairness/sensitivity issues, including differential item functioning (for gender and race)
- Free of major psychometric flaws, including a special review of flagged items

Next, all relevant information regarding the acceptable items was entered into the IVAN system. From the IVAN system, Excel files were created for writing. These files contained all relevant content codes and statistical characteristics. The IVAN system also created for each acceptable item a card displaying the item 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 content standard. Considerations such as item focus, topic variety, and answer option distribution were also 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) items (including writing prompts) and matrix items and passages according to test blueprint requirements and psychometric guidelines. No

changes were made to any item since even slight alterations could affect how an item performs on subsequent testing.

For the common items, this meant that the combination of MC items and writing prompts would tap an appropriate variety of components under the Academic Standards under each Reporting Category. Items were selected in sets combined under the umbrella of a stimulus passage, and 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
- Presence of “clang” (distractors not unique from one another)
- Diversity of names and topics for gender and ethnicity

The first round of items was then evaluated for statistical features such as an acceptable point-biserial correlation and whether the items, as a collection, had a correct answer distribution of approximately 25 percent in each of the four positions. Selected items that were psychometrically problematic 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.

The process for selecting operational matrix (linking) MC items was a little different. The chief consideration was that items in the matrix section of the various forms, together with the common items, would yield a greater overall pool of items from which reliable results could be generated for school-level reporting. Once again the cardinal principle was the selection of an appropriate number of items to properly cover the Academic Standards. The test development specialist’s task was to distribute these items so that 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.

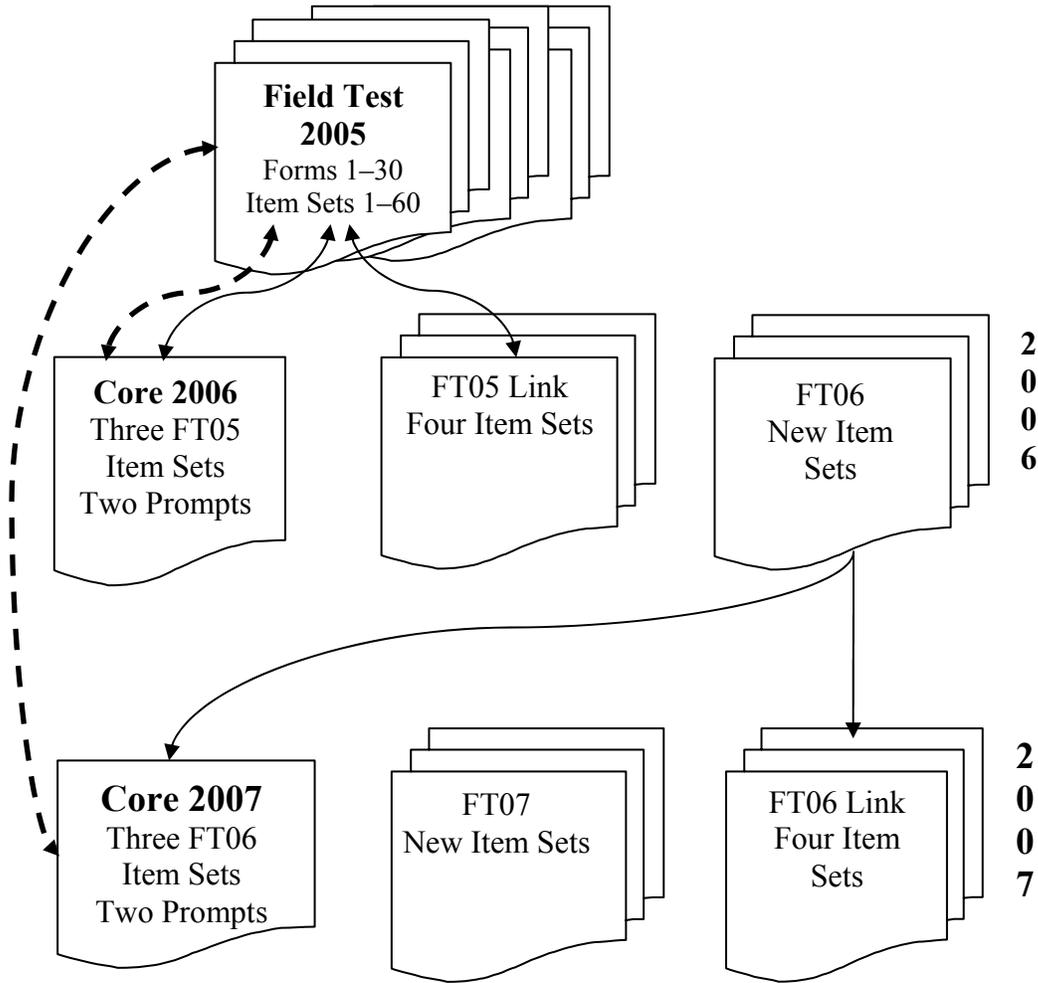
Once the recommendations were finalized for the common/core and matrix items, they were submitted to PDE for review. Department staff provided feedback, which could be in the form of approval or recommendations for replacing certain items. Any item replacement was accomplished by the collective effort of the test development specialists, psychometricians, and PDE staff until final PDE approval.

THE LINKING PROCESS

Year-to-year linking (equating) is accomplished primarily with multiple-choice items moving from field test to matrix. Multiple-choice matrix items are maintained in the same location and the same context as they were used at field test. An alternate route for linking is established through the use of the writing prompts which were field tested in 2005. There are 4 unique designated multiple-choice matrix items per grade appearing on 4 out of the 10 forms for a total of 16 unique matrix (year-to-year linking) items per grade. There are 2 core prompts available for linking per grade.

The following 2 tables illustrate how the linking items connect the assessment across administrations.

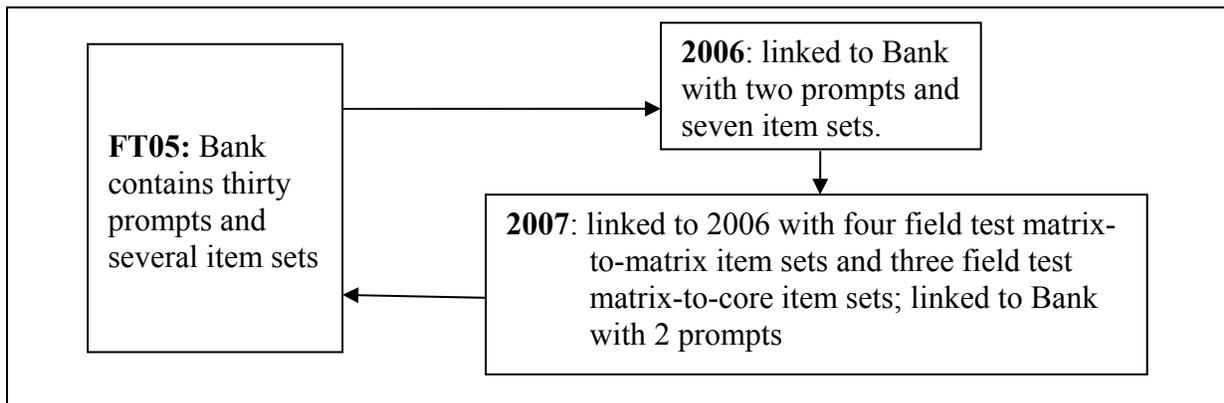
Table 6–1. Linking Plan for PSSA Writing from 2005 through 2007



Notes:

1. Solid-line connectors represent links of item sets, each including a passage of four passage-based multiple-choice items.
2. Dash-line connectors represent links containing two writing prompts.
3. Horizontal rows represent administrations (years).
4. All years will be linked to FT05 through the prompts, providing an alternate path for year-to-year linking.
5. This design incorporates consistency checks: *Bank*→2006→2007→*Bank* should sum to zero, statistically. Similarly, for 2007 to 2008 and 2008 to 2009.

Table 6–2. Linking Plan for PSSA Writing for 2005 through 2007



EMBEDDED FIELD TEST ITEMS

The 2006 and 2007 PSSA test forms contained common items (identical on all forms) along with matrix/embedded field test items. The common items are a set of “core” items taken by all students. The matrix and field test items are embedded and are unique, in most instances, to a form; however, there are several instances in which a matrix or embedded field test MC item appears on more than one form. There were no open-ended field test items in this administration; both prompts were common across forms. The purpose of administering field test items is to obtain statistics for new items which are then reviewed before becoming operational.

SPECIAL FORMS USED IN THE 2007 PSSA

Braille and Large Print

Students with visual impairments were able to respond to test materials that were available in either **Braille** or **large print**. At each grade level assessed, one form was selected for the creation of a Braille and a large-print edition. School district personnel ordered Braille or large-print assessment materials directly from the Pennsylvania Training and Technical Assistance Network (PaTTAN) in Harrisburg. They could also contact PaTTAN for technical assistance regarding students with visual impairments.

School personnel were directed to transcribe all student answers (MC and WP) into scannable answer documents exactly as the student responded. No alterations or corrections of student work were permitted, and the answer document had to have the identical form designation.

Instructions for the appropriate use of these special forms are detailed in the *2007 Accommodations Guidelines* (PDE, January 2007) available on the PDE website at www.pde.state.us.

Chapter Seven: Test Administration Procedures

TEST SESSIONS, TIMING, AND LAYOUT

The test window for the 2007 operational assessment was from February 12 through February 23, 2007, including make-ups. The assessment consisted of three sections. Additional information concerning testing time and test layouts can be found in Chapter Three.

SHIPPING, PACKAGING, AND DELIVERY OF MATERIALS

There were two shipments sent out by Data Recognition Corporation (DRC). Shipment one was delivered by January 12, 2007, and contained the *Handbook for Assessment Coordinators and Administrators* and the *Directions for Administration* for each grade tested at a school. Shipment two was delivered by January 29, 2007, and contained the administrative materials (e.g., return shipping labels and student precode labels) and secure materials (e.g., writing booklets). 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 district 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 the box being sealed for shipment 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 used UPS to ship materials to districts. DRC's materials management system, along with the shipper's system, allowed DRC to track the items from the point of shipment 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 and made aware of the high level of security that is required.

DRC packed more than 516,171 writing booklets, 98,664 manuals, and 108,675 non-secure materials for over 2,938 schools. DRC used UPS to deliver 6,891 boxes of materials to the testing sites.

MATERIALS RETURN

The materials return window was February 28, 2007 through March 29, 2007. DRC used UPS for all returns.

TEST SECURITY MEASURES

Test security is essential to obtaining reliable and valid scores for accountability purposes. The 2007 PSSA included a Test Security Affidavit that was to be signed and returned by every principal or director where testing materials were shipped. 2,958 of the Test Security Affidavits for the writing assessment that were sent to a total of 3,201 testing sites were signed and returned to DRC. The purpose of the affidavit 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 affidavit attested that all security measures were followed concerning the handling of secure materials. Some of the security measures included:

1. The contents of the test were not discussed, disseminated, described, or otherwise revealed to anyone.
2. The contents of the test were not kept, copied, or reproduced.
3. All booklets were kept in a locked, secure storage area at both the district and school levels.

SAMPLE MANUALS

Copies of the *Handbook for Assessment Coordinators and Administrators* and the *Directions for Administration Manual* can be found on the Pennsylvania Department of Education website at www.pde.state.pa.us.

ASSESSMENT ACCOMMODATIONS

An accommodations manual entitled *2007 Accommodations Guidelines* (PDE, January 2007) was developed for use with the 2007 PSSA. Additional information regarding assessment accommodations can be found in Chapter Four.

Chapter Eight: Processing and Scoring

RECEIPT OF MATERIALS

Receipt of PSSA writing materials began on February 28, 2007, and concluded on March 29, 2007. DRC's Operations Material Management System (Ops MMS) was utilized to receive secure materials securely, accurately, and efficiently. This system features advanced automation and cutting-edge 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 contained on the return label and identified the district and school. If the label could not be read automatically, a floor operator entered the information into the system manually. 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. A "three way match" among the district box count, the carrier box count, and the DRC return box count was conducted to verify a box return accuracy rate of 100%.

Once the box receipt process was completed, the materials separation phase began. Warehouse personnel opened the district boxes and sorted the contents by grade and status (used/unused) into new boxes. Once filled, a sorted box's documents were loaded into an automated counter, which recorded a booklet count for each box. An on-demand DRC box label was produced that contained a description of each box's contents and quantity in both barcode and human-readable format. This count remained correlated to the box as an essential quality control step throughout secure booklet processing and provided a target number for all steps of the check-in process.

Once labeled, the sorted and counted boxes proceeded to booklet check-in. This system used streamfeeder automation to carry documents past oscillating scanners that captured data from up to two representative barcodes and stored it in the Ops MMS database.

- The secure booklet check-in operator used a hand scanner to scan the counted box label. This procedure input material type and quantity parameters for what the Ops MMS should expect within a box. It then loaded the box's contents into the streamfeeder.
- The documents were fed past oscillating scanners that captured either a security code or both a security code and a pre-code, depending upon material type. A human operator monitored an Ops MMS screen, which displayed scan errors, an ordered accounting of what was successfully scanned, and the document count for each box.
- When all materials were scanned and the correct document count was reached, the box was sealed and placed on a pallet. If the correct document count was not reached, 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 immediate feedback to districts and schools regarding any missing materials based on actual receipts versus expected receipts.

Upon completion of secure booklet check-in, DRC produced a Missing Materials Report that listed all schools in each participating district and the number of booklets, by grade, for each school that were not returned to DRC.

After scannable materials were processed through Book Receipt, the materials became available to the DRC Document Processing Center Log-in staff for document log-in. Based on a pre-determined sampling and calibration plan, the staff prioritized answer documents using the following process:

- A DRC scannable barcode batch header was scanned, and a batch number was assigned to each box of answer documents.
- The DRC box label barcode was scanned into the system to link the box and writing documents to the newly created batch and to create a Batch Control Sheet.
- The DRC box label barcode number, along with the number of writing documents in the box, was printed on the Batch Control Sheet for document tracking purposes. All documents that were linked to the box barcode were assigned to the batch number and tracked through all processing steps. As documents were processed, DRC staff dated and initialed the Batch Control Sheet to indicate that proper processing and controls were observed.
- Before the answer documents were scanned, all batches went through a quality inspection to ensure batch integrity and correct document placement.

After a quality check in 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

DRC used its image scanning system to capture constructed-response items as images. These were then loaded into the image scoring system for both the handscoring of constructed-response items and for the capture of multiple-choice and demographic data.

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 standard. 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.

Customized scanning programs for all scannable documents were prepared to read the writing documents and to electronically format the scanned information. 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 read selected-response, demographic, and identification information. The image scanners also used barcode readers to read pre-printed barcodes from a label on the booklet.
- The scannable documents were automatically fed into the image scanners where pre-defined processing criteria determined which fields were to be captured electronically. Constructed-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 writing documents.
- 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 process and 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 pre-defined portions of the answer documents were represented in their entirety in the image files. If a page was missing, the entire writing document was flagged for resolution.

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

- Experienced DRC Document Processing Center Editing staff reviewed all potential errors detected during scanning and made necessary corrections to the data file. 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 writing documents 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 writing documents assigned to the box during book receipt. Count discrepancies between book receipt and writing documents scanned were resolved at this time.
- Once all requirements for final processing were met, the batch was released for scoring and student level processing.

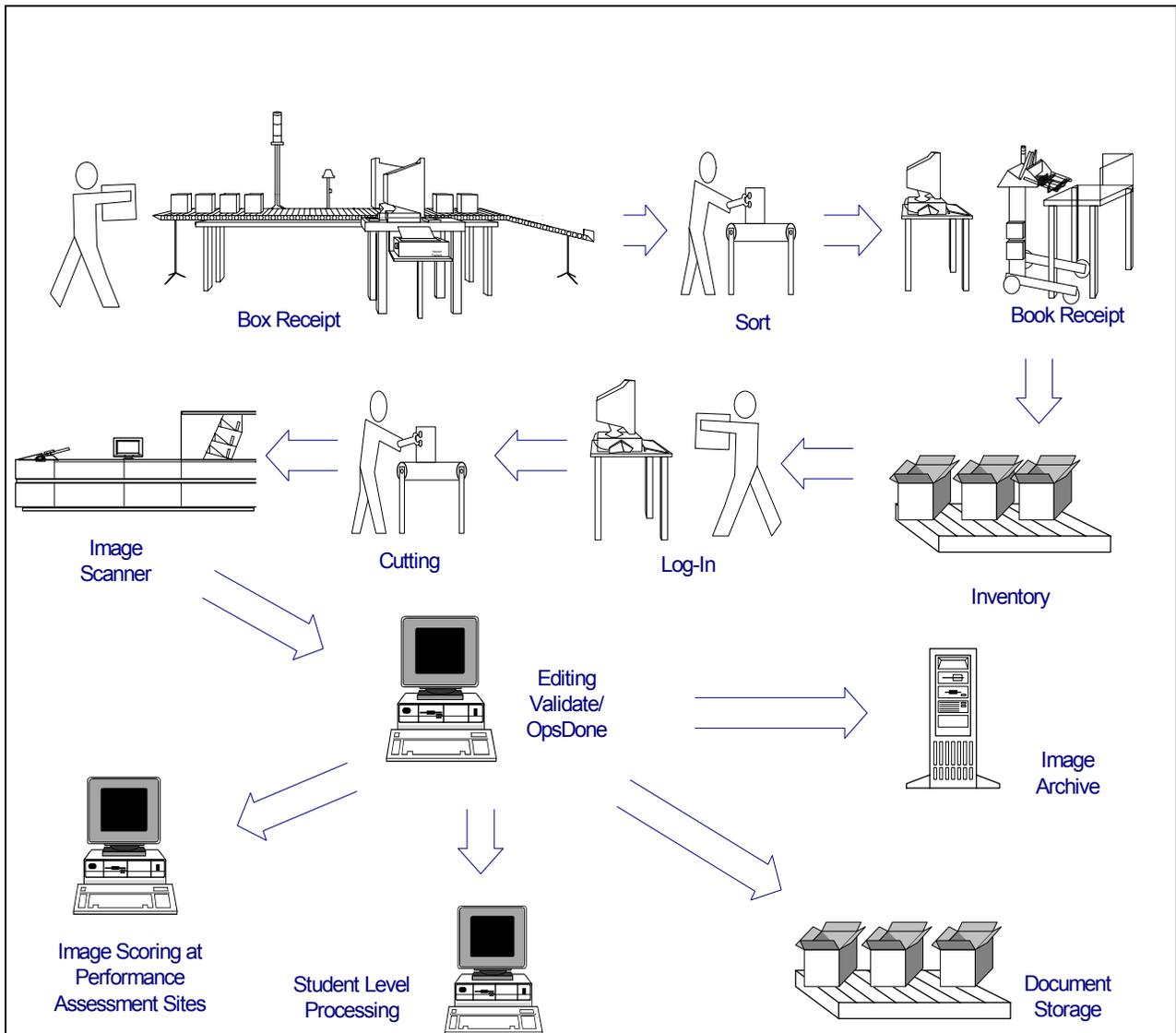
Table 8–1 shows the number of writing booklets received through booklet check-in and the number of booklets that contained student responses that were scanned and scored.

Table 8–1. Counts of 2007 PSSA Writing Materials Received – Grades 5, 8, and 11

	Writing Booklets Received	Used Writing Booklets Scanned
Grade 5	166,613	133,185
Grade 8	174,262	145,968
Grade 11	168,736	141,875

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 writing booklets are boxed for security purposes and final storage:

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

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 constructed 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 finalized 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. 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 began to assemble groups of responses that exemplified the different score points represented in the mode-specific and conventions scoring guidelines. This was done for both the common persuasive and informational prompts in grades 11, 8 and 5. The 2007 operational prompts were selected from the 2005 field test.

Once examples for all the score points were identified, sets of items were put together by mode. These sets were copied for use at rangefinding, held March 14–15, 2007 at the Lancaster Host, Lancaster, Pennsylvania. The rangefinding committees consisted of Pennsylvania educators, PDE staff members, DRC Test Development staff, and DRC Performance Assessment Services staff.

After an introductory general session, committees broke into grade level groups. Copies of the student example sets were presented to the committees by mode. The committees reviewed and scored the student samples together to ensure that everyone was interpreting the scoring guidelines consistently. Committee members then went on to score responses independently and those scores were discussed until a consensus was reached. Only responses for which a good agreement rate was attained were used in training the readers. Discussions of the responses used the language of the scoring guidelines, assuring PDE and all involved that the score point examples clearly illustrated the specific requirements of each score level. DRC PAS staff made notes of how and why the committees arrived at score point decisions, and this information was used by the individual scoring directors in reader training.

READER RECRUITMENT/QUALIFICATIONS

DRC retains a number of experienced readers from year to year, and those readers made up approximately 60% of the reader pool (N=200) for 2007. To complete the reader staff for this project, DRC placed advertisements in local papers, minority publications, teacher newsletters, regional colleges, and universities. Open houses were held and applications for reader positions were screened by the DRC recruiting staff. Candidates were personally interviewed and a mandatory, on-demand writing sample was collected, along with 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 with degrees emphasizing expertise in writing. Since readers had to have a strong content-specific background, the reader pool consisted of educators, writers, editors, and other professionals who were valued for their experience, but who were also required to set aside their own biases about student performance and accept the scoring standards. All readers on this assessment held at least a four-year degree.

LEADERSHIP RECRUITMENT/QUALIFICATIONS

Scoring directors and team leaders were chosen by the project director from a pool consisting of experienced individuals who had proved to be successful readers and leaders on previous DRC contracts. Selectees had strong backgrounds in both scoring and writing and demonstrated organization, leadership, and management skills. The scoring directors and a majority of the team leaders had at least five years of leadership experience on the PSSA. All scoring directors, team leaders, and readers were required to sign confidentiality forms before any training or handling of secure materials began.

Each room of readers was assigned a scoring director. This individual was monitored by the project content coordinator and led the hand scoring for the duration of the project. The scoring director assisted in rangefinding, worked with supervisors to create training materials, conducted the team leader training, and was responsible for training the readers. The scoring director also made sure that reports were available and interpreted reports for the readers. The scoring director supervised the team leaders.

Team leaders assisted the scoring director with reader training and monitoring by working with their teams in small group discussions and answering individual questions that readers may not have felt comfortable asking in a large group. Once readers had qualified, the team leaders were responsible for maintaining the accuracy and workload of team members. The ongoing monitoring identified those readers who were having difficulty with scoring accurately and resulted in the reader receiving one-on-one retraining or in pairing that reader with a stronger reader. This process corrected any inaccuracies in scoring and, if not, that reader was released from the project.

TRAINING

After rangefinding was completed, DRC's PAS staff compiled the scoring guidelines and the scored student examples from the committees into packets used for training the readers. Responses that were relevant in terms of the scoring concepts they illustrated were annotated for use in a scoring guide. The scoring guide for each mode served as the reader's constant reference. Readers were instructed how to apply the guidelines and were required to demonstrate

a clear comprehension of each Academic Standard set by performing well on the training materials that were presented for each grade and mode. Training and qualifying sets consisted entirely of examples of student responses chosen by the rangefinding committee.

Team leaders assisted the scoring directors with the training and monitoring of readers. The scoring director conducted the team leader training before the reader training. This training followed the same procedures as the reader training, but qualifying standards were more stringent because of the responsibilities required of the team leaders. During team leader training, all materials were reviewed and discussed and anticipated reader questions and concerns were addressed. Team leaders were required to annotate all of their training responses with the official annotations received from the content committee members at the rangefinding meetings. To facilitate scoring consistency, it was imperative that each team leader imparted the same rationale for each response that other team leaders used. Once the team leaders qualified, leadership responsibilities were reviewed and team assignments were given. A ratio of one team leader for each group of 8–10 readers ensured adequate monitoring of the readers.

Reader training began with the scoring director providing an intensive review of the scoring guides and anchor papers to all readers. Next, the readers “practiced” by independently scoring the responses in the training sets. Afterwards, the scoring director and team leaders led a thorough discussion of each set, in either a small group or room-wide setting.

Once the scoring guides and all the training sets were discussed, readers were required to apply the scoring criteria by qualifying (i.e., scoring with acceptable agreement to the “true” scores) on at least one of the qualifying sets. Readers who failed to achieve the level of agreement determined by PDE were given additional training to acquire the highest degree of accuracy possible. Readers who did not perform at the required level of agreement by the end of the qualifying process were not allowed to score “live” student work and were released from the project.

HANDSCORING PROCESS

Student responses were scored independently and by multiple readers. All essays, grades 5, 8, and 11, were read once with 10% scored twice to ensure reliability. PDE determined the required number of reads.

Readers scored the imaged student responses on PC monitors at the DRC Scoring Center in Woodbury, Minnesota. Readers were seated at tables with two imaging stations at each table. Image distribution was controlled, thus ensuring that they were sent to designated groups of readers qualified to score those prompts. Imaged student responses were electronically separated for routing to individual readers by prompt, and readers were only provided with student responses for which they were qualified to score. Readers read each response and keyed in the scores. Alerts and non-score mismatches were routed to the scoring director or team leaders for electronic review and resolution.

Upon completion of operational scoring, 20,147 grade 11 students fell within the 15 point rescore indicator. The essays of these students were each read again with 10% scored twice to ensure reliability. PDE determined the point rescore indicator and required number of reads.

QUALITY CONTROL

Reader accuracy was monitored throughout the scoring session by producing both daily and on-demand reports, ensuring that an acceptable level of scoring accuracy was maintained. Inter-reader reliability was tracked and monitored with multiple quality control reports that were reviewed by quality assurance analysts. These reports were generated at the handscoring center and were reviewed by the scoring directors, team leaders, project coordinators, and project directors. The following reports were used in scoring the 2007 writing portion of the PSSA:

- **The Reader Monitor Report** monitored how often readers were in exact agreement and ensured that an acceptable agreement rate was maintained. This report provided daily and cumulative exact and adjacent inter-reader agreement and the percentage of responses requiring resolution. (see Table 8–2)
- **The Score Point Distribution Report** monitored the percentage of responses given each of the score points. For example, this daily and cumulative report showed how many 0s, 1s, 2s, 3s, and 4s a reader had given to all the responses he or she had scored at the time the report was produced. It also indicated the number of responses read by each reader 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., “needs second reading,” “complete”). This report ensured that all discrepancies were resolved by the end of the project.
- **The Response Read by Reader Report** identified all responses scored by an individual reader. This report was useful if any responses needed rescoring because of reader drift.
- **The Read-Behind Log** was used by the team leader/scoring director to monitor reader reliability. Student responses were randomly selected and team leaders read scored items from each team member. If the team leader disagreed with the reader’s score, remediation occurred. This proved to be a very effective type of feedback because it was done with “live” items scored by a particular reader.

Recalibration sets were used throughout the scoring sessions to monitor scoring by comparing each reader’s scores with the true scores and to refocus readers on Pennsylvania scoring standards. This check made sure there was no change in the scoring pattern as the project progressed. Readers failing to achieve a certain percent of agreement with the recalibration true scores were given additional training to achieve the highest degree of accuracy possible. Readers who were unable to recalibrate were released from the project. The procedure for creating and reading recalibration sets was similar to the one used for the training sets.

To handle possible alert papers (i.e., student responses indicating potential issues related to the student’s safety and well-being that may require attention at the state or local level), the imaging system allowed readers to forward responses needing attention to the scoring director. These alerts were reviewed by the project director, who then notified PDE of this occurrence. However, PDE did not receive the student’s responses or any other identifying information on that student. Also, at no time did the reader have access to information about the student’s identity.

Table 8–2 shows the exact and adjacent agreement rates of the readers for the writing essays in grades 5, 8, and 11.

Table 8–2 Inter-rater Agreement for 2007 Grades 5, 8, & 11 Writing

Grade	Prompt	Composition			Revising and Editing		
		% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent	% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent
5	1	77	23	100	75	25	100
	2	74	26	100	74	26	100
8	1	77	23	100	75	25	100
	2	78	22	100	75	25	100
11	1	80	20	100	75	25	100
	2	75	25	100	75	25	100

MATCH-BACK RULES

In order to create a single student record in the central student file, it was necessary to establish match-back rules to combine separate student records into one student record. Match-back rules were applied to link multiple-choice and constructed responses. They were also used to merge student responses captured on different subjects and to link test results with student demographic information.

DATA EXCHANGE, STORAGE, AND RECOVERY POLICIES

Data Exchange Procedures

The exchange of data between DRC, PDE, and other contractors is a critical and essential component in the success of the PSSA program. To support this process, DRC used the following data exchange procedures to ensure that all data files were successfully and accurately transferred.

- Files were posted to DRC’s secure Pennsylvania FTP site with a standard and logical folder structure.
- Standard file naming conventions were established and used.
- The information necessary to perform these quality control procedures accompanied each data exchange.

Data Exchange Quality Control Procedures

- **Record Count Check** – Confirm the expected record count and provide the record count in files sent and received.
- **File Count Check**– Confirm that the number of files sent and received matches the number of files expected.
- **Duplicate File Check** – Verify that duplicate files were not sent or received.
- **File Date** – Verify that the version of the file received matches the file creation date.
- **File Type Verification Check** – Verify that data sent and received matches the format expected (e.g., Excel, CSV, PDF, Text file [delimited/fixed field length]).
- **File Log** – A log of files sent and received will be maintained.
- **Data Validation** – Data checking procedures will be used to verify that the data is in the specified file layout and matches the expected values.

Images

As part of the scanning process, the multi-page TIFF images were archived to tape before being separated into single page TIFFs and transmitted to the scoring centers. If any of the images were lost/deleted/corrupted at a scoring center, they could be restored from the archived multi-page TIFF images. In addition to archiving the images, the scoring center servers used RAID (Redundant Array of Independent Disks) 5 disk management technology to mirror the images to redundant disk drives. If a disk drive failed in a scoring center server, the images could be quickly restored from the redundant disk drive. In the event that the disk drive and the multi-page TIFF images could not be restored, the original documents would be rescanned. Images are stored for a PDE specified period.

Data

Once a reader submitted a score for a constructed-response item, the data was electronically transmitted to our SQL Servers. The log files documenting the changes were backed up hourly. Full back-ups were done nightly (Monday–Friday) and two additional full back-ups were run over the weekend on the handscoring SQL Servers with the backup tapes being rotated off-site. All data is stored for a PDE-specified period.

Storage

All physical servers are housed in secure server rooms in DRC’s corporate headquarters in Maple Grove, or the Brooklyn Park or Woodbury locations. The server rooms are constructed of concrete floors, walls, and ceilings and designed to be fire and crush proof. They have fire suppression systems to minimize the effect of any fire started within the server room. Access to the server rooms is controlled through a card access system and is restricted to authorized technology support staff only. A log is maintained documenting each time a server room is entered, by whom, and for what purpose. In case of a disaster at any of the locations, another server can take over full operations.

DRC maintains backup servers that can be used to replace a failed server within 24 hours. Every server's configuration is documented in the event a rebuild is required. Each server has an assigned primary and secondary network analyst responsible for its operation.

The servers utilize load-sharing, redundant power supplies and implement RAID subsystems to minimize the effect of a failed disk. The server rooms all have Uninterruptible Power Supply (UPS) systems. For longer periods of power failure, an on-site diesel power generate will automatically start and supply needed power. The computing environment, both servers and communications hardware, will continue to function without interruption when the utility power is disrupted.

Two copies of complete system and data backup are created each weekend. One of these copies is stored in a secure room at the Maple Grove location. The second copy is stored in a secure room at the Woodbury location. These backups are stored indefinitely. Incremental backups of all files on the network are made each day. The incremental backups are kept for 6 weeks.

DRC utilizes a storage area network (SAN) for maximum speed, flexibility, and redundancy in our data storage solution. Servers are connected to the SAN via redundant connections to ensure minimum interruptions due to hardware failures. The SAN allows disk space to be reallocated with ease for availability to those applications or servers as needed. The SAN currently houses 13 Terabytes of storage and is expandable to 26 Terabytes.

Chapter Nine: Summary Demographic, Program, and Accommodation Data for the 2007 Writing PSSA

ASSESSED STUDENTS

The total number of answer documents processed by grade level for the 2007 Writing PSSA is presented on the first line of Table 9–1. Also shown is the number and percent of students with PSSA scores in writing, followed by those not having a score. Assessed students include those from public schools who are required to participate as well as those from a small number of non-public schools (numbering fewer than 500 per grade level) that elected to participate. Also included were home-schooled students, which numbered fewer than 100 per grade.

Table 9–1. Students Assessed on the 2007 PSSA

	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Number of answer documents processed	133,185		145,967		141,874	
Students with a writing score	130,180	97.7	140,797	96.5	134,725	95.0
Number processed but not assessed (without a total score)	3,005	2.3	5,170	3.5	7,149	5.0

As may be observed from Table 9–1, not all students were assessed. Although there are a variety of reasons for this, the major ones pertain to (1) excusal due to significant cognitive disability, (2) absenteeism, and (3) a situation in which there was a non-attempt on the part of the student and no exclusion code was marked by school personnel. A student must have completed five or more multiple-choice items and responded to both prompts to be considered attempted. The number of students without scores for these three reasons is presented in Table 9–2.

Students in an assessed grade who met each of the following criteria were excused from the PSSA: (1) had a significant cognitive disability, (2) required intensive instruction, (3) required adaptation and support to perform or participate meaningfully, (4) required substantial modification of the general education curriculum, (5) participation in the general education curriculum differed markedly in form and substance from that of other students (see *PSSA Handbook for Assessment Coordinators and Administrators: Grades 5, 8, and 11 Writing, PDE, 2007, pp. 6–7*). Instead, these students participated in an alternate writing assessment. Two categories of absenteeism, (1) extended absence from school that continued beyond the assessment window and (2) being absent without make-up for at least one section of the writing assessment is combined to form a single absent category in Table 9–2. The non-attempt categorization pertains to a situation in which a student did not meet the criteria for having attempted one or more of the sections of the writing assessment and no exclusion code was marked.

Table 9–2. Counts of Students without Scores on the 2007 PSSA

Reason for Non-Assessment	Grade 5		Grade 8		Grade 11	
	N	Pct	N	Pct	N	Pct
Alternate Assessment for writing	982	32.7	1,115	21.6	1,053	14.7
Absent Writing	369	12.3	1,200	23.2	2,953	41.3
Non-Attempt Writing	1,329	44.2	2,436	47.1	2,462	34.4
Total Count Not Assessed	3,005		5,170		7,149	

COMPOSITION OF SAMPLE USED IN SUBSEQUENT TABLES

The results presented in the subsequent tables are based on those students who have a score in writing. Analyses were conducted using the individual student data file of July 3, 2007. Because some student file updates may occur subsequent to these analyses, there could be small differences in the counts although percentages would likely differ by only a fraction of a percentage point.

COLLECTION OF STUDENT DEMOGRAPHIC INFORMATION

Data for these analyses were obtained primarily from information supplied by school district personnel through the DRC Student Precode System, a multi-phase process by which student data may be imported, verified, corrected, and updated. Some data such as accommodation information is marked directly on the student answer document at the time the PSSA is administered.

DEMOGRAPHIC CHARACTERISTICS

Frequency data for each category is presented in Table 9–3. Percentages are based on all students with a score in writing as shown at the bottom of the table.

Table 9–3. Demographic Characteristics of 2007 Writing PSSA

Demographic or Educational Characteristic	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Gender						
Female	63,315	48.6	68,659	48.8	66,991	49.7
Male	66,689	51.2	71,922	51.1	67,456	50.1
Race/Ethnicity						
American Indian or Alaskan Native	213	0.2	226	0.2	277	0.2
Asian or Pacific Islander	3,524	2.7	3,336	2.4	3,361	2.5
Black/African American non-Hispanic	19,926	15.3	21,706	15.4	16,244	12.1
Latino/Hispanic	8,774	6.7	8,591	6.1	5,912	4.4
White non-Hispanic	96,666	74.3	106,013	75.3	107,939	80.1
Multi-Racial/Ethnic	836	0.6	642	0.5	651	0.5

Table 9–3 (continued). Demographic Characteristics of 2007 Writing PSSA

Educational Category and Other Demographic Groups	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
IEP (not gifted)	20,277	15.6	21,047	14.9	16,934	12.6
Student exited IEP in last 2 years	1,531	1.2	884	0.6	471	0.3
Gifted and has an IEP	6,324	4.9	8,530	6.1	7,458	5.5
504 Plan / Chapter 15	1,176	0.9	1,186	0.8	989	0.7
Title I	38,943	29.9	26,873	19.1	16,225	12.0
Title III - Served	2,293	1.8	1,577	1.1	1,098	0.8
Title III - Not Served	684	0.5	652	0.5	512	0.4
Migrant Student	295	0.2	261	0.2	203	0.2
ELL (enrolled after 3-31-06)	296	0.2	282	0.2	182	0.1
ELL (enrolled before 3-31-06)	2,681	2.1	1,947	1.4	1,428	1.1
Exited ESL/bilingual program – 1 yr	588	0.5	440	0.3	233	0.2
Exited ESL/bilingual program – 2 yr	419	0.3	314	0.2	163	0.1
Former ELL no longer monitored	999	0.8	1,175	0.8	854	0.6
Foreign Exchange Student	12	0.0	8	0.0	122	0.1
Economically Disadvantaged	46,205	35.5	45,613	32.4	30,281	22.5
Enrollment						
Current Enrollment in school of residence after Oct 1, 2006	4,194	3.2	4,398	3.1	3,698	2.7
Current Enrollment in district of residence after Oct 1, 2006	2,772	2.1	3,033	2.2	2,768	2.1
Current Enrollment as PA resident after Oct 1, 2006	926	0.7	972	0.7	843	0.6
Enrolled in school of residence after Oct 1, 2005 but on/before Oct 1, 2006	17,256	13.3	17,095	12.1	14,006	10.4
Enrolled in district of residence after Oct 1, 2005 but on/before Oct 1, 2006	10,012	7.7	9,710	6.9	8,311	6.2
Homeless as defined by McKinney-Vento Act	140	0.1	113	0.1	52	0.0
School Choice Provision	127	0.1	174	0.1	160	0.1
Number Scored	130,180		140,797		134,725	

EDUCATION IN NON-TRADITIONAL SETTINGS

For each category the number and percent are presented for all students with a score in writing. Table 9–4 reveals an incidence of less than one percent for the majority of these settings. Also shown are home schooled students assessed by parental request.

Table 9–4. Participation in 2007 PSSA by Students in Non-Traditional Settings

Non-Traditional Educational Settings	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Court/agency placed	136	0.1	554	0.4	838	0.6
Homebound instruction	2	0.0	5	0.0	13	0.0
Special education student placed in program outside the district of residence	45	0.0	140	0.1	126	0.1
Special education student placed in program located in one building/site within the district of residence	385	0.3	131	0.1	42	0.0
Student placed in Approved Public Alternative Education Program	170	0.1	686	0.5	855	0.6
Student placed in Approved Private School (APS)	137	0.1	200	0.1	171	0.1
Student attends an intermediate unit (IU) program/classroom	221	0.2	383	0.3	438	0.3
Home schooled student assessed by parental request	56	0.0	59	0.0	33	0.0
ELL student tested outside district	51	0.0	39	0.0	1	0.0

PARTICIPATION IN PSSA BY CAREER AND VOCATIONAL EDUCATION STUDENTS

Table 9–5 summarizes the total number of students receiving a score on the PSSA who were enrolled in an approved Career and Vocational Education (CTE) program. Some of these students are dually coded as enrolled in a tech prep program.

Table 9–5. Participation by Grade 11 CTE Students

Career and Vocational Education Categories	Number	Percent of CTE Students	Percent of all Assessed Students
Students enrolled in a CTE program approved by Career & Technical Education System	11,612	85.4	8.6
Students enrolled in a tech prep program who are dually coded as CTE	1,988	14.6	1.5
Number scored classified as CTE	13,600	100	10.1
Students enrolled in a tech prep program but NOT dually coded as CTE	662		0.5
Number Scored classified as CTE or as tech prep only	14,262		10.6

Table 9–6 provides data regarding the type of school setting in which grade 11 students received their career and vocational education. Table 9–6 also presents information regarding the student’s career cluster. In this table the totals are based on the summation of assessed students across type of school settings and across program areas. The associated percents relate to the total numbers of career and vocational education (CTE) students with a score in writing.

Table 9–6. School Setting and Career Clusters of Grade 11 CTE Students

Student attends:	Number	Percent
Comprehensive CTE for full day	1,588	11.1
District High School with CTE classes	2,416	16.9
Charter School with an Approved CTE	12	0.1
Career and Technical Center part time	7,665	53.7
Not coded (students coded as Tech Prep only)	2,581	18.1
Totals	14,262	100 %
Career Cluster in which the Student is Enrolled:		
Agriculture	527	3.7
Architecture and Construction	2,005	14.1
Arts and Communication	651	4.6
Business Management	620	4.3
Education and Training	162	1.1
Finance	20	0.1
Government and Public Administration	2	0.0
Health Science	992	7.0
Hospitality and Tourism	848	5.9
Human Services	1,075	7.5
Information Technology	673	4.7
Law and Public Safety	285	2.0
Manufacturing	1,077	7.6
Marketing, Sales and Service	604	4.2
Science and Technology	505	3.5
Transportation and Logistics	1,635	11.5
Not coded (1,919 CTE only plus 662 Tech Prep only students)	2,581	18.1
Totals	14,262	100 %

PRIMARY DISABILITY OF IEP STUDENTS ASSESSED ON THE PSSA

School personnel supplied the primary disability information for those students who had an IEP (not gifted) through the DRC Student Precode System. Beginning with the 2006 assessment, the disability categories were presented in a sequence matching a Department of Education numbering system and two previously separate categories were combined. In Table 9–7, for each disability category, the number and percent are presented for all students with a score in writing who were coded with a disability. For example, if 20,000 students statewide had a coded disability and 5,000 students were classified with a particular disability, the table entry would display 5,000 followed by 25%. Uniformly, specific learning disability is the category with the highest incidence of occurrence. The last row of Table 9–7 presents the percent of all assessed students who have a coded primary disability.

Table 9–7.
Incidence of Primary Disabilities among IEP Students Assessed on the 2007 PSSA

Primary Disability of Students Having an IEP	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Traumatic Brain Injury	30	0.2	35	0.2	39	0.3
Hearing Impairment incl. Deafness	180	0.9	179	0.9	158	1.1
Specific Learning Disability	11,377	60.2	13,794	71.3	11,120	74.1
Mental Retardation	633	3.4	866	4.5	827	5.5
Orthopedic Impairment	33	0.2	38	0.2	33	0.2
Emotional Disturbance	1,236	6.5	2,011	10.4	1,584	10.6
Speech or Language Impairment	3,597	19.0	816	4.2	177	1.2
Visual Impairment incl. Blindness	68	0.4	55	0.3	44	0.3
Deaf/Blind	8	0.0	4	0.0	10	0.0
Multiple Disabilities	73	0.4	52	0.3	72	0.5
Autism	473	2.5	305	1.6	166	1.1
Other Health Impairment	1,179	6.2	1,195	6.2	767	5.1
Number Scored	18,887	100	19,350	100	14,997	100
Percent of Total Assessed Students with a Coded Disability		14.5		13.7		11.1

TEST ACCOMMODATIONS PROVIDED

School personnel supplied information regarding accommodations of various types that a student may have received while taking the PSSA. These included changes in test environment, modified test formats, and special arrangements and assistive devices. The frequency with which these accommodations were utilized is summarized in Tables 9–8, 9–9, and 9–10. The values in the table are based on all students with a score in writing. Please note that a glossary of accommodation terms as applied to the PSSA is provided in Table 9–13 at the end of this chapter.

CHANGES IN TEST ENVIRONMENT

There were six categories of test environment changes on the 2007 PSSA writing assessment. As depicted in Table 9–8, the most common accommodations were small group testing, testing in a separate room, scheduled extended time and requested extended time.

Table 9–8. Incidence of Changes in Test Environment on the 2007 PSSA

Type of Change in Test Environment	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Scheduled Extended Time	6,508	5.0	4,429	3.1	4,465	3.3
Requested Extended Time	2,769	2.1	2,378	1.7	2,512	1.9
Separate Room	9,257	7.1	5,922	4.2	4,181	3.1
Hospital/Home Testing	36	0.0	72	0.1	89	0.1
Multiple Test Sessions	1,465	1.1	1,343	1.0	1,010	0.7
Small Group Testing	11,987	9.2	10,039	7.1	7,444	5.5

MODIFIED TEST FORMATS

There were four categories of test format modifications in the 2007 PSSA writing assessment. As depicted in Table 9–9, the actual frequencies are quite low, generally representing less than a tenth of one percent of assessed students statewide.

Table 9–9. Incidence of Test Format Modifications on the 2007 PSSA

Type of Test Format Modification	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Braille Edition	9	0.0	10	0.0	17	0.0
Large Print Edition	85	0.1	65	0.0	67	0.0
Signed Version*	19	0.0	7	0.0	18	0.0
Audiotape/CD*	2	0.0	4	0.0	5	0.0

*Not a standardized test format modification made available through PDE. See Table 9–13 for more explanation.

SPECIAL ARRANGEMENTS/ASSISTIVE DEVICES

On the 2007 PSSA writing assessment, there were eight categories of accommodations in the form of special arrangements or assistive devices. The frequency with which these accommodations were utilized is summarized in Table 9–10. The actual frequencies are quite low, generally representing less than four-tenths of one percent of assessed students statewide.

Table 9–10. Incidence of Special Arrangements/Assistive Devices on the 2007 PSSA

Type of Arrangement or Assistive Device	Grade 5		Grade 8		Grade 11	
	Number	Percent	Number	Percent	Number	Percent
Braille Writer	9	0.0	5	0.0	11	0.0
Test Administrator transcribed illegible writing	528	0.4	250	0.2	160	0.1
Interpreter signed directions	41	0.0	31	0.0	50	0.0
Magnification device	17	0.0	9	0.0	17	0.0
Test administrator marked test at student direction (MC only)	81	0.1	36	0.0	46	0.0
Typewriter, word processor or computer	270	0.2	257	0.2	254	0.2
Qualified interpreter for ELL student	79	0.1	61	0.0	125	0.1
Other	74	0.1	93	0.1	45	0.0

THE INCIDENCE OF ACCOMMODATIONS AND IEP AND ELL STATUS

It is reasonable to expect that students with an IEP would receive the majority of accommodations; however, certain accommodations are specific to particular disabilities or to students classified as English Language Learners (ELL). A cross-tabulation between each of the accommodations and IEP and ELL status revealed a much greater incidence for students with an IEP. This is most clearly depicted in the frequently occurring accommodations. To illustrate, several of these results were selected for display in Table 9–11.

For the IEP analysis, the column headings refer to students classified as IEP (IEP) and non-IEP (NIEP). In each instance there is a considerably larger percent of IEP students receiving the accommodation than NIEP students. There is a general tendency to observe a decrease in the percentage of IEP students receiving these accommodations in the progression from lower to higher grade levels.

The analysis for students identified as an English Language Learner (ELL) was based on the formation of a new variable. Students classified as ELL and (1) enrolled in a U.S. school after March 31, 2006 or (2) enrolled in a U.S. school on or before March 31, 2006 were combined into a single category and coded as 1. All other assessed students, including those who exited an ESL/bilingual program and in the first or second year of monitoring were collapsed into a second category. The constructed variable, labeled ELL in Table 9–11, was assigned a value of one if either of the two categories was marked and a zero otherwise. Non-ELL is labeled as NELL. The accommodations most frequently received by ELL students are presented. In each instance there is a larger percent of ELL students receiving the accommodation than NELL students. There is a decrease in the percentage of ELL students receiving the small group accommodation in the progression from lower to higher grade levels and no discernable pattern for the other accommodations.

Table 9–11. Percent of IEP and ELL Students Receiving Selected Accommodations

	Grade 5		Grade 8		Grade 11	
Accommodation Received	IEP	NIEP	IEP	NIEP	IEP	NIEP
Scheduled extended time	23.9	1.5	16.0	0.9	19.9	0.9
Test in separate room	35.2	1.9	23.4	0.8	20.6	0.6
Test in small group setting	46.0	2.4	41.0	1.2	38.5	0.8
Accommodation Received	ELL	NELL	ELL	NELL	ELL	NELL
Scheduled extended time	12.2	4.8	10.7	3.0	11.3	3.2
Test in separate room	16.2	6.9	10.8	4.1	16.2	2.9
Test in small group setting	21.5	8.9	17.5	7.0	13.6	5.4
Qualified interpreter for ELL student	2.4	0.0	2.5	0.0	6.9	0.0

THE INCIDENCE OF ACCOMMODATIONS AND PRIMARY DISABILITY CLASSIFICATION

To further delineate the use of commonly employed accommodations, a grade level breakdown by primary disability is presented in Table 9–12. A selection was made based on the more frequently occurring categories of disability and accommodations rather than displaying data for all of them. As may be seen from a perusal of Tables 9–8, 9–9, and 9–10, the accommodations with the larger frequencies are those that involve a change in test environment or that necessitate special arrangements. Selected for incorporation in Table 9–12 are the five test environment accommodations with frequencies in excess of 1,000 in at least one grade level and the two special arrangement accommodations with the largest frequencies at grade 5. Accommodations concerned with test format modifications tended to be highly specific to particular and infrequent disability categories or to students classified as English Language Learner (ELL) and were not included in Table 9–12. Seven Primary Disability categories were selected that had a minimum of 100 students so classified at each grade level.

The entries for Table 9–12 represent the number and percent of students with a particular disability (columns) who received the listed accommodation (rows). For example, if 200 students out of 500 classified with a particular disability received scheduled extended time, the table entry would display 200 followed by 40%. The frequency of assessed students at each grade with a particular disability may be found in Table 9–7.

The most prominent and consistent findings from Table –12 are (1) the heavy use of scheduled extended time, a separate room, and small group settings for all disability categories except speech and language impairment and that (2) in most instances the percentage of grade 5 students receiving these three accommodations exceeded that of grade 8 and 11 students.

Table 9–12. Incidence of Test Accommodations Received for Selected Primary Disability Classifications on the 2007 PSSA

Type of Accommodation Received	Grade Level	Primary Disability of Assessed Student with an IEP: Number and Percent										Speech or Language Impairment			
		Autism	Emotional Disturbance	Deafness / Hearing Impairment	Mental Retardation	Other Health Impairment	Specific Learning Disability								
Scheduled extended time	5	142	30%	329	27%	33	18%	214	34%	327	28%	3146	28%	125	4%
	8	55	18%	350	17%	20	11%	166	19%	142	12%	2040	15%	21	3%
Student-requested extended time	11	38	23%	345	22%	35	22%	203	24%	116	15%	1974	18%	9	5%
	5	15	3%	44	4%	5	3%	12	2%	38	3%	348	3%	92	3%
Separate room	8	18	6%	66	3%	3	2%	25	3%	50	4%	467	3%	15	2%
	11	10	6%	50	3%	5	3%	28	3%	24	3%	408	4%	1	1%
Multiple test sessions	5	232	49%	381	31%	38	21%	280	44%	509	43%	4892	43%	221	6%
	8	92	30%	407	20%	15	8%	217	25%	310	26%	3440	25%	38	5%
Small group testing	11	39	23%	318	20%	24	15%	242	29%	133	17%	2300	21%	10	6%
	5	33	7%	106	9%	1	1%	56	9%	68	6%	596	5%	31	1%
Typewriter, word processor or computer	8	18	6%	153	8%	2	1%	42	5%	29	2%	410	3%	9	1%
	11	10	6%	121	8%	1	1%	52	6%	20	3%	280	3%	1	1%
Test admin. transcribed illegible writing	5	258	54%	572	46%	51	28%	352	56%	651	55%	6356	56%	263	7%
	8	138	45%	773	38%	42	24%	415	48%	522	44%	5693	41%	58	7%
Test admin. transcribed illegible writing	11	71	43%	611	39%	55	35%	388	47%	297	39%	4103	37%	20	11%
	5	19	4%	10	1%	1	1%	4	1%	29	3%	103	1%	12	0%
Test admin. transcribed illegible writing	8	18	6%	14	1%	0	0%	1	0%	27	2%	106	1%	3	0%
	11	11	7%	10	1%	1	1%	6	1%	17	2%	100	1%	2	1%
Test admin. transcribed illegible writing	5	31	7%	30	2%	2	1%	19	3%	37	3%	219	2%	14	0%
	8	6	2%	11	1%	0	0%	8	1%	18	2%	86	1%	3	0%
Test admin. transcribed illegible writing	11	5	3%	7	0%	0	0%	6	1%	15	2%	62	1%	0	0%

Note: Results displayed are for most frequently occurring accommodations and disability classifications

GLOSSARY OF ACCOMMODATIONS TERMS

Table 9–13 provides a brief description of accommodations terms as used in the PSSA. School personnel identified the accommodations that a student received by marking a bubble in the student answer document as seen in the left column. The right column contains an explanation abstracted from the *2007 Accommodations Guidelines* (PDE, January 2007, pages 4–14).

Table 9–13. Glossary of Accommodations Terms as Applied in the PSSA

Type of Testing Accommodation	Explanation
Student was given the following changes in test environment (mark all that apply)	
Scheduled extended time	Extended time may be allotted for each section of the test to enable students to finish.
Student-requested extended time	A student may request extended time if working productively.
Tested in a separate room	A separate room may be used to reduce distraction.
Hospital/home testing	A student who is confined to a hospital or to home during the testing window may be tested in that environment.
Multiple test sessions	Multiple test sessions may be scheduled for the completion of each test section; however, a test section must be completed within one school day.
Small group testing	Some students may require a test setting with fewer students or a setting apart from all other students.
Student used the following modified test format(s) (mark all that apply)	
Braille edition	Students may use a Braille edition of the test. Answers must then be transcribed into the answer booklet without alteration.
Large print edition	Students with visual impairments may use a large print edition. Answers must then be transcribed into the answer booklet without alteration.
Spanish mathematics version	This version may be taken by students whose first language is Spanish and who have been enrolled in U.S. schools for fewer than 3 years.
Signed version	Qualified interpreters may sign directions for all assessments. Mathematics questions may be signed. On the writing assessment only the writing prompt may be signed. Signing the passage and/or questions on the reading test is not permitted; only directions may be signed.
Audiotape or Compact Disk	General directions may be provided via audiotape or CD as well as specific sections of the mathematics test. No part of the reading test or writing multiple-choice and passages section are permitted. Students may respond to the mathematics and reading test on an audiotape, which must then be transcribed into the answer booklet without alteration.

Table 9–13 (continued). Glossary of Accommodations Terms as Applied in the PSSA

Student used the following special arrangements / assistive devices (mark all that apply)	
Braille writer (<i>with no thesaurus, spell- or grammar checker</i>)	Students using this device as part of their regular program may use it on the PSSA.
Cranmer Abacus	An adaptive calculator or a Cranmer Abacus may be used for the calculator portion of the test only. Eligible students are only those with blindness, low vision, or partial sight.
Dictation to a test administrator	Students who are unable to use a pencil or have illegible handwriting may answer reading, mathematics, and writing multiple-choice questions orally. Answers must be recorded in the answer booklet without alteration during the testing period.
Interpreter signed directions	Deaf/hearing impaired students may receive test directions from a qualified interpreter.
Magnification devices	Devices to magnify print may be used for students with visual impairments.
Test administrator read mathematics test aloud	Mathematics test questions may be read aloud; however, words may not be defined.
Test administrator marked test at student's direction (multiple-choice answers only)	A test administrator may mark an answer booklet at the direction of a student. (e.g., a student may point to a multiple-choice answer with the test administrator marking the response in the answer booklet).
Test administrator transcribed illegible writing (responses to writing prompts or to reading / mathematics open-ended items.	On writing prompts the test administrator may transcribe handwriting that is extremely difficult to read. On reading or mathematics illegible handwriting may be transcribed for open-ended items only.
Typewriter, word processor or computer (<i>with thesaurus, spell- or grammar-checker turned off</i>)	An allowable accommodation as a typing function only for students with 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 ELL 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 mathematics test and open-ended section of the reading test (but not for the reading passage or multiple-choice items). Cannot be used on any section of the writing test.
Qualified bilingual interpreter for ELL student	An interpreter may translate directions or clarify instructions for the assessments. They may translate, not define specific words or test questions on the mathematics test. On the reading test interpreters may only translate directions and may not translate or define words in the passage or test questions.
Other (documentation must be provided to PDE)	Other accommodations may be appropriate and available if they do not compromise the integrity of the assessment. Documentation must be provided to PDE.

Chapter Ten: Form Analysis and Item Calibration

TEST FORM STATISTICS

Table 10–1 contains an overview of the test-level data. Test length in total number of points (L), mean number of points received (P), standard deviations (SD), test reliability (R), and traditional standard error of measurement (SEM) are shown by grade and content area. These statistics are based on the total test using both multiple-choice and open-ended tasks for the common sections of each form. Detailed item-level statistics for the common items can be found in Appendices H through J.

Test reliability is discussed in more detail in Chapter Thirteen. All analyses conducted in Chapters Ten, Twelve, and Thirteen used data files containing the same data that was supplied to PDE.

Table 10–1. 2007 Summary of Common Item Performances

Grade	Writing				
	L	P	SD	R	SEM
5	100	65.001	13.043	0.753	6.487
8	100	67.164	13.935	0.798	6.264
11	100	70.188	11.509	0.689	6.417

The standard deviation shown in the table is the standard deviation 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 $\hat{\sigma}_T = \sqrt{\sigma_x^2 - \sigma_x^2(1 - \rho_{xx})}$. As an example, for grade 5, this would be $\sqrt{13.043^2 - 7.826^2} = 10.434$.

The conditional standard error of measurement (CSEM) also indicates the degree of measurement error in score units, but as a function of one’s actual test score. Therefore, the CSEM may be especially useful in characterizing measurement precision in the neighborhood of a score level used for decision-making—such as cut scores for identifying students who meet a performance standard. The CSEMs for writing are documented in Appendices N–P in the columns labeled “Scale Score SE.”

TRADITIONAL ITEM STATISTICS

Although all items were previously reviewed for both content and statistical quality, a thorough item analysis was conducted to ensure that the items and forms performed as expected. With any psychometric model, an item analysis is a search for unexpected results. For example, *more able*¹ students are expected to pass easy items and *less able* students are expected to fail difficult items. If either of these situations does not occur, the item should be reviewed to determine the nature of the problem and the characteristics of the students affected.

¹ Following the Rasch literature, *ability* is used in this discussion as a generic term for the construct that is being measured by the exam. *Competence*, *achievement*, *learning* and *status* are among the alternatives that are sometimes used, but are all subject to some degree of misinterpretation.

The most familiar indices of item performance are *proportion correct* (P-value) and item reliability. Reliability for dichotomous items is typically represented by the *point biserial correlation* coefficient. The correlation will have a positive value when the mean score of the students answering correctly is higher than the mean score of the students answering incorrectly. This indicates that students who did well on the total test tended to do well on this item. The index will take its maximum theoretical value of 1.0 if *every* student who answered the item correctly scored better on the test than *any* student who answered incorrectly².

The P-value is a subtler indicator of item quality. If there is a *more able* way to miss an item, the item will appear more difficult than expected. Conversely, if there is a *less able* way to pass the item, it may appear surprisingly easy.

P-values for constructed-response items were obtained by dividing the mean points by the total number of possible points. While the CR P-values are on the same scale as the MC P-values, unlike the MC P-values they cannot be interpreted as the proportion of students answering the item correctly. Otherwise, the interpretation of CR P-values is consistent with the interpretation of MC P-values, with higher values indicating easier items.

Table 10–2 provides some distributional indices for the P-value and point biserial correlation (PtBis) for the multiple-choice items on the common form in each grade and content area.

In general, with the mean P-values in the range of 0.641 – 0.694, the PSSA was reasonably challenging to most students. With the average point biserial correlations ranging from .262 to .353, the overall item quality was fair to good. It should be noted that rules of thumb for interpreting these statistics should be flexible relative to the purposes and uses of test scores. An average P-value around 0.65 (or slightly higher) is considered advantageous for spreading out students. Similarly, point-biserial correlations are often grouped (e.g., above 0.20 being “adequate,” above 0.30 being “good,” and above 0.40 being “excellent”). However, in the context of a criterion-referenced testing program, the best items for covering content domains and Depth of Knowledge levels do not always fall within these guidelines.

² It is legitimate to view the point biserial correlations as standardized means. A positive value means students who chose that response had a higher mean score than the average student; a negative value means students who chose that response had a lower than average mean score.

Table 10–2. Common Form Statistics by Grade and Content for Multiple-Choice Items

Writing		
Grade 5	P-value	PtBis
Minimum	0.447	0.249
Maximum	0.840	0.428
Mean	0.694	0.353
Median	0.727	0.361
Writing		
Grade 8	P-value	PtBis
Minimum	0.415	0.279
Maximum	0.902	0.475
Mean	0.666	0.352
Median	0.706	0.376
Writing		
Grade 11	P-value	PtBis
Minimum	0.191	0.174
Maximum	0.917	0.356
Mean	0.641	0.262
Median	0.760	0.286

RASCH ITEM STATISTICS AND EQUATING

WINSTEPS[®] software implementing the Rasch model was used to obtain estimates of logit difficulties for both dichotomously- and polytomously-scored items. The parameters estimated for polytomous items are the *step difficulties* associated with the Masters Partial Credit model. This software is capable of handling all the item types currently in use with the PSSA. WINSTEPS[®] version 3.54 was used for all calibrations. See Wright and Masters (1982) and Rasch (1960) for further information about the models used for these analyses.

The Rasch model expresses item difficulty (and student ability) in units referred to as *logits*, rather than in percent correct. In the simplest case, a logit is a transformed P-value with the average P-value becoming a logit of zero. In this form, logits resemble z-scores or standard normal deviates; a very difficult item might have a logit of +4 and a very easy item might have a logit of -4. However, they have no formal relationship to the normal distribution.

The logit metric has several mathematical advantages over P-values. It is an interval scale, meaning that two items with logits of zero and one (respectively) are the *same distance* apart as items with logits of +3 and +4. Logits are not dependent on the ability level of the students. For example, a form can have a mean logit of zero, whether the average P-value of the sample is 0.8 or 0.3.

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 a common 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 a grade 3 reading test or a high school science test, relate to an arbitrary origin defined by the center of items on that form. The average grade 3 reading item will have a logit of zero; the average high school 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 any 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 in a particular grade and content area share a common block of items. The items on all forms can then be easily adjusted to a single (but still arbitrary) origin by defining the origin as the mean of the **common** items. With this done, the origins for all the forms will be statistically equal. Items on forms A and F that are equally difficult will now have *statistically* equal logit difficulties.

Note that test forms were spiraled within classrooms. In effect, students are administered the same set of common items but different field test or matrix sets. As a result, there are cross checks that are made to ensure the calibrations and links are reasonable across forms. The goal of spiraling is to achieve a *statistically equivalent* sample of students across forms with equal standard deviations and arbitrary means. Any differences in performance observed among the groups should be due only to differences in form difficulty. After linking, the mean of the logit abilities should be statistically equal for each sample of students.

Winsteps' Outfit (outlier-sensitive fit) index is sensitive to outliers—e.g., aberrant responses to items with difficulty far from a person's ability—and indicates overfit for imputed responses and underfit for lucky guesses and careless mistakes. Outfit values for items are reported beginning in Appendix E. Here, Outfit is expressed on a standardized metric (t), which is more oriented toward statistical significance. Specifically, t shows the degree of improbability in the data (i.e., its statistical significance) if the data actually did fit the model. The expected value is 0.0 with values significantly less than 0.0 indicating too much predictability and values significantly greater than 0.0 indicating lack of predictability.

Because of the equivalent samples, the common items should have the same P-values regardless of which form and sample is being considered. Finally, for all items, a plot of the relationship between the P-value and the logit should fall along a single, curved line. Figures 10.1 through 10.3 plot this relationship for common multiple-choice items. The curves are nearly linear in the center, but curve towards asymptotes of one and zero, respectively, on the left and on the right. The graphs show that items with low P-values (indicating a more difficult item that fewer students answered correctly) also showed higher logit difficulty, and items with high P-values had lower logit difficulties. The spread of the graph points is indicative of the dispersion of item difficulties in the common items.

Figure 10–1. 2006 Grade 5 Writing Logit Difficulties versus P-values

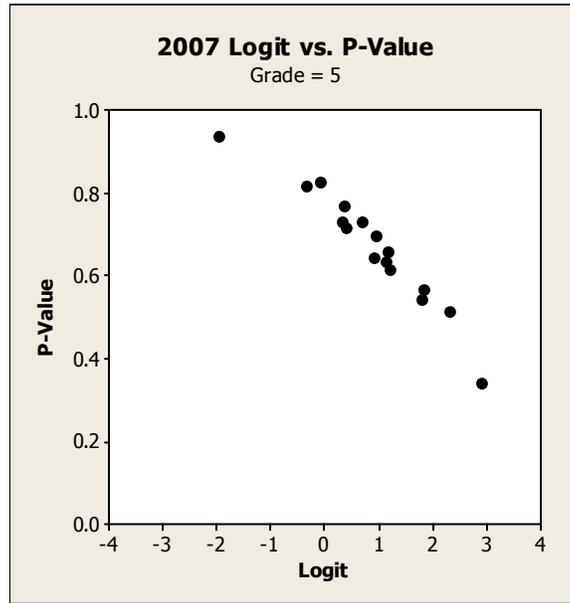


Figure 10–2. 2006 Grade 8 Writing Logit Difficulties versus P-values

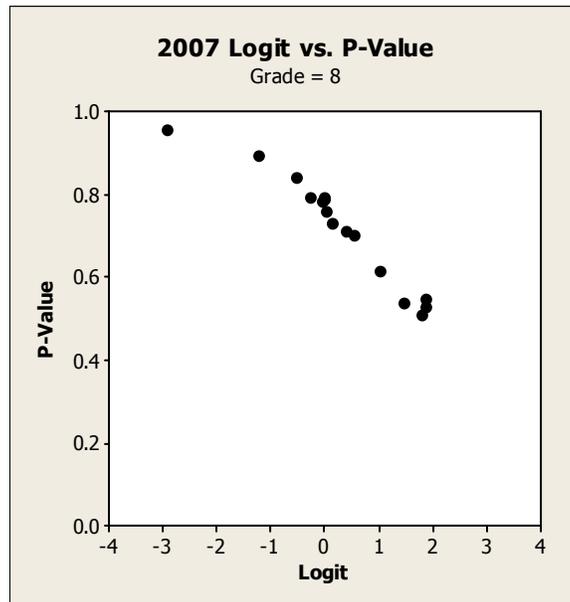
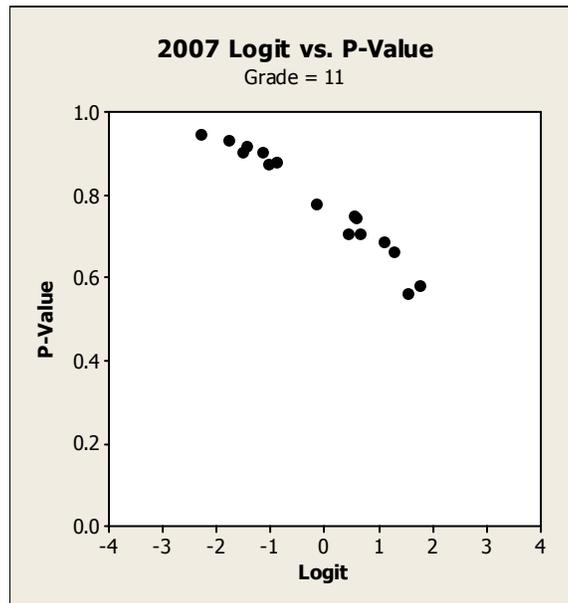


Figure 10–3. 2006 Grade 11 Writing Logit Difficulties versus P-values



Below are the mean raw scores by form for the common multiple-choice and constructed-response items. The extent to which the mean raw scores across forms are similar indicates the extent to which the student populations taking each form are of approximately of equal ability. This equivalence of ability distributions across forms is the desired outcome of spiraling and allows for optimum analysis of the embedded field test items.

Grade 5							
Form	N	Pts.	Min	Max	Mean	Median	Std. Dev.
ALL	130124	100	22	100	65.001	65	13.043
1	13113	100	23	100	64.865	65	13.106
2	13027	100	22	100	64.984	65	13.040
3	13005	100	22	100	64.808	65	13.034
4	13020	100	22	100	64.950	65	13.117
5	13024	100	23	100	65.065	65	12.975
6	13052	100	22	100	65.061	65	12.967
7	13046	100	22	100	65.016	65	12.999
8	13009	100	22	100	64.945	65	12.966
9	12948	100	22	100	65.264	65	13.084
10	12880	100	22	100	65.058	65	13.142

Grade 8							
Form	N	Pts.	Min	Max	Mean	Median	Std. Dev.
ALL	140738	100	22	100	67.164	70	13.935
1	14181	100	22	100	67.012	70	14.014
2	14084	100	22	100	67.270	71	14.011
3	14083	100	22	100	67.321	71	13.849
4	14025	100	22	100	67.045	70	13.997
5	14070	100	22	100	67.179	70	13.984
6	14023	100	22	100	67.219	70	13.920
7	14041	100	22	100	67.128	70	13.859
8	14052	100	22	100	67.379	71	13.812
9	14098	100	23	100	67.063	70	13.950
10	14081	100	22	100	67.021	70	13.951

Grade 11							
Form	N	Pts.	Min	Max	Mean	Median	Std. Dev.
ALL	134692	100	22	100	70.188	73	11.509
1	13564	100	22	100	70.111	73	11.480
2	13482	100	22	100	70.168	73	11.442
3	13491	100	22	100	70.086	73	11.618
4	13436	100	23	100	70.284	73	11.511
5	13463	100	22	100	70.125	73	11.406
6	13462	100	22	100	70.166	73	11.433
7	13415	100	24	100	70.110	73	11.585
8	13468	100	23	100	70.247	73	11.559
9	13452	100	23	100	70.241	73	11.477
10	13459	100	23	100	70.347	73	11.574

Chapter Eleven: Linking

Rasch model linking of the exam for the current year to the exam for previous years is just as straightforward as linking forms within year. However, the student samples are not equivalent across years and identical items can have different properties in different years because of changes in the item's context or changes in the students' experiences. Consequently, between-year linking requires more scrutiny than within-year linking.

The link between years is based on items that are used in both years in approximately the same context. The *same context* in this situation means the items are not altered in any way, they appear in about the same position in the booklet, and they are administered at about the same time of year.

A transitional matrix-to-matrix section linking plan was used to measure growth. This was based on the recommendation of the national technical advisory committee in collaboration with PDE and DRC staff. This link was accomplished via intact matrix sections on a subset of the forms. Item level statistics for the linking items can be found in Appendices K–M.

For *within-year* linking, the procedure is to link forms via the common section. The result is a bank of items with comparable logit difficulties. For *between-year* linking, the procedure is to link the current year's test to the previous years' tests.

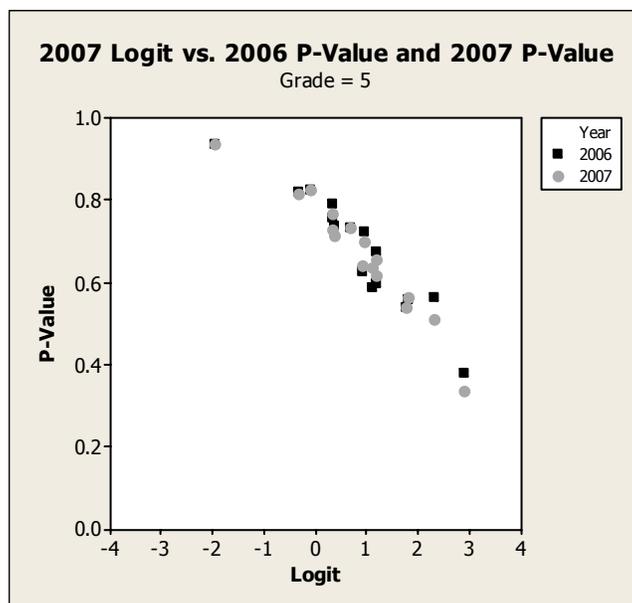
1. Overlapping items are identified.
2. The logit difficulties of all items are adjusted in the current year's bank so that the mean 2007 logit difficulty for the overlapping items is equal to the mean 2006 logit difficulty for the same items.
3. The validity of the link is assessed by identifying any items that do not maintain their relative position across years.

Since the equating process forces the current logit difficulties for the linking items to have the same mean as the previous logit difficulties for these same items, the current-year logits will be *displaced* from their estimates obtained from an independent calibration. The size of the displacements reflects the difference, if any, in the origins. The variation among the displacements corresponds to the approximate size of the standard errors for the items.

Plotting P-values against logit difficulties across year is not as reliable as it is within year. Using spiraled forms within year, a given P-value will translate to a given logit regardless of the form it is used on, within the limits of statistical precision. Within year, the P-value-to-logit plot should be a single curved line; between years, the plot could have separate lines for each year. The difference between the two lines is a reflection of the adjustment (positive or negative) that is required to equate the two item tests. The following sections show the equating results by grade and subject. The number of between-year linking items on the 2007 operational assessment was 16 in each grade.

GRADE 5

In Figure 11–1, the two lines sloping downward toward the right relate item P-values for the two years to the 2007 logit difficulties. They show the curvilinear relationship required by the model, with low P-values being translated into high logit difficulties and high P-values into low difficulties. The smoothness of this line indicates good agreement among the forms. Because the forms were spiraled within classroom, the samples generated are randomly equivalent and one would expect the same P-value to translate into the same logit. This is the case with these data.

Figure 11–1

In Figure 11–2, the trend, rising from left to right, describes the item P-values for the two years (the clusters of points reflect items which were used on multiple matrix forms). If the P-values for both years are correlated at 1.0, one would expect the relationship to fall on a straight line with a slope of one. The extent to which the trend does not pass through the origin indicates a change in student performance.

Figure 11–2

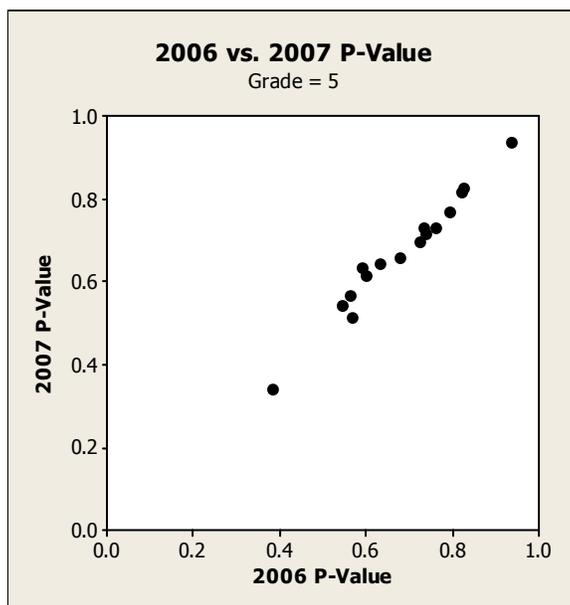
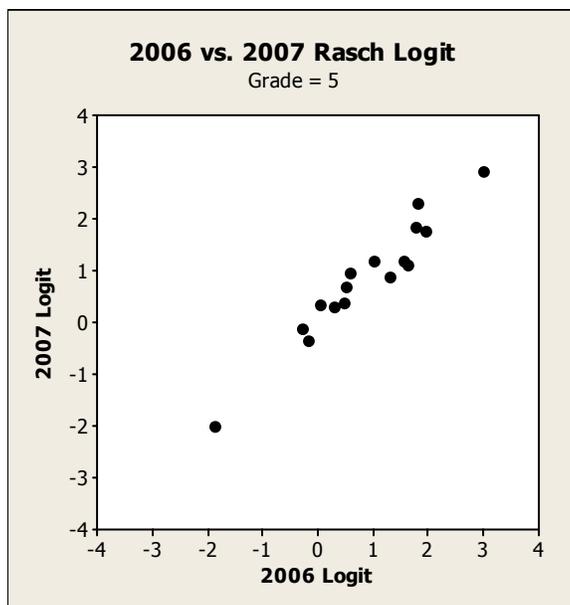


Figure 11–3 below uses the same data as Figure 11–1 and 11–2, but focuses on the relationship between 2006 logits and 2007 logit difficulties.

Figure 11–3



GRADES 8 AND 11

Similar cross-year linking analyses were performed for grades 8 and 11 and are shown in the plots below. Again, the graphs show the curvilinear relationship required by the model, with low P-values being translated into high logit difficulties and high P-values into low difficulties. The smoothness of this line indicates good agreement among the forms. The results were similar to grade 5 in the amount of noise present in the links.

Figure 11–4

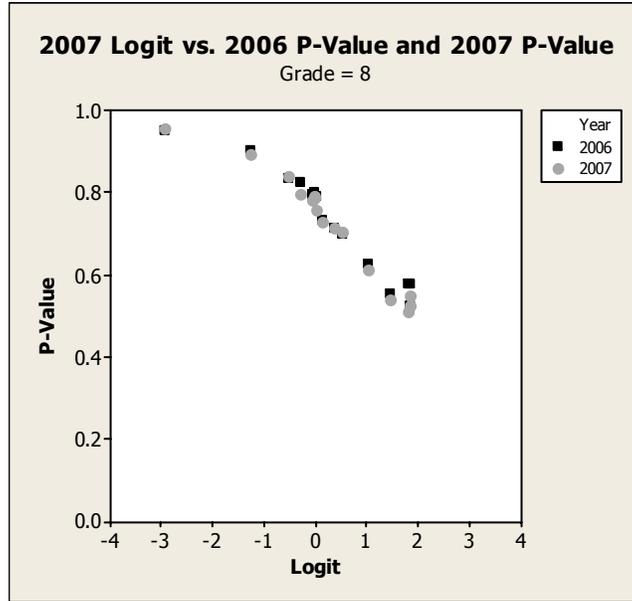


Figure 11–5

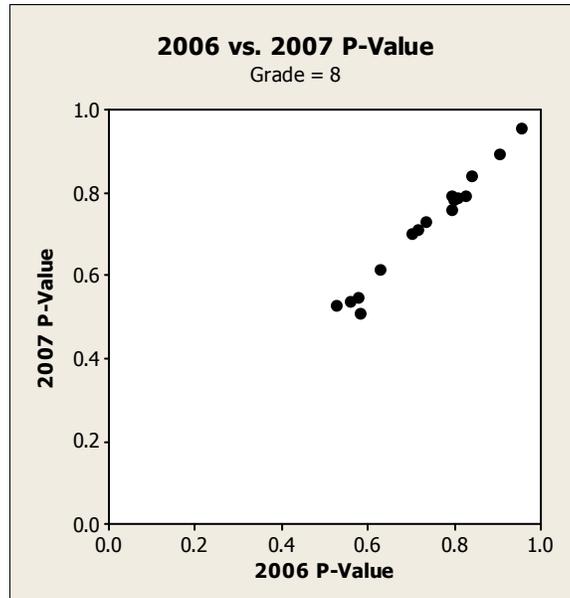


Figure 11-6

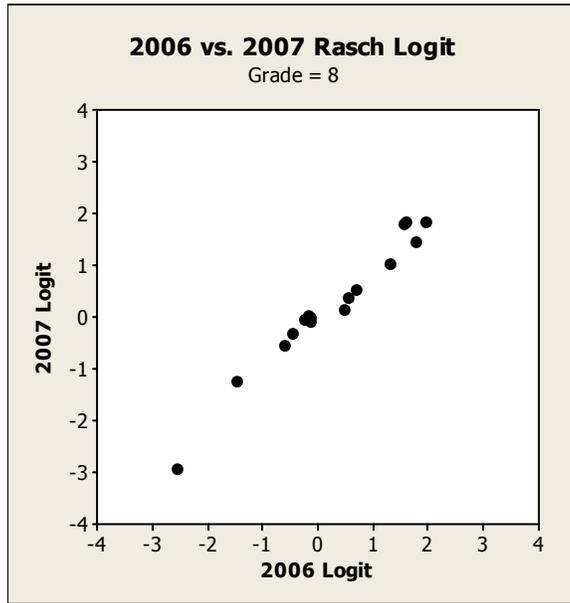


Figure 11-7

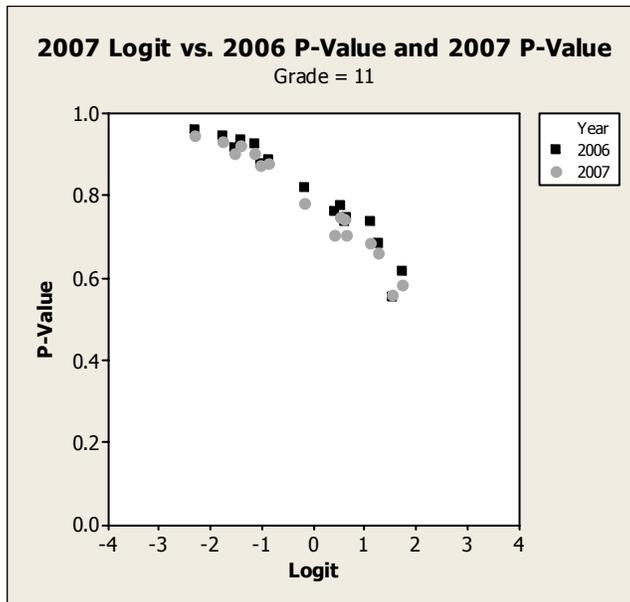


Figure 11–8

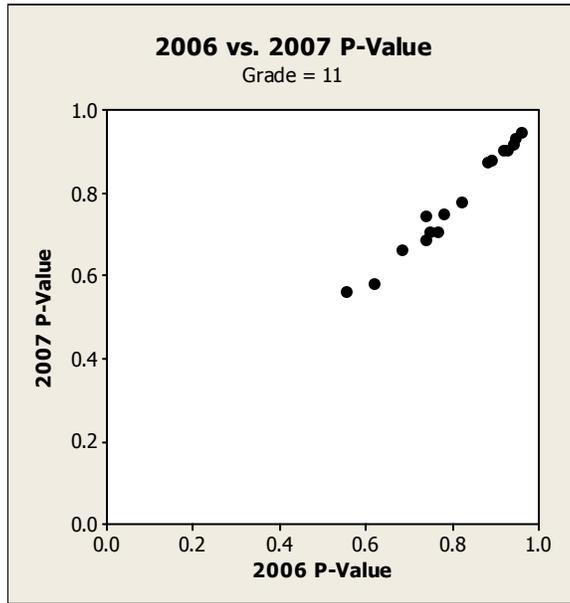
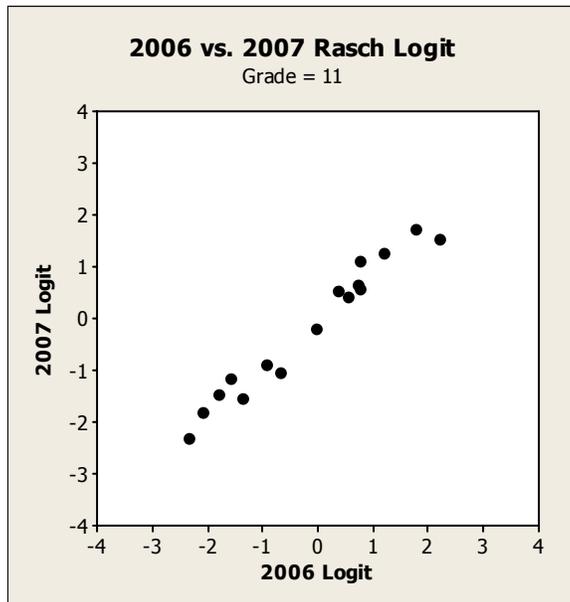


Figure 11–9



The 2006 vs. 2007 Test Characteristic Curves by grade are shown in the figures below. This shows the similarity between the 2006 and 2007 tests in terms of form difficulty in the logit metric. Assuming equal numbers of items for the two years, curves that are close will translate into similar raw score cutpoints. With extreme differences in form difficulties, some loss of precision and reliability may result. However, this is generally not evidenced in the figures below, which display close matches across years, with the possible exception of grade 8.

Figure 11–10

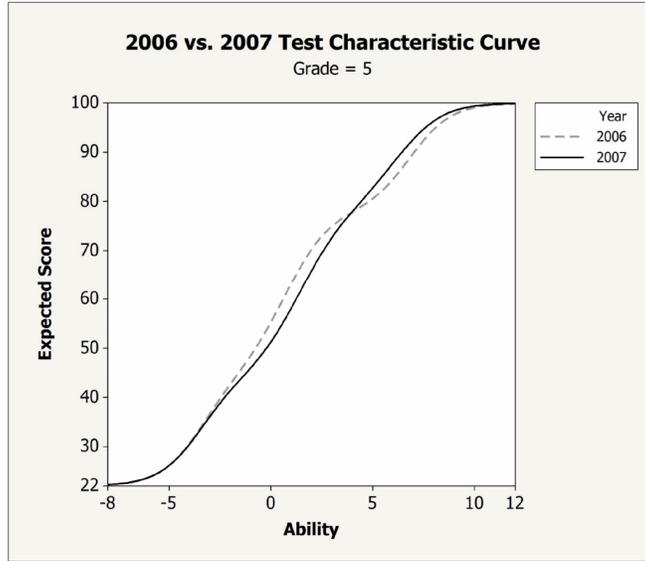


Figure 11–11

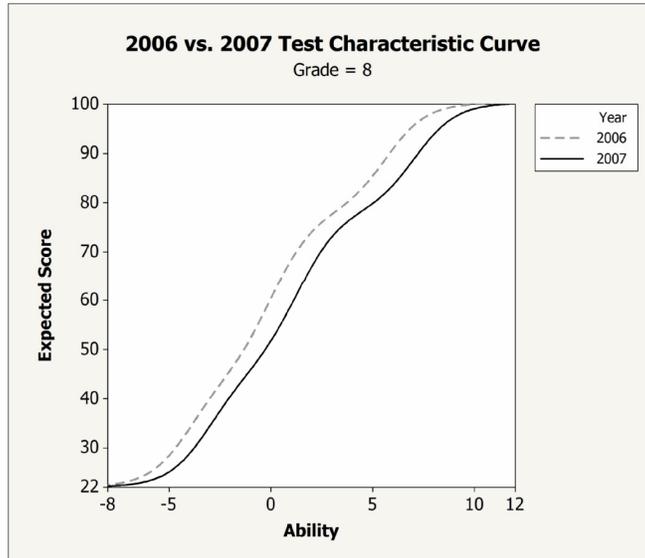
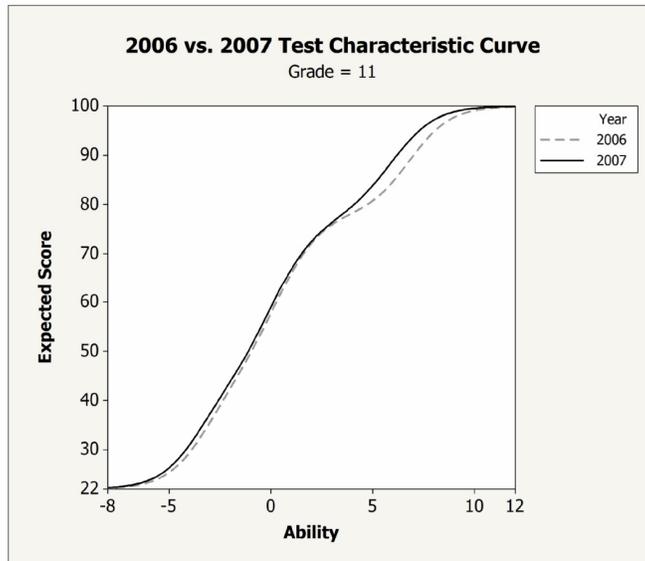


Figure 11–12



Chapter Twelve: Scaled Scores & Performance Levels

COMMON ITEMS AND MATRIX SAMPLED ITEMS

Beginning with the design changes implemented for the 2000 PSSA, student-level scores were based on the common items only. This ensures that any decision made about students will be made in the most equitable manner. School-level scaled scores for the content areas are based on the mean of the student-level scaled scores. This ensures that the scaled scores used for school accountability directly reflect the student-level results. It is a simple matter to aggregate up to the school, district, and state levels.

For the purpose of providing school-level results at the content standard (Academic Standards category) level, all items on all matrix forms plus the common items are utilized. This ensures that decisions about potential school-level strengths and weaknesses are based on broad sampling of the curriculum.

SCALED SCORES FOR CONTENT STANDARDS

As of 2003, school-level scaled scores are no longer reported for the academic content standards (Academic Standards categories). Instead, school results are presented as the percent of total points achieved as compared to district and state level results.

INTERPRETING SCALED SCORES AND PERFORMANCE LEVELS

A *Scaled Score*, in the simplest sense, is a transformed number correct score³. When all students take the same items, as in the common sections of the PSSA, the more points the student earns, the higher the associated scaled score. The value of switching to the more abstract scaled score metric lies in the achievement of a more general and equitable result.

To illustrate, a raw score of 30 is meaningless unless the reader is also told how many points were possible. The same score has quite different meanings if it is based on a thirty-item test as opposed to a sixty-item test. *Number correct scores are transformed to percent correct scores to remove the effect of test length.* In the same way, a score based on sixty *difficult* items is quite different from the same score based on sixty *easy* items. *Number correct scores are transformed to scaled scores to remove the effects of test length and item difficulty.* As a result, scaled scores lend themselves to interpretations at what is referred to as an interval level, while raw scores do not. Interval-level scales allow one to interpret a scaled score difference of 5 points the same whether the scores are 1295 vs. 1300 or 1445 vs. 1450. Raw score differences, in this context, cannot be interpreted in this manner and are thus neither generalizable nor equatable.

The scale for the new PSSA writing assessment was established by setting the mean at all three grade levels to the 2005 Proficient score cutpoint of 1236. The standard deviation was set to 100 and the scale minimum to 700 in order to create a scale similar to the grade 11 scale.

³ This is done in two steps. First, a nonlinear transformation is used to convert number correct scores to logits, and then a linear transformation is used to convert logits to scaled scores.

These values are arbitrary; they could have been zero and one, or 100 and 110, or any other ordered pair without affecting any of the relationships among schools, years, students, or items. Changing the scale would simply be changing the labels on the axis of a graph without moving any of the points. Like the temperature scales of Fahrenheit and Celsius, the new scale will acquire meaning to users only with experience.

Raw to scaled score tables for the spring 2007 assessment can be found in Appendices N–P.

PSSA PERFORMANCE LEVELS FOR WRITING

Performance levels are another way to attach meaning to the scaled score metric. They associate precise quantitative ranges of scaled scores with verbal, qualitative descriptions of student status. 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 current Performance Level Descriptors, as developed by PDE and teacher panels, are given in Appendix Q.

Chapter Thirteen: Test Validity and Reliability

CALIBRATION

In order to expedite the analysis process, a sample of students was selected for use in calibrating items. The sample was aimed to cover roughly 50% of the student population while preserving ethnic representation. This was done using random sampling without replacement at the district level for approximately 85% of the sample and at the school level for Pittsburgh and Philadelphia districts for approximately 15% of the sample based on 2006–2007 enrollment counts.

VALIDITY

As noted in the *Standards for Educational and Psychological Testing*, “validity refers to the degree to which evidence and theory support the interpretation of test scores entailed by the proposed uses of the tests” (AERA, APA, & NCME, 1999, p. 9). Thus, the validity of the PSSA must be judged in relation to its primary purposes as delineated in Chapter One. Validity evidence related to test content is presented in terms of how the 2005 PSSA assessments were assembled to reflect the state content standards (more information on this is presented in Chapter Three).

The PDE’s commitment to validity is also evidenced by the fact that the Pennsylvania State Board of Education commissioned an independent study of an earlier version of the PSSA. That study, conducted by HumRRO, included an extensive evaluation of the items (Thacker and Dickinson, 2004) and of statistical relationships of the PSSA, including convergent and discriminant validity (Thacker, Dickinson and Koger, 2004).

RELIABILITY

This chapter provides reliability indices and standard error of measurement (SEM) for the 2007 PSSA assessments. For the Rasch model, raw scores are sufficient statistics for abilities and scaled scores; performance levels set on scaled scores are identical to those based on raw scores.

RELIABILITY INDICES

Reliability can be calculated using any of a number of indices. Because of the composition of the PSSA writing assessment, which consists of relatively few multiple-choice items and heavily weighted constructed-response items, the Technical Advisory Committee requested the use of the stratified alpha coefficient (Cronbach, Schönemann, & McKie, 1965), a weighted reliability coefficient that accounts for the contribution of each subtest to the overall test variance:

$$R = 1 - \frac{\sum \sigma_j^2 (1 - \alpha_j)}{\sigma_x^2}$$

where σ_j^2 is the variance of stratum (or subtest) j , α_j is the reliability of stratum j , and σ_x^2 is the variance of the test as a whole. Reliabilities were computed by dividing the test into three strata: multiple-choice items, Composition scores, and Revising and Editing scores. This division was chosen based on both conceptual grounds and test-component variance-covariance matrices.

While sensitive to random errors associated with content sampling variability, the reliability index is not sensitive to other types of errors that can affect test scores, such as temporal stability or variability in performance that might occur across testing occasions. It is also not sensitive to rater error. Consequently, this index might be positively biased by these factors.

The reliability coefficient is a “unitless” index, which can be compared from test to test. The *standard error of measurement (SEM)* is another indicator of precision. If everyone being tested had the same *true score*⁴, 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. The standard error is defined as the *standard deviation*⁵ 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 important information for test score users.

Generally speaking, reliabilities go up with an increase in test length and population heterogeneity and go down with shorter tests and more homogeneous populations. Tables 13–1 through 13–3 provide reliability information on the writing test for the total student population and for students in each gender group and the ethnicity groups of White and Black, Hispanic, Asian, and Indian. Other groups such as ELL, IEP, and Economically Disadvantaged were also included for reliability estimation. The contents of the table include total number of points (K), number of students tested (N), mean points received, standard deviation (SD), mean P-value, reliability, traditional standard error of measurement, and item type.

Reliabilities were fairly consistent across groups, though they trended lower for girls and for white non-Hispanic students in grade 8. The grade 11 reliabilities trended somewhat lower than the reliabilities for grades 5 and 8.

⁴ True score is the score the person would receive if the measurement process were perfect.

⁵ The standard deviation of a distribution is a measure of the dispersion of the observations. For the normal distribution about 16% of the observations are more than one standard deviation above the mean and the same percentage is more than one standard deviation below the mean.

Table 13–1. Grade 5 Writing

Overall

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	130124	65.001	13.043	0.686	0.753	6.487	MC/CR

By gender

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Male	100	66661	62.458	12.838	0.660	0.753	6.382	MC/CR
Female	100	63291	67.707	12.705	0.714	0.730	6.596	MC/CR

By ethnicity

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
White non-Hispanic	100	96626	66.898	12.504	0.719	0.728	6.522	MC/CR
Black/African American non-Hispanic	100	19921	58.121	12.319	0.569	0.737	6.315	MC/CR
Latino/Hispanic	100	8768	58.559	12.996	0.568	0.759	6.377	MC/CR
Asian or Pacific Islander	100	3524	69.489	12.740	0.752	0.719	6.758	MC/CR
American Indian or Alaskan Native	100	212	61.085	13.136	0.650	0.781	6.144	MC/CR
Multi-Racial/Ethnic	100	836	62.010	12.410	0.654	0.740	6.323	MC/CR

ELL

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	2977	53.834	12.408	0.485	0.749	6.214	MC/CR

IEP

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	20275	54.424	12.962	0.522	0.771	6.198	MC/CR

ECO

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	46203	59.479	12.454	0.597	0.739	6.364	MC/CR

Table 13–2. Grade 8 Writing

Overall

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	140738	67.164	13.935	0.670	0.798	6.264	MC/CR

By gender

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Male	100	71893	64.514	14.023	0.645	0.803	6.221	MC/CR
Female	100	68630	69.978	13.264	0.697	0.774	6.305	MC/CR

By ethnicity

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
White non-Hispanic	100	105969	69.268	13.189	0.701	0.775	6.258	MC/CR
Black/African American non-Hispanic	100	21694	59.319	13.318	0.556	0.781	6.238	MC/CR
Latino/Hispanic	100	8590	59.471	13.993	0.553	0.795	6.328	MC/CR
Asian or Pacific Islander	100	3336	73.213	14.172	0.751	0.793	6.441	MC/CR
American Indian or Alaskan Native	100	226	65.088	13.197	0.664	0.827	5.482	MC/CR
Multi-Racial/Ethnic	100	641	62.275	13.773	0.612	0.790	6.310	MC/CR

ELL

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	2227	52.538	13.731	0.450	0.785	6.370	MC/CR

IEP

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	21043	54.692	13.055	0.485	0.778	6.151	MC/CR

ECO

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	45606	60.936	13.479	0.577	0.785	6.246	MC/CR

Table 13–3. Grade 11 Writing

Overall

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	134692	70.188	11.509	0.660	0.689	6.417	MC/CR

By gender

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Male	100	67436	68.111	11.793	0.642	0.701	6.452	MC/CR
Female	100	66980	72.314	10.793	0.678	0.655	6.340	MC/CR

By ethnicity

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
White non-Hispanic	100	107915	71.389	11.018	0.679	0.666	6.364	MC/CR
Black/African American non-Hispanic	100	16238	64.167	11.463	0.565	0.666	6.620	MC/CR
Latino/Hispanic	100	5912	63.964	12.028	0.566	0.692	6.680	MC/CR
Asian or Pacific Islander	100	3361	73.459	12.497	0.701	0.727	6.532	MC/CR
American Indian or Alaskan Native	100	277	66.527	11.277	0.628	0.665	6.531	MC/CR
Multi-Racial/Ethnic	100	650	66.743	12.138	0.623	0.709	6.550	MC/CR

ELL

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	1610	56.541	12.584	0.477	0.712	6.756	MC/CR

IEP

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	16931	58.678	11.700	0.500	0.686	6.560	MC/CR

ECO

Strand	K	N	Mean	SD	Mean P-value	Reliability	SEM	Item Types In Strand
Overall	100	30276	65.129	11.672	0.584	0.683	6.573	MC/CR

Chapter Fourteen: Performance Levels Validation Report

BACKGROUND

The initial Standard Setting for the writing component of the PSSA was held in Grantville, Pennsylvania, in the summer of 2006. It included grades 5, 8, and 11. Cutpoints were established for placing students into four performance levels: Advanced, Proficient, Basic, and Below Basic. In addition, Performance Level Descriptors (PLDs) were established at the end of the Standard Setting meeting, written by the panelists, and subsequently used in score reports and other state materials. The meeting was conducted by Data Recognition Corporation using the Body of Work procedure.

No Performance Levels Validation meeting was conducted for this subject in 2007. For details of the previous meeting, see the *2006 Writing Technical Report*.

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Appendix A:
PSSA Writing Scoring Guidelines

PSSA NARRATIVE SCORING GUIDELINE

4	FOCUS	Sharp, distinct controlling point or theme with evident awareness of the narrative.
	CONTENT DEVELOPMENT	Strong story line with illustrative details that addresses a complex idea or examines a complex experience. Thoroughly elaborated narrative sequence that employs narrative elements as appropriate.
	ORGANIZATION	Skillful narrative pattern with clear and consistent sequencing of events, employing a beginning, a middle, and an end. Minor interruptions to the sequence may occur.
	STYLE	Precise control of language, literary devices, and sentence structures that creates a consistent and effective point of view and tone.

3	FOCUS	Clear controlling point or theme with general awareness of the narrative.
	CONTENT DEVELOPMENT	Story line with details that addresses an idea or examines an experience. Sufficiently elaborated narrative sequence that employs narrative elements as appropriate.
	ORGANIZATION	Narrative pattern with generally consistent sequencing of events, employing a beginning, a middle, and an end. Interruptions to the sequence may occur.
	STYLE	Appropriate control of language, literary devices, and sentence structures that creates a consistent point of view and tone.

2	FOCUS	Vague evidence of a controlling point or theme with inconsistent awareness of the narrative.
	CONTENT DEVELOPMENT	Inconsistent story line that inadequately addresses an idea or examines an experience. Insufficiently elaborated narrative sequence that may employ narrative elements.
	ORGANIZATION	Narrative pattern with generally inconsistent sequencing of events that may employ a beginning, a middle, and an end. Interruptions to the sequence may interfere with meaning.
	STYLE	Limited control of language and sentence structures that creates interference with point of view and tone.

1	FOCUS	Little or no evidence of a controlling point or theme with minimal awareness of the narrative.
	CONTENT DEVELOPMENT	Insufficient story line that minimally addresses an idea or examines an experience. Unelaborated narrative that may employ narrative elements.
	ORGANIZATION	Narrative pattern with little or no sequencing of events. Interruptions to the sequence interfere with meaning.
	STYLE	Minimal control of language and sentence structures that creates an inconsistent point of view and tone.

PSSA INFORMATIONAL SCORING GUIDELINE

4	FOCUS	Sharp, distinct controlling point made about a single topic with evident awareness of task and audience.
	CONTENT DEVELOPMENT	Substantial, relevant, and illustrative content that demonstrates a clear understanding of the purpose. Thorough elaboration with effectively presented information consistently supported with well-chosen details.
	ORGANIZATION	Effective organizational strategies and structures, such as logical order and transitions, which develop a controlling idea.
	STYLE	Precise control of language, stylistic techniques, and sentence structures that creates a consistent and effective tone.

3	FOCUS	Clear controlling point made about a single topic with general awareness of task and audience.
	CONTENT DEVELOPMENT	Adequate, specific, and/or illustrative content that demonstrates an understanding of the purpose. Sufficient elaboration with clearly presented information supported with well-chosen details.
	ORGANIZATION	Organizational strategies and structures, such as logical order and transitions, which develop a controlling idea.
	STYLE	Appropriate control of language, stylistic techniques, and sentence structures that creates a consistent tone.

2	FOCUS	Vague evidence of a controlling point made about a single topic with an inconsistent awareness of task and audience.
	CONTENT DEVELOPMENT	Inadequate, vague content that demonstrates a weak understanding of the purpose. Underdeveloped and/or repetitive elaboration with inconsistently supported information. May be an extended list.
	ORGANIZATION	Inconsistent organizational strategies and structures, such as logical order and transitions, which ineffectively develop a controlling idea.
	STYLE	Limited control of language and sentence structures that creates interference with tone.

1	FOCUS	Little or no evidence of a controlling point made about a single topic with a minimal awareness of task and audience.
	CONTENT DEVELOPMENT	Minimal evidence of content that demonstrates a lack of understanding of the purpose. Superficial, undeveloped writing with little or no support. May be a bare list.
	ORGANIZATION	Little or no evidence of organizational strategies and structures, such as logical order and transitions, which inadequately develop a controlling idea.
	STYLE	Minimal control of language and sentence structures that creates an inconsistent tone.

PSSA PERSUASIVE SCORING GUIDELINE

4	FOCUS	Sharp, distinct controlling point presented as a position and made convincing through a clear, thoughtful, and substantiated argument with evident awareness of task and audience.
	CONTENT DEVELOPMENT	Substantial, relevant, and illustrative content that demonstrates a clear understanding of the purpose. Thoroughly elaborated argument that includes a clear position consistently supported with precise and relevant evidence. Rhetorical (persuasive) strategies are evident.
	ORGANIZATION	Effective organizational strategies and structures, such as logical order and transitions, to develop a position supported with a purposeful presentation of content.
	STYLE	Precise control of language, stylistic techniques, and sentence structures that creates a consistent and effective tone.
3	FOCUS	Clear controlling point presented as a position and made convincing through a credible and substantiated argument with general awareness of task and audience.
	CONTENT DEVELOPMENT	Adequate, specific and/or illustrative content that demonstrates an understanding of the purpose. Sufficiently elaborated argument that includes a clear position supported with some relevant evidence. Rhetorical (persuasive) strategies may be evident.
	ORGANIZATION	Organizational strategies and structures, such as logical order and transitions, to develop a position supported with sufficient presentation of content.
	STYLE	Appropriate control of language, stylistic techniques, and sentence structures that creates a consistent tone.
2	FOCUS	Vague evidence of a controlling point presented as a position that may lack a credible and/or substantiated argument with an inconsistent awareness of task and audience.
	CONTENT DEVELOPMENT	Inadequate, vague content that demonstrates a weak understanding of the purpose. Insufficiently elaborated argument that includes an underdeveloped position supported with little evidence.
	ORGANIZATION	Inconsistent organizational strategies and structures, such as logical order and transitions, to develop a position with inadequate presentation of content.
	STYLE	Limited control of language and sentence structures that creates interference with tone.
1	FOCUS	Little or no evidence of a controlling point presented as a position that lacks a credible and/or substantiated argument with minimal awareness of task and audience.
	CONTENT DEVELOPMENT	Minimal evidence of content that demonstrates a lack of understanding of the purpose. Unelaborated argument that includes an undeveloped position supported with minimal or no evidence.
	ORGANIZATION	Little or no evidence of organizational strategies and structures, such as logical order and transitions, to develop a position with insufficient presentation of content.
	STYLE	Minimal control of language and sentence structures that creates an inconsistent tone.

PSSA CONVENTIONS SCORING GUIDELINE

4

Thorough control of sentence formation.

Few errors, if any, are present in grammar, usage, spelling, and punctuation, but the errors that are present do not interfere with meaning.

3

Adequate control of sentence formation.

Some errors may be present in grammar, usage, spelling, and punctuation, but few, if any, of the errors that are present may interfere with meaning.

2

Limited and/or inconsistent control of sentence formation. Some sentences may be awkward or fragmented

Many errors may be present in grammar, usage, spelling, and punctuation, and some of those errors may interfere with meaning.

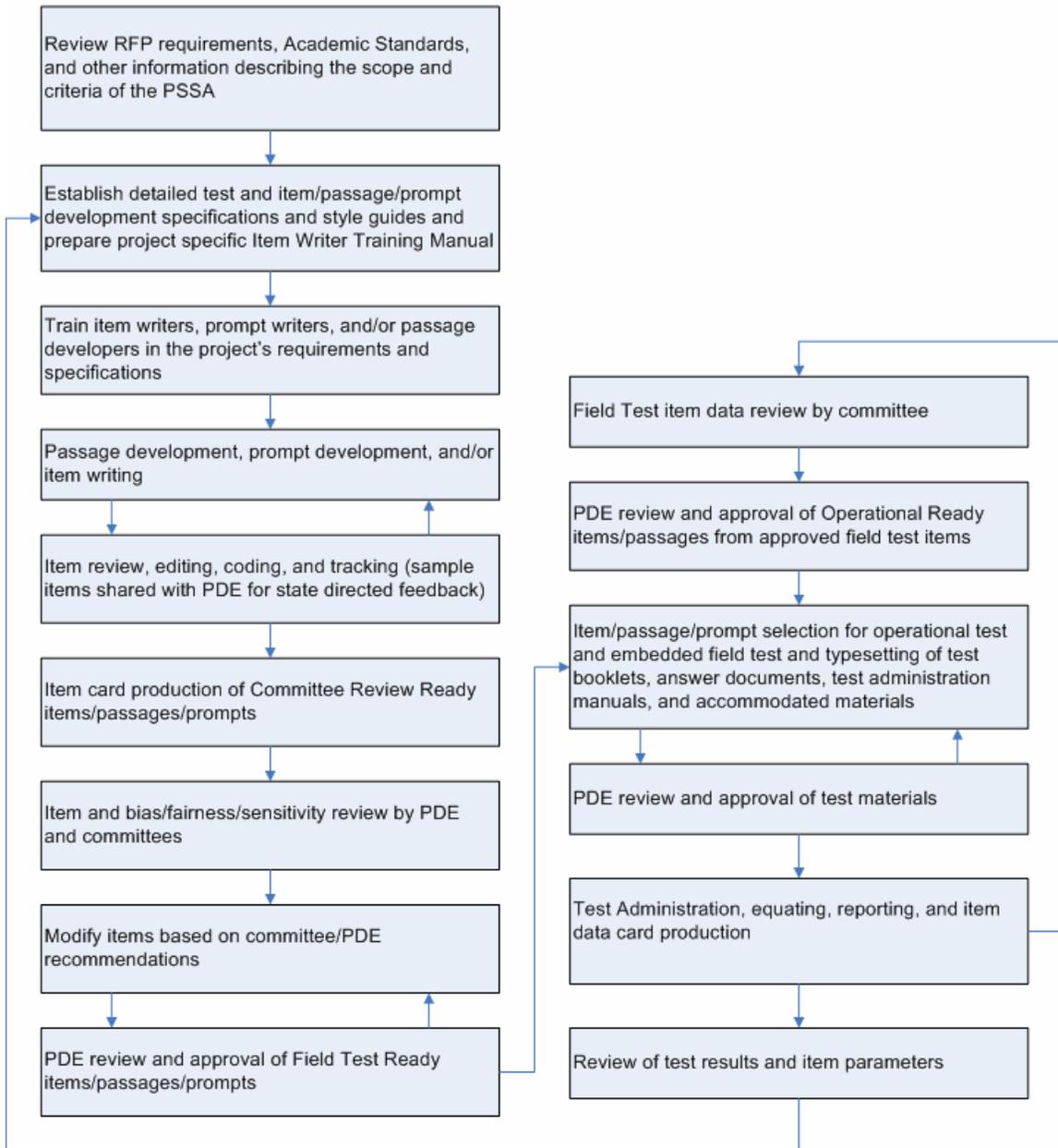
1

Minimal control of sentence formation. Many sentences are awkward and fragmented.

Many errors may be present in grammar, usage, spelling, and punctuation, and many of those errors may interfere with meaning.

Appendix B:
Item and Test Development Processes

DRC Item and Test Development Process
Writing



Appendix C:
Item Review Form

Appendix D:
Item Review Cards and IVAN Card

Client:	50	Item ID:	
		(for internal use only)	

Item Writing Form - Pennsylvania

Item Writer Information		Stimulus	
Item Writer Name		Stimulus Used	
Item Writer #		Stimulus ID	
Email Address		Stimulus Title	
Submission Date		Stimulus Type	
Item Information		Delivery	Atch <input type="checkbox"/> Fax <input type="checkbox"/> Mail <input type="checkbox"/>
Item Type		Title	
Grade		Author	
Subject		Publisher	
Goal 1		Date Published	
Goal 2		Source Page	
Goal 3		URL	
Goal 4		Permission Needed	
Taxonomy Level			
Depth of Knowledge		Passage Title #1	
Difficulty		Temp Passage ID #1	
Focus			
Graphics		Passage Title #2	
Calculator		Temp Passage ID #2	
Points			

Comment	
----------------	--

Prompt / Stem	

Answer Options	
Key:	
Option A. Rationale:	
Option B. Rationale:	
Option C. Rationale:	
Option D. Rationale:	

Rubric	

Client:	50	Item ID:	
		(for internal use only)	

Passage Writing Form - Pennsylvania

Passage Writer Information		Reference	
Passage Writer Name		Delivery	Atch <input type="checkbox"/> Fax <input type="checkbox"/> Mail <input type="checkbox"/>
Passage Writer #		Title	
Email Address		Publisher	
Submission Date		Date Published	
Item Information		Source Page	
Subject		URL	
Grade		Permission Needed	
Type			
Category		Paired Passage	
Temp. Passage ID			
Passage Title			
Passage Author			

Comment	
----------------	--

Passage

IVAN Item Card

Appendix D: Item Review Cards and IVAN Card

Item content copyright Pennsylvania

DATA RECOGNITION



Released:

Item Status:

Item Name	Item Type	Key	Grade	Subject	Report Category	Asmt Anchor	Sub-Anchor	Eligible Content	Content Difficulty	DRP	Item Calculator

Depth of Knowledge:

Administration

Form Grade	Form Subject	Form Name	Sequence	Form Type	Month	Year	Report Category	Asmt Anchor	Sub-Anchor	Eligible Content	Day	Session	Calculator

Statistics Detail

Label	P-Value	Pt. Bis. Corr.
0		
1		
2		
3		
4		
Omits		
Mean		

Label	Value
N	
Outfit t	
Logit	

DIF Analysis	Value
White/Black	
Male/Female	

Appendix E:

2006 Grade 5 Uncommon Multiple-Choice Statistics for Writing

Appendix E: 2006 Grade 5 Uncommon Multiple-Choice Statistics for Writing

Table E–1. 2006 Grade 5 Uncommon Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
3766	0001	5	1	F	B	B	6837	0.5378	0.1211	0.5378	0.2160	0.1224	0.0019	0.0007	0.3022	-0.3002	0.3022	-0.2226	-0.2911	1.8936	0.0316	9.9000
3816	0002	6	1	F	B	B	6837	0.5419	0.0132	0.5419	0.4082	0.0352	0.0012	0.0003	0.0894	-0.1861	0.0894	-0.0577	-0.1187	1.8654	0.0316	9.9000
3769	0003	7	1	F	A	B	6837	0.8711	0.8711	0.0310	0.0538	0.0426	0.0012	0.0003	0.3473	0.3473	-0.2439	-0.2486	-0.2011	-0.8473	0.0428	9.9000
3772	0004	8	1	F	A	B	6837	0.9479	0.9479	0.0136	0.0234	0.0121	0.0026	0.0003	0.3509	0.3509	-0.2127	-0.2407	-0.2195	-2.2028	0.0626	5.3000
3800	0005	13	1	F	B	B	6837	0.6061	0.1145	0.6061	0.1539	0.1229	0.0026	0.0000	0.3353	-0.2682	0.3353	-0.2846	-0.2772	1.4222	0.0318	9.9000
3799	0006	14	1	F	A	B	6837	0.8343	0.8343	0.0600	0.0832	0.0212	0.0012	0.0001	0.3919	0.3919	-0.2802	-0.2825	-0.2635	-0.4245	0.0391	9.9000
3804	0007	15	1	F	D	B	6837	0.8371	0.0892	0.0363	0.0357	0.8371	0.0016	0.0001	0.3793	-0.2763	-0.2570	-0.2625	0.3793	-0.4540	0.0393	9.9000
3795	0008	16	1	F	A	B	6837	0.6528	0.6528	0.1948	0.0889	0.0598	0.0034	0.0003	0.3570	0.3570	-0.2371	-0.3068	-0.3959	1.0923	0.0323	9.9000
1013	0009	5	2	M	B	B	6861	0.7629	0.0972	0.7629	0.0771	0.0605	0.0023	0.0000	0.3889	-0.2803	0.3889	-0.2918	-0.2945	0.2828	0.0353	9.9000
1077	0010	6	2	M	B	B	6861	0.7627	0.1495	0.7627	0.0471	0.0395	0.0012	0.0000	0.3610	-0.2986	0.3610	-0.2527	-0.2328	0.2841	0.0352	9.9000
1070	0011	7	2	M	A	B	6861	0.7393	0.7393	0.1191	0.0733	0.0669	0.0015	0.0000	0.4247	-0.4247	-0.2324	-0.3860	-0.4011	0.4808	0.0344	9.9000
1012	0012	8	2	M	C	B	6861	0.8142	0.0309	0.1233	0.8142	0.0293	0.0023	0.0000	0.2931	-0.2182	-0.2025	0.2931	-0.2349	-0.1892	0.0379	9.9000
3854	0013	13	2	F	A	B	6861	0.7436	0.7436	0.0245	0.1777	0.0531	0.0009	0.0003	0.3665	0.3665	-0.3488	-0.2674	-0.2957	0.4449	0.0345	9.9000
3847	0014	14	2	F	B	B	6861	0.4743	0.1615	0.4743	0.3010	0.0621	0.0009	0.0003	0.3089	-0.2075	0.3089	-0.3223	-0.3315	2.3950	0.0318	9.9000
3851	0015	15	2	F	B	B	6861	0.7288	0.0398	0.7288	0.1297	0.0988	0.0028	0.0001	0.3617	-0.2354	0.3617	-0.2824	-0.2925	0.5659	0.0341	9.9000
3850	0016	16	2	F	C	B	6861	0.6895	0.1167	0.1111	0.6895	0.0777	0.0050	0.0000	0.3866	-0.3204	-0.2936	0.3866	-0.3015	0.8714	0.0331	9.9000
3827	0017	5	3	F	A	B	6831	0.8873	0.8873	0.0695	0.0221	0.0205	0.0006	0.0000	0.3285	0.3285	-0.2002	-0.2299	-0.2651	-1.0229	0.0453	9.9000
3829	0018	6	3	F	A	B	6831	0.7037	0.7037	0.2710	0.0168	0.0083	0.0000	0.0001	0.3599	0.3599	-0.3248	-0.3092	-0.1959	0.7832	0.0335	9.9000
3813	0019	7	3	F	A	B	6831	0.8191	0.8191	0.0665	0.0528	0.0610	0.0006	0.0000	0.4069	0.4069	-0.2852	-0.3045	-0.2843	-0.2192	0.0383	9.9000
3834	0020	8	3	F	C	B	6831	0.8398	0.0321	0.0993	0.8398	0.0280	0.0009	0.0000	0.3384	-0.2939	-0.2459	0.3384	-0.1701	-0.4376	0.0399	9.9000
3773	0021	13	3	F	A	B	6831	0.9354	0.9354	0.0233	0.0227	0.0180	0.0006	0.0000	0.3590	0.3590	-0.2385	-0.2093	-0.2407	-1.8640	0.0569	5.9000
3777	0022	14	3	F	A	B	6831	0.5655	0.5655	0.1587	0.1323	0.1420	0.0015	0.0000	0.2698	0.2698	-0.2719	-0.2392	-0.1865	1.7843	0.0318	9.9000
3778	0023	15	3	F	B	B	6831	0.7943	0.1578	0.7943	0.0384	0.0079	0.0015	0.0001	0.3945	-0.3286	0.3945	-0.3184	-0.1675	0.0207	0.0368	9.9000
3817	0024	16	3	F	B	B	6831	0.6759	0.0739	0.6759	0.1187	0.1281	0.0034	0.0000	0.3859	-0.2250	0.3859	-0.3776	-0.3022	0.9947	0.0329	9.9000
3845	0025	5	4	F	B	B	6851	0.7235	0.0184	0.7235	0.0292	0.2278	0.0010	0.0000	0.2857	-0.2185	0.2857	-0.2660	-0.2235	0.5819	0.0338	9.9000
3863	0026	6	4	F	A	B	6851	0.8237	0.8237	0.0863	0.0429	0.0455	0.0013	0.0003	0.4192	0.4192	-0.3101	-0.3098	-0.2876	-0.2999	0.0383	9.9000
3855	0027	7	4	F	C	B	6851	0.5618	0.2635	0.1076	0.5618	0.0651	0.0012	0.0009	0.2402	-0.1529	-0.2678	0.2402	-0.2602	1.7605	0.0318	9.9000
3835	0028	8	4	F	C	B	6851	0.7349	0.0585	0.0750	0.7349	0.1299	0.0016	0.0000	0.3809	-0.3111	-0.3009	0.3809	-0.2742	0.4913	0.0341	9.9000
1154	0029	13	4	M	B	B	6851	0.9244	0.0280	0.9244	0.0215	0.0255	0.0006	0.0000	0.3673	-0.2226	0.3673	-0.2807	-0.2095	-1.6605	0.0533	8.1000
1153	0030	14	4	M	B	B	6851	0.8040	0.0669	0.8040	0.1118	0.0166	0.0007	0.0000	0.4460	-0.3361	0.4460	-0.3712	-0.2211	-0.1071	0.0370	9.9000
1114	0031	15	4	M	B	B	6851	0.8761	0.0347	0.8761	0.0346	0.0539	0.0007	0.0000	0.4378	-0.2779	0.4378	-0.3114	-0.3120	-0.8976	0.0435	8.1000
1157	0032	16	4	M	C	B	6851	0.7295	0.1600	0.0502	0.7295	0.0575	0.0028	0.0000	0.2988	-0.2370	-0.1818	0.2988	-0.2436	0.5346	0.0340	9.9000
3768	0033	5	5	F	A	B	6830	0.5079	0.5079	0.1729	0.0537	0.2643	0.0010	0.0001	0.2024	0.2024	-0.1835	-0.1952	-0.1756	2.1788	0.0313	9.9000
3771	0034	6	5	F	B	B	6830	0.7473	0.0463	0.7473	0.0659	0.1397	0.0007	0.0001	0.3694	-0.2578	0.3694	-0.3004	-0.2750	0.4717	0.0344	9.9000
3767	0035	7	5	F	C	B	6830	0.9050	0.0454	0.0224	0.9050	0.0266	0.0006	0.0000	0.4019	-0.2904	-0.2449	0.4019	-0.2524	-1.2347	0.0485	2.4000
3770	0036	8	5	F	D	B	6830	0.5073	0.0788	0.3630	0.0489	0.5073	0.0020	0.0000	0.0996	-0.2147	-0.0207	-0.1981	0.0996	2.1828	0.0313	9.9000
3890	0037	13	5	F	A	B	6830	0.8201	0.8201	0.0480	0.0438	0.0870	0.0010	0.0001	0.4350	0.4350	-0.3150	-0.3350	-0.2932	-0.1808	0.0381	9.9000
3891	0038	14	5	F	D	B	6830	0.6003	0.2290	0.0905	0.0786	0.6003	0.0016	0.0000	0.3704	-0.2547	-0.4263	-0.3214	0.3704	1.5530	0.0316	9.9000
3887	0039	15	5	F	D	B	6830	0.5420	0.1375	0.1100	0.2085	0.5420	0.0020	0.0000	0.3960	-0.3281	-0.4395	-0.3253	0.3960	1.9487	0.0313	9.9000
3889	0040	16	5	F	D	B	6830	0.5887	0.0936	0.1239	0.1889	0.5887	0.0050	0.0000	0.3161	-0.2769	-0.3104	-0.2350	0.3161	1.6322	0.0315	9.9000
1142	0041	5	6	M	C	B	6868	0.8167	0.0547	0.0763	0.8167	0.0511	0.0012	0.0000	0.3242	-0.2311	-0.2173	0.3242	-0.2339	-0.2359	0.0378	9.9000

Appendix E: 2006 Grade 5 Uncommon Multiple-Choice Statistics for Writing

Table E-1. 2006 Grade 5 Uncommon Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
1138	0042	6	6	M	C	B	6868	0.8726	0.0326	0.0638	0.8726	0.0301	0.0007	0.0001	0.3966	-0.2485	-0.2954	0.3966	-0.2521	-0.8595	0.0430	9.6000
1147	0043	7	6	M	B	B	6868	0.6351	0.1868	0.6351	0.0906	0.0855	0.0020	0.0000	0.2618	-0.1675	0.2618	-0.2721	-0.2297	1.2326	0.0320	9.9000
1139	0044	8	6	M	C	B	6868	0.4818	0.1360	0.3321	0.4818	0.0475	0.0025	0.0001	0.2522	-0.2822	-0.1823	0.2522	-0.3290	2.2904	0.0315	9.9000
3745	0045	13	6	F	B	B	6868	0.8406	0.0277	0.8406	0.0871	0.0430	0.0017	0.0000	0.3615	-0.2770	0.3615	-0.2534	-0.2364	-0.4832	0.0396	9.9000
3752	0046	14	6	F	C	B	6868	0.8275	0.0657	0.0499	0.8275	0.0552	0.0016	0.0001	0.4506	-0.3136	-0.3428	0.4506	-0.3151	-0.3447	0.0386	8.7000
3751	0047	15	6	F	A	B	6868	0.5153	0.5153	0.0799	0.1510	0.2517	0.0020	0.0000	0.2595	0.2595	-0.1825	-0.2268	-0.2590	2.0605	0.0314	9.9000
3744	0048	16	6	F	D	B	6868	0.6721	0.1564	0.0887	0.0772	0.6721	0.0057	0.0000	0.3072	-0.2124	-0.2725	-0.2652	0.3072	0.9661	0.0325	9.9000
3867	0049	5	7	F	B	B	6839	0.7596	0.0953	0.7596	0.0408	0.1029	0.0010	0.0003	0.4029	-0.3317	0.4029	-0.2186	-0.3217	0.3156	0.0352	9.9000
3871	0050	6	7	F	B	B	6839	0.8402	0.0566	0.8402	0.0320	0.0705	0.0007	0.0000	0.4684	-0.3322	0.4684	-0.2964	-0.3638	-0.4529	0.0397	9.5000
3842	0051	7	7	F	B	B	6839	0.9346	0.0313	0.9346	0.0186	0.0143	0.0007	0.0004	0.3751	-0.2442	0.3751	-0.2458	-0.2379	-1.8534	0.0567	4.8000
3838	0052	8	7	F	D	B	6839	0.7744	0.1067	0.0349	0.0817	0.7744	0.0022	0.0000	0.3433	-0.3031	-0.1465	-0.2542	0.3433	0.1873	0.0358	9.9000
3822	0053	13	7	F	C	B	6839	0.5925	0.1373	0.1372	0.5925	0.1312	0.0019	0.0000	0.2922	-0.1912	-0.2997	0.2922	-0.2324	1.5921	0.0322	9.9000
3812	0054	14	7	F	C	B	6839	0.8513	0.0426	0.0256	0.8513	0.0791	0.0015	0.0000	0.4148	-0.2416	-0.3317	0.4148	-0.3077	-0.5769	0.0407	9.9000
3826	0055	15	7	F	D	B	6839	0.7875	0.1161	0.0466	0.0471	0.7875	0.0025	0.0001	0.4012	-0.2275	-0.3811	-0.3374	0.4012	0.0693	0.0364	9.9000
3823	0056	16	7	F	A	B	6839	0.8966	0.8966	0.0349	0.0222	0.0423	0.0038	0.0001	0.4091	0.4091	-0.2840	-0.2751	-0.2648	-1.1674	0.0467	9.3000
3747	0057	5	8	F	C	B	6840	0.7648	0.0288	0.1254	0.7648	0.0797	0.0012	0.0001	0.2498	-0.2402	-0.1720	0.2498	-0.1611	0.2609	0.0350	9.9000
3750	0058	6	8	F	A	B	6840	0.9003	0.9003	0.0382	0.0213	0.0392	0.0009	0.0001	0.3445	0.3445	-0.2314	-0.2069	-0.2354	-1.2182	0.0474	4.3000
3754	0059	7	8	F	B	B	6840	0.8155	0.0858	0.8155	0.0431	0.0542	0.0012	0.0001	0.2887	-0.2505	0.2887	-0.1822	-0.1536	-0.1991	0.0377	9.9000
3753	0060	8	8	F	B	B	6840	0.7958	0.1291	0.7958	0.0504	0.0230	0.0013	0.0004	0.3086	-0.3083	0.3086	-0.1200	-0.1415	-0.0121	0.0365	9.9000
1115	0061	13	8	M	B	B	6840	0.7889	0.0636	0.7889	0.0816	0.0646	0.0009	0.0004	0.3119	-0.2985	0.3119	-0.2294	-0.1403	0.0504	0.0361	9.9000
1184	0062	14	8	M	C	B	6840	0.7949	0.0686	0.0905	0.7949	0.0443	0.0018	0.0000	0.4165	-0.2624	-0.3578	0.4165	-0.2699	-0.0040	0.0364	9.9000
1132	0063	15	8	M	C	B	6840	0.4222	0.2782	0.2365	0.4222	0.0582	0.0045	0.0003	0.3256	-0.2935	-0.3301	0.3256	-0.3525	2.7164	0.0321	9.9000
1131	0064	16	8	M	D	B	6840	0.4993	0.1630	0.2094	0.1232	0.4993	0.0051	0.0000	0.3292	-0.2757	-0.2805	-0.3641	0.3292	2.1810	0.0315	9.9000
3884	0065	5	9	F	C	B	6864	0.7901	0.1619	0.0214	0.7901	0.0259	0.0007	0.0000	0.4352	-0.3752	-0.2974	0.4352	-0.2727	0.0102	0.0362	9.9000
3892	0066	6	9	F	D	B	6864	0.8274	0.0335	0.1042	0.0345	0.8274	0.0003	0.0001	0.4001	-0.2339	-0.3371	-0.2380	0.4001	-0.3477	0.0384	9.9000
3885	0067	7	9	F	D	B	6864	0.7299	0.1340	0.0913	0.0441	0.7299	0.0006	0.0000	0.2991	-0.1980	-0.2540	-0.2386	0.2991	0.5195	0.0340	9.9000
3886	0068	8	9	F	B	B	6864	0.8416	0.0609	0.8416	0.0291	0.0670	0.0012	0.0001	0.3068	-0.2920	0.3068	-0.2326	-0.1157	-0.4977	0.0395	9.9000
3828	0069	13	9	F	D	B	6864	0.8877	0.0240	0.0549	0.0315	0.8877	0.0019	0.0000	0.3574	-0.2708	-0.2186	-0.2501	0.3574	-1.0578	0.0448	7.7000
3831	0070	14	9	F	A	B	6864	0.5682	0.5682	0.1651	0.1640	0.1005	0.0019	0.0003	0.2684	0.2684	-0.3115	-0.1178	-0.2757	1.7086	0.0319	9.9000
3808	0071	15	9	F	B	B	6864	0.7813	0.1343	0.7813	0.0358	0.0462	0.0023	0.0000	0.3682	-0.2954	0.3682	-0.2612	-0.2449	0.0885	0.0358	9.9000
3833	0072	16	9	F	D	B	6864	0.8132	0.0361	0.0214	0.1243	0.8132	0.0050	0.0000	0.3604	-0.2555	-0.2772	-0.2669	0.3604	-0.2071	0.0375	9.9000
3807	0073	5	10	F	A	B	6810	0.4094	0.4094	0.1943	0.2349	0.1605	0.0006	0.0003	0.1190	0.1190	-0.0633	-0.1112	-0.1775	2.8044	0.0322	9.9000
3821	0074	6	10	F	B	B	6810	0.9373	0.0485	0.9373	0.0054	0.0082	0.0006	0.0000	0.3655	-0.3273	0.3655	-0.1204	-0.1722	-1.9522	0.0585	2.4000
3820	0075	7	10	F	D	B	6810	0.7592	0.1374	0.0639	0.0389	0.7592	0.0004	0.0001	0.3573	-0.3027	-0.2235	-0.2488	0.3573	0.2970	0.0351	9.9000
3824	0076	8	10	F	A	B	6810	0.6805	0.6805	0.1022	0.1106	0.1056	0.0009	0.0003	0.4100	0.4100	-0.3852	-0.2827	-0.3196	0.9175	0.0329	9.9000
3865	0077	13	10	F	D	B	6810	0.7385	0.0372	0.0570	0.1656	0.7385	0.0016	0.0001	0.2732	-0.2097	-0.2197	-0.2001	0.2732	0.4686	0.0344	9.9000
3870	0078	14	10	F	C	B	6810	0.7598	0.0725	0.0990	0.7598	0.0673	0.0015	0.0000	0.4743	-0.3240	-0.3726	0.4743	-0.3866	0.2920	0.0351	9.9000
3872	0079	15	10	F	C	B	6810	0.6294	0.1081	0.1840	0.6294	0.0762	0.0023	0.0000	0.3047	-0.2408	-0.2721	0.3047	-0.2263	1.2870	0.0321	9.9000
3843	0080	16	10	F	A	B	6810	0.3819	0.3819	0.0320	0.2432	0.3357	0.0072	0.0000	0.1901	0.1901	-0.3240	-0.2148	-0.1462	3.0028	0.0327	9.9000

Appendix F:

2006 Grade 8 Uncommon Multiple-Choice Statistics for Writing

Appendix F: 2006 Grade 8 Uncommon Multiple-Choice Statistics for Writing

Table F-1. 2006 Grade 8 Uncommon Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
4254	0001	5	1	F	C	B	7573	0.8095	0.0610	0.1187	0.8095	0.0103	0.0005	0.0000	0.2741	-0.2361	-0.1861	0.2741	-0.1651	-0.2984	0.0368	9.9000
4261	0002	6	1	F	A	B	7573	0.7516	0.7516	0.0578	0.0366	0.1540	0.0000	0.0000	0.3423	0.3423	-0.2963	-0.2028	-0.2669	0.2504	0.0340	9.9000
4260	0003	7	1	F	D	B	7573	0.5344	0.1268	0.2460	0.0916	0.5344	0.0012	0.0000	0.3535	-0.3051	-0.3055	-0.3680	0.3535	1.8894	0.0302	9.9000
4257	0004	8	1	F	D	B	7573	0.6206	0.1735	0.1396	0.0651	0.6206	0.0012	0.0000	0.2922	-0.2599	-0.2641	-0.1642	0.2922	1.2817	0.0308	9.9000
4371	0005	13	1	F	A	B	7573	0.9025	0.9025	0.0566	0.0174	0.0214	0.0020	0.0000	0.3774	0.3774	-0.2970	-0.2440	-0.1841	-1.4929	0.0470	5.1000
4370	0006	14	1	F	C	B	7573	0.7959	0.1066	0.0594	0.7959	0.0374	0.0008	0.0000	0.4354	-0.3438	-0.3152	0.4354	-0.2843	-0.1612	0.0360	9.9000
4376	0007	15	1	F	D	B	7573	0.5256	0.1758	0.0452	0.2517	0.5256	0.0017	0.0001	0.2333	-0.2034	-0.2111	-0.2065	0.2333	1.9508	0.0301	9.9000
4369	0008	16	1	F	C	B	7573	0.7004	0.1390	0.0813	0.7004	0.0767	0.0025	0.0000	0.3101	-0.2663	-0.2110	0.3101	-0.2271	0.6787	0.0323	9.9000
1475	0009	5	2	M	A	B	7539	0.6709	0.6709	0.0935	0.1435	0.0910	0.0009	0.0001	0.3476	0.3476	-0.2230	-0.3490	-0.2295	0.8431	0.0317	9.9000
1473	0010	6	2	M	A	B	7539	0.7843	0.7843	0.0233	0.1080	0.0804	0.0037	0.0003	0.2747	-0.2747	-0.2359	-0.1756	-0.2062	-0.1120	0.0353	9.9000
1401	0011	7	2	M	D	B	7539	0.8794	0.0913	0.0155	0.0126	0.8794	0.0012	0.0000	0.3561	-0.2837	-0.1964	-0.2273	0.3561	-1.1829	0.0428	6.9000
1403	0012	8	2	M	B	B	7539	0.7319	0.0569	0.7319	0.1267	0.0826	0.0019	0.0000	0.3918	-0.2836	0.3918	-0.3044	-0.2954	0.3548	0.0333	9.9000
4233	0013	13	2	F	B	B	7539	0.4709	0.1980	0.4709	0.0910	0.2381	0.0019	0.0001	0.1032	-0.1160	0.1032	-0.1767	-0.0281	2.2680	0.0304	9.9000
4244	0014	14	2	F	A	B	7539	0.9436	0.9436	0.0176	0.0255	0.0122	0.0011	0.0000	0.3833	0.3833	-0.2558	-0.2611	-0.2050	-2.3673	0.0586	1.5000
4230	0015	15	2	F	C	B	7539	0.7363	0.0195	0.2287	0.7363	0.0142	0.0012	0.0001	0.3809	-0.3033	-0.3241	0.3809	-0.2828	0.3178	0.0334	9.9000
4232	0016	16	2	F	C	B	7539	0.3491	0.1567	0.0259	0.3491	0.4652	0.0029	0.0003	0.2795	-0.2849	-0.4633	0.2795	-0.2695	3.1693	0.0325	9.9000
4438	0017	5	3	F	C	B	7562	0.8163	0.0442	0.0745	0.8163	0.0635	0.0015	0.0001	0.3068	-0.2309	-0.1091	0.3068	-0.3129	-0.3565	0.0374	9.9000
4427	0018	6	3	F	B	B	7562	0.2587	0.2510	0.2587	0.0516	0.4369	0.0017	0.0001	0.1855	-0.0956	0.1855	-0.4495	-0.2262	4.1073	0.0362	9.9000
4429	0019	7	3	F	A	B	7562	0.6303	0.6303	0.0124	0.1186	0.2372	0.0015	0.0000	0.1078	-0.1078	-0.2429	-0.0619	-0.0792	1.2461	0.0312	9.9000
4428	0020	8	3	F	C	B	7562	0.7776	0.1125	0.0620	0.7776	0.0458	0.0021	0.0000	0.2561	-0.1003	-0.2281	0.2561	-0.2667	0.0317	0.0353	9.9000
4423	0021	13	3	F	B	B	7562	0.9051	0.0337	0.9051	0.0278	0.0319	0.0016	0.0000	0.4139	-0.2783	0.4139	-0.2819	-0.2608	-1.5205	0.0473	4.2000
4420	0022	14	3	F	D	B	7562	0.5424	0.0713	0.2670	0.1174	0.5424	0.0019	0.0000	0.3784	-0.3963	-0.3148	-0.3547	0.3784	1.8772	0.0304	9.9000
4421	0023	15	3	F	D	B	7562	0.6940	0.1776	0.0763	0.0503	0.6940	0.0017	0.0001	0.3692	-0.3034	-0.2959	-0.2698	0.3692	0.7559	0.0324	9.9000
4416	0024	16	3	F	A	B	7562	0.4278	0.4278	0.2609	0.1969	0.1129	0.0015	0.0000	0.3626	0.3626	-0.1874	-0.5536	-0.3920	2.6914	0.0310	9.9000
4382	0025	5	4	F	A	B	7555	0.7253	0.7253	0.2351	0.0210	0.0180	0.0005	0.0000	0.1324	0.1324	-0.1005	-0.1322	-0.1011	0.4472	0.0330	9.9000
4383	0026	6	4	F	B	B	7555	0.6557	0.1707	0.6557	0.0794	0.0929	0.0012	0.0000	0.2083	-0.1012	0.2083	-0.2803	-0.1481	0.9958	0.0314	9.9000
4436	0027	7	4	F	A	B	7555	0.9666	0.9666	0.0091	0.0110	0.0124	0.0008	0.0000	0.2933	0.2933	-0.1798	-0.1727	-0.1877	-3.0973	0.0751	1.0000
4389	0028	8	4	F	D	B	7555	0.9261	0.0175	0.0281	0.0271	0.9261	0.0012	0.0000	0.3209	-0.1961	-0.2193	-0.1976	0.3209	-1.9255	0.0522	6.8000
1419	0029	13	4	M	B	B	7555	0.8823	0.0119	0.8823	0.0860	0.0187	0.0008	0.0003	0.2895	-0.2136	0.2895	-0.2107	-0.1767	-1.1835	0.0432	9.9000
1418	0030	14	4	M	D	B	7555	0.8544	0.0277	0.0300	0.0864	0.8544	0.0015	0.0000	0.3963	-0.2255	-0.3218	-0.2821	0.3963	-0.8179	0.0399	9.9000
1428	0031	15	4	M	C	B	7555	0.7448	0.0654	0.1310	0.7448	0.0568	0.0020	0.0000	0.2972	-0.2129	-0.2651	0.2972	-0.1512	0.2827	0.0336	9.9000
1425	0032	16	4	M	B	B	7555	0.7212	0.0968	0.7212	0.0723	0.1068	0.0025	0.0004	0.3999	-0.3189	0.3999	-0.2499	-0.3416	0.4812	0.0329	9.9000
4336	0033	5	5	F	B	B	7560	0.2015	0.6063	0.2015	0.0604	0.1300	0.0017	0.0000	0.0957	-0.0747	0.0957	-0.1562	-0.2378	4.6804	0.0393	9.9000
4368	0034	6	5	F	D	B	7560	0.7718	0.0307	0.0385	0.1583	0.7718	0.0007	0.0000	0.3720	-0.2447	-0.2822	-0.2978	0.3720	0.0498	0.0350	9.9000
4337	0035	7	5	F	B	B	7560	0.8560	0.0159	0.8560	0.0155	0.1118	0.0009	0.0000	0.3406	-0.2059	0.3406	-0.2478	-0.2654	-0.8417	0.0403	9.9000
4342	0036	8	5	F	A	B	7560	0.8036	0.8036	0.0455	0.1179	0.0311	0.0019	0.0001	0.3733	0.3733	-0.3045	-0.2705	-0.2428	-0.2586	0.0365	9.9000
4555	0037	13	5	F	D	B	7560	0.8835	0.0520	0.0544	0.0094	0.8835	0.0008	0.0000	0.4164	-0.3754	-0.2379	-0.2114	0.4164	-1.2073	0.0434	4.0000
4441	0038	14	5	F	A	B	7560	0.6786	0.6786	0.1522	0.0709	0.0968	0.0013	0.0001	0.4551	-0.4551	-0.3740	-0.3995	-0.3371	0.8422	0.0321	9.9000
4447	0039	15	5	F	B	B	7560	0.2331	0.1676	0.2331	0.3333	0.2638	0.0022	0.0000	0.0398	-0.0372	0.0398	-0.0677	-0.0214	4.3262	0.0374	9.9000
4554	0040	16	5	F	D	B	7560	0.7415	0.0425	0.1515	0.0627	0.7415	0.0017	0.0001	0.3920	-0.2959	-0.3378	-0.2313	0.3920	0.3226	0.0338	9.9000
1612	0041	5	6	M	B	B	7558	0.7808	0.0216	0.7808	0.0200	0.1758	0.0016	0.0003	0.3839	-0.2769	0.3839	-0.1788	-0.3402	-0.0052	0.0355	9.9000

Appendix F: 2006 Grade 8 Uncommon Multiple-Choice Statistics for Writing

Table F-1. 2006 Grade 8 Uncommon Multiple-Choice Statistics for Writing

Information							Proportions								Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
1615	0042	6	6	M	B	B	7558	0.9177	0.0597	0.9177	0.0110	0.0112	0.0004	0.0000	0.3397	-0.2704	0.3397	-0.1924	-0.1840	-1.7669	0.0503	8.0000
1624	0043	7	6	M	C	B	7558	0.5848	0.0544	0.3408	0.5848	0.0196	0.0003	0.0001	0.2204	-0.2418	-0.1733	0.2204	-0.2143	1.5717	0.0306	9.9000
1643	0044	8	6	M	C	B	7558	0.8931	0.0603	0.0360	0.8931	0.0097	0.0009	0.0000	0.4209	-0.2895	-0.3458	0.4209	-0.2045	-1.3416	0.0453	7.0000
4272	0045	13	6	F	B	B	7558	0.7243	0.1322	0.7243	0.1066	0.0359	0.0009	0.0001	0.3914	-0.3077	0.3914	-0.2726	-0.3574	0.5025	0.0333	9.9000
4273	0046	14	6	F	A	B	7558	0.6406	0.6406	0.0811	0.0564	0.2215	0.0004	0.0000	0.3477	0.3477	-0.3643	-0.3812	-0.2131	1.1644	0.0313	9.9000
4322	0047	15	6	F	C	B	7558	0.2740	0.2954	0.1491	0.2740	0.2776	0.0038	0.0000	0.0128	0.0138	-0.0894	0.0128	0.0019	3.9580	0.0358	9.9000
4276	0048	16	6	F	D	B	7558	0.6696	0.0691	0.1230	0.1364	0.6696	0.0019	0.0000	0.4381	-0.3654	-0.3437	-0.3619	0.4381	0.9438	0.0319	9.9000
4430	0049	5	7	F	A	B	7558	0.5561	0.5561	0.2292	0.0685	0.1436	0.0025	0.0001	0.3112	0.3112	-0.2127	-0.2497	-0.3681	1.7827	0.0301	9.9000
4439	0050	6	7	F	B	B	7558	0.6258	0.1257	0.6258	0.1237	0.1234	0.0012	0.0001	0.3118	-0.2466	0.3118	-0.2457	-0.2585	1.2922	0.0308	9.9000
4426	0051	7	7	F	D	B	7558	0.9528	0.0136	0.0127	0.0200	0.9528	0.0009	0.0000	0.3156	-0.2083	-0.2159	-0.1722	0.3156	-2.5707	0.0646	8.9000
4433	0052	8	7	F	C	B	7558	0.7342	0.0409	0.1785	0.7342	0.0446	0.0019	0.0000	0.3613	-0.3239	-0.2863	0.3613	-0.2150	0.4529	0.0333	9.9000
4414	0053	13	7	F	A	B	7558	0.4299	0.4299	0.3205	0.0916	0.1571	0.0009	0.0001	0.1827	-0.1827	-0.1489	-0.3108	-0.1264	2.6590	0.0307	9.9000
4425	0054	14	7	F	C	B	7558	0.8920	0.0347	0.0287	0.8920	0.0437	0.0009	0.0000	0.3256	-0.2109	-0.1879	0.3256	-0.2301	-1.2719	0.0451	9.7000
4424	0055	15	7	F	C	B	7558	0.5447	0.0496	0.2404	0.5447	0.1633	0.0020	0.0000	0.1336	-0.2138	-0.0888	0.1336	-0.0997	1.8611	0.0301	9.9000
4417	0056	16	7	F	A	B	7558	0.7218	0.7218	0.1084	0.0348	0.1330	0.0019	0.0003	0.2800	0.2800	-0.2567	-0.3720	-0.1039	0.5569	0.0329	9.9000
4556	0057	5	8	F	A	B	7547	0.5172	0.5172	0.3432	0.0937	0.0451	0.0008	0.0001	0.2230	0.2230	-0.1630	-0.2242	-0.3192	2.0119	0.0299	9.9000
4553	0058	6	8	F	D	B	7547	0.9099	0.0394	0.0288	0.0213	0.9099	0.0007	0.0000	0.3637	-0.2321	-0.2211	-0.2716	0.3637	-1.5466	0.0479	8.0000
4442	0059	7	8	F	B	B	7547	0.8129	0.0608	0.8129	0.0794	0.0461	0.0008	0.0000	0.2781	-0.1656	0.2781	-0.2178	-0.1889	-0.2886	0.0367	9.9000
4448	0060	8	8	F	C	B	7547	0.5166	0.1777	0.0992	0.5166	0.2043	0.0021	0.0000	0.1996	-0.1144	-0.2434	0.1996	-0.1889	2.0155	0.0299	9.9000
1483	0061	13	8	M	A	B	7547	0.7631	0.7631	0.1220	0.0733	0.0409	0.0004	0.0003	0.3227	0.3227	-0.2693	-0.2099	-0.2112	0.1849	0.0341	9.9000
1497	0062	14	8	M	B	B	7547	0.7708	0.0299	0.7708	0.0567	0.1419	0.0007	0.0000	0.3081	-0.2225	0.3081	-0.3479	-0.1668	0.1161	0.0345	9.9000
1468	0063	15	8	M	D	B	7547	0.9192	0.0058	0.0321	0.0424	0.9192	0.0005	0.0000	0.3078	-0.1730	-0.2104	-0.2159	0.3078	-1.7158	0.0501	7.5000
1392	0064	16	8	M	B	B	7547	0.6767	0.1415	0.6767	0.0594	0.1207	0.0017	0.0000	0.3594	-0.2542	0.3594	-0.2130	-0.3646	0.8879	0.0315	9.9000
4253	0065	5	9	F	C	B	7535	0.8353	0.0200	0.1189	0.8353	0.0246	0.0012	0.0000	0.3838	-0.2608	-0.3112	0.3838	-0.2256	-0.6083	0.0386	9.9000
4317	0066	6	9	F	B	B	7535	0.7659	0.0721	0.7659	0.0738	0.0877	0.0005	0.0000	0.4002	-0.3177	0.4002	-0.3338	-0.2437	0.0914	0.0346	9.9000
4256	0067	7	9	F	D	B	7535	0.8514	0.0855	0.0439	0.0186	0.8514	0.0005	0.0001	0.4365	-0.3390	-0.3239	-0.2325	0.4365	-0.7964	0.0400	9.9000
4259	0068	8	9	F	C	B	7535	0.8526	0.0653	0.0666	0.8526	0.0149	0.0007	0.0000	0.3448	-0.1810	-0.3066	0.3448	-0.2361	-0.8109	0.0401	9.9000
4275	0069	13	9	F	A	B	7535	0.7128	0.7128	0.0774	0.1776	0.0309	0.0013	0.0000	0.3369	0.3369	-0.3520	-0.2270	-0.2160	0.5482	0.0328	9.9000
4323	0070	14	9	F	B	B	7535	0.5793	0.2313	0.5793	0.0995	0.0879	0.0019	0.0001	0.3136	-0.2833	0.3136	-0.3053	-0.1944	1.5500	0.0305	9.9000
4324	0071	15	9	F	C	B	7535	0.7931	0.1291	0.0568	0.7931	0.0198	0.0009	0.0003	0.3255	-0.2207	-0.2969	0.3255	-0.1903	-0.1653	0.0359	9.9000
4278	0072	16	9	F	D	B	7535	0.8238	0.0263	0.0369	0.1112	0.8238	0.0019	0.0000	0.3482	-0.2297	-0.2850	-0.2429	0.3482	-0.4804	0.0378	9.9000
4243	0073	5	10	F	C	B	7582	0.7295	0.0137	0.1089	0.7295	0.1473	0.0005	0.0000	0.4492	-0.2717	-0.4351	0.4492	-0.3220	0.4332	0.0331	9.9000
4235	0074	6	10	F	B	B	7582	0.7480	0.1911	0.7480	0.0247	0.0360	0.0003	0.0000	0.2568	-0.1390	0.2568	-0.2605	-0.3126	0.2759	0.0337	9.9000
4234	0075	7	10	F	C	B	7582	0.4374	0.1634	0.2801	0.4374	0.1179	0.0012	0.0000	0.2710	-0.2809	-0.2363	0.2710	-0.2902	2.5559	0.0306	9.9000
4236	0076	8	10	F	D	B	7582	0.8769	0.0561	0.0359	0.0293	0.8769	0.0018	0.0000	0.3623	-0.1674	-0.3138	-0.2747	0.3623	-1.0980	0.0426	9.9000
4263	0077	13	10	F	A	B	7582	0.8369	0.8369	0.0505	0.0940	0.0175	0.0011	0.0000	0.3907	0.3907	-0.2942	-0.3181	-0.1633	-0.5971	0.0385	9.9000
4266	0078	14	10	F	B	B	7582	0.5776	0.1986	0.5776	0.1438	0.0789	0.0012	0.0000	0.2324	-0.2503	0.2324	-0.0744	-0.2721	1.5776	0.0303	9.9000
4271	0079	15	10	F	A	B	7582	0.7931	0.7931	0.1513	0.0299	0.0244	0.0013	0.0000	0.3722	-0.3722	-0.3074	-0.2626	-0.2366	-0.1381	0.0357	9.9000
4268	0080	16	10	F	C	B	7582	0.8043	0.0637	0.0877	0.8043	0.0421	0.0021	0.0001	0.4231	-0.3500	-0.2990	0.4231	-0.2689	-0.2493	0.0363	9.9000

Appendix G:

2006 Grade 11 Uncommon Multiple-Choice Statistics for Writing

Appendix G: 2006 Grade 11 Uncommon Multiple-Choice Statistics for Writing

Table G–1. 2006 Grade 11 Uncommon Multiple-Choice Statistics for Writing

Information								Proportions							Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
4354	0001	5	1	F	A	B	6834	0.7616	0.7616	0.0404	0.0550	0.1419	0.0010	0.0000	0.2262	0.2262	-0.2078	-0.1923	-0.1330	0.5650	0.0368	9.9000
4610	0002	6	1	F	B	B	6834	0.6637	0.2654	0.6637	0.0543	0.0159	0.0006	0.0000	0.2390	-0.2342	0.2390	-0.1142	-0.1289	1.3948	0.0337	9.9000
5077	0003	7	1	F	B	B	6834	0.2013	0.0688	0.2013	0.4197	0.3086	0.0016	0.0000	0.1653	-0.2989	0.1653	-0.1148	-0.2838	5.2451	0.0436	9.9000
4352	0004	8	1	F	D	B	6834	0.9049	0.0145	0.0360	0.0443	0.9049	0.0003	0.0000	0.2775	-0.1249	-0.1582	-0.2337	0.2775	-1.1689	0.0502	9.9000
4495	0005	13	1	F	C	B	6834	0.7593	0.0831	0.0648	0.7593	0.0912	0.0016	0.0000	0.3127	-0.3300	-0.1932	0.3127	-0.1573	0.5867	0.0367	9.9000
4486	0006	14	1	F	D	B	6834	0.6024	0.0111	0.1972	0.1874	0.6024	0.0018	0.0000	0.3449	-0.2670	-0.2738	-0.3462	0.3449	1.8597	0.0327	9.9000
4491	0007	15	1	F	C	B	6834	0.5476	0.2829	0.0322	0.5476	0.1359	0.0015	0.0000	0.3263	-0.3368	-0.3084	0.3263	-0.2069	2.2573	0.0322	9.9000
4484	0008	16	1	F	A	B	6834	0.3303	0.3303	0.1648	0.1839	0.3134	0.0013	0.0063	0.1821	0.1821	-0.3348	0.0268	-0.2373	3.8875	0.0353	9.9000
1755	0009	5	2	M	D	B	6742	0.8818	0.0438	0.0632	0.0107	0.8818	0.0006	0.0000	0.3942	-0.2452	-0.3348	-0.1895	0.3942	-0.8003	0.0466	9.9000
1756	0010	6	2	M	C	B	6742	0.4852	0.0311	0.2808	0.4852	0.2023	0.0006	0.0000	0.0802	-0.1955	0.0359	0.0802	-0.1688	2.6741	0.0323	9.9000
1750	0011	7	2	M	D	B	6742	0.6467	0.0156	0.0435	0.2932	0.6467	0.0007	0.0003	0.4316	-0.3335	-0.3855	-0.3823	0.4316	1.5113	0.0334	9.9000
1751	0012	8	2	M	C	B	6742	0.5592	0.0678	0.1422	0.5592	0.2293	0.0015	0.0000	0.2401	-0.2435	-0.2527	0.2401	-0.1671	2.1510	0.0323	9.9000
5078	0013	13	2	F	A	B	6742	0.7631	0.7631	0.0429	0.1080	0.0851	0.0007	0.0001	0.4695	0.4695	-0.3543	-0.3458	-0.3932	0.5465	0.0369	9.9000
4283	0014	14	2	F	B	B	6742	0.9158	0.0265	0.9158	0.0375	0.0196	0.0006	0.0000	0.4405	-0.2931	0.4405	-0.3296	-0.2414	-1.3719	0.0534	1.8000
4286	0015	15	2	F	C	B	6742	0.5537	0.0371	0.2220	0.5537	0.1857	0.0015	0.0000	0.2684	-0.2707	-0.2093	0.2684	-0.2551	2.1900	0.0323	9.9000
4280	0016	16	2	F	B	B	6742	0.8202	0.0826	0.8202	0.0753	0.0200	0.0018	0.0000	0.3496	-0.2297	0.3496	-0.2835	-0.2265	-0.0254	0.0402	9.9000
4251	0017	5	3	F	B	B	6760	0.9562	0.0114	0.9562	0.0173	0.0146	0.0004	0.0000	0.3286	-0.2123	0.3286	-0.2333	-0.1597	-2.2959	0.0695	3.2000
4466	0018	6	3	F	D	B	6760	0.7743	0.1327	0.0395	0.0530	0.7743	0.0006	0.0000	0.4208	-0.2904	-0.2616	-0.4229	0.4208	0.4614	0.0373	9.9000
4472	0019	7	3	F	B	B	6760	0.9055	0.0246	0.9055	0.0482	0.0207	0.0009	0.0001	0.3252	-0.2352	0.3252	-0.2179	-0.1799	-1.1310	0.0500	7.5000
4468	0020	8	3	F	A	B	6760	0.8822	0.8822	0.0231	0.0450	0.0488	0.0009	0.0000	0.3983	0.3983	-0.2316	-0.3252	-0.2431	-0.7678	0.0460	9.9000
4305	0021	13	3	F	B	B	6760	0.9095	0.0567	0.9095	0.0291	0.0040	0.0007	0.0000	0.2944	-0.1957	0.2944	-0.2325	-0.1624	-1.2002	0.0509	9.9000
4314	0022	14	3	F	A	B	6760	0.7220	0.7220	0.0271	0.2287	0.0214	0.0007	0.0000	0.2433	0.2433	-0.2942	-0.1565	-0.2547	0.9291	0.0353	9.9000
4307	0023	15	3	F	D	B	6760	0.8987	0.0355	0.0336	0.0300	0.8987	0.0022	0.0000	0.3927	-0.2265	-0.2773	-0.2729	0.3927	-1.0181	0.0487	5.1000
4309	0024	16	3	F	C	B	6760	0.8000	0.0214	0.1567	0.8000	0.0209	0.0010	0.0000	0.2290	-0.1318	-0.1655	0.2290	-0.2321	0.2095	0.0386	9.9000
4453	0025	5	4	F	B	B	6759	0.8880	0.0565	0.8880	0.0327	0.0226	0.0001	0.0000	0.3224	-0.2094	0.3224	-0.3100	-0.1149	-0.9215	0.0472	9.9000
4457	0026	6	4	F	A	B	6759	0.9460	0.9460	0.0065	0.0144	0.0331	0.0000	0.0000	0.3797	0.3797	-0.1910	-0.2233	-0.2932	-2.0753	0.0636	2.6000
4462	0027	7	4	F	C	B	6759	0.6840	0.0682	0.0839	0.6840	0.1619	0.0019	0.0001	0.3663	-0.3259	-0.3169	0.3663	-0.2611	1.2012	0.0345	9.9000
5079	0028	8	4	F	B	B	6759	0.7797	0.0429	0.7797	0.1024	0.0750	0.0000	0.0000	0.3975	-0.2868	0.3975	-0.3574	-0.2248	0.3586	0.0377	9.9000
2017	0029	13	4	M	C	B	6759	0.9072	0.0595	0.0200	0.9072	0.0123	0.0010	0.0000	0.3839	-0.2883	-0.2781	0.3839	-0.1812	-1.2351	0.0508	8.0000
2014	0030	14	4	M	A	B	6759	0.9707	0.9707	0.0114	0.0126	0.0047	0.0006	0.0000	0.2562	0.2562	-0.1806	-0.1606	-0.1206	-2.9570	0.0837	2.8000
2016	0031	15	4	M	C	B	6759	0.4739	0.1135	0.1488	0.4739	0.2597	0.0041	0.0000	0.2672	-0.1165	-0.2542	0.2672	-0.3085	2.7681	0.0327	9.9000
2012	0032	16	4	M	B	B	6759	0.8333	0.0641	0.8333	0.0614	0.0397	0.0016	0.0000	0.3461	-0.2648	0.3461	-0.2357	-0.2208	-0.2047	0.0411	9.9000
4476	0033	5	5	F	C	B	6788	0.8782	0.0362	0.0466	0.8782	0.0385	0.0006	0.0000	0.3143	-0.1140	-0.2420	0.3143	-0.2628	-0.6735	0.0450	9.9000
4481	0034	6	5	F	A	B	6788	0.7482	0.7482	0.1100	0.0999	0.0401	0.0018	0.0000	0.3613	0.3613	-0.3754	-0.2029	-0.2001	0.7186	0.0359	9.9000
4509	0035	7	5	F	B	B	6788	0.6184	0.3257	0.6184	0.0358	0.0194	0.0006	0.0000	0.3661	-0.3433	0.3661	-0.2694	-0.2110	1.7550	0.0329	9.9000
4508	0036	8	5	F	D	B	6788	0.9592	0.0069	0.0161	0.0172	0.9592	0.0006	0.0000	0.3267	-0.1932	-0.2263	-0.1892	0.3267	-2.3337	0.0708	1.6000
4496	0037	13	5	F	B	B	6788	0.7887	0.0769	0.7887	0.0728	0.0604	0.0010	0.0001	0.4082	-0.3086	0.4082	-0.3057	-0.2763	0.3449	0.0376	9.9000
4506	0038	14	5	F	C	B	6788	0.8816	0.0333	0.0712	0.8816	0.0138	0.0001	0.0000	0.3534	-0.2117	-0.2772	0.3534	-0.2176	-0.7213	0.0455	6.1000
4501	0039	15	5	F	C	B	6788	0.5404	0.1529	0.2129	0.5404	0.0906	0.0032	0.0000	0.2323	-0.2283	-0.1642	0.2323	-0.2272	2.3212	0.0323	9.9000
4499	0040	16	5	F	A	B	6788	0.8108	0.8108	0.0651	0.1002	0.0225	0.0013	0.0000	0.2915	0.2915	-0.2033	-0.1972	-0.2501	0.1239	0.0389	9.9000
1839	0041	5	6	M	B	B	6732	0.7325	0.0462	0.7325	0.0590	0.1621	0.0003	0.0000	0.3889	-0.2384	0.3889	-0.2693	-0.3498	0.8091	0.0355	9.9000

Appendix G: 2006 Grade 11 Uncommon Multiple-Choice Statistics for Writing

Table G–1. 2006 Grade 11 Uncommon Multiple-Choice Statistics for Writing

Information								Proportions							Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
1864	0042	6	6	M	A	B	6732	0.8305	0.8305	0.0563	0.0817	0.0313	0.0001	0.0000	0.4107	0.4107	-0.2952	-0.3332	-0.2215	-0.1363	0.0405	9.9000
1837	0043	7	6	M	A	B	6732	0.6169	0.6169	0.0660	0.2283	0.0879	0.0009	0.0000	0.2420	0.2420	-0.3910	-0.0917	-0.2560	1.7196	0.0330	9.9000
1865	0044	8	6	M	C	B	6732	0.8384	0.0625	0.0226	0.8384	0.0758	0.0007	0.0000	0.3406	-0.2505	-0.2192	0.3406	-0.2425	-0.2258	0.0412	9.9000
4306	0045	13	6	F	C	B	6732	0.9382	0.0273	0.0250	0.9382	0.0091	0.0004	0.0000	0.3715	-0.2500	-0.2601	0.3715	-0.1886	-1.8152	0.0600	2.7000
4308	0046	14	6	F	A	B	6732	0.9277	0.9277	0.0299	0.0293	0.0125	0.0007	0.0000	0.3360	0.3360	-0.2068	-0.2311	-0.2090	-1.5750	0.0561	6.9000
4311	0047	15	6	F	B	B	6732	0.7396	0.0732	0.7396	0.0939	0.0917	0.0016	0.0000	0.4405	-0.3597	0.4405	-0.3096	-0.3398	0.7476	0.0357	9.9000
4312	0048	16	6	F	D	B	6732	0.7387	0.1775	0.0354	0.0478	0.7387	0.0006	0.0000	0.1340	0.0073	-0.2243	-0.2297	0.1340	0.7554	0.0357	9.9000
4325	0049	5	7	F	C	B	6764	0.7065	0.0117	0.2670	0.7065	0.0139	0.0009	0.0000	0.1815	-0.2269	-0.1290	0.1815	-0.2208	1.0316	0.0348	9.9000
4249	0050	6	7	F	A	B	6764	0.5753	0.5753	0.0448	0.1051	0.2737	0.0012	0.0000	0.2663	0.2663	-0.3194	-0.2512	-0.1963	2.0408	0.0327	9.9000
4327	0051	7	7	F	C	B	6764	0.9128	0.0541	0.0133	0.9128	0.0191	0.0006	0.0001	0.2436	-0.1675	-0.1320	0.2436	-0.1662	-1.2708	0.0513	9.9000
4332	0052	8	7	F	B	B	6764	0.8009	0.1736	0.8009	0.0112	0.0137	0.0006	0.0000	0.3934	-0.3705	0.3934	-0.1562	-0.1851	0.1777	0.0385	9.9000
4489	0053	13	7	F	B	B	6764	0.9020	0.0550	0.9020	0.0287	0.0136	0.0007	0.0000	0.2833	-0.2115	0.2833	-0.1729	-0.1537	-1.0855	0.0490	9.9000
4490	0054	14	7	F	C	B	6764	0.6999	0.1085	0.0818	0.6999	0.1084	0.0015	0.0000	0.4113	-0.3260	-0.3518	0.4113	-0.3136	1.0863	0.0346	9.9000
4494	0055	15	7	F	A	B	6764	0.8254	0.8254	0.0393	0.0597	0.0745	0.0010	0.0000	0.4574	0.4574	-0.3440	-0.3180	-0.3382	-0.0801	0.0400	9.9000
4493	0056	16	7	F	D	B	6764	0.7564	0.0463	0.1507	0.0461	0.7564	0.0006	0.0000	0.4071	-0.2276	-0.3678	-0.2786	0.4071	0.6018	0.0364	9.9000
4503	0057	5	8	F	A	B	6779	0.5414	0.5414	0.1360	0.1599	0.1617	0.0010	0.0000	0.3056	0.3056	-0.2073	-0.2902	-0.3210	2.2939	0.0324	9.9000
4500	0058	6	8	F	D	B	6779	0.6433	0.0487	0.2912	0.0165	0.6433	0.0003	0.0000	0.3545	-0.4247	-0.2774	-0.2903	0.3545	1.5486	0.0333	9.9000
4507	0059	7	8	F	C	B	6779	0.6666	0.0273	0.0338	0.6666	0.2713	0.0010	0.0000	0.3960	-0.2677	-0.3550	0.3960	-0.3491	1.3701	0.0337	9.9000
4498	0060	8	8	F	B	B	6779	0.7753	0.1512	0.7753	0.0257	0.0472	0.0006	0.0000	0.2824	-0.1911	0.2824	-0.2158	-0.2470	0.4510	0.0371	9.9000
2054	0061	13	8	M	A	B	6779	0.8699	0.8699	0.0608	0.0565	0.0118	0.0010	0.0000	0.4109	0.4109	-0.2502	-0.3608	-0.2297	-0.5944	0.0444	6.6000
2057	0062	14	8	M	A	B	6779	0.7591	0.7591	0.0223	0.0289	0.1885	0.0012	0.0000	0.3666	0.3666	-0.2552	-0.3517	-0.2849	0.6008	0.0364	9.9000
2065	0063	15	8	M	C	B	6779	0.7222	0.0267	0.0195	0.7222	0.2301	0.0013	0.0001	0.4059	-0.3775	-0.3399	0.4059	-0.3263	0.9220	0.0351	9.9000
2055	0064	16	8	M	B	B	6779	0.6458	0.3197	0.6458	0.0207	0.0108	0.0031	0.0000	0.4035	-0.4084	0.4035	-0.1625	-0.0683	1.5296	0.0333	9.9000
4329	0065	5	9	F	D	B	6788	0.7798	0.0218	0.1176	0.0803	0.7798	0.0006	0.0000	0.2495	-0.1231	-0.1743	-0.2184	0.2495	0.3991	0.0370	9.9000
4330	0066	6	9	F	B	B	6788	0.8845	0.0243	0.8845	0.0329	0.0576	0.0007	0.0000	0.4040	-0.1889	0.4040	-0.2481	-0.3465	-0.7902	0.0459	9.9000
5081	0067	7	9	F	C	B	6788	0.4711	0.2370	0.1956	0.4711	0.0937	0.0024	0.0001	0.2563	-0.2409	-0.2154	0.2563	-0.2845	2.7666	0.0324	9.9000
4649	0068	8	9	F	C	B	6788	0.7996	0.0653	0.0482	0.7996	0.0862	0.0007	0.0000	0.1991	-0.2359	-0.2123	0.1991	0.0042	0.2070	0.0381	9.9000
4646	0069	13	9	F	B	B	6788	0.8133	0.1314	0.8133	0.0311	0.0236	0.0006	0.0000	0.3402	-0.2432	0.3402	-0.2875	-0.2389	0.0682	0.0389	9.9000
4469	0070	14	9	F	B	B	6788	0.8350	0.0102	0.8350	0.0436	0.1098	0.0013	0.0001	0.2939	-0.1757	0.2939	-0.2678	-0.1950	-0.1652	0.0405	9.9000
4473	0071	15	9	F	C	B	6788	0.9007	0.0196	0.0635	0.9007	0.0147	0.0015	0.0000	0.3353	-0.2044	-0.2466	0.3353	-0.2083	-1.0377	0.0486	9.6000
4474	0072	16	9	F	A	B	6788	0.7219	0.7219	0.1258	0.1314	0.0186	0.0022	0.0001	0.2429	0.2429	-0.1971	-0.1572	-0.2722	0.9089	0.0349	9.9000
4293	0073	5	10	F	B	B	6793	0.9504	0.0202	0.9504	0.0203	0.0091	0.0000	0.0000	0.3493	-0.2506	0.3493	-0.2216	-0.1784	-2.1213	0.0657	1.2000
4297	0074	6	10	F	A	B	6793	0.9639	0.9639	0.0077	0.0062	0.0221	0.0001	0.0000	0.2926	0.2926	-0.1633	-0.1707	-0.2057	-2.5801	0.0758	4.2000
4299	0075	7	10	F	C	B	6793	0.6669	0.1605	0.0680	0.6669	0.1044	0.0001	0.0001	0.3721	-0.3103	-0.3683	0.3721	-0.2434	1.3934	0.0338	9.9000
4300	0076	8	10	F	C	B	6793	0.8045	0.1139	0.0474	0.8045	0.0336	0.0004	0.0001	0.3770	-0.2906	-0.2101	0.3770	-0.3279	0.1766	0.0388	9.9000
4479	0077	13	10	F	A	B	6793	0.1762	0.1762	0.0926	0.6533	0.0765	0.0012	0.0001	0.1117	0.1117	-0.2898	-0.0922	-0.2224	5.6645	0.0466	9.9000
4483	0078	14	10	F	B	B	6793	0.6620	0.0403	0.6620	0.2748	0.0213	0.0015	0.0000	0.1370	-0.2109	0.1370	-0.0688	-0.1732	1.4315	0.0337	9.9000
4475	0079	15	10	F	D	B	6793	0.8014	0.0607	0.0590	0.0763	0.8014	0.0026	0.0000	0.5031	-0.3693	-0.3693	-0.3907	0.5031	0.2083	0.0386	7.3000
4477	0080	16	10	F	A	B	6793	0.6142	0.6142	0.0368	0.1471	0.1998	0.0021	0.0001	-0.0096	-0.0096	-0.2784	0.1007	0.0385	1.7955	0.0330	9.9000

Appendix H:

**2007 Common and Uncommon Grade 5 Multiple-Choice and
Constructed-Response Statistics for Writing**

Appendix H: 2007 Common and Uncommon Grade 5 Multiple-Choice and Constructed-Response Statistics for Writing

Table H-1. 2007 Common and Uncommon Grade 5 Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
3800	0001	1	All	O	B	B	130124	0.6184	0.1092	0.6184	0.1490	0.1213	0.0019	0.0001	0.3551	-0.2920	0.3551	-0.2874	-0.2823	1.1545	0.0070	9.9000
3799	0002	2	All	O	A	B	130124	0.8395	0.8395	0.0527	0.0848	0.0224	0.0005	0.0001	0.3481	0.3481	-0.2489	-0.2384	-0.2300	-0.3260	0.0086	9.9000
3804	0003	3	All	O	D	B	130124	0.8329	0.0889	0.0467	0.0305	0.8329	0.0008	0.0001	0.3581	-0.2417	-0.2776	-0.2175	0.3581	-0.2676	0.0085	9.9000
3795	0004	4	All	O	A	B	130124	0.6367	0.6367	0.2008	0.0914	0.0701	0.0009	0.0001	0.3910	0.3910	-0.2566	-0.3515	-0.4042	1.0402	0.0070	9.9000
3745	0005	9	All	O	B	B	130124	0.8380	0.0285	0.8380	0.0902	0.0420	0.0012	0.0001	0.3521	-0.2547	0.3521	-0.2351	-0.2453	-0.3230	0.0086	9.9000
3752	0006	10	All	O	C	B	130124	0.8137	0.0632	0.0568	0.8137	0.0650	0.0012	0.0001	0.4277	-0.2751	-0.3173	0.4277	-0.3058	-0.0907	0.0082	9.9000
3751	0007	11	All	O	A	B	130124	0.4789	0.4789	0.0754	0.1670	0.2765	0.0021	0.0001	0.2490	0.2490	-0.1241	-0.2534	-0.2464	1.9218	0.0068	9.9000
3744	0008	12	All	O	D	B	130124	0.6862	0.1490	0.0823	0.0791	0.6862	0.0033	0.0000	0.3036	-0.2249	-0.2324	-0.2493	0.3036	0.7554	0.0072	9.9000
3854	0009	17	All	O	A	B	130124	0.7475	0.7475	0.0261	0.1631	0.0619	0.0013	0.0001	0.3632	0.3632	-0.3040	-0.2648	-0.2745	0.3805	0.0076	9.9000
3847	0010	18	All	O	B	B	130124	0.4474	0.1810	0.4474	0.3082	0.0611	0.0022	0.0002	0.3212	-0.2267	0.3212	-0.3328	-0.3629	2.1078	0.0068	9.9000
3851	0011	19	All	O	B	B	130124	0.7068	0.0452	0.7068	0.1383	0.1064	0.0031	0.0001	0.3799	-0.2727	0.3799	-0.2967	-0.2923	0.6221	0.0073	9.9000
3850	0012	20	All	O	C	B	130124	0.6788	0.1256	0.1111	0.6788	0.0820	0.0024	0.0001	0.3821	-0.2856	-0.2913	0.3821	-0.3189	0.7877	0.0072	9.9000
6726	0013	5	1	F	C	B	13113	0.3905	0.2335	0.3005	0.3905	0.0737	0.0018	0.0001	0.1838	-0.1922	-0.1384	0.1838	-0.2768	2.5905	0.0221	9.9000
6714	0014	6	1	F	A	B	13113	0.9104	0.9104	0.0494	0.0214	0.0177	0.0009	0.0002	0.3214	0.3214	-0.2230	-0.2047	-0.1870	-1.4910	0.0359	8.7000
6718	0015	7	1	F	A	B	13113	0.3485	0.3485	0.0992	0.1663	0.3843	0.0014	0.0002	0.1270	0.1270	-0.1870	-0.1416	-0.1004	2.8680	0.0226	9.9000
6722	0016	8	1	F	D	B	13113	0.7774	0.0760	0.0265	0.1181	0.7774	0.0019	0.0000	0.3646	-0.2750	-0.2926	-0.2510	0.3646	0.0184	0.0252	9.9000
6956	0017	13	1	F	B	B	13113	0.7705	0.0775	0.7705	0.0837	0.0673	0.0011	0.0000	0.4175	-0.2982	0.4175	-0.2995	-0.3094	0.0755	0.0250	9.9000
6957	0018	14	1	F	B	B	13113	0.8771	0.0395	0.8771	0.0419	0.0406	0.0010	0.0000	0.3712	-0.2158	0.3712	-0.2508	-0.2642	-0.9978	0.0313	4.9000
6958	0019	15	1	F	C	B	13113	0.5168	0.2794	0.1569	0.5168	0.0445	0.0022	0.0001	0.2791	-0.2098	-0.2589	0.2791	-0.3474	1.7984	0.0216	9.9000
6959	0020	16	1	F	D	B	13113	0.6913	0.0821	0.1590	0.0623	0.6913	0.0051	0.0002	0.4379	-0.3657	-0.3224	-0.3524	0.4379	0.6731	0.0230	9.9000
7230	0021	5	2	F	B	B	13027	0.6014	0.0742	0.6014	0.0564	0.2670	0.0011	0.0000	0.2605	-0.2287	0.2605	-0.2666	-0.1885	1.2965	0.0219	9.9000
7231	0022	6	2	F	B	B	13027	0.7618	0.1388	0.7618	0.0567	0.0409	0.0015	0.0002	0.3042	-0.1473	0.3042	-0.3116	-0.2767	0.1863	0.0246	9.9000
7232	0023	7	2	F	C	B	13027	0.7799	0.1429	0.0177	0.7799	0.0576	0.0017	0.0001	0.3561	-0.2807	-0.2347	0.3561	-0.2542	0.0383	0.0253	9.9000
7233	0024	8	2	F	C	B	13027	0.7143	0.0405	0.1761	0.7143	0.0662	0.0028	0.0000	0.3304	-0.2773	-0.2573	0.3304	-0.2264	0.5452	0.0234	9.9000
3890	0025	13	2	M	A	B	13027	0.8155	0.8155	0.0535	0.0410	0.0886	0.0013	0.0001	0.4169	0.4169	-0.3059	-0.3199	-0.2681	-0.3352	0.0272	9.9000
3891	0026	14	2	M	D	B	13027	0.6164	0.2000	0.0929	0.0887	0.6164	0.0019	0.0001	0.3903	-0.2576	-0.4054	-0.3559	0.3903	1.1830	0.0220	9.9000
3887	0027	15	2	M	D	B	13027	0.5432	0.1356	0.1194	0.2002	0.5432	0.0017	0.0000	0.4106	-0.3121	-0.4564	-0.3322	0.4106	1.7826	0.0216	9.9000
3889	0028	16	2	M	D	B	13027	0.6360	0.1019	0.1151	0.1429	0.6360	0.0040	0.0001	0.3875	-0.3045	-0.3296	-0.3064	0.3875	1.1104	0.0221	9.9000
7020	0029	5	3	F	B	B	13005	0.7986	0.0942	0.7986	0.0598	0.0462	0.0012	0.0000	0.3291	-0.2364	0.3291	-0.2599	-0.1862	-0.1506	0.0260	9.9000
6939	0030	6	3	F	B	B	13005	0.6656	0.1118	0.6656	0.1594	0.0624	0.0008	0.0000	0.3369	-0.2586	0.3369	-0.2556	-0.2805	0.8527	0.0226	9.9000
6940	0031	7	3	F	C	B	13005	0.5707	0.0500	0.3110	0.5707	0.0671	0.0012	0.0000	0.2682	-0.2476	-0.1851	0.2682	-0.3305	1.4590	0.0217	9.9000
6938	0032	8	3	F	A	B	13005	0.8612	0.8612	0.0511	0.0507	0.0358	0.0012	0.0001	0.4449	0.4449	-0.2958	-0.3078	-0.3040	-0.7817	0.0299	4.0000
6704	0033	13	3	F	D	B	13005	0.4472	0.3777	0.1489	0.0253	0.4472	0.0009	0.0000	0.2937	-0.3004	-0.1952	-0.3763	0.2937	2.2166	0.0217	9.9000
6707	0034	14	3	F	C	B	13005	0.5234	0.1390	0.1777	0.5234	0.1576	0.0021	0.0002	0.2838	-0.2324	-0.2582	0.2838	-0.2399	1.7494	0.0216	9.9000
6705	0035	15	3	F	C	B	13005	0.8072	0.0644	0.0708	0.8072	0.0549	0.0026	0.0001	0.3768	-0.2493	-0.3050	0.3768	-0.2291	-0.2272	0.0264	9.9000
6708	0036	16	3	F	A	B	13005	0.6814	0.6814	0.1825	0.0599	0.0729	0.0032	0.0002	0.2109	0.2109	-0.0899	-0.2591	-0.2013	0.7464	0.0228	9.9000
3845	0037	5	4	M	B	B	13020	0.6990	0.0234	0.6990	0.0290	0.2475	0.0008	0.0002	0.3381	-0.2346	0.3381	-0.2786	-0.2823	0.9482	0.0225	9.9000
3863	0038	6	4	M	A	B	13020	0.8270	0.8270	0.0751	0.0475	0.0491	0.0012	0.0001	0.4444	0.4444	-0.3334	-0.2880	-0.3052	-0.0962	0.0260	6.5000
3855	0039	7	4	M	C	B	13020	0.5666	0.2469	0.1184	0.5666	0.0669	0.0012	0.0001	0.2539	-0.1470	-0.2743	0.2539	-0.2926	1.8292	0.0216	9.9000

Appendix H: 2007 Common and Uncommon Grade 5 Multiple-Choice and Constructed-Response Statistics for Writing

Table H-1. 2007 Common and Uncommon Grade 5 Multiple-Choice Statistics for Writing

Information							Proportions								Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
3835	0040	8	4	M	C	B	13020	0.7329	0.0588	0.0735	0.7329	0.1333	0.0016	0.0000	0.3945	-0.3095	-0.2906	0.3945	-0.2906	0.6862	0.0231	9.9000
6968	0041	13	4	F	C	B	13020	0.3882	0.1666	0.3784	0.3882	0.0649	0.0016	0.0002	0.2840	-0.3082	-0.2388	0.2840	-0.3700	2.6361	0.0221	9.9000
6969	0042	14	4	F	D	B	13020	0.8701	0.0468	0.0329	0.0484	0.8701	0.0015	0.0003	0.4380	-0.2762	-0.2870	-0.3198	0.4380	-0.8507	0.0308	3.0000
6970	0043	15	4	F	C	B	13020	0.4688	0.1013	0.2157	0.4688	0.2116	0.0024	0.0002	0.1261	-0.2332	-0.0929	0.1261	-0.0652	2.1326	0.0216	9.9000
6971	0044	16	4	F	D	B	13020	0.4813	0.0280	0.3457	0.1389	0.4813	0.0060	0.0001	0.3225	-0.3581	-0.2973	-0.2763	0.3225	2.0560	0.0216	9.9000
7023	0045	5	5	F	B	B	13024	0.5461	0.1113	0.5461	0.2776	0.0644	0.0005	0.0000	0.3577	-0.3308	0.3577	-0.3195	-0.2535	1.6391	0.0216	9.9000
7024	0046	6	5	F	C	B	13024	0.7316	0.1824	0.0412	0.7316	0.0435	0.0013	0.0001	0.3346	-0.2234	-0.2923	0.3346	-0.3002	0.4183	0.0237	9.9000
7025	0047	7	5	F	C	B	13024	0.6880	0.0564	0.1895	0.6880	0.0646	0.0015	0.0001	0.3821	-0.2702	-0.3047	0.3821	-0.3096	0.7292	0.0229	9.9000
7021	0048	8	5	F	D	B	13024	0.6960	0.0356	0.1682	0.0982	0.6960	0.0020	0.0000	0.3846	-0.3200	-0.3094	-0.2825	0.3846	0.6735	0.0230	9.9000
6982	0049	13	5	F	B	B	13024	0.7791	0.0824	0.7791	0.0651	0.0712	0.0020	0.0002	0.4195	-0.2543	0.4195	-0.3248	-0.3357	0.0475	0.0251	9.9000
6984	0050	14	5	F	C	B	13024	0.8583	0.0285	0.0754	0.8583	0.0353	0.0025	0.0000	0.4134	-0.2777	-0.2821	0.4134	-0.2986	-0.7120	0.0295	9.9000
6985	0051	15	5	F	A	B	13024	0.6314	0.6314	0.0512	0.1034	0.2100	0.0037	0.0002	0.2733	-0.2733	-0.2657	-0.3038	-0.1550	1.1042	0.0221	9.9000
6986	0052	16	5	F	D	B	13024	0.5550	0.0928	0.1642	0.1824	0.5550	0.0055	0.0002	0.3299	-0.2907	-0.2919	-0.2722	0.3299	1.5841	0.0217	9.9000
7032	0053	5	6	F	B	B	13052	0.1783	0.1620	0.1783	0.1232	0.5354	0.0011	0.0000	-0.0396	-0.0944	-0.0396	-0.0968	0.1239	4.2610	0.0277	9.9000
7033	0054	6	6	F	C	B	13052	0.3489	0.2900	0.1827	0.3489	0.1771	0.0014	0.0000	0.2431	-0.2119	-0.2683	0.2431	-0.2898	2.9120	0.0225	9.9000
7035	0055	7	6	F	A	B	13052	0.9340	0.9340	0.0217	0.0300	0.0126	0.0017	0.0000	0.2858	0.2858	-0.1934	-0.1889	-0.1447	-1.8819	0.0416	9.9000
7036	0056	8	6	F	D	B	13052	0.7935	0.1103	0.0759	0.0178	0.7935	0.0025	0.0000	0.2551	-0.0628	-0.3157	-0.2245	0.2551	-0.0464	0.0258	9.9000
3773	0057	13	6	M	A	B	13052	0.9370	0.9370	0.0216	0.0226	0.0172	0.0015	0.0001	0.3484	0.3484	-0.2278	-0.2116	-0.2209	-1.9846	0.0430	3.9000
3777	0058	14	6	M	A	B	13052	0.5121	0.5121	0.1543	0.1595	0.1721	0.0019	0.0001	0.2684	0.2684	-0.2811	-0.2349	-0.2077	2.3206	0.0217	9.9000
3778	0059	15	6	M	B	B	13052	0.7679	0.1686	0.7679	0.0497	0.0116	0.0021	0.0001	0.3743	-0.2994	0.3743	-0.3086	-0.1980	0.3498	0.0242	9.9000
3817	0060	16	6	M	B	B	13052	0.6565	0.0706	0.6565	0.1496	0.1184	0.0048	0.0002	0.3619	-0.2129	0.3619	-0.3474	-0.2705	1.1732	0.0221	9.9000
6711	0061	5	7	F	B	B	13046	0.4984	0.1776	0.4984	0.1537	0.1692	0.0008	0.0003	0.3141	-0.3093	0.3141	-0.2626	-0.2650	1.9332	0.0214	9.9000
6715	0062	6	7	F	B	B	13046	0.5515	0.1338	0.5515	0.1958	0.1182	0.0007	0.0000	0.3156	-0.2639	0.3156	-0.2352	-0.3294	1.6113	0.0215	9.9000
6719	0063	7	7	F	A	B	13046	0.5312	0.5312	0.1442	0.1837	0.1390	0.0018	0.0001	0.2594	0.2594	-0.2375	-0.2263	-0.2196	1.7347	0.0215	9.9000
6727	0064	8	7	F	C	B	13046	0.4900	0.1929	0.1992	0.4900	0.1141	0.0037	0.0002	0.2777	-0.2491	-0.2592	0.2777	-0.2389	1.9837	0.0214	9.9000
7009	0065	13	7	F	A	B	13046	0.2736	0.2736	0.6024	0.0931	0.0283	0.0025	0.0002	0.2432	0.2432	-0.2282	-0.2987	-0.3851	3.3924	0.0239	9.9000
7010	0066	14	7	F	B	B	13046	0.5868	0.1390	0.5868	0.0875	0.1838	0.0028	0.0000	0.3010	-0.2574	0.3010	-0.2553	-0.2431	1.3944	0.0217	9.9000
7012	0067	15	7	F	C	B	13046	0.8224	0.0381	0.0491	0.8224	0.0866	0.0038	0.0001	0.4324	-0.2389	-0.2663	0.4324	-0.3788	-0.3304	0.0271	9.9000
7013	0068	16	7	F	A	B	13046	0.6919	0.6919	0.2270	0.0320	0.0442	0.0049	0.0000	0.3875	0.3875	-0.2958	-0.3477	-0.3387	0.7130	0.0229	9.9000
7027	0069	5	8	F	B	B	13009	0.8285	0.0197	0.8285	0.1183	0.0325	0.0010	0.0000	0.3943	-0.2531	0.3943	-0.3089	-0.2634	-0.4221	0.0274	9.9000
7029	0070	6	8	F	D	B	13009	0.8474	0.0322	0.0420	0.0779	0.8474	0.0005	0.0000	0.3599	-0.2580	-0.2703	-0.2219	0.3599	-0.6169	0.0287	9.9000
7028	0071	7	8	F	B	B	13009	0.7049	0.0693	0.7049	0.1134	0.1108	0.0015	0.0001	0.4035	-0.2937	0.4035	-0.3561	-0.2747	0.5896	0.0232	9.9000
7030	0072	8	8	F	D	B	13009	0.4207	0.1289	0.2891	0.1590	0.4207	0.0022	0.0001	0.2225	-0.2245	-0.1889	-0.2381	0.2225	2.3960	0.0219	9.9000
3865	0073	13	8	M	D	B	13009	0.7165	0.0470	0.0613	0.1721	0.7165	0.0030	0.0000	0.3091	-0.2355	-0.2430	-0.2284	0.3091	0.3861	0.0238	9.9000
3870	0074	14	8	M	C	B	13009	0.7291	0.0763	0.1158	0.7291	0.0761	0.0028	0.0000	0.4608	-0.3495	-0.3341	0.4608	-0.3700	0.3162	0.0241	9.9000
3872	0075	15	8	M	C	B	13009	0.6419	0.1033	0.1741	0.6419	0.0765	0.0039	0.0002	0.3387	-0.2781	-0.3027	0.3387	-0.2056	0.8989	0.0225	9.9000
3843	0076	16	8	M	A	B	13009	0.3394	0.3394	0.0362	0.2565	0.3614	0.0064	0.0002	0.1788	0.1788	-0.2771	-0.2017	-0.1471	2.9053	0.0228	9.9000
6709	0077	5	9	F	A	B	12948	0.5174	0.5174	0.2081	0.1564	0.1161	0.0019	0.0001	0.3499	0.3499	-0.3123	-0.3247	-0.2857	1.8560	0.0215	9.9000
6717	0078	6	9	F	B	B	12948	0.4953	0.3751	0.4953	0.0684	0.0593	0.0016	0.0003	0.1870	-0.1101	0.1870	-0.2759	-0.2729	1.9888	0.0215	9.9000

Table H–1. 2007 Common and Uncommon Grade 5 Multiple-Choice Statistics for Writing

Information								Proportions							Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
6721	0079	7	9	F	C	B	12948	0.6548	0.0372	0.0323	0.6548	0.2739	0.0017	0.0002	0.3404	-0.2762	-0.2708	0.3404	-0.2828	1.0062	0.0223	9.9000
6713	0080	8	9	F	D	B	12948	0.4252	0.1547	0.1328	0.2840	0.4252	0.0033	0.0001	0.2293	-0.2165	-0.2733	-0.1829	0.2293	2.4140	0.0217	9.9000
6987	0081	13	9	F	A	B	12948	0.5465	0.5465	0.0701	0.0616	0.3198	0.0017	0.0002	0.3318	0.3318	-0.3374	-0.3315	-0.2571	1.6806	0.0215	9.9000
7031	0082	14	9	F	C	B	12948	0.6041	0.0302	0.2770	0.6041	0.0867	0.0018	0.0002	0.3392	-0.3421	-0.2623	0.3392	-0.3085	1.3282	0.0218	9.9000
6988	0083	15	9	F	B	B	12948	0.7153	0.0945	0.7153	0.1047	0.0817	0.0036	0.0001	0.3674	-0.2640	0.3674	-0.2846	-0.2709	0.5946	0.0234	9.9000
6991	0084	16	9	F	D	B	12948	0.5860	0.0680	0.1342	0.2047	0.5860	0.0071	0.0001	0.2664	-0.2863	-0.2387	-0.1792	0.2664	1.4404	0.0217	9.9000
7178	0085	5	10	F	A	B	12880	0.4349	0.4349	0.1240	0.3232	0.1169	0.0010	0.0000	0.2828	0.2828	-0.4264	-0.2300	-0.1762	2.3245	0.0220	9.9000
6999	0086	6	10	F	C	B	12880	0.7816	0.0554	0.0776	0.7816	0.0842	0.0010	0.0001	0.4453	-0.3391	-0.3349	0.4453	-0.2974	0.0175	0.0254	9.9000
6998	0087	7	10	F	D	B	12880	0.5541	0.0598	0.2769	0.1077	0.5541	0.0015	0.0000	0.3156	-0.2872	-0.2509	-0.2966	0.3156	1.5869	0.0218	9.9000
7001	0088	8	10	F	C	B	12880	0.7651	0.1151	0.0759	0.7651	0.0421	0.0018	0.0001	0.3565	-0.2693	-0.3132	0.3565	-0.1682	0.1534	0.0249	9.9000
6712	0089	13	10	F	D	B	12880	0.5677	0.3263	0.0658	0.0376	0.5677	0.0024	0.0002	0.3502	-0.2937	-0.3189	-0.3399	0.3502	1.5027	0.0219	9.9000
6716	0090	14	10	F	C	B	12880	0.6616	0.0418	0.1040	0.6616	0.1898	0.0028	0.0000	0.3466	-0.2930	-0.3194	0.3466	-0.2404	0.9020	0.0227	9.9000
6728	0091	15	10	F	C	B	12880	0.7294	0.0657	0.1095	0.7294	0.0918	0.0034	0.0001	0.3756	-0.3133	-0.2265	0.3756	-0.3119	0.4277	0.0239	9.9000
6720	0092	16	10	F	D	B	12880	0.7332	0.0513	0.0953	0.1150	0.7332	0.0050	0.0001	0.4400	-0.3273	-0.3339	-0.3378	0.4400	0.3995	0.0240	9.9000

Table H–2. 2007 Common and Uncommon Grade 5 Constructed-Response Statistics for Writing

Information										Proportions					Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Minimum	Maximum	Weight	Subscale	n	Average	P-Value	1	2	3	4	Item Total Corr.	1	2	3	4	Measure	Measure SE	Fit
2077	0001	21.1	All	O	1	4	10	A	130124	2.6821	0.6705	0.0196	0.3381	0.5830	0.0593	0.5774	-0.2561	-0.4441	0.3513	0.3063	0.9222	0.0058	-9.9000
2077	0002	21.2	All	O	1	4	1	B	130124	2.7874	0.6969	0.0221	0.2481	0.6500	0.0797	0.6801	-0.3215	-0.4834	0.3044	0.4094	0.9507	0.0057	-9.9000
2188	0003	22.1	All	O	1	4	10	A	130124	2.4379	0.6095	0.0289	0.5486	0.3784	0.0442	0.5511	-0.3173	-0.3705	0.3774	0.2652	1.9908	0.0061	-9.9000
2188	0004	22.2	All	O	1	4	1	B	130124	2.6897	0.6724	0.0327	0.3099	0.5926	0.0648	0.6814	-0.3606	-0.4483	0.3483	0.4072	1.9068	0.0060	9.9000

Appendix I:

**2007 Common and Uncommon Grade 8 Multiple-Choice and
Constructed-Response Statistics for Writing**

Appendix I: 2007 Common and Uncommon Grade 8 Multiple-Choice and Constructed-Response Statistics for Writing

Table I-1. 2007 Common and Uncommon Grade 8 Multiple-Choice Statistics for Writing

Information								Proportions							Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
4254	0001	1	All	O	C	B	140738	0.8076	0.0604	0.1203	0.8076	0.0109	0.0008	0.0001	0.2798	-0.2330	-0.2000	0.2798	-0.1312	-0.3068	0.0086	9.9000
4261	0002	2	All	O	A	B	140738	0.7475	0.7475	0.0607	0.0365	0.1546	0.0006	0.0001	0.2907	0.2907	-0.2281	-0.1630	-0.2292	0.1187	0.0080	9.9000
4260	0003	3	All	O	D	B	140738	0.5310	0.1164	0.2568	0.0941	0.5310	0.0016	0.0001	0.3739	-0.3087	-0.3207	-0.3735	0.3739	1.3549	0.0071	9.9000
4257	0004	4	All	O	D	B	140738	0.6218	0.1747	0.1431	0.0589	0.6218	0.0013	0.0001	0.2981	-0.2657	-0.2654	-0.1405	0.2981	0.8788	0.0073	9.9000
4423	0005	9	All	O	B	B	140738	0.9024	0.0347	0.9024	0.0281	0.0333	0.0013	0.0001	0.3784	-0.2429	0.3784	-0.2448	-0.2398	-1.2427	0.0107	9.9000
4420	0006	10	All	O	D	B	140738	0.5572	0.0700	0.2472	0.1237	0.5572	0.0019	0.0001	0.3820	-0.3787	-0.3191	-0.3196	0.3820	1.2126	0.0071	9.9000
4421	0007	11	All	O	D	B	140738	0.6948	0.1843	0.0709	0.0484	0.6948	0.0014	0.0001	0.3564	-0.3017	-0.2636	-0.2228	0.3564	0.4456	0.0077	9.9000
4416	0008	12	All	O	A	B	140738	0.4902	0.4902	0.1836	0.1559	0.1685	0.0017	0.0001	0.4250	0.4250	-0.2249	-0.5089	-0.4631	1.6009	0.0070	9.9000
4243	0009	17	All	O	C	B	140738	0.6957	0.0187	0.1281	0.6957	0.1561	0.0014	0.0001	0.4747	-0.3086	-0.4460	0.4747	-0.3389	0.4450	0.0077	9.9000
4235	0010	18	All	O	B	B	140738	0.7156	0.2012	0.7156	0.0352	0.0461	0.0018	0.0001	0.2794	-0.1414	0.2794	-0.2914	-0.3257	0.3250	0.0078	9.9000
4234	0011	19	All	O	C	B	140738	0.4146	0.1932	0.2728	0.4146	0.1168	0.0025	0.0001	0.2794	-0.2732	-0.2472	0.2794	-0.3115	2.0090	0.0069	9.9000
4236	0012	20	All	O	D	B	140738	0.8176	0.0798	0.0516	0.0478	0.8176	0.0032	0.0000	0.4050	-0.2299	-0.3128	-0.3127	0.4050	-0.3847	0.0088	9.9000
7566	0013	5	1	F	B	B	14181	0.3657	0.2694	0.3657	0.1682	0.1954	0.0012	0.0001	0.1389	-0.1882	0.1389	-0.1836	-0.0338	3.1736	0.0225	9.9000
7567	0014	6	1	F	B	B	14181	0.7120	0.0512	0.7120	0.1811	0.0546	0.0011	0.0001	0.3467	-0.2499	0.3467	-0.2521	-0.3030	0.7668	0.0233	9.9000
7570	0015	7	1	F	B	B	14181	0.8741	0.0440	0.8741	0.0588	0.0211	0.0019	0.0001	0.3185	-0.1958	0.3185	-0.2365	-0.1864	-0.7874	0.0302	9.9000
7569	0016	8	1	F	C	B	14181	0.8652	0.0721	0.0338	0.8652	0.0278	0.0011	0.0000	0.2881	-0.1938	-0.2004	0.2881	-0.1793	-0.6751	0.0294	9.9000
7555	0017	13	1	F	B	B	14181	0.4786	0.4298	0.4786	0.0453	0.0436	0.0026	0.0001	0.4041	-0.3630	0.4041	-0.4009	-0.3689	2.3964	0.0216	9.9000
7554	0018	14	1	F	C	B	14181	0.5599	0.1418	0.1585	0.5599	0.1377	0.0020	0.0001	0.2385	-0.2309	-0.1737	0.2385	-0.1924	1.8519	0.0217	9.9000
7556	0019	15	1	F	C	B	14181	0.3856	0.0685	0.2084	0.3856	0.3341	0.0033	0.0001	-0.0070	-0.1918	-0.0365	-0.0070	0.0984	3.0317	0.0222	9.9000
7557	0020	16	1	F	D	B	14181	0.4253	0.1782	0.1979	0.1948	0.4253	0.0037	0.0001	0.3657	-0.3206	-0.3703	-0.3526	0.3657	2.7564	0.0219	9.9000
7517	0021	5	2	F	B	B	14084	0.7477	0.0489	0.7477	0.1912	0.0107	0.0015	0.0000	0.2114	-0.2442	0.2114	-0.1261	-0.1571	0.4958	0.0241	9.9000
7518	0022	6	2	F	A	B	14084	0.4365	0.4365	0.2119	0.1805	0.1703	0.0008	0.0001	0.1571	0.1571	-0.2525	-0.0878	-0.0757	2.7027	0.0220	9.9000
7519	0023	7	2	F	C	B	14084	0.5814	0.0492	0.2205	0.5814	0.1470	0.0018	0.0001	0.2981	-0.2878	-0.2094	0.2981	-0.2826	1.7227	0.0219	9.9000
7520	0024	8	2	F	C	B	14084	0.6348	0.0359	0.1479	0.6348	0.1794	0.0018	0.0001	0.4001	-0.3444	-0.3213	0.4001	-0.3307	1.3519	0.0223	9.9000
4371	0025	13	2	M	A	B	14084	0.8953	0.8953	0.0623	0.0200	0.0209	0.0015	0.0000	0.3590	0.3590	-0.2808	-0.2328	-0.1661	-1.2491	0.0342	9.9000
4370	0026	14	2	M	C	B	14084	0.7822	0.1101	0.0640	0.7822	0.0422	0.0015	0.0000	0.4429	-0.3362	-0.3421	0.4429	-0.2682	-0.0581	0.0262	9.9000
4376	0027	15	2	M	D	B	14084	0.5268	0.1751	0.0397	0.2562	0.5268	0.0021	0.0001	0.2306	-0.2141	-0.1935	-0.1922	0.2306	1.8615	0.0218	9.9000
4369	0028	16	2	M	C	B	14084	0.7029	0.1375	0.0825	0.7029	0.0741	0.0029	0.0001	0.3245	-0.2746	-0.2215	0.3245	-0.2148	0.5293	0.0240	9.9000
6753	0029	5	3	F	A	B	14083	0.8468	0.8468	0.0673	0.0354	0.0496	0.0008	0.0001	0.3366	0.3366	-0.2531	-0.2354	-0.1872	-0.4515	0.0281	9.9000
6758	0030	6	3	F	A	B	14083	0.7479	0.7479	0.0621	0.1581	0.0302	0.0015	0.0001	0.3751	0.3751	-0.2824	-0.2859	-0.2663	0.4898	0.0242	9.9000
6763	0031	7	3	F	C	B	14083	0.9182	0.0307	0.0381	0.9182	0.0120	0.0010	0.0000	0.3347	-0.2241	-0.2390	0.3347	-0.1606	-1.4492	0.0359	9.9000
6768	0032	8	3	F	C	B	14083	0.8745	0.0182	0.0698	0.8745	0.0346	0.0026	0.0002	0.3527	-0.2319	-0.2470	0.3527	-0.2337	-0.7847	0.0302	9.9000
7560	0033	13	3	F	A	B	14083	0.6734	0.6734	0.0232	0.0203	0.2819	0.0011	0.0001	0.3456	0.3456	-0.2591	-0.2432	-0.3003	1.0757	0.0229	9.9000
7563	0034	14	3	F	A	B	14083	0.7941	0.7941	0.0788	0.0615	0.0632	0.0023	0.0001	0.4073	0.4073	-0.2715	-0.3377	-0.2609	0.0844	0.0256	9.9000
7562	0035	15	3	F	C	B	14083	0.6255	0.1412	0.0781	0.6255	0.1533	0.0018	0.0001	0.3128	-0.2553	-0.2614	0.3128	-0.2330	1.4255	0.0225	9.9000
7561	0036	16	3	F	C	B	14083	0.7177	0.0988	0.1321	0.7177	0.0484	0.0028	0.0001	0.3839	-0.3044	-0.2794	0.3839	-0.2796	0.7348	0.0236	9.9000
6747	0037	5	4	F	B	B	14025	0.6110	0.1245	0.6110	0.1154	0.1465	0.0025	0.0001	0.3111	-0.2855	0.3111	-0.2511	-0.2177	1.4596	0.0223	9.9000
6752	0038	6	4	F	A	B	14025	0.7816	0.7816	0.0729	0.0423	0.1016	0.0014	0.0001	0.2532	0.2532	-0.1987	-0.2053	-0.1426	0.1374	0.0252	9.9000
6757	0039	7	4	F	C	B	14025	0.8928	0.0366	0.0463	0.8928	0.0237	0.0006	0.0000	0.3462	-0.2396	-0.2162	0.3462	-0.2210	-1.0984	0.0323	9.9000
6762	0040	8	4	F	C	B	14025	0.7010	0.1139	0.0917	0.7010	0.0923	0.0011	0.0000	0.3025	-0.2451	-0.2077	0.3025	-0.2194	0.8015	0.0233	9.9000

Table I-1. 2007 Common and Uncommon Grade 8 Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
4275	0041	13	4	M	A	B	14025	0.7136	0.7136	0.0771	0.1740	0.0342	0.0012	0.0000	0.3333	0.3333	-0.3258	-0.2162	-0.2401	0.3767	0.0244	9.9000
4323	0042	14	4	M	B	B	14025	0.5119	0.2464	0.5119	0.1235	0.1149	0.0032	0.0001	0.3409	-0.3346	0.3409	-0.3361	-0.1925	1.8008	0.0221	9.9000
4324	0043	15	4	M	C	B	14025	0.7603	0.1414	0.0723	0.7603	0.0240	0.0018	0.0002	0.3392	-0.2428	-0.2852	0.3392	-0.1983	0.0197	0.0256	9.9000
4278	0044	16	4	M	D	B	14025	0.7949	0.0347	0.0429	0.1248	0.7949	0.0027	0.0001	0.3630	-0.2603	-0.2668	-0.2580	0.3630	-0.2942	0.0270	9.9000
7510	0045	5	5	F	A	B	14070	0.4626	0.4626	0.1991	0.1743	0.1627	0.0012	0.0001	0.2217	0.2217	-0.2648	-0.1931	-0.1355	2.5477	0.0219	9.9000
7511	0046	6	5	F	B	B	14070	0.8872	0.0606	0.8872	0.0362	0.0153	0.0008	0.0000	0.3276	-0.2157	0.3276	-0.2363	-0.1928	-0.9530	0.0317	9.9000
7512	0047	7	5	F	C	B	14070	0.2668	0.4625	0.2242	0.2668	0.0448	0.0014	0.0002	0.1180	-0.0836	-0.1399	0.1180	-0.3927	4.0110	0.0249	9.9000
7513	0048	8	5	F	B	B	14070	0.5193	0.1053	0.5193	0.0731	0.2994	0.0028	0.0001	0.2660	-0.2208	0.2660	-0.3682	-0.1867	2.1641	0.0218	9.9000
6745	0049	13	5	F	D	B	14070	0.4972	0.2578	0.1107	0.1320	0.4972	0.0022	0.0001	0.4960	-0.4392	-0.4886	-0.4658	0.4960	2.3131	0.0218	9.9000
6750	0050	14	5	F	A	B	14070	0.6933	0.6933	0.2031	0.0618	0.0394	0.0021	0.0001	0.3399	0.3399	-0.2462	-0.2931	-0.2819	0.9360	0.0232	9.9000
6755	0051	15	5	F	A	B	14070	0.7683	0.7683	0.0574	0.0477	0.1244	0.0021	0.0001	0.4171	0.4171	-0.2562	-0.3223	-0.3225	0.3279	0.0248	9.9000
6765	0052	16	5	F	B	B	14070	0.2972	0.3854	0.2972	0.0729	0.2410	0.0036	0.0000	0.1818	-0.2661	0.1818	-0.4012	0.0055	3.7532	0.0240	9.9000
4430	0053	5	6	M	A	B	14023	0.5404	0.5404	0.2368	0.0620	0.1590	0.0018	0.0000	0.3294	0.3294	-0.2144	-0.2844	-0.3749	1.4699	0.0224	9.9000
4439	0054	6	6	M	B	B	14023	0.6151	0.1345	0.6151	0.1239	0.1252	0.0014	0.0000	0.3199	-0.2581	0.3199	-0.2455	-0.2606	1.0244	0.0230	9.9000
4426	0055	7	6	M	D	B	14023	0.9566	0.0099	0.0121	0.0206	0.9566	0.0009	0.0000	0.2765	-0.1706	-0.1922	-0.1554	0.2765	-2.9330	0.0567	8.1000
4433	0056	8	6	M	C	B	14023	0.7291	0.0402	0.1811	0.7291	0.0484	0.0011	0.0000	0.3794	-0.3144	-0.3002	0.3794	-0.2382	0.1425	0.0253	9.9000
6749	0057	13	6	F	B	B	14023	0.9415	0.0211	0.9415	0.0241	0.0118	0.0015	0.0000	0.3254	-0.1913	0.3254	-0.2288	-0.1803	-2.0115	0.0421	9.9000
6759	0058	14	6	F	B	B	14023	0.5733	0.0901	0.5733	0.1479	0.1868	0.0019	0.0001	0.3470	-0.2630	0.3470	-0.2318	-0.3645	1.7461	0.0222	9.9000
6764	0059	15	6	F	C	B	14023	0.7622	0.0542	0.0768	0.7622	0.1044	0.0024	0.0001	0.3971	-0.2516	-0.3321	0.3971	-0.2743	0.3213	0.0247	9.9000
6769	0060	16	6	F	A	B	14023	0.7905	0.7905	0.0236	0.1482	0.0354	0.0023	0.0001	0.4043	0.4043	-0.2772	-0.3506	-0.2015	0.0690	0.0256	9.9000
7542	0061	5	7	F	C	B	14041	0.5181	0.2056	0.2305	0.5181	0.0448	0.0009	0.0001	0.3441	-0.2894	-0.3115	0.3441	-0.3318	2.1593	0.0216	9.9000
7544	0062	6	7	F	A	B	14041	0.3966	0.3966	0.1748	0.1677	0.2590	0.0019	0.0001	0.1670	0.1670	-0.1316	-0.3098	-0.0763	2.9725	0.0221	9.9000
7545	0063	7	7	F	B	B	14041	0.8336	0.0501	0.8336	0.0183	0.0972	0.0008	0.0001	0.2215	-0.2864	0.2215	-0.2009	-0.0420	-0.2635	0.0273	9.9000
7546	0064	8	7	F	D	B	14041	0.2425	0.3432	0.1241	0.2889	0.2425	0.0011	0.0001	0.1163	-0.1412	-0.3526	-0.0255	0.1163	4.1718	0.0256	9.9000
7502	0065	13	7	F	A	B	14041	0.6856	0.6856	0.0694	0.1649	0.0783	0.0016	0.0001	0.2574	0.2574	-0.3018	-0.1352	-0.1965	1.0080	0.0228	9.9000
7498	0066	14	7	F	A	B	14041	0.6073	0.6073	0.0743	0.2884	0.0286	0.0014	0.0001	0.3572	0.3572	-0.3350	-0.2862	-0.3176	1.5626	0.0220	9.9000
7499	0067	15	7	F	B	B	14041	0.6538	0.1192	0.6538	0.1739	0.0491	0.0040	0.0001	0.0945	-0.0969	0.0945	-0.0014	-0.1794	1.2387	0.0224	9.9000
7500	0068	16	7	F	C	B	14041	0.5638	0.2557	0.1566	0.5638	0.0204	0.0033	0.0001	0.5058	-0.4887	-0.4578	0.5058	-0.2126	1.8564	0.0217	9.9000
7530	0069	5	8	F	B	B	14052	0.5140	0.2271	0.5140	0.0991	0.1592	0.0006	0.0000	0.3046	-0.2561	0.3046	-0.2350	-0.3210	2.2163	0.0220	9.9000
7531	0070	6	8	F	A	B	14052	0.7091	0.7091	0.1030	0.0513	0.1339	0.0026	0.0001	0.2873	0.2873	-0.2151	-0.2501	-0.1964	0.8190	0.0235	9.9000
7532	0071	7	8	F	C	B	14052	0.7849	0.0558	0.0721	0.7849	0.0860	0.0011	0.0001	0.3779	-0.1556	-0.2835	0.3779	-0.3374	0.1840	0.0253	9.9000
7533	0072	8	8	F	B	B	14052	0.9020	0.0263	0.9020	0.0565	0.0139	0.0013	0.0000	0.4068	-0.2421	0.4068	-0.3175	-0.2134	-1.1673	0.0335	3.1000
4263	0073	13	8	M	A	B	14052	0.8404	0.8404	0.0497	0.0944	0.0145	0.0009	0.0000	0.3805	0.3805	-0.2757	-0.2944	-0.1818	-0.5354	0.0288	9.9000
4266	0074	14	8	M	B	B	14052	0.5484	0.2070	0.5484	0.1546	0.0878	0.0021	0.0001	0.2293	-0.2539	0.2293	-0.0621	-0.2755	1.8497	0.0221	9.9000
4271	0075	15	8	M	A	B	14052	0.7933	0.7933	0.1405	0.0366	0.0283	0.0013	0.0000	0.3768	0.3768	-0.2943	-0.2928	-0.2133	-0.0071	0.0261	9.9000
4268	0076	16	8	M	C	B	14052	0.7891	0.0690	0.0927	0.7891	0.0471	0.0020	0.0001	0.4242	-0.3618	-0.2728	0.4242	-0.2799	-0.0200	0.0261	9.9000
7492	0077	5	9	F	B	B	14098	0.5604	0.0803	0.5604	0.0607	0.2971	0.0015	0.0001	0.2791	-0.2656	0.2791	-0.3034	-0.2045	1.8381	0.0219	9.9000
7494	0078	6	9	F	B	B	14098	0.8559	0.0336	0.8559	0.0580	0.0506	0.0018	0.0000	0.2801	-0.2394	0.2801	-0.1870	-0.1364	-0.5720	0.0287	9.9000
7495	0079	7	9	F	C	B	14098	0.7017	0.1001	0.1298	0.7017	0.0669	0.0014	0.0001	0.3712	-0.3354	-0.2763	0.3712	-0.2186	0.8302	0.0232	9.9000
7496	0080	8	9	F	D	B	14098	0.7327	0.1533	0.0441	0.0673	0.7327	0.0026	0.0000	0.3140	-0.1791	-0.2729	-0.2944	0.3140	0.5883	0.0237	9.9000

Table I-1. 2007 Common and Uncommon Grade 8 Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
7525	0081	13	9	F	A	B	14098	0.7524	0.7524	0.0292	0.0236	0.1934	0.0013	0.0001	0.3061	0.3061	-0.1956	-0.2045	-0.2533	0.4280	0.0242	9.9000
7527	0082	14	9	F	B	B	14098	0.6933	0.1343	0.6933	0.1553	0.0161	0.0010	0.0001	0.3265	-0.2765	0.3265	-0.2533	-0.1940	0.8943	0.0230	9.9000
7528	0083	15	9	F	B	B	14098	0.8420	0.0539	0.8420	0.0917	0.0116	0.0008	0.0000	0.3140	-0.2278	0.3140	-0.2260	-0.1764	-0.4143	0.0277	9.9000
7529	0084	16	9	F	C	B	14098	0.7300	0.0589	0.0777	0.7300	0.1295	0.0036	0.0002	0.3347	-0.3184	-0.2178	0.3347	-0.2230	0.6097	0.0237	9.9000
7487	0085	5	10	F	A	B	14081	0.6520	0.6520	0.0640	0.0707	0.2118	0.0011	0.0003	0.3026	0.3026	-0.2807	-0.1740	-0.2475	1.2080	0.0226	9.9000
7489	0086	6	10	F	A	B	14081	0.8706	0.8706	0.0246	0.0434	0.0605	0.0009	0.0000	0.4513	0.4513	-0.2753	-0.3074	-0.3225	-0.7639	0.0300	3.5000
7488	0087	7	10	F	B	B	14081	0.6026	0.1480	0.6026	0.0619	0.1856	0.0016	0.0003	0.1755	-0.0853	0.1755	-0.2525	-0.1304	1.5604	0.0222	9.9000
7491	0088	8	10	F	D	B	14081	0.9063	0.0393	0.0201	0.0331	0.9063	0.0011	0.0000	0.3246	-0.1888	-0.2092	-0.2259	0.3246	-1.2810	0.0342	9.9000
6751	0089	13	10	F	B	B	14081	0.2764	0.3840	0.2764	0.1509	0.1854	0.0032	0.0001	0.0600	0.0193	0.0600	-0.2246	-0.0930	3.9128	0.0247	9.9000
6766	0090	14	10	F	C	B	14081	0.5738	0.1391	0.1699	0.5738	0.1153	0.0020	0.0000	0.4051	-0.3309	-0.3364	0.4051	-0.3626	1.7609	0.0220	9.9000
6773	0091	15	10	F	C	B	14081	0.8834	0.0332	0.0495	0.8834	0.0326	0.0013	0.0000	0.3673	-0.2336	-0.2638	0.3673	-0.2171	-0.9342	0.0313	6.7000
6761	0092	16	10	F	D	B	14081	0.4331	0.2390	0.1932	0.1316	0.4331	0.0030	0.0000	0.3792	-0.3603	-0.3925	-0.3344	0.3792	2.7241	0.0221	9.9000

Table I-2. 2007 Common and Uncommon Grade 8 Constructed-Response Statistics for Writing

Information										Proportions					Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Minimum	Maximum	Weight	Subscale	n	Average	P-Value	1	2	3	4	Item Total Corr.	1	2	3	4	Measure	Measure SE	Fit
1974	0001	21.1	All	O	1	4	10	A	140738	2.6508	0.6627	0.0248	0.3718	0.5311	0.0723	0.6252	-0.2951	-0.4746	0.3820	0.3269	1.5781	0.0060	-9.9000
1974	0002	21.2	All	O	1	4	1	B	140738	2.7481	0.6870	0.0254	0.2846	0.6067	0.0834	0.7213	-0.3405	-0.5207	0.3500	0.4251	1.7108	0.0060	-3.5000
1952	0003	22.1	All	O	1	4	10	A	140738	2.7130	0.6782	0.0214	0.3268	0.5693	0.0825	0.6347	-0.2781	-0.4977	0.3634	0.3405	1.9938	0.0060	-9.9000
1952	0004	22.2	All	O	1	4	1	B	140738	2.7816	0.6954	0.0243	0.2658	0.6140	0.0960	0.7179	-0.3391	-0.5170	0.3144	0.4331	2.3608	0.0061	9.9000

Appendix J:

**2007 Common and Uncommon Grade 11 Multiple-Choice and
Constructed-Response Statistics for Writing**

Appendix J: 2007 Common and Uncommon Grade 11 Multiple-Choice and Constructed-Response Statistics for Writing

Table J–1. 2007 Common and Uncommon Grade 11 Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
4354	0001	1	All	O	A	B	134692	0.7890	0.7890	0.0339	0.0478	0.1282	0.0009	0.0002	0.2436	0.2436	-0.1879	-0.1800	-0.1601	-0.0524	0.0077	9.9000
4610	0002	2	All	O	B	B	134692	0.6520	0.2840	0.6520	0.0527	0.0108	0.0005	0.0000	0.2549	-0.2581	0.2549	-0.1003	-0.0971	0.8143	0.0069	9.9000
5077	0003	3	All	O	B	B	134692	0.1907	0.0765	0.1907	0.4051	0.3259	0.0017	0.0000	0.1744	-0.2702	0.1744	-0.1459	-0.2710	3.4181	0.0079	9.9000
4352	0004	4	All	O	D	B	134692	0.9169	0.0146	0.0340	0.0338	0.9169	0.0007	0.0000	0.2115	-0.1080	-0.1025	-0.1781	0.2115	-1.2720	0.0102	9.9000
4495	0005	9	All	O	C	B	134692	0.7568	0.0836	0.0733	0.7568	0.0848	0.0015	0.0001	0.2926	-0.2756	-0.1985	0.2926	-0.1451	0.1895	0.0075	9.9000
4486	0006	10	All	O	D	B	134692	0.5995	0.0109	0.1945	0.1941	0.5995	0.0009	0.0000	0.3069	-0.2140	-0.2318	-0.3012	0.3069	1.0638	0.0068	9.9000
4491	0007	11	All	O	C	B	134692	0.5425	0.3025	0.0322	0.5425	0.1212	0.0016	0.0000	0.3086	-0.3044	-0.2593	0.3086	-0.1944	1.3887	0.0067	9.9000
4484	0008	12	All	O	A	B	134692	0.3179	0.3179	0.1657	0.1936	0.3154	0.0012	0.0063	0.1735	-0.1735	-0.3195	0.0351	-0.2331	2.5376	0.0070	9.9000
4496	0009	17	All	O	B	B	134692	0.7640	0.0863	0.7640	0.0805	0.0678	0.0013	0.0000	0.3561	-0.2462	0.3561	-0.2638	-0.2449	0.1294	0.0075	9.9000
4506	0010	18	All	O	C	B	134692	0.8456	0.0410	0.0966	0.8456	0.0155	0.0012	0.0000	0.3230	-0.1959	-0.2607	0.3230	-0.1595	-0.4865	0.0084	9.9000
4501	0011	19	All	O	C	B	134692	0.5443	0.1525	0.2088	0.5443	0.0916	0.0028	0.0001	0.2187	-0.2198	-0.1443	0.2187	-0.1974	1.3581	0.0067	9.9000
4499	0012	20	All	O	A	B	134692	0.7670	0.7670	0.0623	0.1393	0.0300	0.0014	0.0000	0.2802	0.2802	-0.2086	-0.1836	-0.2358	0.1138	0.0075	9.9000
7852	0013	5	1	F	D	B	13564	0.9408	0.0161	0.0231	0.0196	0.9408	0.0004	0.0000	0.2775	-0.1558	-0.1610	-0.1974	0.2775	-2.0533	0.0403	9.9000
7854	0014	6	1	F	C	B	13564	0.6761	0.0612	0.1040	0.6761	0.1580	0.0007	0.0001	0.2576	-0.2250	-0.2599	0.2576	-0.1280	0.6743	0.0221	9.9000
7851	0015	7	1	F	B	B	13564	0.3016	0.3277	0.3016	0.1411	0.2286	0.0009	0.0001	-0.0229	0.1105	-0.0229	-0.1350	0.0112	3.0697	0.0235	9.9000
7850	0016	8	1	F	D	B	13564	0.8276	0.0553	0.0666	0.0498	0.8276	0.0007	0.0000	0.3124	-0.2481	-0.1897	-0.1969	0.3124	-0.5019	0.0264	9.9000
7900	0017	13	1	F	A	B	13564	0.7873	0.7873	0.0321	0.1440	0.0355	0.0011	0.0000	0.2933	0.2933	-0.2435	-0.1976	-0.2124	-0.1439	0.0247	9.9000
7903	0018	14	1	F	B	B	13564	0.9126	0.0218	0.9126	0.0320	0.0327	0.0008	0.0000	0.2878	-0.1588	0.2878	-0.2074	-0.1715	-1.5261	0.0342	6.7000
7901	0019	15	1	F	D	B	13564	0.6256	0.0394	0.2436	0.0898	0.6256	0.0016	0.0001	0.2312	-0.2420	-0.0835	-0.3597	0.2312	1.0023	0.0215	9.9000
7904	0020	16	1	F	C	B	13564	0.6831	0.1741	0.0661	0.6831	0.0744	0.0022	0.0000	0.3524	-0.3194	-0.2624	0.3524	-0.1964	0.6273	0.0222	9.9000
7881	0021	5	2	F	D	B	13482	0.8538	0.0276	0.0572	0.0605	0.8538	0.0007	0.0002	0.4103	-0.2473	-0.3050	-0.2755	0.4103	-0.7577	0.0281	2.9000
7882	0022	6	2	F	D	B	13482	0.9094	0.0527	0.0291	0.0080	0.9094	0.0008	0.0000	0.2323	-0.1387	-0.1729	-0.1518	0.2323	-1.4651	0.0338	9.9000
7883	0023	7	2	F	B	B	13482	0.6173	0.2195	0.6173	0.1031	0.0592	0.0008	0.0001	0.1340	-0.0361	0.1340	-0.1404	-0.2250	1.0612	0.0215	9.9000
7884	0024	8	2	F	B	B	13482	0.4281	0.1977	0.4281	0.0949	0.2776	0.0016	0.0000	0.2309	-0.3412	0.2309	-0.3025	-0.0892	2.2162	0.0214	9.9000
5078	0025	13	2	M	A	B	13482	0.7073	0.7073	0.0436	0.1523	0.0956	0.0012	0.0000	0.4134	0.4134	-0.2782	-0.3322	-0.3199	0.4210	0.0228	9.9000
4283	0026	14	2	M	B	B	13482	0.9016	0.0319	0.9016	0.0438	0.0220	0.0007	0.0000	0.3638	-0.2418	0.3638	-0.2634	-0.1857	-1.5444	0.0346	5.3000
4286	0027	15	2	M	C	B	13482	0.5616	0.0345	0.1819	0.5616	0.2210	0.0010	0.0000	0.2745	-0.2273	-0.2226	0.2745	-0.2426	1.5475	0.0211	9.9000
4280	0028	16	2	M	B	B	13482	0.7804	0.0971	0.7804	0.0954	0.0264	0.0007	0.0000	0.2889	-0.2134	0.2889	-0.2096	-0.1840	-0.1828	0.0249	9.9000
7821	0029	5	3	F	A	B	13491	0.6888	0.6888	0.1232	0.0930	0.0942	0.0007	0.0000	0.2928	0.2928	-0.2299	-0.2039	-0.2236	0.5774	0.0223	9.9000
7822	0030	6	3	F	B	B	13491	0.8914	0.0445	0.8914	0.0443	0.0184	0.0014	0.0000	0.3071	-0.1599	0.3071	-0.2823	-0.1207	-1.2302	0.0315	5.6000
7823	0031	7	3	F	C	B	13491	0.5378	0.0821	0.0109	0.5378	0.3690	0.0002	0.0001	0.1959	-0.3027	-0.2005	0.1959	-0.1273	1.5322	0.0211	9.9000
7825	0032	8	3	F	C	B	13491	0.5690	0.3015	0.0794	0.5690	0.0495	0.0005	0.0001	0.3420	-0.2962	-0.3031	0.3420	-0.2484	1.3422	0.0212	9.9000
7868	0033	13	3	F	B	B	13491	0.6169	0.2148	0.6169	0.0381	0.1286	0.0014	0.0001	0.3168	-0.2826	0.3168	-0.1272	-0.2835	1.0453	0.0215	9.9000
7869	0034	14	3	F	C	B	13491	0.8630	0.0059	0.0525	0.8630	0.0774	0.0013	0.0000	0.2788	-0.1183	-0.1989	0.2788	-0.2117	-0.8816	0.0288	9.9000
7871	0035	15	3	F	A	B	13491	0.7484	0.7484	0.0350	0.1848	0.0297	0.0021	0.0000	0.3501	0.3501	-0.2241	-0.3035	-0.1907	0.1525	0.0236	9.9000
7872	0036	16	3	F	C	B	13491	0.4829	0.2726	0.2151	0.4829	0.0275	0.0019	0.0001	0.3091	-0.2871	-0.2836	0.3091	-0.2259	1.8651	0.0212	9.9000
4476	0037	5	4	M	C	B	13436	0.8763	0.0351	0.0480	0.8763	0.0400	0.0005	0.0001	0.2818	-0.1041	-0.2204	0.2818	-0.2141	-1.0481	0.0304	9.9000
4481	0038	6	4	M	A	B	13436	0.7062	0.7062	0.1453	0.1090	0.0368	0.0026	0.0001	0.3273	0.3273	-0.3403	-0.1773	-0.1643	0.6491	0.0225	9.9000
4509	0039	7	4	M	B	B	13436	0.5833	0.3500	0.5833	0.0383	0.0272	0.0011	0.0001	0.3607	-0.3290	0.3607	-0.2611	-0.2558	1.7339	0.0213	9.9000
4508	0040	8	4	M	D	B	13436	0.9483	0.0097	0.0186	0.0227	0.9483	0.0007	0.0000	0.2869	-0.1556	-0.1790	-0.1928	0.2869	-2.3171	0.0446	0.2000

Appendix J: 2007 Common and Uncommon Grade 11 Multiple-Choice and Constructed-Response Statistics for Writing

Table J–1. 2007 Common and Uncommon Grade 11 Multiple-Choice Statistics for Writing

Information							Proportions							Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
7815	0041	13	4	F	A	B	13436	0.7866	0.7866	0.1404	0.0258	0.0454	0.0018	0.0000	0.4002	0.4002	-0.3569	-0.2557	-0.1933	-0.1089	0.0249	9.9000
7819	0042	14	4	F	B	B	13436	0.7503	0.1033	0.7503	0.0665	0.0790	0.0009	0.0000	0.3236	-0.2156	0.3236	-0.2772	-0.2142	0.1826	0.0238	9.9000
7816	0043	15	4	F	B	B	13436	0.4762	0.2866	0.4762	0.0480	0.1873	0.0019	0.0000	0.3279	-0.3182	0.3279	-0.3144	-0.2674	1.9750	0.0214	9.9000
7818	0044	16	4	F	D	B	13436	0.7039	0.0904	0.1591	0.0455	0.7039	0.0011	0.0000	0.4096	-0.3168	-0.3148	-0.3134	0.4096	0.5233	0.0228	9.9000
7573	0045	5	5	F	D	B	13463	0.6857	0.0161	0.2376	0.0599	0.6857	0.0004	0.0002	0.4065	-0.1952	-0.3715	-0.2815	0.4065	0.6188	0.0223	9.9000
7574	0046	6	5	F	C	B	13463	0.6419	0.0853	0.1336	0.6419	0.1380	0.0012	0.0000	0.2902	-0.2802	-0.2152	0.2902	-0.1947	0.9066	0.0217	9.9000
7575	0047	7	5	F	C	B	13463	0.4450	0.3746	0.1555	0.4450	0.0246	0.0003	0.0000	0.2129	-0.1668	-0.2472	0.2129	-0.2468	2.1127	0.0213	9.9000
7576	0048	8	5	F	A	B	13463	0.8702	0.8702	0.0074	0.0816	0.0402	0.0005	0.0001	0.3363	-0.3363	-0.1568	-0.3213	-0.1344	-0.9446	0.0294	9.9000
7891	0049	13	5	F	A	B	13463	0.5429	0.5429	0.2370	0.0348	0.1837	0.0016	0.0000	0.2056	0.2056	-0.2068	-0.2655	-0.1098	1.5193	0.0211	9.9000
7888	0050	14	5	F	B	B	13463	0.7928	0.0355	0.7928	0.0354	0.1353	0.0010	0.0000	0.2541	-0.0782	0.2541	-0.1868	-0.2214	-0.1821	0.0250	9.9000
7889	0051	15	5	F	C	B	13463	0.9053	0.0160	0.0341	0.9053	0.0435	0.0011	0.0001	0.3395	-0.1913	-0.2454	0.3395	-0.2136	-1.4079	0.0333	0.9000
7890	0052	16	5	F	D	B	13463	0.8006	0.0451	0.0865	0.0657	0.8006	0.0021	0.0001	0.4301	-0.2813	-0.2978	-0.3295	0.4301	-0.2491	0.0253	9.9000
7839	0053	5	6	F	A	B	13462	0.4063	0.4063	0.4750	0.0824	0.0357	0.0006	0.0001	0.1050	0.1050	-0.0404	-0.2696	-0.2231	2.3736	0.0216	9.9000
7840	0054	6	6	F	B	B	13462	0.6589	0.0911	0.6589	0.1800	0.0674	0.0025	0.0001	0.3982	-0.3776	0.3982	-0.2892	-0.2697	0.8241	0.0218	9.9000
7838	0055	7	6	F	B	B	13462	0.7419	0.0968	0.7419	0.0273	0.1329	0.0010	0.0001	0.2795	-0.2489	0.2795	-0.2024	-0.1707	0.2535	0.0233	9.9000
7841	0056	8	6	F	D	B	13462	0.5942	0.2203	0.1020	0.0819	0.5942	0.0016	0.0000	0.2439	-0.2198	-0.2666	-0.0760	0.2439	1.2307	0.0213	9.9000
4306	0057	13	6	M	C	B	13462	0.9207	0.0324	0.0361	0.9207	0.0097	0.0012	0.0000	0.3184	-0.1960	-0.2447	0.3184	-0.1379	-1.4437	0.0340	2.2000
4308	0058	14	6	M	A	B	13462	0.9025	0.9025	0.0408	0.0397	0.0155	0.0013	0.0002	0.2958	0.2958	-0.1771	-0.2064	-0.1860	-1.1630	0.0314	9.9000
4311	0059	15	6	M	B	B	13462	0.6874	0.0847	0.6874	0.1134	0.1129	0.0016	0.0000	0.4038	-0.3299	0.4038	-0.3056	-0.2881	1.1035	0.0214	9.9000
4312	0060	16	6	M	D	B	13462	0.7428	0.1652	0.0383	0.0519	0.7428	0.0017	0.0001	0.1354	0.0029	-0.2097	-0.2061	0.1354	0.5863	0.0224	9.9000
7845	0061	5	7	F	B	B	13415	0.6105	0.0763	0.6105	0.0441	0.2681	0.0009	0.0000	0.3823	-0.1792	0.3823	-0.2548	-0.3854	1.0911	0.0215	9.9000
7846	0062	6	7	F	A	B	13415	0.5879	0.5879	0.0872	0.1037	0.2198	0.0013	0.0001	0.4188	0.4188	-0.3184	-0.3482	-0.3687	1.2317	0.0214	9.9000
7847	0063	7	7	F	C	B	13415	0.8980	0.0365	0.0367	0.8980	0.0282	0.0006	0.0001	0.3387	-0.1920	-0.2408	0.3387	-0.2196	-1.3251	0.0324	4.2000
7848	0064	8	7	F	D	B	13415	0.5495	0.0716	0.0263	0.3518	0.5495	0.0007	0.0001	0.3328	-0.2937	-0.3145	-0.2827	0.3328	1.4673	0.0212	9.9000
7894	0065	13	7	F	B	B	13415	0.8825	0.0339	0.8825	0.0542	0.0282	0.0010	0.0002	0.3765	-0.2605	0.3765	-0.2466	-0.2324	-1.1174	0.0307	4.3000
7898	0066	14	7	F	C	B	13415	0.7036	0.1454	0.1094	0.7036	0.0403	0.0011	0.0001	0.2742	-0.1059	-0.3075	0.2742	-0.2369	0.4797	0.0227	9.9000
7896	0067	15	7	F	B	B	13415	0.3884	0.1206	0.3884	0.4257	0.0642	0.0010	0.0001	0.1096	-0.2261	0.1096	-0.0414	-0.1885	2.4687	0.0220	9.9000
7897	0068	16	7	F	D	B	13415	0.5199	0.0476	0.0804	0.3501	0.5199	0.0020	0.0000	0.3400	-0.3154	-0.3814	-0.2668	0.3400	1.6475	0.0212	9.9000
4453	0069	5	8	M	B	B	13468	0.8796	0.0660	0.8796	0.0339	0.0198	0.0007	0.0000	0.2629	-0.1696	0.2629	-0.2489	-0.0839	-0.8916	0.0293	9.9000
4457	0070	6	8	M	A	B	13468	0.9328	0.9328	0.0095	0.0184	0.0386	0.0007	0.0000	0.3304	0.3304	-0.1688	-0.1902	-0.2491	-1.7911	0.0375	-0.2000
4462	0071	7	8	M	C	B	13468	0.6621	0.0783	0.0910	0.6621	0.1656	0.0030	0.0000	0.3471	-0.2939	-0.2874	0.3471	-0.2398	1.2810	0.0215	9.9000
5079	0072	8	8	M	B	B	13468	0.7484	0.0454	0.7484	0.1194	0.0851	0.0017	0.0000	0.3465	-0.2553	0.3465	-0.2977	-0.1900	0.5409	0.0228	9.9000
7918	0073	13	8	F	C	B	13468	0.9026	0.0558	0.0233	0.9026	0.0174	0.0009	0.0000	0.3635	-0.2807	-0.2308	0.3635	-0.1693	-1.3657	0.0331	3.5000
7920	0074	14	8	F	B	B	13468	0.7231	0.1856	0.7231	0.0698	0.0199	0.0016	0.0000	0.3364	-0.2525	0.3364	-0.3120	-0.1745	0.3888	0.0232	9.9000
7921	0075	15	8	F	D	B	13468	0.9028	0.0149	0.0307	0.0506	0.9028	0.0009	0.0000	0.3574	-0.2088	-0.2514	-0.2362	0.3574	-1.3692	0.0331	6.2000
7922	0076	16	8	F	B	B	13468	0.4318	0.1678	0.4318	0.2143	0.1826	0.0034	0.0001	0.2268	-0.1070	0.2268	-0.2816	-0.2244	2.2625	0.0216	9.9000
7827	0077	5	9	F	D	B	13452	0.8205	0.0401	0.0090	0.1299	0.8205	0.0004	0.0000	0.1762	-0.1259	-0.1349	-0.1252	0.1762	-0.4142	0.0262	9.9000
7828	0078	6	9	F	A	B	13452	0.6554	0.6554	0.1133	0.1609	0.0679	0.0023	0.0001	0.4009	0.4009	-0.3219	-0.3363	-0.2649	0.8366	0.0220	9.9000
7826	0079	7	9	F	B	B	13452	0.9054	0.0223	0.9054	0.0589	0.0128	0.0007	0.0000	0.3014	-0.1763	0.3014	-0.2367	-0.1431	-1.3926	0.0332	4.0000
7829	0080	8	9	F	C	B	13452	0.8586	0.0623	0.0349	0.8586	0.0435	0.0006	0.0001	0.2619	-0.1386	-0.0824	0.2619	-0.2926	-0.7980	0.0285	9.9000

Table J–1. 2007 Common and Uncommon Grade 11 Multiple-Choice Statistics for Writing

Information								Proportions							Correlations				Rasch			
ID	Pub. ID	Sequence	Form	Status Label	Key	Subscale	n	P-Value	A	B	C	D	-	*	Item Total Corr.	A	B	C	D	Measure	Measure SE	Fit
7548	0081	13	9	F	B	B	13452	0.4267	0.0783	0.4267	0.3028	0.1907	0.0013	0.0002	0.3153	-0.3014	0.3153	-0.2703	-0.3353	2.2519	0.0215	9.9000
7581	0082	14	9	F	D	B	13452	0.4503	0.1281	0.3283	0.0920	0.4503	0.0014	0.0000	0.3529	-0.5034	-0.2410	-0.3386	0.3529	2.1053	0.0213	9.9000
7551	0083	15	9	F	C	B	13452	0.7975	0.0185	0.1407	0.7975	0.0420	0.0011	0.0001	0.3547	-0.2107	-0.2897	0.3547	-0.2261	-0.2080	0.0252	9.9000
7552	0084	16	9	F	C	B	13452	0.3678	0.0371	0.1888	0.3678	0.4045	0.0017	0.0001	0.1337	-0.3964	-0.1801	0.1337	-0.0642	2.6317	0.0222	9.9000
7930	0085	5	10	F	A	B	13459	0.6792	0.6792	0.0580	0.1152	0.1461	0.0016	0.0000	0.2320	0.2320	-0.2180	-0.1645	-0.1615	0.6936	0.0221	9.9000
7931	0086	6	10	F	C	B	13459	0.4012	0.1152	0.3507	0.4012	0.1314	0.0016	0.0000	0.1778	-0.1809	-0.1687	0.1778	-0.1576	2.4137	0.0217	9.9000
7933	0087	7	10	F	C	B	13459	0.7991	0.1003	0.0790	0.7991	0.0209	0.0007	0.0000	0.2999	-0.2365	-0.2087	0.2999	-0.1700	-0.1998	0.0252	9.9000
7934	0088	8	10	F	D	B	13459	0.4169	0.0414	0.4326	0.1080	0.4169	0.0010	0.0001	0.3470	-0.3967	-0.3403	-0.2779	0.3470	2.3142	0.0215	9.9000
7863	0089	13	10	F	A	B	13459	0.6968	0.6968	0.0302	0.1899	0.0823	0.0007	0.0001	0.3570	0.3570	-0.2678	-0.2558	-0.3261	0.5750	0.0224	9.9000
7864	0090	14	10	F	A	B	13459	0.5701	0.5701	0.1262	0.1258	0.1746	0.0033	0.0001	0.2935	0.2935	-0.2191	-0.3045	-0.2220	1.3815	0.0212	9.9000
7866	0091	15	10	F	B	B	13459	0.7481	0.0395	0.7481	0.1183	0.0932	0.0008	0.0001	0.3094	-0.1480	0.3094	-0.2811	-0.2055	0.2083	0.0235	9.9000
7867	0092	16	10	F	D	B	13459	0.6041	0.1215	0.1383	0.1344	0.6041	0.0017	0.0001	0.3083	-0.1732	-0.2925	-0.2775	0.3083	1.1735	0.0213	9.9000

Table J-2. 2007 Common and Uncommon Grade 11 Constructed-Response Statistics for Writing

Information										Proportions					Correlations				Rasch				
ID	Pub. ID	Sequence	Form	Status Label	Minimum	Maximum	Weight	Subscale	n	Average	P-Value	1	2	3	4	Item Total Corr.	1	2	3	4	Measure	Measure SE	Fit
2366	0001	21.1	All	O	1	4	10	A	134692	2.9014	0.7253	0.0079	0.1693	0.7365	0.0864	0.4981	-0.2014	-0.3692	0.1542	0.3143	1.0336	0.0066	-9.9000
2366	0002	21.2	All	O	1	4	1	B	134692	2.9250	0.7313	0.0078	0.1696	0.7125	0.1101	0.6257	-0.2625	-0.4556	0.1445	0.4108	0.8714	0.0064	9.9000
2371	0003	22.1	All	O	1	4	10	A	134692	2.7671	0.6918	0.0100	0.2978	0.6074	0.0849	0.4972	-0.2461	-0.3648	0.2155	0.3087	0.5554	0.0062	-9.9000
2371	0004	22.2	All	O	1	4	1	B	134692	2.8920	0.7230	0.0090	0.1990	0.6831	0.1089	0.6447	-0.2727	-0.4663	0.1676	0.4298	0.7285	0.0062	-4.8000

Appendix K:
2007 Grade 5 Linking Item Statistics for Writing

Appendix K: 2007 Grade 5 Linking Item Statistics for Writing

Table K–1. 2007 Grade 5 Linking Item Statistics for Writing

ID	Prev. Form	Prev. Sequence	Prev. Year	2006 P-Value	2007 P-Value	2006 Measure	2007 Measure
3890	5	13	2006	0.8201	0.8155	-0.1808	-0.3352
3891	5	14	2006	0.6003	0.6164	1.5530	1.1830
3887	5	15	2006	0.5420	0.5432	1.9487	1.7826
3889	5	16	2006	0.5887	0.6360	1.6322	1.1104
3845	4	5	2006	0.7235	0.6990	0.5819	0.9482
3863	4	6	2006	0.8237	0.8270	-0.2999	-0.0962
3855	4	7	2006	0.5618	0.5666	1.7605	1.8292
3835	4	8	2006	0.7349	0.7329	0.4913	0.6862
3773	3	13	2006	0.9354	0.9370	-1.8640	-1.9846
3777	3	14	2006	0.5655	0.5121	1.7843	2.3206
3778	3	15	2006	0.7943	0.7679	0.0207	0.3498
3817	3	16	2006	0.6759	0.6565	0.9947	1.1732
3865	10	13	2006	0.7385	0.7165	0.4686	0.3861
3870	10	14	2006	0.7598	0.7291	0.2920	0.3162
3872	10	15	2006	0.6294	0.6419	1.2870	0.8989
3843	10	16	2006	0.3819	0.3394	3.0028	2.9053
Avg.				0.6797	0.6711	0.8421	0.8421

Appendix L:
2007 Grade 8 Linking Item Statistics for Writing

Appendix L: 2007 Grade 8 Linking Item Statistics for Writing

Table L-1. 2007 Grade 8 Linking Item Statistics for Writing

ID	Prev. Form	Prev. Sequence	Prev. Year	2006 P-Value	2007 P-Value	2006 Measure	2007 Measure
4371	1	13	2006	0.9025	0.8953	-1.4929	-1.2491
4370	1	14	2006	0.7959	0.7822	-0.1612	-0.0581
4376	1	15	2006	0.5256	0.5268	1.9508	1.8615
4369	1	16	2006	0.7004	0.7029	0.6787	0.5293
4275	9	13	2006	0.7128	0.7136	0.5482	0.3767
4323	9	14	2006	0.5793	0.5119	1.5500	1.8008
4324	9	15	2006	0.7931	0.7603	-0.1653	0.0197
4278	9	16	2006	0.8238	0.7949	-0.4804	-0.2942
4430	7	5	2006	0.5561	0.5404	1.7827	1.4699
4439	7	6	2006	0.6258	0.6151	1.2922	1.0244
4426	7	7	2006	0.9528	0.9566	-2.5707	-2.9330
4433	7	8	2006	0.7342	0.7291	0.4529	0.1425
4263	10	13	2006	0.8369	0.8404	-0.5971	-0.5354
4266	10	14	2006	0.5776	0.5484	1.5776	1.8497
4271	10	15	2006	0.7931	0.7933	-0.1381	-0.0071
4268	10	16	2006	0.8043	0.7891	-0.2493	-0.0200
Avg.				0.7321	0.7188	0.2486	0.2486

Appendix M:
2007 Grade 11 Linking Item Statistics for Writing

Appendix M: 2007 Grade 11 Linking Item Statistics for Writing

Table M–1. 2007 Grade 11 Linking Item Statistics for Writing

ID	Prev. Form	Prev. Sequence	Prev. Year	2006 P-Value	2007 P-Value	2006 Measure	2007 Measure
5078	2	13	2006	0.7631	0.7073	0.5465	0.4210
4283	2	14	2006	0.9158	0.9016	-1.3719	-1.5444
4286	2	15	2006	0.5537	0.5616	2.1900	1.5475
4280	2	16	2006	0.8202	0.7804	-0.0254	-0.1828
4476	5	5	2006	0.8782	0.8763	-0.6735	-1.0481
4481	5	6	2006	0.7482	0.7062	0.7186	0.6491
4509	5	7	2006	0.6184	0.5833	1.7550	1.7339
4508	5	8	2006	0.9592	0.9483	-2.3337	-2.3171
4306	6	13	2006	0.9382	0.9207	-1.8152	-1.4437
4308	6	14	2006	0.9277	0.9025	-1.5750	-1.1630
4311	6	15	2006	0.7396	0.6874	0.7476	1.1035
4312	6	16	2006	0.7387	0.7428	0.7554	0.5863
4453	4	5	2006	0.8880	0.8796	-0.9215	-0.8916
4457	4	6	2006	0.9460	0.9328	-2.0753	-1.7911
4462	4	7	2006	0.6840	0.6621	1.2012	1.2810
5079	4	8	2006	0.7797	0.7484	0.3586	0.5409
Avg.				0.8062	0.7838	-0.1574	-0.1574

Appendix N:

2007 Grade 5 Raw to Scaled Score Table

Appendix N: 2007 Grade 5 Raw to Scale Score Table

Table N–1. 2007 Grade 5 Raw to Scale Score Table

Raw Score	Measure	Measure SE	Scale Score	Scale Score SE	Freq.	Freq. %	Cum. Freq.	Cum. Freq. %	Percentile
22	-7.8276	1.8394	700	184	26	0.0	26	0.0	1
23	-6.5881	1.0254	700	103	83	0.1	109	0.1	1
24	-5.8425	0.7440	700	74	165	0.1	274	0.2	1
25	-5.3822	0.6239	700	62	243	0.2	517	0.4	1
26	-5.0373	0.5554	700	56	201	0.2	718	0.6	1
27	-4.7544	0.5112	700	51	183	0.1	901	0.7	1
28	-4.5092	0.4806	700	48	105	0.1	1006	0.8	1
29	-4.2890	0.4589	700	46	82	0.1	1088	0.8	1
30	-4.0859	0.4432	700	44	40	0.0	1128	0.9	1
31	-3.8947	0.4321	700	43	31	0.0	1159	0.9	1
32	-3.7114	0.4246	700	42	21	0.0	1180	0.9	1
33	-3.5332	0.4200	718	42	73	0.1	1253	1.0	1
34	-3.3579	0.4179	736	42	208	0.2	1461	1.1	1
35	-3.1833	0.4181	753	42	372	0.3	1833	1.4	1
36	-3.0077	0.4204	771	42	485	0.4	2318	1.8	2
37	-2.8294	0.4245	789	42	583	0.4	2901	2.2	2
38	-2.6468	0.4304	807	43	549	0.4	3450	2.7	2
39	-2.4585	0.4376	826	44	395	0.3	3845	3.0	3
40	-2.2636	0.4457	845	45	310	0.2	4155	3.2	3
41	-2.0611	0.4540	865	45	255	0.2	4410	3.4	3
42	-1.8516	0.4612	886	46	193	0.1	4603	3.5	3
43	-1.6363	0.4663	908	47	155	0.1	4758	3.7	4
44	-1.4178	0.4680	930	47	264	0.2	5022	3.9	4
45	-1.1996	0.4657	951	47	522	0.4	5544	4.3	4
46	-0.9853	0.4596	973	46	1064	0.8	6608	5.1	5
47	-0.7778	0.4508	994	45	1837	1.4	8445	6.5	6
48	-0.5792	0.4403	1014	44	2534	1.9	10979	8.4	7
49	-0.3902	0.4292	1032	43	3153	2.4	14132	10.9	10
50	-0.2106	0.4183	1050	42	3680	2.8	17812	13.7	12
51	-0.0399	0.4080	1067	41	3962	3.0	21774	16.7	15
52	0.1227	0.3986	1084	40	3768	2.9	25542	19.6	18
53	0.2782	0.3902	1099	39	3796	2.9	29338	22.5	21
54	0.4276	0.3828	1114	38	3380	2.6	32718	25.1	24
55	0.5716	0.3765	1129	38	2910	2.2	35628	27.4	26
56	0.7112	0.3711	1143	37	2215	1.7	37843	29.1	28
57	0.8473	0.3666	1156	37	1812	1.4	39655	30.5	30
58	0.9803	0.3631	1169	36	1322	1.0	40977	31.5	31
59	1.1112	0.3604	1183	36	1295	1.0	42272	32.5	32
60	1.2404	0.3585	1195	36	1997	1.5	44269	34.0	33
61	1.3685	0.3575	1208	36	3016	2.3	47285	36.3	35
62	1.4961	0.3572	1221	36	3818	2.9	51103	39.3	38
63	1.6239	0.3578	1234	36	4783	3.7	55886	42.9	41
64	1.7524	0.3592	1247	36	5496	4.2	61382	47.2	45
65	1.8821	0.3614	1260	36	6137	4.7	67519	51.9	50
66	2.0138	0.3644	1273	36	5903	4.5	73422	56.4	54
67	2.1480	0.3684	1286	37	4718	3.6	78140	60.1	58
68	2.2854	0.3733	1300	37	2848	2.2	80988	62.2	61
69	2.4270	0.3792	1314	38	608	0.5	81596	62.7	62
70	2.5733	0.3862	1329	39	632	0.5	82228	63.2	63
71	2.7255	0.3941	1344	39	1156	0.9	83384	64.1	64
72	2.8843	0.4030	1360	40	2009	1.5	85393	65.6	65
73	3.0507	0.4128	1377	41	3049	2.3	88442	68.0	67
74	3.2253	0.4230	1394	42	4403	3.4	92845	71.4	70
75	3.4086	0.4332	1412	43	5972	4.6	98817	75.9	74
76	3.6005	0.4427	1431	44	7243	5.6	106060	81.5	79
77	3.8001	0.4506	1451	45	7147	5.5	113207	87.0	84
78	4.0059	0.4561	1472	46	5378	4.1	118585	91.1	89

Appendix N: 2007 Grade 5 Raw to Scale Score Table

Table N-1. 2007 Grade 5 Raw to Scale Score Table

Raw Score	Measure	Measure SE	Scale Score	Scale Score SE	Freq.	Freq. %	Cum. Freq.	Cum. Freq. %	Percentile
79	4.2154	0.4589	1493	46	1380	1.1	119965	92.2	92
80	4.4262	0.4589	1514	46	187	0.1	120152	92.3	92
81	4.6360	0.4568	1535	46	51	0.0	120203	92.4	92
82	4.8432	0.4535	1556	45	64	0.0	120267	92.4	92
83	5.0472	0.4497	1576	45	185	0.1	120452	92.6	92
84	5.2479	0.4463	1596	45	375	0.3	120827	92.9	93
85	5.4457	0.4435	1616	44	612	0.5	121439	93.3	93
86	5.6416	0.4418	1636	44	948	0.7	122387	94.1	94
87	5.8366	0.4415	1655	44	1540	1.2	123927	95.2	95
88	6.0318	0.4425	1675	44	1879	1.4	125806	96.7	96
89	6.2287	0.4453	1694	45	1722	1.3	127528	98.0	97
90	6.4289	0.4500	1714	45	511	0.4	128039	98.4	98
91	6.6344	0.4571	1735	46	0	0.0	128039	98.4	98
92	6.8478	0.4673	1756	47	3	0.0	128042	98.4	98
93	7.0725	0.4816	1779	48	9	0.0	128051	98.4	98
94	7.3136	0.5016	1803	50	17	0.0	128068	98.4	98
95	7.5789	0.5300	1829	53	42	0.0	128110	98.5	98
96	7.8810	0.5720	1860	57	98	0.1	128208	98.5	98
97	8.2440	0.6378	1896	64	214	0.2	128422	98.7	99
98	8.7213	0.7550	1944	76	414	0.3	128836	99.0	99
99	9.4828	1.0328	2020	103	620	0.5	129456	99.5	99
100	10.7328	1.8434	2145	184	668	0.5	130124	100.0	99

Appendix O:

2007 Grade 8 Raw to Scaled Score Table

Appendix O: 2007 Grade 8 Raw to Scale Score Table

Table O–1. 2007 Grade 8 Raw to Scale Score Table

Raw Score	Measure	Measure SE	Scale Score	Scale Score SE	Freq.	Freq. %	Cum. Freq.	Cum. Freq. %	Percentile
22	-7.4422	1.8380	700	184	17	0.0	17	0.0	1
23	-6.2062	1.0229	700	102	118	0.1	135	0.1	1
24	-5.4657	0.7405	700	74	203	0.1	338	0.2	1
25	-5.0109	0.6195	700	62	232	0.2	570	0.4	1
26	-4.6717	0.5502	700	55	234	0.2	804	0.6	1
27	-4.3946	0.5052	700	51	177	0.1	981	0.7	1
28	-4.1557	0.4739	708	47	120	0.1	1101	0.8	1
29	-3.9422	0.4514	730	45	74	0.1	1175	0.8	1
30	-3.7461	0.4350	749	44	47	0.0	1222	0.9	1
31	-3.5623	0.4230	768	42	23	0.0	1245	0.9	1
32	-3.3872	0.4144	785	41	25	0.0	1270	0.9	1
33	-3.2180	0.4087	802	41	68	0.0	1338	1.0	1
34	-3.0526	0.4053	819	41	216	0.2	1554	1.1	1
35	-2.8890	0.4039	835	40	418	0.3	1972	1.4	1
36	-2.7258	0.4042	851	40	602	0.4	2574	1.8	2
37	-2.5617	0.4061	868	41	574	0.4	3148	2.2	2
38	-2.3956	0.4093	884	41	533	0.4	3681	2.6	2
39	-2.2265	0.4134	901	41	404	0.3	4085	2.9	3
40	-2.0536	0.4182	918	42	281	0.2	4366	3.1	3
41	-1.8766	0.4232	936	42	235	0.2	4601	3.3	3
42	-1.6955	0.4277	954	43	165	0.1	4766	3.4	3
43	-1.5110	0.4311	973	43	147	0.1	4913	3.5	3
44	-1.3242	0.4329	991	43	255	0.2	5168	3.7	4
45	-1.1369	0.4325	1010	43	638	0.5	5806	4.1	4
46	-0.9508	0.4298	1029	43	1467	1.0	7273	5.2	5
47	-0.7680	0.4251	1047	43	2207	1.6	9480	6.7	6
48	-0.5898	0.4188	1065	42	3026	2.2	12506	8.9	8
49	-0.4174	0.4115	1082	41	3486	2.5	15992	11.4	10
50	-0.2513	0.4036	1099	40	3764	2.7	19756	14.0	13
51	-0.0915	0.3957	1115	40	3647	2.6	23403	16.6	15
52	0.0621	0.3881	1130	39	3485	2.5	26888	19.1	18
53	0.2099	0.3811	1145	38	3118	2.2	30006	21.3	20
54	0.3526	0.3747	1159	37	2533	1.8	32539	23.1	22
55	0.4909	0.3690	1173	37	1949	1.4	34488	24.5	24
56	0.6252	0.3642	1186	36	1534	1.1	36022	25.6	25
57	0.7563	0.3601	1199	36	1160	0.8	37182	26.4	26
58	0.8848	0.3570	1212	36	1270	0.9	38452	27.3	27
59	1.0114	0.3547	1225	35	1637	1.2	40089	28.5	28
60	1.1366	0.3532	1238	35	2398	1.7	42487	30.2	29
61	1.2611	0.3527	1250	35	3179	2.3	45666	32.4	31
62	1.3856	0.3531	1262	35	3569	2.5	49235	35.0	34
63	1.5107	0.3545	1275	35	4053	2.9	53288	37.9	36
64	1.6372	0.3569	1288	36	4155	3.0	57443	40.8	39
65	1.7657	0.3605	1300	36	3955	2.8	61398	43.6	42
66	1.8973	0.3653	1314	37	3264	2.3	64662	45.9	45
67	2.0330	0.3716	1327	37	2261	1.6	66923	47.6	47
68	2.1739	0.3795	1341	38	1373	1.0	68296	48.5	48
69	2.3215	0.3893	1356	39	930	0.7	69226	49.2	49
70	2.4777	0.4015	1372	40	1468	1.0	70694	50.2	50
71	2.6447	0.4163	1388	42	2579	1.8	73273	52.1	51
72	2.8255	0.4345	1406	43	4040	2.9	77313	54.9	53
73	3.0238	0.4567	1426	46	5762	4.1	83075	59.0	57
74	3.2445	0.4835	1448	48	7739	5.5	90814	64.5	62
75	3.4934	0.5147	1473	51	9157	6.5	99971	71.0	68
76	3.7759	0.5482	1501	55	9563	6.8	109534	77.8	74
77	4.0937	0.5775	1533	58	7901	5.6	117435	83.4	81

Appendix O: 2007 Grade 8 Raw to Scale Score Table

Table O–1. 2007 Grade 8 Raw to Scale Score Table

Raw Score	Measure	Measure SE	Scale Score	Scale Score SE	Freq.	Freq. %	Cum. Freq.	Cum. Freq. %	Percentile
78	4.4374	0.5916	1568	59	5056	3.6	122491	87.0	85
79	4.7847	0.5836	1602	58	1262	0.9	123753	87.9	87
80	5.1123	0.5593	1635	56	249	0.2	124002	88.1	88
81	5.4090	0.5299	1665	53	85	0.1	124087	88.2	88
82	5.6751	0.5023	1691	50	211	0.1	124298	88.3	88
83	5.9156	0.4792	1715	48	435	0.3	124733	88.6	88
84	6.1363	0.4610	1737	46	847	0.6	125580	89.2	89
85	6.3422	0.4471	1758	45	1332	0.9	126912	90.2	90
86	6.5373	0.4371	1778	44	1833	1.3	128745	91.5	91
87	6.7253	0.4306	1796	43	2561	1.8	131306	93.3	92
88	6.9090	0.4273	1815	43	2655	1.9	133961	95.2	94
89	7.0913	0.4270	1833	43	2125	1.5	136086	96.7	96
90	7.2747	0.4300	1851	43	599	0.4	136685	97.1	97
91	7.4620	0.4363	1870	44	4	0.0	136689	97.1	97
92	7.6566	0.4465	1890	45	11	0.0	136700	97.1	97
93	7.8623	0.4616	1910	46	27	0.0	136727	97.2	97
94	8.0847	0.4829	1932	48	73	0.1	136800	97.2	97
95	8.3319	0.5131	1957	51	148	0.1	136948	97.3	97
96	8.6169	0.5572	1986	56	312	0.2	137260	97.5	97
97	8.9639	0.6256	2020	63	479	0.3	137739	97.9	98
98	9.4264	0.7456	2066	75	797	0.6	138536	98.4	98
99	10.1745	1.0267	2141	103	1123	0.8	139659	99.2	99
100	11.4160	1.8403	2265	184	1079	0.8	140738	100.0	99

Appendix P:

2007 Grade 11 Raw to Scaled Score Table

Appendix P: 2007 Grade 11 Raw to Scale Score Table

Table P-1. 2007 Grade 11 Raw to Scale Score Table

Raw Score	Measure	Measure SE	Scale Score	Scale Score SE	Freq.	Freq. %	Cum. Freq.	Cum. Freq. %	Percentile
22	-7.8461	1.8378	700	184	7	0.0	7	0.0	1
23	-6.6109	1.0224	700	102	13	0.0	20	0.0	1
24	-5.8717	0.7396	700	74	60	0.0	80	0.1	1
25	-5.4184	0.6182	702	62	95	0.1	175	0.1	1
26	-5.0808	0.5485	736	55	77	0.1	252	0.2	1
27	-4.8057	0.5031	764	50	57	0.0	309	0.2	1
28	-4.5692	0.4712	787	47	50	0.0	359	0.3	1
29	-4.3584	0.4481	808	45	33	0.0	392	0.3	1
30	-4.1655	0.4309	828	43	13	0.0	405	0.3	1
31	-3.9857	0.4179	846	42	2	0.0	407	0.3	1
32	-3.8152	0.4083	863	41	6	0.0	413	0.3	1
33	-3.6516	0.4012	879	40	18	0.0	431	0.3	1
34	-3.4927	0.3961	895	40	62	0.0	493	0.4	1
35	-3.3373	0.3927	911	39	148	0.1	641	0.5	1
36	-3.1839	0.3907	926	39	229	0.2	870	0.6	1
37	-3.0317	0.3897	941	39	295	0.2	1165	0.9	1
38	-2.8800	0.3895	956	39	262	0.2	1427	1.1	1
39	-2.7281	0.3898	971	39	200	0.1	1627	1.2	1
40	-2.5759	0.3903	987	39	119	0.1	1746	1.3	1
41	-2.4235	0.3907	1002	39	80	0.1	1826	1.4	1
42	-2.2708	0.3907	1017	39	65	0.0	1891	1.4	1
43	-2.1183	0.3901	1032	39	51	0.0	1942	1.4	1
44	-1.9666	0.3886	1048	39	33	0.0	1975	1.5	1
45	-1.8165	0.3863	1063	39	192	0.1	2167	1.6	2
46	-1.6685	0.3831	1077	38	586	0.4	2753	2.0	2
47	-1.5232	0.3792	1092	38	1119	0.8	3872	2.9	2
48	-1.3810	0.3749	1106	37	1575	1.2	5447	4.0	3
49	-1.2421	0.3703	1120	37	1757	1.3	7204	5.3	5
50	-1.1066	0.3657	1134	37	1873	1.4	9077	6.7	6
51	-0.9745	0.3613	1147	36	1595	1.2	10672	7.9	7
52	-0.8455	0.3572	1160	36	1437	1.1	12109	9.0	8
53	-0.7192	0.3535	1172	35	1045	0.8	13154	9.8	9
54	-0.5954	0.3504	1185	35	747	0.6	13901	10.3	10
55	-0.4734	0.3479	1197	35	466	0.3	14367	10.7	10
56	-0.3531	0.3460	1209	35	435	0.3	14802	11.0	11
57	-0.2338	0.3449	1221	34	641	0.5	15443	11.5	11
58	-0.1151	0.3444	1233	34	1101	0.8	16544	12.3	12
59	0.0037	0.3448	1245	34	2546	1.9	19090	14.2	13
60	0.1228	0.3459	1257	35	3475	2.6	22565	16.8	15
61	0.2432	0.3479	1269	35	4349	3.2	26914	20.0	18
62	0.3651	0.3508	1281	35	5118	3.8	32032	23.8	22
63	0.4894	0.3546	1293	35	5521	4.1	37553	27.9	26
64	0.6169	0.3596	1306	36	5039	3.7	42592	31.6	30
65	0.7484	0.3657	1319	37	3696	2.7	46288	34.4	33
66	0.8847	0.3731	1333	37	2481	1.8	48769	36.2	35
67	1.0271	0.3820	1347	38	1284	1.0	50053	37.2	37
68	1.1770	0.3925	1362	39	781	0.6	50834	37.7	37
69	1.3358	0.4050	1378	41	1233	0.9	52067	38.7	38
70	1.5056	0.4195	1395	42	2111	1.6	54178	40.2	39
71	1.6887	0.4365	1413	44	4025	3.0	58203	43.2	42
72	1.8877	0.4559	1433	46	6412	4.8	64615	48.0	46
73	2.1055	0.4777	1455	48	9428	7.0	74043	55.0	51
74	2.3449	0.5009	1479	50	11802	8.8	85845	63.7	59
75	2.6075	0.5236	1505	52	12087	9.0	97932	72.7	68
76	2.8921	0.5421	1534	54	9807	7.3	107739	80.0	76
77	3.1924	0.5521	1564	55	5560	4.1	113299	84.1	82

Appendix P: 2007 Grade 11 Raw to Scale Score Table

Table P-1. 2007 Grade 11 Raw to Scale Score Table

Raw Score	Measure	Measure SE	Scale Score	Scale Score SE	Freq.	Freq. %	Cum. Freq.	Cum. Freq. %	Percentile
78	3.4975	0.5507	1594	55	2377	1.8	115676	85.9	85
79	3.7953	0.5393	1624	54	676	0.5	116352	86.4	86
80	4.0772	0.5219	1652	52	148	0.1	116500	86.5	86
81	4.3398	0.5029	1678	50	159	0.1	116659	86.6	87
82	4.5836	0.4849	1703	48	403	0.3	117062	86.9	87
83	4.8110	0.4694	1725	47	860	0.6	117922	87.5	87
84	5.0252	0.4567	1747	46	1502	1.1	119424	88.7	88
85	5.2292	0.4470	1767	45	2188	1.6	121612	90.3	89
86	5.4257	0.4400	1787	44	2780	2.1	124392	92.4	91
87	5.6172	0.4356	1806	44	2878	2.1	127270	94.5	93
88	5.8060	0.4339	1825	43	2154	1.6	129424	96.1	95
89	5.9944	0.4347	1844	43	1057	0.8	130481	96.9	96
90	6.1847	0.4382	1863	44	233	0.2	130714	97.0	97
91	6.3794	0.4448	1882	44	11	0.0	130725	97.1	97
92	6.5815	0.4550	1902	46	27	0.0	130752	97.1	97
93	6.7950	0.4698	1924	47	57	0.0	130809	97.1	97
94	7.0250	0.4906	1947	49	167	0.1	130976	97.2	97
95	7.2796	0.5201	1972	52	305	0.2	131281	97.5	97
96	7.5716	0.5633	2001	56	535	0.4	131816	97.9	98
97	7.9251	0.6307	2037	63	802	0.6	132618	98.5	98
98	8.3936	0.7494	2084	75	959	0.7	133577	99.2	99
99	9.1471	1.0291	2159	103	776	0.6	134353	99.7	99
100	10.3918	1.8414	2283	184	339	0.3	134692	100.0	99

Appendix Q:
2007 Performance Level Descriptors

**Pennsylvania Department of Education
Grade 5 Writing
Performance Level Descriptors**

A student scoring at the **Advanced Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a comprehensive command of composition skills. A student writing at this level

1. writes with a sharp, distinct focus that identifies topic and task
2. shows a sophisticated awareness of audience and mode
3. –
4. gathers, organizes, and selects substantial, effective content appropriate for topic, task, and audience
5. –
6. develops paragraphs with strong topic sentences and illustrative supporting details
7. crafts effective introductions, bodies, and conclusions
8. uses logical organizational structures and strategies within sentences and between paragraphs to thoroughly develop content
9. uses a variety of effective transitions to develop a controlling idea
10. varies lengths and patterns of simple and compound sentences
11. utilizes vivid and precise language to develop and maintain a consistent voice
12. revises writing to effectively improve organization, word choice, logic, order of ideas, and precision of vocabulary
13. demonstrates skill in editing to eliminate most errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Proficient Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a thorough understanding of composition skills. A student writing at this level

1. writes with a clear focus that identifies topic and task
2. shows a general awareness of audience and mode
3. –
4. gathers, organizes, and selects content appropriate for topic, task, and audience
5. –
6. develops paragraphs with topic sentences and relevant supporting details
7. produces adequate introductions, bodies, and conclusions
8. uses logical organizational structures and strategies within sentences and between paragraphs to sufficiently develop content
9. uses functional transitions to develop a controlling idea
10. varies lengths and patterns of simple and compound sentences
11. utilizes precise language to develop and maintain a consistent voice
12. revises writing to sufficiently address organization, word choice, logic, order of ideas, and precision of vocabulary
13. demonstrates skill in editing to eliminate common errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Basic Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a limited understanding of composition skills. A student writing at this level

1. writes with a vague or indistinct focus to identify topic and/or task
2. shows a limited awareness of audience and mode
3. –
4. needs assistance to gather and select content appropriate for topic, task, and audience
5. –
6. constructs under-developed paragraphs with unclear topic sentences and/or insufficient supporting details
7. produces inadequate introductions, bodies, and/or conclusions
8. shows limited ability to use logical organizational structures and/or strategies within sentences and/or between paragraphs to develop content
9. uses few and/or ineffective transitions
10. lacks variety in lengths and patterns of simple and compound sentences
11. utilizes vague or imprecise language often leading to an ineffective voice
12. demonstrates limited ability to revise writing
13. shows a limited ability to eliminate errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Below Basic Level** produces writing that demonstrates a below grade-level understanding of composition skills and requires extensive assistance with composing, revising, and editing.

Appendix Q: Performance Level Descriptors for Writing
Pennsylvania Department of Education
Grade 8 Writing
Performance Level Descriptors

A student scoring at the **Advanced Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a comprehensive command of composition skills. A student writing at this level

1. writes with a sharp, distinct focus that identifies topic and task
2. shows a sophisticated awareness of audience and mode
3. establishes a single point of view when appropriate
4. gathers valid and reliable information and organizes substantial, effective content appropriate for topic
5. employs most effective format for purpose and audience
6. develops paragraphs with illustrative supporting details specific to the topic and relevant to the focus
7. crafts effective introductions that establish topic and purpose; crafts effective conclusions that reiterate topic and purpose
8. uses logical and sophisticated organizational structures and strategies within sentences and between paragraphs to thoroughly develop content
9. uses a variety of effective transitions to develop a controlling idea
10. varies lengths and patterns of simple, compound, and complex sentences
11. utilizes vivid and precise language to maintain a consistent voice and tone
12. revises writing to effectively improve logic and organization, content, paragraph development, detail, style, tone, and word choice
13. demonstrates skill in editing to eliminate most errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Proficient Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a thorough understanding of composition skills. A student writing at this level

1. writes with a clear focus that identifies topic and task
2. shows a general awareness of audience and mode
3. establishes a single point of view when appropriate
4. gathers valid and/or reliable information and organizes content appropriate for topic
5. employs effective format for purpose and audience
6. develops paragraphs with supporting relevant details specific to the topic and relevant to the focus
7. produces adequate introductions that establish topic and purpose; produces adequate conclusions that reiterate topic and purpose
8. uses logical organizational structures and strategies within sentences and between paragraphs to sufficiently develop content
9. uses functional transitions to develop a controlling idea
10. varies lengths and patterns of simple, compound, and complex sentences
11. utilizes precise language to maintain a consistent voice and tone
12. revises writing after rethinking to sufficiently address logic and organization, content, paragraph development, detail, style, tone, and word choice

13. demonstrates skill in editing to eliminate common errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Basic Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a limited understanding of composition skills. A student writing at this level

1. writes with a vague or indistinct focus to identify topic and/or task
2. shows a limited awareness of audience and mode
3. may not establish a single point of view
4. needs assistance to gather valid and/or reliable information and organize content appropriate for topic
5. may employ ineffective format for purpose and/or audience
6. constructs under-developed paragraphs with insufficient supporting details
7. produces inadequate introductions and/or conclusions
8. shows limited ability to use logical organizational strategies within sentences and/or between paragraphs
9. uses few and/ineffective transitions
10. lacks variety in lengths and patterns of simple, compound, and/or complex sentences
11. utilizes vague or imprecise language often leading to an ineffective voice and/or tone
12. demonstrates limited ability to revise writing
13. shows a limited ability to eliminate errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Below Basic Level** produces writing that demonstrates a below grade-level understanding of composition skills and requires extensive assistance with composing, revising, and editing.

**Pennsylvania Department of Education
Grade 11 Writing
Performance Level Descriptors**

A student scoring at the **Advanced Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a comprehensive command of composition skills. A student writing at this level

1. writes with a sharp, distinct focus that identifies topic and task
2. shows a sophisticated awareness of audience and mode
3. establishes and maintains a single point of view when appropriate
4. gathers and organizes valid and reliable information; analyzes substantial, effective content appropriate for topic
5. employs most effective format for purpose and audience
6. writes fully-developed paragraphs with illustrative supporting details specific to the topic and relevant to the focus
7. crafts effective introductions and conclusions
8. uses logical and sophisticated organizational structures and strategies to thoroughly develop content
9. uses a variety of effective transitions to develop a controlling idea
10. varies lengths, types, and patterns of sentences
11. utilizes vivid and precise language throughout to maintain a consistent voice and tone
12. revises writing to effectively improve style, word choice, sentence variety and subtlety of meaning after rethinking purpose, audience, and genre
13. demonstrates skill in editing to eliminate most errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Proficient Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a thorough understanding of composition skills. A student writing at this level

1. writes with a clear focus that identifies topic and task
2. shows a general awareness of audience and mode
3. establishes and maintains a single point of view when appropriate
4. gathers and organizes valid and/or reliable information; analyzes content appropriate for topic
5. employs effective format for purpose and audience
6. writes well-developed paragraphs with relevant supporting details specific to the topic and relevant to the focus
7. produces adequate introductions and conclusions
8. uses logical organizational structures and strategies to sufficiently develop content
9. uses functional transitions to develop a controlling idea
10. varies lengths, types, and patterns of sentences
11. utilizes precise language to maintain a consistent voice and tone
12. revises writing to sufficiently address style, word choice, sentence variety and subtlety of meaning after rethinking purpose, audience, and genre

13. demonstrates skill in editing to eliminate common errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Basic Level** produces narrative, informational, and persuasive pieces of writing that demonstrate a limited understanding of composition skills. A student writing at this level

1. writes with a vague or indistinct focus to identify topic and/or task
2. shows a limited awareness of audience and mode
3. may establish but not maintain a single point of view
4. needs assistance to gather valid and/or reliable information and organize content appropriate for topic
5. may employ ineffective format for purpose and/or audience
6. constructs under-developed paragraphs with insufficient supporting details
7. produces inadequate introductions and/or conclusions
8. shows a limited ability to use logical organizational structures and/or strategies to develop content
9. uses few and/or ineffective transitions
10. lacks variety in types and patterns of sentences
11. utilizes vague or imprecise language often leading to an ineffective voice and/or tone
12. demonstrates limited ability to revise writing
13. shows a limited ability to eliminate errors in spelling, capitalization, punctuation, usage, and sentence structure

A student scoring at the **Below Basic Level** produces writing that demonstrates a below grade-level understanding of composition skills and requires extensive assistance with composing, revising, and editing.