



Student Progress Indicators INTERPRETING PREDICTIONS

ABOUT

PENNSYLVANIA FIREFLY:

The Pennsylvania Firefly Student Progress Indicators (Firefly) are benchmark assessments designed for Pennsylvania. These assessments are aligned to Pennsylvania standards and measure similar knowledge and skills as the PSSA and Keystone Exams. The Firefly assessments are fully online, computer-adaptive, delivered on the same platform as the summative assessments and provide predictions for student performance on the PSSA and Keystone Exams.

Firefly assessments are available for ELA grades 3–8, Mathematics grades 3-8, Science grade 5 and 8, Algebra I, Biology and Literature.



INTERPRETING PREDICTIONS - PSSA

Each student receives an Individual Student Report (ISR) after completing the Firefly assessment. The ISR provides scaled scores for each reporting category and a prediction for student performance level (Advanced, Proficient, Basic or Below Basic) on the PSSA. The prediction is based on the season in which Firefly was administered and assumes the student maintains the same learning trajectory between administration(s) of Firefly and the PSSA. As an example of seasonal predictions, DRC used student performance from the December 1, 2024, – February 28, 2025, (winter) Firefly administration, as well as PSSA performance in spring 2025, to develop the winter prediction model. As such, the prediction a student receives from a Firefly test taken during a winter administration reflects expected performance in the spring. The prediction does not reflect how the student would perform on the summative assessment if they were to take the PSSA the same day the student took the Firefly.

The prediction models change based upon the season of administration. Across seasons, the same earned scale score on Firefly does not necessarily map to the same predicted performance level. If a student earned the same Firefly scale score in fall and winter, the student did not demonstrate progress between the two seasons. For example, if a student earned a scale score of 605 on Firefly mathematics grade 7 in both the fall and winter seasons, the fall ISR would include a prediction of Proficient on the PSSA mathematics assessment. However, the winter ISR would include a prediction of Basic since more instruction had occurred by the winter administration while the student’s Firefly scale score did not increase. A student’s Firefly scale score must increase to maintain the same predicted performance level across seasons for most content areas and grade levels since students are expected to demonstrate increased mastery of knowledge and skills throughout the year.

A table with the dates for each season is shown below:

Season	Dates for School Year 2025-26
Fall	Oct. 6, 2025 – Nov. 30, 2025
Winter	Dec. 1, 2025 – Feb. 28, 2026
Spring (PSSA)	March 1, 2026 – April 17, 2026
Spring (Keystone)	March 1, 2026 – May 11, 2026

The ISR also includes the percent likelihood, or probability, that a student will earn each of the four performance levels. For example, the ISR may report probabilities of 5%, 40%, 45%, and 10% for the performance levels of Below Basic, Basic, Proficient, and Advanced, respectively. The student is predicted to earn a performance level of Proficient given the maximum probability of 45%. However, the likelihood of earning a Basic performance level is very close (within 5%) to the likelihood of a Proficient performance level. The student is almost as likely to earn a Basic performance level as a Proficient performance level. Therefore, when students, teachers, or parents interpret the predicted performance level, they should also review and consider the probabilities of adjacent performance levels.

You can view sample ISRs and the ISR Interpretation Guide on the Firefly page of the PDE website: [PDE Firefly Webpage](#)

NOTE: Since 2025-26 is the pilot year for the Firefly Science assessment, the student reports for that subject will not include predictions for PSSA Science. Predictions for Science tests will be added to the Firefly student reports beginning with the 2026-27 school year.



INTERPRETING PREDICTIONS – KEYSTONE EXAMS

When students, teachers, and parents interpret predictions of Keystone Exam performance, they should consider these additional factors. The data used to develop Firefly prediction models for Algebra I and Literature Keystone Exams included only first-time testers from the spring 2025 Keystone administration; the models did not include data from first-time testers from the winter or summer Keystone administrations. The models included data from students enrolled in an alternative or block schedule course if they took a Keystone exam in spring, 2025.

The condensed timeline of a block schedule might impact the prediction of student success. Predictions are based upon the season in which the student takes the Firefly assessment. The same predictive model is applied when a student enrolled in a block schedule course takes the corresponding Firefly assessment multiple times in a single season. If the student's score improves within the season (which we would expect), the prediction could overestimate the student's preparedness for the Keystone assessment. The higher score would cause the prediction model to assign a higher success probability based on expectations for a full-year course (i.e., the amount of content instruction), which is not necessarily representative of expectations for students enrolled in a block schedule course. We plan to evaluate and analyze the accuracy of predictions for students enrolled in block schedule courses once scheduling data is available.

Additionally, repeat testers tend to have different learning trajectories. The predictions were based on data from students who progress in a typical scope and sequence of curriculum (learning trajectory); as such, we excluded repeat testers from prediction model development because there are a number of variables that might affect the prediction. These include the time between a student's first enrollment in the associated Keystone course, the time elapsed between first Keystone exam and subsequent retest opportunities, and whether the student was previously or is currently enrolled in a remedial class. We sought to minimize and control the variance and error of the predictive model by selecting only first-time testers in the development of the prediction model.

NOTE: Since 2025-26 is the pilot year for the Firefly Biology assessment, the student reports for that subject will not include predictions for Keystone Biology. Predictions for Biology tests will be added to the Firefly student reports beginning with the 2026-27 school year.

