Florida's Statewide Kindergarten–Grade 2
Computer-Adaptive Tests (CAT)
Frequently Asked Questions (FAQ)

This document provides information about the adaptive functionality of Florida's statewide kindergarten through grade 2 assessments. For the assessments described in this document, Renaissance Learning is the testing vendor that provides the computer-based testing platform and adaptive algorithm.

1. **What is a Computer-Adaptive Test (CAT)?**

   A CAT is tailored to the student's ability based on whether the student responded successfully to the preceding item or sets of items. Each time a student answers a question, his or her response helps determine the next question that will be presented.

2. **Which tests are CAT?**

   The following assessments are CAT:

   - Florida Assessment of Student Thinking (FAST) K–2 Early Literacy, Reading, and Mathematics
   - FAST Grades 3–10 English Language Arts (ELA) Reading
   - FAST Grades 3–8 Mathematics
   - Benchmarks for Excellent Student Thinking (B.E.S.T.) Algebra 1 and Geometry end-of-course (EOC) EOC assessments
   - Grades 5 and 8 Science
   - Biology 1, Civics, and U.S. History EOC assessments

   For information about how CAT assessments function for Grades 3–10 and EOC assessments, please see Florida's Statewide Grades 3–10 and End-of-Course (EOC) Computer-Adaptive Tests (CAT) FAQ.

3. **What are the benefits of a CAT?**

   - The test attempt is tailored to the ability level of a student, so the precision of the resulting test score is increased across all ability levels.
   - The tests are more precise because the test is adapting dynamically to the students' ability level, so fewer items can be delivered to the student than a fixed-form test.
   - The tests are more secure as each student may see different items.
   - Results are delivered the same day that the student takes the test.

4. **How does the CAT algorithm work?**

   The algorithm selects test items from a common item bank. The item selection is driven by two things: the test blueprint (described in #6 below) and student performance. During a test attempt, the CAT algorithm evaluates which items have already been administered against the test blueprint to identify and select items that ensure the test content meets the pre-specified test blueprint. Once these items are identified, how a student has responded to the previously administered items informs the algorithm as to whether it selects easier or more challenging items to appear next. In general, when an item is answered incorrectly, the student is then given an easier item. When an item is answered correctly, the student is then given a more difficult item.

5. **On K–2 FAST tests, do the items selected by the algorithm go above and below the student's current grade level?**

   Yes, but only in terms of difficulty. K–2 CAT tests must conform to the grade-based test blueprint, which is designed to administer items at the current grade level. However, based on the student's ability level, the CAT algorithm searches for easier or more difficult items, which may result in selecting items from below or above the grade level with some limitations. In other words, even if the CAT algorithm selects items above or below grade level, a set of items seen by students in their test satisfies the grade-based blueprint requirements. Grade item exposure limitations vary as follows: for Early Literacy, the algorithm can select below grade items within the required blueprint

area but not above grade items; for Mathematics, the algorithm can select below grade items and above grade items up to three grade levels above the student's current grade level; for Reading, there is no grade cap in item selection once the item meets the grade-based blueprint requirements.

Items for K–2 Early Literacy, Reading, and Mathematics are on a vertical scale, meaning that item difficulties within each item bank are on a common scale that spans all grade levels covered by the assessment. Student abilities are estimated on the same scale as item difficulty, and thus, enable the test to precisely locate students on the ability continuum that spans across the grades.

6. **What is a test blueprint?**

The Early Literacy, Reading, and Mathematics blueprints show the counts of items under each assessed strand that are grade-appropriate and administered to students in each PM window. Blueprint coverage ensures that each student sees the full coverage of all strands assessed by the test, but not all benchmarks are assessed. Renaissance's Star blueprints are available in each test's technical manual.

7. **How does the algorithm select the first item for each student?**

If the system has prior data for a student for the same subject within six months, either from a prior grade or a prior PM event, the algorithm will pick up where the student left off in terms of item difficulty. If students take Star tests in between PM windows, this data will not be used for their next FAST assessment. The starting point for FAST tests only come from the most recent FAST test.

For any student who has not taken a test in a given subject within six months, the algorithm will choose an item with a difficulty level that is relatively easy at that student's grade level. Adaptive branching begins with the student's first response, presenting more difficult items with each correct response or less difficult items with each incorrect response. Initial starting points vary by grade level and are based on research conducted as part of the national item norming study.

8. **If a student starts with a low-level item, does it affect his or her ability to achieve a high scale score?**

No. The test is sufficiently long enough for all students to be presented with test content that allows them to demonstrate their true ability. Although a student may start with easier questions based on performance on a prior PM, if he or she has increased knowledge, skills, and abilities, the test will adapt appropriately to accurately measure the student's ability level.

9. **How is the difficulty level determined for each item?**

Data analyses are conducted after field testing, and item difficulty parameters are estimated using Item Response Theory (IRT) methods. For instance, an item with a low percentage of students correctly answering is likely to have a higher difficulty level. In CAT, the difficulty of the next item is determined based on test blueprint and student performance in prior items. The algorithm selects items first on the blueprint. Then, from the items that measure that standard, it selects the item with the most appropriate difficulty based on the student's performance on previous items. In general, a more difficult item will be selected when the previous item is answered correctly, and an easier item will be selected if the previous item is answered incorrectly.

10. **If a student enters an incorrect response to an item, will the algorithm select a lower-level item next even if it is from a different reporting category?**

The algorithm discriminates by overall performance, not by content area. It will always select the next item based on the blueprint requirements and the estimate of the student's ability. This estimate becomes more reliable as the student progresses through the test.

11. **Will students all receive the same number of items?**

For a given PM event, students will receive the same number of items. Star Early Literacy has 27

items, Star Reading has 34 items, and Star Math has 34 items. For all subject tests, students will also encounter 1 to 3 field test items. Field test items do not contribute to student scores.

12. Can students skip items?

Students must provide an answer for each item to move on to the next item. After a student answers each item, the adaptive algorithm updates its interim ability estimate (or interim skill level). Based on that information, plus the blueprint coverage requirements, the algorithm searches for the next best item to be administered. This cycle continues until the end of testing, and it results in a tailored test form. The final ability estimate (or scale score) is derived from a student's final response set across all items seen during the test. A student must answer each question so that the adaptive algorithm can search for the next best item at each step of testing.

13. Can students return to an item and change the answer?

No. For FAST K–2 tests, students cannot return to items or change an answer once a response is submitted.

14. Are the tests timed?

Scores are not based on how quickly a student answers questions, but there is a time limit for answering each question. For example, for Mathematics, each practice question has a 90-second time limit, and each test question has a 4-minute time limit. These time limits can be extended for students with accommodations using the Extended Question Time Limit Preference (which will allow 3 minutes for practice questions and 8 minutes for Mathematics test questions, for example).

Fifteen seconds before the time is up for a question, the program flashes a picture of a clock on the screen to prompt the student to enter a response. If the student does not enter an answer before time runs out, the question will disappear, the program will notify the student that time has run out, and the question will be marked incorrect. Then, the next question will appear.

15. Are there specific test strategies that students should use when taking a FAST CAT?

Because the test is computer-adaptive, students should do their best on each item as they progress through the test. Students cannot preview all items in the test because they must respond to each item before proceeding.

16. How is the overall scale score determined?

Overall student ability is estimated based on the student's responses to all items that have been administered and item difficulties. The student ability estimate is then transformed to a scale score for ease of interpretation. Students who answer the same number of items correctly may have different scale scores depending on the difficulties of the items they were administered. Students who responded correctly to more difficult items in CAT will have a higher scale score.

17. What is the FAST Equivalent Score?

In the spring of 2023, Renaissance and Cambium created a vertical link between the Renaissance Star Unified Scale and the Florida B.E.S.T. scale. The purpose was to create a link bridging grades 2 and 3 across the K–2 and 3–10 testing programs, yielding a FAST Equivalent Score. The FAST Equivalent Score represents a student's Unified Scaled Score on the Florida B.E.S.T. Scale and can give a general idea of how well a student would have performed on the B.E.S.T. scale. This score can be seen on the Star Screening Report and the Star Student Report in the Renaissance Star Platform. This document shows how to run the reports.

18. What is the difference between the Unified Score and the FAST Equivalent Score?

The Star Unified Scale provides scores on a consistent, common scale across all Star computer-adaptive assessments: Star Early Literacy, Star Reading, and Star Mathematics. The Star Unified Scale spans the entire range of skills measured by both Star Early Literacy and Star Reading, making it

easier for educators to measure student achievement and growth as students transition from emergent readers to independent readers. The Star Unified scale is wider than the B.E.S.T. scale and has a greater range of scores. As a result, there are cases where multiple Star Unified scores map to a single FAST Equivalent Score. Because of this, some scores on the lower end of the scale map to a FAST Equivalent Score of zero. Similarly, some Star Unified scores map to the maximum possible FAST Equivalent Score. For score interpretation, a zero FAST Equivalent Score does not mean a student has not learned anything.

19. **How were the cut scores for achievement levels at each grade determined?**

FAST equivalent scores are classified into five achievement levels. The cut scores for the achievement level classifications were determined through the standard setting process in the summer of 2023 for K–2 Early Literacy, Reading, and Mathematics and approved by the Florida State Board of Education in October 2023. More information can be found on FDOE's Standard Setting page.

For questions related to this document, please contact the Office of Assessment at Assessment@fldoe.org.

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Change Log

Location	Change	Date
#6	Provided additional details about test blueprint availability.	February 20, 2025
#7	Clarified the starting point for FAST K–2 assessments.	February 20, 2025

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