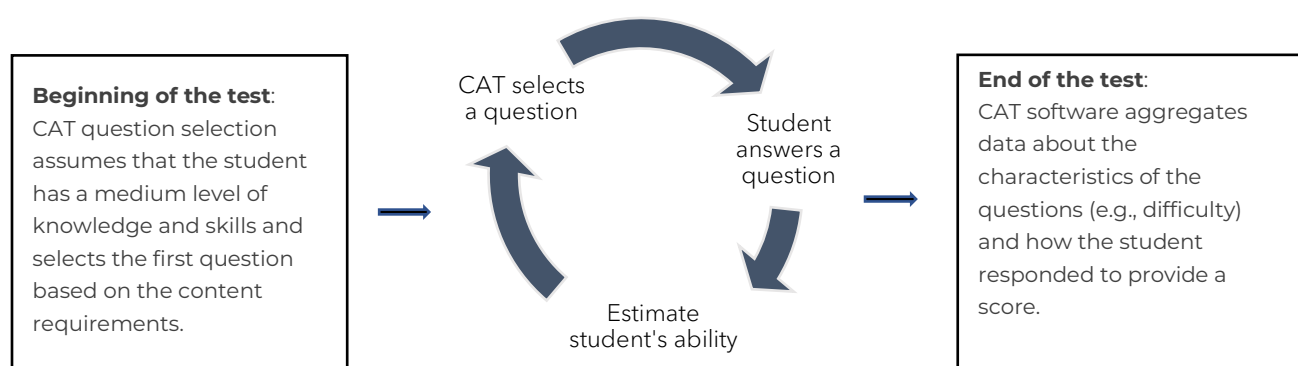


Beginning in the 2022-2023 testing season, the Maryland State Department of Education (MSDE) introduced Computer-Adaptive Testing (CAT) to assess students in mathematics. In a computer-adaptive test, there is a group of questions of different difficulty levels, and each student is only tested on a subset of those questions. Test questions for each student are selected from the group based on how the student has answered prior questions while meeting the requirements of content, test design, and policy.

Computer adaptive tests use a selection algorithm, or formula, to select questions from a large group of questions that results in a unique test for each student. After each question is administered and answered, a student's ability is estimated, and the next question is selected to best match the student's ability. The purpose is to accurately measure the student's knowledge and skills in the tested subject and grade level.



The student must answer each question before moving to the next. Once the test is complete, the student's score is estimated based on characteristics of the questions (e.g., the difficulty) received and the student's responses to those items.

All questions presented to a student, no matter their level of difficulty, are grade-level appropriate. Furthermore, all students are tested on the same test [blueprint](#), which describes the structure and content of the test, including the topics that will be tested and the number and types of questions that will be used. This ensures that all students are tested on the same standards.

BENEFITS OF COMPUTER-ADAPTIVE TESTING

Tailored to Each Student	<ul style="list-style-type: none"> Because questions are tailored to each student, CAT provides a more personalized testing experience. All students experience an appropriate level of challenge for potentially having a higher level of engagement.
More Precise Measurement	<ul style="list-style-type: none"> CAT has greater measurement precision for each student. CAT scores can more accurately pinpoint what students know and can do.
More Actionable Results	<ul style="list-style-type: none"> Results offer guidance for developing effective instructional strategies.

FREQUENTLY ASKED QUESTIONS

1. In a computer-adaptive test, each student may answer a different set of questions. So, how can test results be aggregated and compared?

To ensure fair comparisons of student performance, several measures are implemented. Firstly, each MCAP assessment adheres to a [blueprint](#) that establishes the test's structure, content, and question types. This blueprint guarantees consistent measurement across students. Secondly, to address variations in question difficulty encountered by different students, statistical procedures are employed. These industry-standard methods, utilized in assessments nationwide, adjust scores to reflect equivalent performance levels regardless of the specific questions encountered by each student.

2. Will the previous fixed form test¹ design still be administered in mathematics after the introduction of computer-adaptive testing?

Yes. At this time, the CAT design has been introduced for mathematics grades 3 to 8, and Algebra I whereas Algebra II and Geometry are still utilizing a fixed form design. Additionally, the fixed form of the test will be available for any student who requires specific accessibility features and/or requires this format based on their approved accommodations. English Learners approved in their EL Plan to be assessed in Spanish will take the fixed form test.

3. How long are the computer-adaptive tests in mathematics, and how much time do students have to answer all questions?

The MCAP mathematics assessments have approximately 35 questions organized into four sections. All students in the same grade have the opportunity to answer the same number of questions. Students must answer each question before moving to the next, and they have up to 40 minutes per section.

4. Will students be able to review their answers before submitting them?

Yes. Students can mark questions for review within each section, then revisit all questions (marked or not) before submitting their responses for that section. However, the updated answers will not change any question that the student has already seen. Once all the questions in a section are submitted, the student will not be able to go back to that section.

5. How are unanswered questions handled in the math computer-adapted tests?

Students must answer each question before moving to the next. However, there may be cases where a student leaves a question unanswered. For example, a student may answer each question and move through the test but run out of time before getting to answer all questions. Unanswered questions are treated as incorrect and will be reflected in a students' score as incorrect responses.

¹ For MCAP, fixed form assessments are based on the same test blueprint as computer-adaptive assessments. Test takers answer a predetermined set of questions that do not adjust based on performance.

6. How are constructed response questions handled in the math computer-adapted tests?

Constructed response questions are questions where a student must provide a written explanation of how they solved a math problem. Answers to constructed response questions are scored after the student completes the test by scoring professionals and/or an automated scoring engine. Therefore, the student's response to this type of question will have no impact on the difficulty level of subsequent questions.