

The Smarter Balanced Assessment System includes computer adaptive tests that are customized to each student. During the test, the difficulty of questions changes based on student responses. In this way, adaptive tests provide more precise information about student achievement in less time than a “fixed-form” test in which all students see the same set of questions.

Two ingredients are required to create an effective computer adaptive test:

- The **test blueprint** describes the content that will be covered on the assessment. The Smarter Balanced test blueprint ensures that the full range of knowledge and skills in the Common Core State Standards will be assessed. In addition, the test blueprint specifies the number and types of questions associated with each section of the assessment.
- The **adaptive software** is a set of rules that determine which questions a student will be given during the assessment. Drawing on a large pool of questions, the software ensures that each student’s test fulfills the test blueprint—meaning that all content areas are covered with sufficient detail to provide an accurate score—and it adjusts the level of difficulty of questions based on student responses to accurately assess the strengths and weaknesses of each student.

Test Blueprint

- ✓ Covers the full range of Common Core English and math standards
- ✓ Specifies number of items, score points, and depth of knowledge
- ✓ Available online at: <http://www.smarterbalanced.org/smarter-balanced-assessments/>

Adaptive Software

- ✓ Builds the best test for each student by selecting questions that satisfy the test blueprint and match student performance
- ✓ Open source program available to states and assessment providers
- ✓ More information available online at: <http://www.smarterapp.org/documents/AdaptiveAlgorithm-Preview-v3.pdf>

How the Smarter Balanced Adaptive Software Works

The adaptive software runs in the background while students complete the assessment. After each response, it selects the next question based on a number of criteria, including: the specifications from the test blueprint; the number of times a question is likely to be used (to prevent overexposure of questions); and previous responses from the student.

Test Begins

Students receive an initial question in the medium range of grade-level difficulty.

Adaptive Software Selects Items

The adaptive software selects subsequent questions that meet the specifications of the test blueprint and are matched to student performance.

Test Ends

The test ends once the adaptive software determines that all the specifications from the test blueprint have been met and there is sufficient information to provide accurate scores.

A Better Picture of Student Achievement

All assessments provide estimates of student achievement. Since adaptive tests are customized to each student, the results have smaller margins of error. This allows schools to more reliably measure student growth over time. It also means that as students advance from one grade to the next, teachers and parents can be confident that higher scores reflect real learning gains.

Adaptive testing is also more accurate across the range of students—from those who are most advanced to those who are struggling. The Smarter Balanced adaptive software is configured to select only from grade-level questions for approximately the first two-thirds of the test. At that point, if the estimate of the student's achievement level is clearly at the lowest (or highest) level, the question pool is expanded to include (as needed) questions either from below (or above) the student's grade level. Before being used, out-of-grade questions are screened to make sure they are instructionally and developmentally appropriate. Expanding the question pool to include out-of-grade questions can help create a more complete picture of each student's knowledge and skills.

Common Questions about Adaptive Testing

If students are asked different questions, how can we compare their results?

Each student's test must meet the requirements of the test blueprint. The blueprint specifies the content areas and types of questions that will appear on the test. For example, if the test blueprint requires that each student receive two questions about adding fractions, the adaptive software will select two questions from a group of perhaps a dozen that assess the ability to add fractions.

If an advanced student correctly answers many challenging questions, will he or she receive the same score as a struggling student who correctly answers the same number of easier questions?

No. Each question is placed on a scale of difficulty. Students who answer many challenging questions correctly will receive higher scores, which will correspond to higher achievement levels.

What about students with special needs who are advanced in some areas and much weaker in others?

The English and math assessments each include several content areas in which students will be

assessed. In English, students will be assessed on reading, writing, listening, and research. In math, questions will focus on concepts and procedures, problem solving and modeling/data analysis, and communicating reasoning. A student with strong skills in one area will be able to demonstrate them because the adaptive software will give the student the opportunity to respond to each content area.

Can students review and change their answers?

Yes. Students may go back and modify their responses within a test segment. The adaptive software continually works to tailor the test to each student, so a modified response will simply generate a new question that satisfies the test blueprint and matches student performance.

How does the adaptive software handle questions that cannot be automatically scored?

The adaptive portion of the assessments include some "constructed response" questions that must be scored by human readers. Student responses to these questions and to questions in the performance tasks will be combined with the machine-scored questions into a single score report.

QUESTIONS