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Passage-Based Computer Adaptive Testing for Reading: Frequently Asked Questions

Passage-based computer adaptive testing is part of the Virginia Department of Education's (VDOE) continuing effort to improve the testing experience of students. Beginning in spring 2017, the grades 3-5 Reading Standards of Learning (SOL) tests will be administered in a passage-based computer adaptive format. VDOE plans to expand computer adaptive testing in future years to other grades and subject areas as resources allow.

What is a passage-based SOL test and what is passage-based computer adaptive testing?

A passage-based SOL test is a test that presents a reading passage for the students to read followed by a number of test questions about the passage. Additional passages and the related questions are presented throughout the test.

A passage-based computer adaptive reading test is an assessment format that provides a customized assessment for every student. The computer selects the passages and questions that are neither too difficult nor too easy based on the content knowledge demonstrated by each test taker. A passage and item set are selected from a collection or "pool" of passages and questions. The questions associated with a passage may have multiple variations of item difficulty. A student's performance on the entire set of questions for a passage will determine the overall level of difficulty for the set of items delivered to the student with the next passage.

How does passage-based computer adaptive testing work?

Tests begin with a student being administered a passage and an associated set of items that have a medium level of difficulty. Each subsequent passage and set of items administered to a student is selected based on the student's performance on the previous set of questions. This is determined by the overall number of questions answered correctly by the student as well as the difficulty level of those questions. A student who answers more questions correctly in a passage set of items is more likely to get a slightly more difficult set of items in the next passage set. Conversely, if a student answers more questions incorrectly in the passage set, a slightly less difficult set of items will likely be administered in the next passage set.

In passage-based computer adaptive testing, students must answer each question before proceeding to the next question and they are not able to skip questions. However, once a question is answered, the student is able to navigate back to previous questions within that same passage set of items to review or change an answer. Once the student proceeds to the next passage, the student can no longer go back to a previous passage and its associated questions.

How are computer adaptive tests scored?

Scores are determined by the number of questions a student answers correctly and the relative difficulty of the correctly answered items. While the questions on passage-based computer adaptive tests vary in difficulty from student to student, all students must answer the same number of items to complete a test.

Did students have an opportunity to try computer adaptive testing before VDOE decided to introduce the testing format statewide?

Yes. During 2013-2014, approximately 3,000 students participated in a pilot of computer adaptive testing. Students took computer adaptive versions of either the Grade-7 Mathematics SOL test or the Grade-8 Reading SOL test. Virginia students were then administered the first live version of a computer adaptive test beginning in spring 2015 with the grade 6 mathematics test. Additional mathematics computer adaptive tests were administered in spring 2016 for grade 3 and grades 7-8.

What are the benefits of computer adaptive testing?

States employing computer adaptive testing in elementary and secondary schools report increased student engagement and fewer security risks.

Is computer adaptive testing new?

No. Computer adaptive testing is a well-established, scientifically validated and widely used assessment format. The Algebra Readiness Diagnostic Test, which Virginia students have been taking since 2002, is administered in a computer adaptive format. In addition, computer adaptive testing is used by professional boards, the military and other organizations to accurately measure knowledge and ability.