



What Parents and Students Should Know About the New Virginia Mathematics Standards of Learning

Virginia's new mathematics standards are a key component of a broader initiative to ensure that young Virginians are truly college and career ready when they graduate from high school. The mathematics standards and corresponding tests reflect the fact that today's students require more rigorous mathematical knowledge and skills to pursue higher education and to compete in a technologically sophisticated work force.

The Standards of Learning (SOL) for each subject identify the essential academic content for each grade level and course. The Virginia Board of Education revised the Mathematics SOL in 2009 to ensure that Virginia graduates will continue to compete successfully with their peers in other states and countries in the global economy.

The revision process drew upon the expertise of national organizations such as the College Board and ACT (publishers of the SAT and ACT college-admissions tests), college faculty and classroom teachers and mathematics specialists from Virginia school divisions.

The new mathematics standards also are equal in rigor and depth to the national model standards — known as the Common Core State Standards — that many states have adopted.

How have the Mathematics SOL tests changed?

The new mathematics tests reflect the increased rigor of the new standards. While most of the questions on the new tests are in the familiar multiple-choice format, approximately 15 percent of the items (depending on the test) are new technology-enhanced items.

Technology-enhanced items allow students to apply what they have learned and use critical-thinking skills in ways not possible with traditional multiple-choice questions. The items mirror common classroom tasks and assignments.

For example, "drag and drop" items require students to sort, order, classify, or label to provide an answer. The "drag and drop" functionality also gives students the ability to create graphs from a given data set. "Hot spot" items require students to identify all possible correct answers from a given set or list, plot points on a grid, or highlight a specific feature in a diagram or figure. "Fill-in-the-blank" items require students to complete open-ended problems and type answers into the blanks.

Technology-enhanced items on the new tests in grades 6-8 and the Algebra I, Geometry and Algebra II tests were field tested with students during the 2010-2011 school year. The technology-enhanced items on the tests in grades 3-5 are field-test items that will not impact students' scores until the 2012-2013 school year.

"Virginia teachers are working hard to help students meet the commonwealth's new expectations for learning and achievement in mathematics. These new standards and assessments are an essential component of Virginia's plan to ensure that graduates of the commonwealth's public schools are college and career ready."

Patricia I. Wright
Superintendent of Public Instruction

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Are resources available to help students prepare for the new mathematics tests?

The Virginia Department of Education provides practice tests and other resources to help students and parents understand and prepare for tests based on the 2009 Mathematics SOL.

- *Beyond Multiple Choice: Teachers Discuss Virginia's New Mathematics Standards* — Educators from Williamsburg-James City County Public Schools and VDOE discuss the new standards and college and career readiness.
- *Narrated Demonstration of New Technology-Enhanced Test Items* — New online test items require students to apply what they have learned.
- *SOL Practice Items* — Practice items include examples of the technology-enhanced items.
- *VMAST Practice Items* — Examples of online test items as they may appear on the Virginia Modified Achievement Standards Test (VMAST) with research-based supports and simplifications

These items and more can be found at <http://www.doe.virginia.gov/testing/index.shtml>.

Were Virginia teachers involved in the development of the new mathematics tests?

Virginia teachers play a critical role in the development of all SOL tests. Every test question students encounter on the new mathematics tests has been reviewed three times by Virginia educators to ensure that it measures achievement accurately and fairly. Classroom teachers and other educators also participated in the process to determine the number of questions students must answer correctly in order to pass each of the new mathematics tests.

How will the new Mathematics SOL tests impact students?

Instruction based on Virginia's new mathematics standards will better prepare students for the challenges they will face in the next grade, during the first year of college and in the 21st-century work force and global economy.

Some students will find the new assessments challenging — as students have previously when the Board of Education strengthened academic standards. But past history suggests that student achievement on the tests will rise as school divisions further align their curricula and classroom instruction with the new standards and students become more comfortable with the format of the new tests. Lower pass rates at the beginning of this process are a sign that the state has raised the bar, not that students are learning less.

Students are allowed multiple retakes of end-of-course tests they need to pass in order to earn a diploma. And because of the advantages of the commonwealth's nationally recognized online testing system, seniors will have several additional opportunities before the end of the school year to retake mathematics tests needed to earn verified credits for graduation.

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