

Business Rules for Student Growth Percentile Calculations

This document explains how to interpret a student growth percentile and provides an explanation of how student growth percentiles can augment an understanding of student achievement outcomes on certain Standards of Learning (SOL) assessments. The business rules that define which students have growth percentiles calculated are included.

1. Interpretation of a Student Growth Percentile

A growth percentile expresses how much progress a student has made relative to the progress of students whose score history was similar on previous SOL assessments in the same content area. Student growth percentiles are calculated by identifying all students in the state whose previous SOL scaled scores in either reading or mathematics are statistically similar and, then, comparing the SOL scores of these students on the test taken in the next grade level. The achievement of each student relative to that of the other students in the group is expressed as a percentile.

Student growth percentiles range from 1 to 99, and represent the percent of students who had similar SOL score histories but had a lower score on the most recent SOL test in reading or mathematics. For example, a student who earned a student growth percentile of 65 scored better than 65 percent of students who had similar SOL score histories in the same content area. A student with a student growth percentile of 13 scored better than 13 percent of the students who had similar SOL score histories in the same content area. Higher student growth percentiles represent higher relative growth and lower student growth percentiles represent lower relative growth.

2. How Student Growth Percentiles Help Us Understand Student Achievement

A student growth percentile complements a student's SOL scaled score and provides teachers, parents, and principals a measure of student academic progress. A high growth percentile is an indicator of greater student academic growth relative to other students with similar SOL score histories, regardless of the student's performance level represented by the student's SOL scaled score.

Results from analysis of student growth percentile data can be used in addition to traditional achievement data provided with the SOL program to help educators identify strengths and opportunities in instructional programs and conduct program evaluations. These data may also support educators as they identify students for targeted assistance.

3. Determining Availability of Student Growth Percentiles

Student growth percentiles will not be available for all students. It is important to recognize that student growth percentiles will be calculated for students who take reading or mathematics tests for grades four through eight, and students through grade 9 who take the Algebra I test. The following information describes the conditions that enable VDOE to calculate and provide student growth percentiles for students in reading and mathematics.

Student growth percentiles are being calculated for students:

- Who have participated in the SOL testing program by taking a grade four through eight reading or mathematics SOL test, or the Algebra I SOL test in ninth grade or earlier; **and**
- Who have taken SOL tests for two or more consecutive years in either reading or mathematics. For example, a student who takes the third grade mathematics SOL test, misses the fourth-grade test, and then takes the fifth-grade test, will not have a growth percentile in mathematics for grades four and five; **and**
- Who participate in the mathematics assessment program in a sequence that is common in Virginia. Common sequences in mathematics include:
 - Grade 6, grade 7, Algebra I
 - Grade 6, grade 8, Algebra I
 - Grade 3, grade 4, grade 5, grade 6, grade 7, grade 8, Algebra I

Student growth percentiles are not being calculated for students:

- Who participated in the assessment program via alternate or alternative assessments for one or two consecutive years. For example, a student who participated in Virginia’s assessment program with a Virginia Grade Level Alternative (VGLA) assessment in the 2009-2010 school year and participated in the assessment program with a traditional SOL test in 2010-2011 will not have a growth percentile calculated.
- Who scored at the advanced proficient level for two consecutive years in the same content area (either reading or mathematics).¹ For example, a student who earns an advanced proficient score (i.e., ≥ 500) on the grade 4 reading SOL test and an advanced proficient score on the grade 5 reading SOL test will NOT have a student growth percentile calculated for grade 5 reading because both scores are ≥ 500 . A student who earns a proficient score on a grade 4 reading SOL test and the next year earns an advanced proficient score on a grade 5 reading test will have a growth percentile calculated for grade 5 reading.
- Who participate in Virginia’s assessment program with a unique test sequence. For example, a student who takes a grade 3 reading test followed by a grade 5 reading test will not have a student growth percentile.

For more information on student growth percentiles in Virginia, visit http://www.doe.virginia.gov/testing/scoring/student_growth_percentiles.

¹ Whether Virginia can calculate student growth percentiles for students who earned two consecutive advanced proficient scores will be re-evaluated after Virginia’s new mathematics assessments are introduced in 2011-2012 and the new reading assessments are introduced in 2012-2013. Virginia’s new assessments will measure student achievement based on new mathematics Standards of Learning adopted in 2009 and new English Standards of Learning adopted in 2010. For more information on Virginia’s new standards, visit: http://www.doe.virginia.gov/testing/sol/standards_docs/index.shtml/.