Georgia Student Growth Model

Frequently Asked Questions

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Section 1: Student Growth

What is the Georgia Student Growth Model (Student Growth Percentiles)?

The Georgia Student Growth Model utilizes Student Growth Percentiles (SGPs), which describe a student's growth relative to academically-similar students from across the state.

What is the difference between growth and value-added?

A growth model describes change in student achievement across time. A growth model becomes value-added when the growth is attributed to an entity (e.g., a teacher, a school, etc.). In many models, the value-added is the difference between predicted and actual student performance. The Georgia Student Growth Model does not predict performance; it describes observed student growth relative to academically-similar students.

Is a vertical or developmental scale required to model growth?

A vertical or developmental scale is a continuous scale spanning multiple grades in the same content area. SGPs do not require a vertical assessment scale in order to describe student growth. Georgia's growth model is not specifying how many scale score points a student improved from year to year. Rather, this growth model describes growth in terms of how a student performed this year relative to other students who have a similar academic history.

How can you calculate a growth measure without a pretest score?

The growth model uses two years of prior test data as pretest scores (one year is used when two years are not available). For example, growth percentiles for 5th-grade students on the 5th-grade state assessment are generated using 3rd- and 4th-grade state assessment results as priors.

Does the model have floor or ceiling effects?

Floor and ceiling effects refer to the inability to adequately define or distinguish really low and really high student growth. Analyses reveal that Georgia does not have such effects with the GSGM. All students, regardless of their prior achievement level, have the opportunity to demonstrate all levels of growth.

How does the model handle missing data?

Some growth/value-added models will impute missing data, meaning they generate a plausible estimate of what a missing test score would be based on the test scores of similar students. The Georgia Student Growth Model does not impute or estimate missing data. For EOG assessments, if a student does not have at least one immediately consecutive prior score (prior from the previous year), a growth percentile will not be produced. For EOC assessments, if a student does not have at least one appropriate prior score, a growth percentile will not be produced.

Section 2: Academic Peers

What are academic peers?

Academic peers are students enrolled in the same grade and content area or EOC course statewide with similar prior academic achievement (academic history). In other words, they are students that had the same scores on prior state assessments. There are potentially thousands of academic peer groups – as many as there are prior score combinations. Students can be in different academic peer groups across subject areas and peer groups can change from year to year based on the most recent prior scores.

Can I get a list of the students in a particular academic peer group?

A list of peers is not what is used to calculate a student's growth percentile. The model uses quantile regression to describe the curvi-linear relationship between prior scores and current scores. That analysis results in a look-up table that relates prior achievement to current achievement. Using this look-up table, any combination of prior scores can be plugged in to obtain an achievement distribution that is dependent on those prior scores. Using that distribution and the current score, a student's growth percentile can be identified.

How many students are required to develop an academic peer group?

While the concept of academic peers is critical to describing and understanding student growth, an actual list of students is not what is used to calculate a student's growth percentile. Instead, the model establishes the functional relationship between prior and current scores. That functional relationship is used to look at the conditional distribution for any combination of prior and current scores. Some of these combinations will have several students and some might never occur (e.g., the lowest obtainable scale score in year 1, the highest obtainable scale score in year 2, and the lowest obtainable scale score in year 3). However, the relationship between prior and current scores and the resulting growth percentiles can still be determined.

How do continuously high-performing students demonstrate growth?

Growth percentiles represent how a student performed this year relative to academically-similar students. While there are a few students statewide who continuously score at the top of the assessment scale range, there is enough variability in scale scores to produce growth percentiles. Additionally, even students who score at the top of the assessment scale range year after year must "grow" in order to do so. Therefore, even high-performing students have the ability to demonstrate all levels of growth. It is important to remember that demonstrating low growth does not mean a student is low achieving. Even very high-achieving students will demonstrate low growth if they scored lower on the current assessment when compared with other high-achieving students. Therefore, it is always important to consider both achievement and growth.

Does the model adjust for student demographic characteristics?

No. The Georgia Student Growth Model does not make adjustments for any student demographic characteristics such as race, gender, or student poverty. The inclusion of demographic characteristics into the model would create different growth norm groups for each of the demographic subgroups, setting different growth expectations for those groups. In the same way that the state does not set different attainment (i.e., proficiency) expectations for students based upon their demographic characteristics, the state does not set different growth expectations for students. As such, not including student demographic characteristics in the Georgia Student Growth Model allows Georgia to investigate growth gaps between different demographic subgroups at the state, district, and school level to add an important dimension to the achievement gap discussion.

Section 3: Priors

What is prior academic achievement (priors)?

Priors are the historical assessment scores being used to model growth. The GSGM uses two years of prior test data (one year is used when two years are not available). For example, growth percentiles for an 8th-grade student who just took the 8th-grade state assessment would have his or her 7th- and 6th-grade state assessment scores as priors.

How many years of prior data will be used?

Two years of prior data will be used when available but only one year is required. Growth percentiles for 4th-grade students will use only one prior (3rd-grade). Additionally, students that only have one prior (such as those that moved to Georgia from out of state) will use the one prior. At least one prior is required to produce a growth percentile (e.g., an 8th-grade student must have a 7th-grade score).

If a student just moved into the state this year, will the student receive a growth percentile?

No. At least one year of prior Georgia state assessment data is required to generate a growth percentile.

Is it fair to compare the growth rates of students in a class when some may have entered the classroom at different achievement levels?

An SGP describes a student's growth relative to other students in the state with similar prior achievement. Therefore each student's growth percentile takes into account his or her prior achievement or "starting point." This makes the SGP a fair method of comparing the growth of different students.

What priors will be used for EOCs?

In addition to prior achievement, growth percentile calculations for EOCs also depend on test sequence and timing (i.e., year and administration period taken). SGPs will be produced for all sequences for which there are a sufficient number of students to model growth reliably. This includes students who repeat EOC courses or take them on a block schedule. For uncommon sequences with few students, those students will not receive growth percentiles.

If a student fails and is taking a course for the second time, is the EOC data figured in for the second year even though they have data for the course from the year before?

In addition to prior achievement, growth percentile calculations for EOCs also depend on test sequence and timing (i.e., year and administration period taken). SGPs will be produced for all sequences for which there are a sufficient number of students to model growth reliably, including students whose course sequences includes repeat courses (e.g., 8th grade – Algebra I – Algebra I). When there are not enough students participating in a repeat sequence, those students will receive a growth percentile for the first attempt of a course. They will not receive a growth percentile for subsequent attempts but will receive a growth percentile for the next course in the sequence, using the final attempt at the repeated course as the prior.

How do accelerated courses fit the model?

Growth percentiles are generated for each EOC. Multiple courses, including advanced courses, take the same EOC. SGPs represent growth relative to academic peers, so advanced students with a high-scoring achievement history will be compared to other students with a high-scoring achievement history.

Section 4: Assessment Inclusion

Which assessments are included in the growth model?

Prior to the 2014-2015 school year, student growth percentiles were produced for CRCTs (grades 4-8 reading, English language arts, math, science, and social studies) and EOCTs (Physical Science, Biology, 9th-Grade Literature/Composition, American Literature/Composition, US History, Economics/Business/Free Enterprise, Mathematics I, Mathematics II, GPS Algebra, GPS Geometry, Coordinate Algebra, and Analytic Geometry).

For the 2014-2015 and 2015-2016 school years, SGPs were produced for Georgia Milestones EOGs in grades 4-8 in English language arts, mathematics, science, and social studies and all Georgia Milestones EOCs.

Beginning with the 2016-2017 school year, SGPs are produced for Georgia Milestones EOGs and EOCs in grades 4-8 in English language arts and mathematics.

Is the GAA included in the growth model?

It is difficult to model growth with the GAA because this assessment is highly individualized and not scaled. The standards assessed vary according to the needs of the student. While students did not or will not receive growth percentiles for the GAA, they did or will receive growth percentiles for any subjects for which they participate in the Georgia Milestones EOG/EOC.

How are EOC test-outs handled in the growth model?

SGPs are not calculated for EOC test-out attempts as they would not represent growth over an instructional period since the students were not enrolled in the courses. Successful attempts, however, will be used as prior scores for the next course/EOC.

How do proficiency cut scores affect SGPs?

Growth (SGPs) is independent of the proficiency cuts. SGPs describe a student's growth relative to academically-similar students, not relative to the proficiency cuts. Therefore, students can demonstrate low or high growth whether or not they met the state's proficiency standards on the assessment.

What grades will receive a growth percentile?

Because at least one prior test score is necessary to model growth, grades 4-8 and courses with EOCs will receive growth percentiles.

Why is the 3rd grade considered a non-tested subject when there is a 3rd-grade assessment?

At least one year of prior data is required to generate a growth percentile. Even though 3rd-grade students participate in the Georgia Milestones EOG, they will not have previous state test data to use in order to generate a growth percentile.

How will growth be calculated for 8th-grade students who participate in both the Georgia Milestones EOG and an EOC?

Growth percentiles for 8th-grade students participating in EOCs will be calculated (using 6th and 7th-grade test scores as priors) when a sufficient number of students participate in those sequences to model growth reliably. These students will receive a growth percentile for both their EOGs and EOCs and both will be reported in the GSGM visualization tool. Additional business rules may be applied for these students in College and Career Readiness Performance Index (CCRPI) or Teacher and Leader Keys Effectiveness Systems (TKES and LKES) calculations.

In accordance with State Board of Education Rules, middle school students enrolled in an ELA, mathematics or science EOC course will not be required to participate in the corresponding grade-level EOG. SGPs will be calculated for their ELA or mathematics EOCs if enough

students participated in that test sequence statewide (beginning with the 2016-2017 school year, SGPs are no longer calculated for science and social studies).

How does the model account for retests?

Prior to 2013, retest scores were included in the model, with the higher of the main and retest score being utilized. Beginning in 2013, retest scores are no longer included in the model. This means that SGPs should be interpreted as representing students' first (main) attempt on a state-mandated assessment for a grade and content area or an EOC course.

Section 5: Reporting

What is the reporting scale?

A growth percentile can range from 1 to 99. Lower percentiles indicate lower academic growth and higher percentiles indicate higher academic growth.

What are the SGP summary measures?

While SGPs are produced for individual students, there are multiple ways of combining SGPs to summarize the growth of a group of students (such as for a classroom, school, or system). One method of combining SGPs for a group of students is to utilize a median. A median is the numerical value separating the higher half of the data from the lower half. In other words, it is the middle value in an ordered list. A second method of combining SGPs for a group of students is to utilize a mean. A mean is the sum of the values divided by the number of values. It is often referred to as an average. A third method of combining SGPs for a group of students is to utilize the percent of students demonstrating typical or high growth.

What are student growth levels?

Information about the interaction between student growth and status-based achievement were used to set the following student growth levels:
- Low: 1-34
- Typical: 35-65
- High: 66-99

How should student growth levels be interpreted?

Analyses show that a student who begins Grade 3 scoring just at "Developing Learner" and demonstrates consistent 35th percentile growth across grades likely will end Grade 8 also scoring just at "Developing Learner." A student who begins Grade 3 scoring just at "Developing Learner" and demonstrates consistent 65th percentile growth across grades likely will end Grade 8 having made significant progress towards scoring "Proficient Learner." Thus, 35 and 65 were used as the cut points for the three student growth levels, which could be interpreted as:

- A student who demonstrates low growth generally will struggle to maintain his or her current level of achievement.
- A student who demonstrates typical growth generally will maintain or improve academically.
- A student who demonstrates high growth generally will make greater improvements academically.

Will students receive individual reports?

Students will receive individual student reports that describe their demonstrated and projected growth. Schools can expect to receive individual student reports in the fall/winter for the previous school year.

Beginning in 2017, student reports will be provided electronically through the SLDS parent portal. School districts may elect to continue receiving and providing paper reports.

Section 6: Cohort-Referenced Growth

What are cohort-referenced SGPs?

Cohort-referenced student growth percentiles describe a student's growth relative to academically-similar students in the state in a given year. With these SGPs, student and school growth is relative to the state.

Section 7: Growth to Proficiency

How do we know if a student's growth is enough to put that student on track to reach or exceed proficiency?

In addition to describing observed growth, the GSGM will also provide information on possible future growth in the form of growth projections and growth targets. SGPs analyze historical student assessment data to model how students performed on earlier assessments, how they performed on later assessments, and what level of growth they demonstrated in between. This information is used to create growth projections and growth targets for each student. The growth targets tell us, based on where students are now, how much they need to grow to become a Developing, Proficient, or Distinguished Learner on the next Georgia Milestones assessment. The growth projections tell us, for all levels of growth, where a student may score on next year's assessment.

Section 8: Use of the GSGM

How will the GSGM be used?

The GSGM's primary purpose is to improve teaching and learning by providing parents, educators, and the public with a new dimension of student performance. The GSGM enables educators to analyze how much students grew from one year to the next, even if they did not demonstrate proficiency. Additionally, the GSGM will provide growth targets, enabling educators to understand how much a student needs to grow to reach or exceed proficiency and adjust their instructional techniques as necessary. The GSGM is also utilized in the TKES and LKES educator effectiveness systems and the CCRPI accountability system.

Section 9: Accessing Results

How can educators view their students' growth data?

Educator access to GSGM data is displayed via the growth model visualization tool which is accessible through the Statewide Longitudinal Data System (SLDS). Educators can access the SLDS through their district's Student Information System (SIS).

Why are some students missing growth data?

Students must have the required prior(s) and have participated in a common course sequence in order to receive a growth percentile. Additionally, the growth model utilizes assessment data that has been matched to Student Record (SR). Districts can review and sign-off on the assessment data that is used in the growth model annually through the district matching application process (refer to the Accountability Division for more information on this process).

How are students linked to teachers and course sections in the visualization tool?

Student growth data is linked to teachers and course sections through the Course History component of Student Record (SR). Therefore, the visualization tool is utilizing course information that districts provided to GaDOE and was signed-off on by the system superintendent. GaDOE is unable to change the links in the visualization tool as SR data cannot be altered.

How can I use the visualization tool to determine my growth score for my TEM/LEM?

The GSGM visualization tool provides educators with as much student growth information as possible to assist them in their instructional planning and work with individual students. This is not, however, the reporting tool for TKES and LKES. Additional business rules and verified student-teacher links are used for those systems. Growth scores for the TEM and LEM are calculated and provided by the GaDOE Teacher and Leader Effectiveness Division.

How can parents access their students' growth data?

For districts that requested paper reports, parents will receive paper copies of the GSGM individual student reports from their schools in the fall or winter in the following school year. Electronic copies of student reports (as PDFs) will be provided through the SLDS Parent Portal in the fall or winter as well.

How can the public access student growth data?

Public access to school and district summary information is available on the GSGM website (gsgm.gadoe.org).