

**A Teacher's Guide to Interpreting  
State-Provided Growth Scores  
for Grades 4–8 in 2012–13 and 2013–14**

# Understanding the Growth Subcomponent of 2012-2013 Annual Professional Performance Reviews: New York State-Provided Growth Scores

## The Role of Growth Scores in Annual Performance Reviews

As part of the Annual Professional Performance Review (APPR) process, New York State teachers of Math and English Language Arts (ELA) in grades 4–8 and their principals will receive State-provided growth scores based on 2012–13 State tests. These growth scores describe how much students in their classrooms and schools are growing academically in mathematics and ELA (as measured by the New York State tests) compared to similar students statewide. State-provided growth scores are just **one** of the **multiple** measures that make up the annual performance reviews and will count for 20 percent of an evaluation score for the 2012–13 and 2013–14 school years (see box at right).

New York State law requires that APPRs play a significant role in employment decisions as well as in the provision of targeted professional development.

## Changes in Growth Measures from 2011–12

The Regents Task Force on Teacher and Principal Effectiveness, comprising representatives from key stakeholder groups, including educators, educator unions, and educator professional organizations, has given input into the development of APPR regulations and the design of the State-provided growth scores over the course of the last several years. In addition, a technical advisory committee of leading experts in the nation reviewed the technical accuracy and utility of the statistical methodology used to calculate scores. Between 2011–12 and 2012–13, NYSED made a number of refinements to the growth model in order to enhance its ability to account for additional factors associated with student performance and to reflect complex student–teacher–school associations. Additionally, the New York State assessments that were administered in 2013 measure the Common Core State Standards and have different scale scores than those administered in 2012. The relative performance of similar students can still be calculated from year to year with the new assessments since all students in the growth measures took both the old and the new assessments. In addition to new 2012–13 growth scores, teachers who taught grades 4–8 mathematics or ELA at the same New York State public school in 2011–12 will be able to access their 2011–12 mean growth percentiles (MGPs), growth ratings, and growth scores in the online Growth Reporting System (GRS). Refer to the following links for information on the 2011–2012 grades 4-8 teacher model and how to interpret growth scores.

## Multiple Measures for Performance Reviews

Growth is one of three components of the State's comprehensive approach to measuring educator effectiveness.

### Student Growth or Other Comparable Growth Measures

(20%)

- Student growth on State assessments (State-provided)
- Student learning objectives

### Locally Selected Measures of Student Achievement

(20%)

- Student growth or achievement
- Options selected through collective bargaining

### Other Measures

(60%)

- Rubrics
- Sources of evidence: observations, visits, surveys, etc.
- Options selected through collective bargaining

Based on these multiple measures, **educators receive an overall performance rating from one of four rating categories:** Highly Effective, Effective, Developing, and Ineffective (HEDI), and will receive a single composite effectiveness score of up to 100 points for use in the educator's evaluation. The State-provided growth subcomponent reports include a growth rating and a growth score of up to 20 points for school years 2012–13 and 2013–14.

## WHERE AND WHEN WILL DATA BE AVAILABLE?

State-provided growth scores for 2012–2013 were distributed to districts in August 2013 and are available to authorized users via the secure online GRS in September 2013.

(<http://www.engageny.org/resource/secure-online-growth-reporting-system>)

## WHERE CAN I GET MORE INFORMATION?

Visit <http://www.engageny.org> for additional information on the State's teacher and leader effectiveness reform agenda and detailed information on State-provided growth scores.

Visit <http://www.engageny.org/resource/appr-planning> for additional information on APPR and a detailed guidance document, located here: <http://www.engageny.org/resource/guidance-on-new-york-state-annual-professional-performance-review-law-and-regulations/>

Teachers should contact their principals or network team trainers for additional information about APPR and the calculation of growth scores.

## Backgrounds

### Why Growth?

Students enter teachers' classrooms at differing levels of proficiency or academic achievement. By measuring academic growth rather than only proficiency, we can identify strengths and gaps in student progress and help teachers to better support students with a wide range of academic needs. In addition, these growth measures are one part of a multiple-measures annual evaluation system that gives all teachers a chance to do well no matter the starting achievement levels of their students.

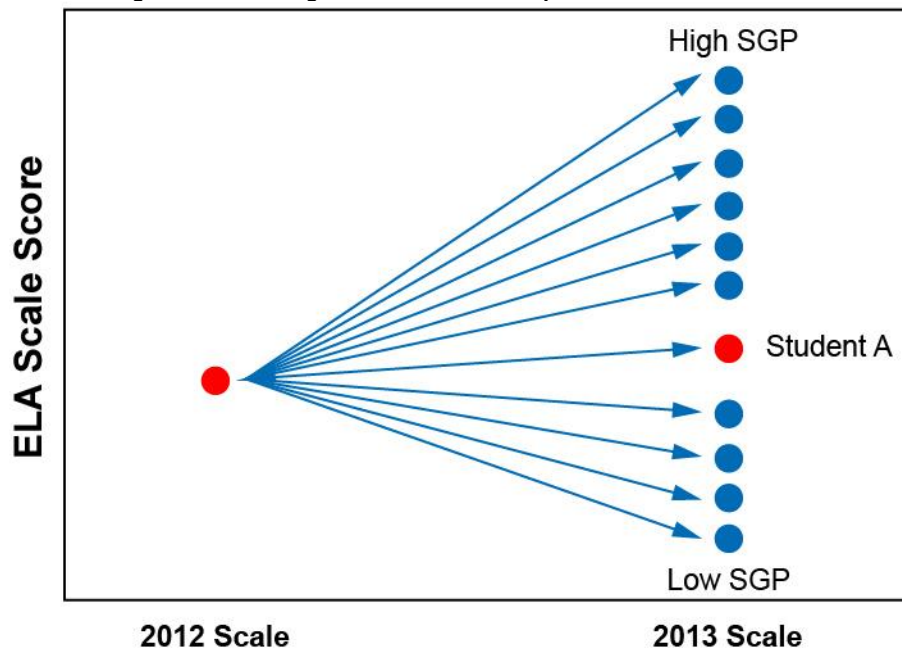
### How Is Student Growth Measured?

The simplest way to measure growth would be to subtract a student's test score in a prior year from his or her test score in the current year. However, New York State's tests are not designed to allow for this kind of calculation, nor would this approach account for a student's starting point—it would just determine the amount of growth. Therefore, we take a different approach to measuring growth for the State-provided growth measures. The approach New York State uses compares the current year scores of *similar* students—that is, students who had the same prior test scores and other characteristics (see Figure 2)—in order to measure growth while accounting for students' starting levels of achievement. The 2013 New York State assessments measure the Common Core State Standards and have different scale scores than in 2012. Growth scores can still be calculated, even with different scales across years. Since all students took the *old* test in the prior year and also took the *new* test this year, the relative performance of similar students can still be calculated statistically. This method is illustrated in Figure 1 below, where Student A had an ELA score of 450 in 2012.<sup>1</sup> Compared to other students who also had a score of 450 in 2012, Student A's 2013 ELA test score on the new scale in 2013 hovers in the middle range. We can describe Student A's growth in relative terms as a "student growth percentile" (SGP). In this example, since Student A's SGP is 45, it means that she performed as well as or better than 45 percent of other similar students (those with the same starting point and characteristics). **SGPs range from 1 to 99**, and they always tell you where a student stands in a distribution of similar students (specifically, what share of students he or she performed the same as or better than). In New York State's evaluation system, SGPs are calculated separately by subject and grade.

### STUDENT GROWTH PERCENTILE (SGP):

A measure of a student's academic growth compared to similar students

Figure 1. Measuring Student Growth Compared to Similar Students



<sup>1</sup> Note that the sample scaled scores are illustrative only.

### Factors Used to Define “Similar Students” in the Growth Model for 2012–13 and 2013–14

For educator evaluation, we further refine the definition of similar students to mean not just students with the same academic history but also ones with the same English language learner (ELL), economic disadvantage (poverty), or disability (SWD) status. Specific factors for each of these categories are detailed below in Figure 2. For instance, we account for whether a student is an ELL; we also account for the percent of ELL students in a student's class or course. This type of factor is intended to get at “peer effects,” acknowledging that it may be a different thing for a student to be in class or course with many ELL students (and a different job for an educator with many ELL students) than it is to be in a class or course with fewer ELL students.

Figure 2. Characteristics of Similar Students

Grades 4-8 Teachers	Similar Student Characteristics Used in 2012–13*
<b>Academic History</b>	<ul style="list-style-type: none"> <li>• Up to three years of student state exam scores, same subject</li> <li>• Prior-year test score, different subject</li> <li>• Retained in grade</li> <li>• Average prior achievement and range around average prior score in student's class/course (same subject)</li> </ul>
<b>English Language Learner (ELL)</b>	<ul style="list-style-type: none"> <li>• New York State English as a Second Language Achievement Test (NYSESLAT) scores</li> <li>• Percentage of ELLs in student's class/course</li> <li>• ELL status (yes/no)</li> </ul>
<b>Economic Disadvantage (Poverty)</b>	<ul style="list-style-type: none"> <li>• Percentage of economically disadvantaged students in student's class/course</li> <li>• Student economic disadvantage status (yes/no)</li> </ul>
<b>Disability Status (SWD)</b>	<ul style="list-style-type: none"> <li>• SWD spends less than 40 percent of time in general education setting</li> <li>• Percentage of SWDs in student's class/course</li> <li>• SWD status (yes/no)</li> </ul>

\*Additional characteristics may be added in the future as available and approved by the Board of Regents.

### How Is Student Growth Used for Teacher Evaluation?

A teacher's State-provided growth subcomponent rating (Highly Effective, Effective, Developing, or Ineffective—i.e., the “HEDI” rating) and growth subcomponent points (0–20) are based on the MGP, the aggregate measure of his or her students' growth. An MGP is calculated by finding the weighted average of all the SGPs in a teacher's courses that are relevant to State tests.

Each student's SGP is weighted in the teacher's MGP based on the amount of time that the student was enrolled and attended the course (based on teacher-student data linkage (TSDL) data reported to the State by districts, which teachers had an opportunity to verify). Figure 3 illustrates how a weighted MGP is calculated. Students who are enrolled for less than 60 percent of a course's duration are not included in a teacher's MGP. Students with course enrollment of 60 percent or more are included in a teacher's MGP and are weighted based upon the percentage of time the student is enrolled in and attends the course. SGPs for students who were in a teacher's course for longer periods of time and who attended the class more regularly count more heavily in a teacher's MGP than those who were enrolled and attended for less time

#### MEAN GROWTH PERCENTILE (MGP):

The weighted average of all SGPs linked to a teacher

Figure 3. Example of Calculation of Teacher MGP Based on Weighted SGPs

## From Student Growth to Teacher Growth Scores

Ms. Smith's Class				
	SGP	Enrollment Duration	Attendance	Enrollment x Attendance
Student A	45	80%	90%	.72
Student B	40	100%	95%	.95
Student C	70	50%	80%	N/A
Student D	60	100%	90%	.90
Student E	40	100%	75%	.75

To measure teacher performance, we find the mean growth percentile (MGP) for her students, which is the weighted average of the SGPs. In this case:

Step 1:  $(.72 \times 45) + (.95 \times 40) + (.90 \times 60) + (.75 \times 40) = 154.4$

Step 2:  $.72 + .95 + .90 + .75 = 3.32$

Step 3:  $154.4 / 3.32 = 46.5$

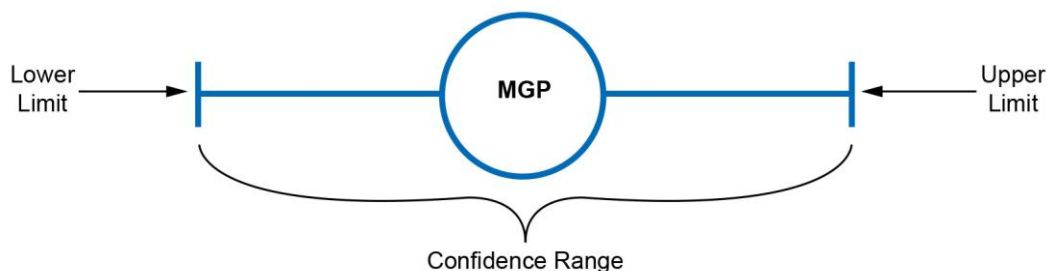
Ms. Smith's mean growth percentile (MGP) is 46.5, meaning on average her students performed as well or better than about 47 percent of similar students.

For the purposes of teacher evaluation, we calculate each teacher's MGP based on the weighted average of all SGPs in our refined definition of similar students (including academic history, English language proficiency, economic disadvantage, and disability status). We refer to this MGP as the adjusted MGP. **Adjusted MGPs are used to determine growth (HEDI) ratings and scores.** Unadjusted MGPs take into account only students' academic history and are reported for informational purposes only.

MGPs are reported by subject and grade, and then an overall MGP for a teacher is calculated that combines SGPs for all students across grades and subjects (if applicable for the teacher). Teacher MGPs are based only on students who had test scores from the current and immediate prior school year and who met the State's minimum enrollment requirement (enrolled for at least 60 percent of the course duration) in the current school year. **Also, an MGP is only reported if it is based on at least 16 SGPs.**

MGPs are also reported with an upper and a lower limit that represents a 95 percent confidence range (see Figure 4).

Figure 4. MGP and Confidence Range

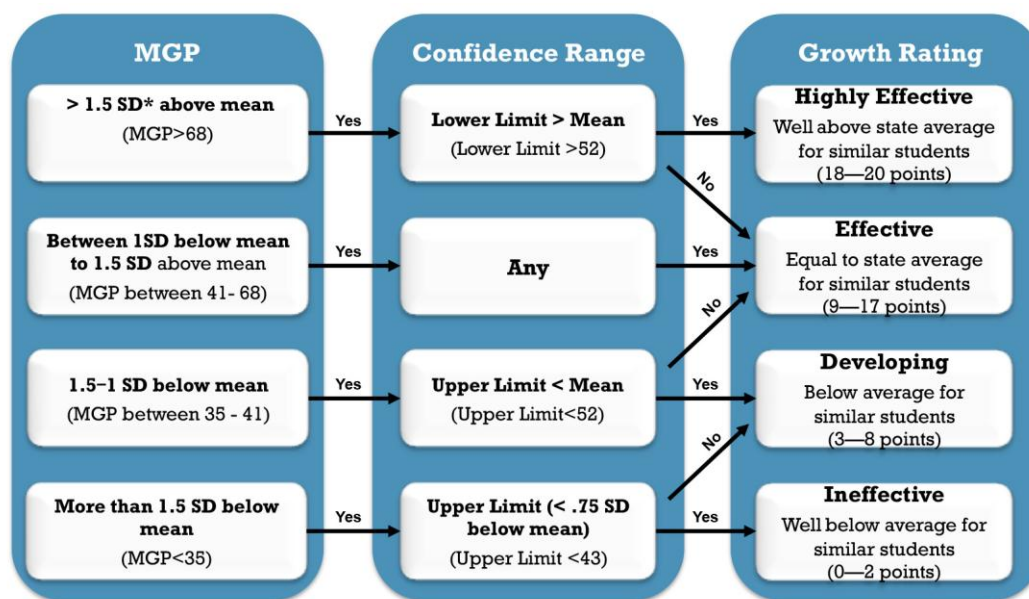


All statistical calculations contain some uncertainty. While the reported MGP is the best estimate for any teacher, we can also quantify a range wherein we can expect that the “true” answer lies. The upper and lower limit MGPs define a set of scores wherein we are 95 percent confident an educator’s “true” MGP lies. This is similar to the way we are used to seeing results from other statistical calculations. Take, for example, political polls, where a candidate can be ahead in the polls by six points plus or minus three points. If we polled respondents multiple times, we might not get exactly a six-point lead (as the poll changed who was called on any particular day), but we know we are highly likely to get a number within a range of plus or minus three points around six. It would not make sense to give the same State test again and again under exactly the same conditions to the same students, so we use the confidence range to account for differences that could have occurred in student scores.

We report the upper and lower limit MGPs because we want to be transparent about the data, and we use this information to assign educator ratings based on student growth. The width of the confidence range (i.e., the distance between the upper and lower limit MGPs) is affected by the number of students included in generating the score, by the spread of student scores in the teacher’s classroom or in the school, and by characteristics of the test itself, among other factors.

We use a teacher’s overall adjusted MGP (that is, the MGP that combines information across all applicable grade levels and subjects that the teacher teaches) and upper and lower limit MGPs to determine his or her growth rating, as shown in Figure 5.

Figure 5. Determining Teacher Growth Ratings

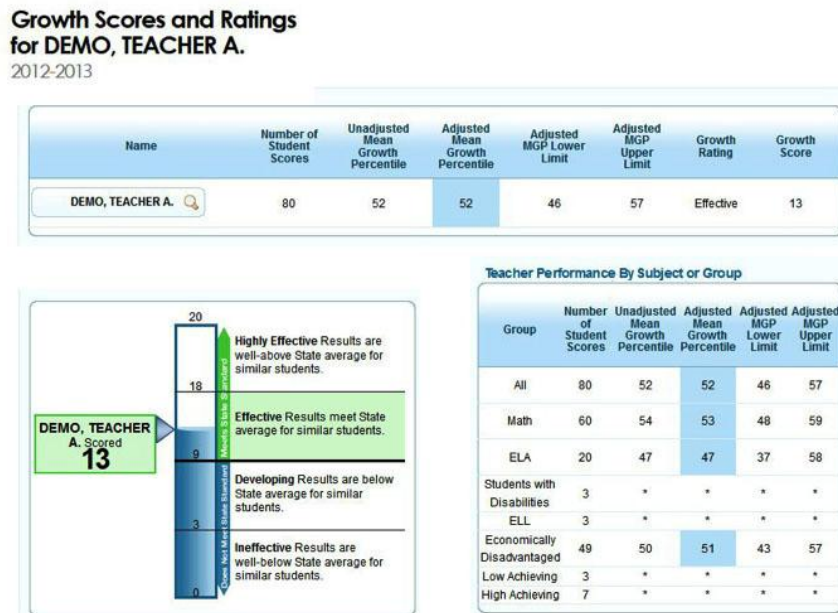


\*Standard deviation

### Sample Teacher Report

Figure 6 shows a sample teacher report from the online GRS. The GRS can be accessed through the Teacher/Leader Effectiveness tab on the EngageNY website (<http://www.engageny.org/resource/secure-online-growth-reporting-system>). This report provides information about the teacher’s overall MGP (that is, across all applicable grades and subjects taught) for 2012–13, growth rating, and growth score, as well as MGP information disaggregated by several subgroups (SWD, ELL, economic disadvantage, low- and high-achieving groups). The number of SGPs included in each MGP is also reported.

Figure 6. Sample Teacher Report



**Number of Student Scores:** The number of SGPs included in a teacher's MGP.

**Unadjusted MGP:** The weighted mean of the SGPs for students who are linked to a teacher are based on similar prior achievement scores only, without taking into consideration a student's ELL, SWD, or economic disadvantage status. The weighted mean is calculated based on the amount of time students were enrolled in and attended a course with a teacher.

**Adjusted MGP:** Adjusted MGP is the weighted mean of the SGPs for students linked to a teacher based on similar prior achievement scores and includes consideration of a student's ELL, SWD, and economic disadvantage statuses. This MGP is used to determine a teacher's State-provided growth score and growth rating.

**Lower Limit and Upper Limit:** Highest and lowest MGP for a 95 percent confidence range.

**Growth Rating:** Based on an overall MGP for a teacher across grades and subjects, the growth rating describes the teacher's HEDI performance category on the State-provided growth subcomponent.

**Growth Score:** Using scoring bands determined by the Commissioner, a growth score of 0–20 points is assigned to each teacher based on his or her overall MGP within each growth rating category.

The *Growth Reporting System User's Guide* (available within the online GRS and on the EngageNY website at <http://www.engageny.org/resource/secure-online-growth-reporting-system>) provides detailed information on how to navigate within the GRS.

**Students with Disabilities:** Students identified as having disabilities based on district-provided information.

**English Language Learners:** Students identified as speaking English as a Second Language or who are receiving services through a bilingual program or a two-way bilingual education program, based on district-provided information.

**Economically Disadvantaged:** Students whose families participate in economic assistance programs such as free- or reduced-priced lunch programs, Social Security Insurance, food stamps, foster care, refugee assistance, earned

income tax credit, the Home Energy Assistance Program, the Safety Net Assistance, the Bureau of Indian Affairs, or Temporary Assistance for Needy Families, based on district-provided information.

**Low-Achieving:** Students who achieved at performance level 1 in either Math or ELA on the prior year assessment.

**High-Achieving:** Students who achieved at performance level 4 in either Math or ELA on the prior year assessment.

## Roster Files

Teacher scores will be directly available to each educator through the State's vendor's online secure GRS (accessible here: <http://www.engageny.org/resource/secure-online-growth-reporting-system>). The GRS will also contain student-level rosters that a teacher can download, which will show them which students were included in the teacher's MGPs, along with information about each student (see Figure 7). These rosters will also display information about students who were enrolled in a teacher's courses but are not included in the calculation of the teacher's MGPs. For example, if a student was in a teacher's course but did not meet the minimum enrollment requirement of 60 percent of the course duration, the student will be listed on the roster, and in the column labeled "Included in Teacher MGP" the student will be listed as "N" for included in the teacher's MGP; the reason for exclusion will also be listed.

For students who were *included* in your growth score (indicated with a "Y" in the "Included in Teacher MGP" column), you can see the following information:

- Date, which indicates the end of the school year to which the information applies
- District, school, and teacher name and ID
- Student name and ID
- Assessment subject and grade (Item Description)
- Enrollment duration
- Attendance duration
- Student background characteristics
  - Disability
  - ELL
  - Economic disadvantage
  - Students with disability spending less than 40 percent of time in general education settings (LRE)
  - NYSESLAT Listening/Speaking (LS) and Reading/Writing (RW) scores
- 2013 State test score and prior-year(s) State test scores
- SGP



For students who may have been enrolled in a teacher's class or course but who were not included in the calculation of a teacher's growth score (indicated with an "N" in the "Included in Teacher MGP" column), the roster identifies the reason that a student was not included in the growth score calculation (see Figure 8). The following are likely reasons noted in the roster:

- No valid prior test score
- No valid current year test score
- Student does not meet minimum enrollment requirement

Figure 7. Excerpt of Roster Output<sup>2</sup>

Student unique ID	Item description	Included in teacher MGP	Reason for exclusion from teacher MGP
1234567812	Grade 4 Math	N	No valid prior test score
1234567896	Grade 5 ELA	Y	NA
1234567896	Grade 5 Math	Y	NA
1234567898	Grade 5 ELA	Y	NA
1234567898	Grade 5 Math	Y	NA
1234567895	Grade 4 ELA	Y	NA
1234567895	Grade 4 Math	Y	NA
1234567897	Grade 4 ELA	Y	NA
1234567897	Grade 4 Math	Y	NA
1234567811	Grade 4 ELA	N	No valid current year test score
1234567810	Grade 4 ELA	N	Does not meet minimum enrollment duration requirement
1234567893	Grade 4 ELA	Y	NA
1234567893	Grade 4 Math	Y	NA
1234567899	Grade 4 ELA	Y	NA
1234567899	Grade 4 Math	Y	NA

<sup>2</sup> Not all roster fields are displayed in sample excerpt; see list above for full set of data reported on rosters.

### Questions for Consideration

Following are some questions to consider as you review your state-provided growth score report:

- How much did my students grow, on average, compared to similar students? Is this higher, lower, or about what I would have expected? Why?
- How does this information about student growth align with information about my instructional practice received through observations or other measures? Why might this be?
- **For teachers with MGPs in both Math and ELA:** How do my MGPs in these subjects compare? Why might they be similar or different?
- **For teachers with MGPs across grade levels:** How do my MGPs compare across grade levels? Why might they be similar or different?
- **For teachers with MGPs reported for subgroups:** How do my MGPs for each reported subgroup (ELL, SWD, economically disadvantaged students, and low- and high-achieving students) compare to each other and to my overall MGPs? Do I see any patterns?

### Information or Additional Questions

If you have questions about your data, what the scores are used for, or why you received the score that you did, please contact your school's principal, superintendent, or district data personnel for assistance. The New York State help desk is available to assist you with questions related to the online GRS login and navigation.

#### NYS Help Desk Contact Information

Phone: (866) 821-6426

Email: [NYGrowth@air.org](mailto:NYGrowth@air.org)

Hours: 8:30 a.m. to 4:30 p.m., Eastern standard time, Monday–Friday (except holidays)

### Disclaimer

If there are any discrepancies between the language in these materials and the Statute, Regulations, or APPR Guidance, the Statute, Regulations, or APPR Guidance prevail.