

# **A Principal's Guide to Interpreting State-Provided Growth Scores for Grades 4-8 in 2017-18**

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**Prepared for the New York State Department  
by Education Analytics**



## The Role of Growth Scores in Annual Performance Reviews

As part of the Annual Professional Performance Review (APPR) process pursuant to Education Law §3012-d, New York State teachers of mathematics and English language arts (ELA) in grades 4–8 and their principals will receive State-provided growth scores based on 2017-18 State tests **for advisory purposes only** pursuant to Section 30-3.17 of the Rules of the Board of Regents. These growth scores describe how much students are growing academically in mathematics and ELA (as measured by the New York State tests) compared to similar students statewide.

During the 2016-17 through 2018-19 school years, teachers and principals who receive a State-provided growth score (i.e., grades 4–8 ELA and mathematics teachers and principals of schools that include grades 4–8 or all of grades 9–12) will receive two sets of scores and ratings: original scores and ratings and transition scores and ratings. The State-provided growth score shall be excluded from the scores and ratings used to calculate the overall transition rating. Only the transition score and rating will be used for purposes of employment decisions, including tenure determinations and for purposes of proceedings under Education Laws §§3020-a and 3020-b and teacher and principal improvement plans and the individual's employment record. During the 2016-17 through 2018-19 school years, such principals' original overall rating will be used for advisory purposes only.

State-provided growth scores are just **one** of the **multiple** measures that make up the annual performance reviews. For APPRs completed pursuant to Education Law §3012-d, an educator's overall composite rating is determined using a matrix that combines a rating based on one or more measures of student growth as well as a rating based on principal school visits.

### Where and when will data be available?

State-provided growth scores for 2017-18 are expected to be distributed to districts in early September 2018.

### Where can I get more information?

- [Additional information is available on the nysed.gov State-provided growth measures toolkits](#)
- [Additional information on APPR plans under Education law §3012-d](#)
- [Detailed guidance documents on New York's law and regulations](#)

Principals should contact their district/BOCES leaders for additional information about APPR or the calculation of State-provided growth scores.

## The Role of Growth Scores in Annual Performance Reviews

The Regents Task Force on Teacher and Principal Effectiveness—comprising representatives from key stakeholder groups, including **educators**, **educator unions**, and **educator professional organizations**—provided input into the development of APPR regulations and the design of the current State-provided growth scores. 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.<sup>1</sup>

Staff assignment data that are submitted by districts are used to link principals to specific grade levels within a school. In schools where two (or more) principals are assigned to different grade levels, those principals will have growth scores that include only the grade levels of their assignments.

<sup>1</sup> For a list of task force members and technical advisory committee members, visit the [NYSED Growth Measures Toolkits page](#).



## Why Growth?

All students enter their teachers' classrooms at differing levels of academic proficiency or achievement. One way to measure proficiency is student performance on standardized assessments. By measuring the amount of progress, or "academic growth" a student makes during a given school year on these assessments, we can begin to understand the influence of that particular school year experience on student learning.<sup>2</sup> By measuring academic growth rather than proficiency, we can identify strengths and gaps in student progress and help principals to better support students who have a wide range of academic needs.

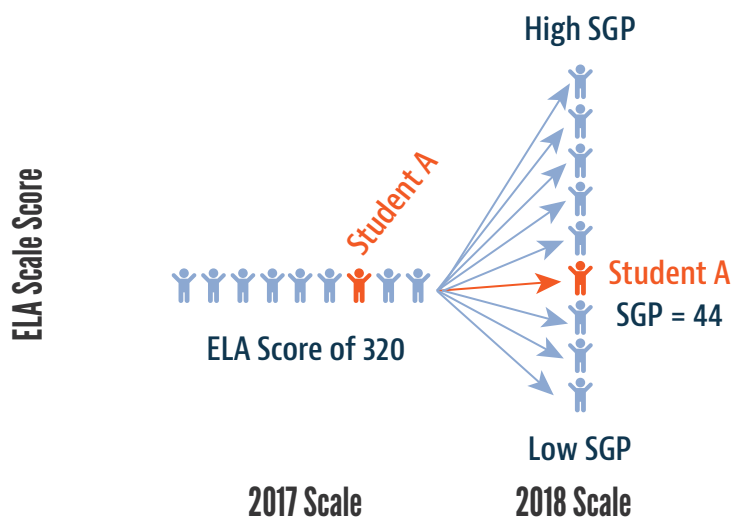
Growth measures for principals in grades 4-8 provide information on the growth of students for which they are responsible compared to students with similar characteristics across the state. This information can inform principals' understanding of how, on average, these students grew compared to their peers.

## How Does New York State Measure Student Growth?

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 (e.g., test score in spring 2018 minus test score in spring 2017). However, New York State's tests are not designed to allow for this kind of calculation because the test scores are not comparable across grade levels. Nor would this approach account for a student's starting point and other background characteristics. Instead, New York State's approach is to compare the current year scores of similar students—that is, of students who had the same prior test scores and other characteristics—in order to measure growth while accounting for students' starting levels of achievement.<sup>3</sup>

This method, illustrated in **Figure 1**, shows Student A (red student) with an ELA score of 320 in 2017.<sup>4</sup> Compared to other students (solid blue students) who also had scores of 320 in 2017, Student A's ELA test score in 2018 was in the middle range when compared to those same students. We can describe Student A's growth relative to similar students as a "**student growth percentile**" or SGP. In this example, because Student A's SGP is 44 (Student A scored 4th out of 9 similar students; 4 divided by 9 equals 44% or an SGP of 44), it means that this student achieved an ELA test score as high or better than 44 percent of other students with the same starting point and characteristics. **SGPs range from 1–99** and they always tell you where a student stands in a distribution of similar students (specifically, what share of students they performed the same as or better than). In New York State's evaluation system, SGPs are calculated separately by subject and grade.

**Figure 1. Measuring Student Growth Compared to Similar Students**



<sup>2</sup> Education Law §3012-d(2)(c) defines "student growth" as: "the change in student achievement for an individual student between two or more points in time."

<sup>3</sup> This "comparison" is done through a regression modeling approach. For more details, please see the *Growth Model for Educator Evaluation 2016/17 Technical Report*, which is available on the [NYSED Growth Measures Toolkits page](#). The 2017-18 Technical Report will be available on the NYSED website in the fall of 2018.

<sup>4</sup> Note that the sample scaled scores are for illustrative purposes only.

## Factors Used to Define “Similar Students” in the Growth Model for 2017-18

For educator evaluation, we further refine the definition of similar students to include additional factors known to impact student performance in order to better isolate the impact of a student’s teacher on his or her performance. In the State growth model, the term “similar students” means not only students with the same academic history, but also students with the same English language learner (ELL), economic disadvantage, or disability statuses at both the student and classroom levels. **Table 1** displays specific factors for each of these categories. We account for whether a student is an ELL, for example; we also account for the percentage of ELL students in a student’s ELA or mathematics course. This type of factor is intended to address peer effects, acknowledging that it may be a different experience for a student to be in a 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 course with fewer ELL students.

**Table 1. Factors Used to define “Similar Students” in 2017-18\***

Categories	Factors
<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 course (same subject)</li> <li>New to school in a non-articulation year (e.g., entered middle school as an eighth grader)</li> </ul>
<b>English Language Learners</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 course</li> <li>ELL Status (yes or no)</li> </ul>
<b>Economic Disadvantage</b>	<ul style="list-style-type: none"> <li>Percentage of economically disadvantaged students in student’s course</li> <li>Student economic disadvantage status (yes or no)</li> </ul>
<b>Students with Disabilities</b>	<ul style="list-style-type: none"> <li>Student with disabilities spending less than 40 percent of time in general education setting</li> <li>Percentage of students with disabilities in student’s course</li> <li>Student with disabilities status (yes or no)</li> </ul>

\* In the future, additional characteristics may be added, or other changes may be made to the growth model, as approved by the Board of Regents.

## How is Student Growth Used for 4-8 Principal Evaluation?

A school’s or principal’s State-provided growth rating (the HEDI rating) and growth score (0–20) are based on the “**mean growth percentile**” or **MGP**, the aggregate measure of student growth in the principal’s school. An MGP is calculated by finding the average of all the SGPs for students attributed to a school or principal, across grades and subjects.

**Table 2** illustrates how an MGP is calculated for a school or principal by averaging SGPs of students. Students who do not meet the continuous enrollment requirement (i.e., those who were not enrolled on BEDS day and on the first day of the State assessment administration) are not included in a school’s or principal’s MGP.<sup>5</sup> **Finally, an MGP is reported only if it is based on at least 16 SGPs.**

<sup>5</sup> Note that student linkage rules are different and therefore MGPs are computed differently for teachers than they are for principals. Specifically, SGPs for students who were enrolled in a teacher’s course for a longer period of time and who attended more regularly count more heavily in a teacher’s MGP than those who were enrolled and attended for less time. Students with less than 60 percent course enrollment are not included in a teacher’s MGP. For more details and an example, see the Teacher’s Guide to Interpreting State-Provided Growth Scores for Grades 4-8, which is available on the [NYSED Growth Measures Toolkits page](#).



**Table 2. Example of Students Who Count in a School’s or Principal’s MGP: Sample Data**

Student	SGP	BEDS - Assessment Day Enrollment	Include Student in MGP Calculation	Grade
Student Q	-	Yes	Yes	4
Student R	40	Yes	Yes	5
Student S	70	Yes	Yes	6
Student T	60	No	No	7
Student U	41	Yes	Yes	8

To determine a school’s MGP, we find the average of the SGPs for all students who were enrolled on BEDS day and the first day of State assessments. In this case, the calculations would be as follows:

- **Step 1:** Sum SGPs for all students to be included in the calculation.  
*Table 2 example:*  $40 + 70 + 41 = 151$
- **Step 2:** Divide Step 1 result by the total number of students and round to the nearest .5.  
*Table 2 example:*  $151 / 3 = 50.5$

The school described in Table 2 has an MGP of 50.5, meaning that, on average, students who were enrolled in this school on BEDS Day performed as well as or better than about 50.5 percent of similar students.<sup>6</sup>

To determine a principal’s MGP, we find the average of the SGPs for all students who were enrolled on BEDS day and assessment day and who were in the grade levels to which that principal was assigned, using data submitted by the district, Board of Cooperative Educational Services (BOCES), or charter school. In this example, there is just one principal for the entire school and therefore the principal’s MGP is also 50.5. If, however, two principals were assigned to this school (for example, one to oversee grades K–5 and one to oversee grades 6–8), we would average the SGPs only for students in the grade levels to which the principal was assigned.

For purposes of educator evaluation, we calculate each MGP based on the average of all SGPs in our 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 ratings (HEDIs) and scores.** Unadjusted MGPs that take into account only students’ prior achievement are also reported, for informational purposes only.

MGPs are provided by subject, grade, teacher, and principal, and then an overall MGP that combines SGPs for all students across grades and subjects in a school is provided. Grades 4–8 school and principal MGPs are based only on students who had test scores from the current and immediate prior school year and who met the State’s continuous enrollment requirement.

MGPs also are reported with an upper limit and a lower limit that represents a 95-percent confidence range (see **Figure 2**).

**Figure 2. MGP & Confidence Range**



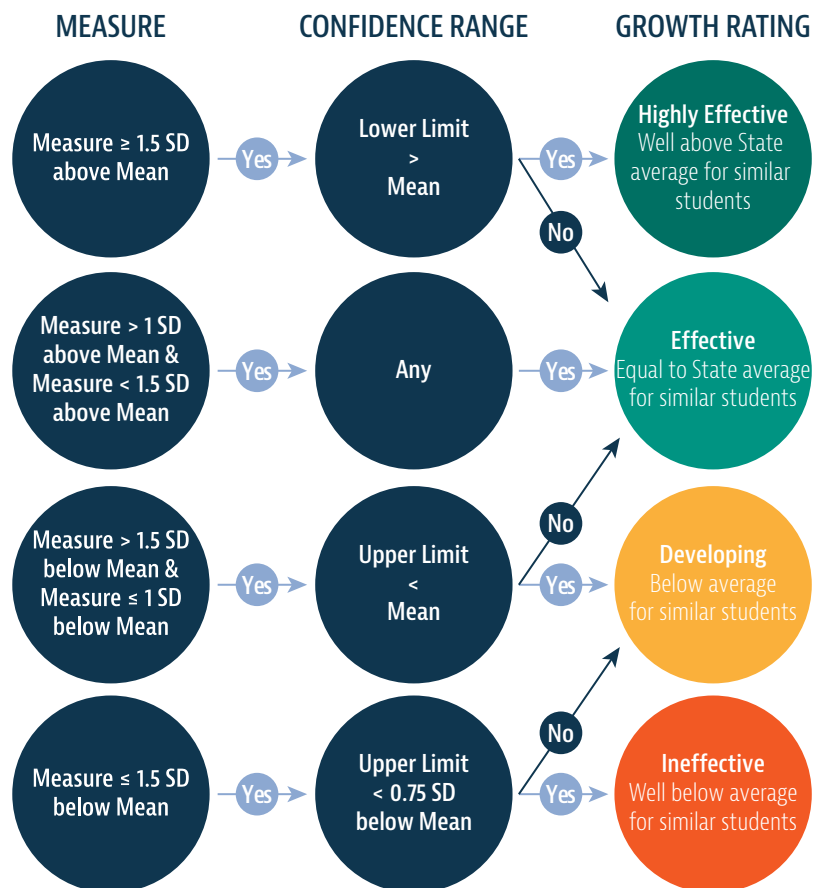
<sup>6</sup>For purposes of illustration, this example includes fewer than 16 SGPs. MGPs are reported **only when at least 16 SGPs are available.**

All statistical calculations contain some uncertainty. Although the reported MGP is the best estimate for any teacher or principal, 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 an educator’s true MGP lies 95 percent of the time. Reporting upper- and lower-limit MGPs is similar to the way other statistical calculations, such as political polls, are reported (e.g., a candidate can be ahead in the polls by 6 points, plus or minus 3 points). The width of the confidence range (that is, the distance between the upper and lower limits) is affected by such factors as the number of students included in generating the score, the spread of student scores, and characteristics of the tests students take.

We report the upper- and lower-limit MGPs because we want to be transparent about the data. We also use upper- and lower-limit MGPs to assign educator ratings in a way that fairly takes uncertainty in MGPs into account. We use the overall adjusted MGP (that is, the MGP that combines information across all applicable grade levels and subjects) and upper- and lower-limit MGPs to determine growth ratings, as shown in **Figure 3**. The rules for assigning growth ratings are the same for schools, principals, and teachers of grades 4–8 students.

A growth score of 0–20 points is then assigned within each growth rating category (HEDI) using the scoring bands prescribed in Subpart 30-3 of the Rules of the Board of Regents (i.e., the regulations that govern evaluations pursuant to Education Law §3012-d). Higher MGPs within a growth rating category receive more points. Schools or principals serving a combination of grades 4–8 and grades 9–12 will have additional growth results factored into their final growth subcomponent rating. The next section provides details on how State-provided growth scores and ratings are determined for those schools and principals.

**Figure 3. Determining School & Principal Growth Ratings**



Note: SD = Standard Deviation  
Values are rounded to the nearest 0.5

## Growth Ratings for Schools or Principals Serving Grades 4-8 & 9-12

To determine a final State-provided growth rating for schools or principals who serve grades 4–8 and grades 9–12, growth ratings and scores are determined for grades 4–8 and grades 9–12 separately and then combined.<sup>7</sup> The grades 4–8 measure growth rating is determined using the process shown in **Figure 3**. Because multiple grades 9–12 measures exist, growth scores for each grades 9–12 measure are averaged together and then weighted by the number of students in each measure to determine an overall grades 9–12 growth rating and score. An overall growth subcomponent rating that includes results for both grades 4–8 and grades 9–12 students is then computed in the same manner by averaging grades 4–8 and grades 9–12 growth scores by the number of students in each measure and finding the final rating. **Figure 4** shows an example of this process.

**Figure 4. Determining Growth Ratings for Schools & Principals with Grades 4-8 & 9-12 Growth Measures**

Sample School	Growth Rating	Growth Score	Number of Students or Student Scores in Measure	Percentage of Students (Measure Weight)	Score X Measure Weight	Weighted Score (Rounded)
<b>4-8 Growth Subcomponent Rating/Growth Score</b>	Effective	16	435	18%	16 x 0.18	2.9
<b>9-12 Growth Subcomponent Rating/Growth Score</b>	Effective	15	1,970	82%	15 x 0.82	12.3
<b>Overall Growth Subcomponent Rating/Growth Score (4-8 &amp; 9-12)</b>	Effective		2,405	100%		15

Use the final growth subcomponent score (in this case, 15) to find the final growth subcomponent rating (in this case, Effective).

Sum the weighted scores for 4-8 (in this case, 2.9) and 9-12 (in this case, 12.3) to get the overall growth subcomponent score (in this case, 15).

### Information Available in District Files

State-provided growth scores are made available to districts by September each school year or as soon as practicable thereafter. Results are provided in separate files for teachers, principals, and schools. These files contain the following information:

- **Number of Student Scores:** The number of SGPs included in an MGP.
- **Percent of Students Above the State Median:** Percentage of students above the State median SGP in the relevant subject and grade, using adjusted student SGPs.
- **Unadjusted MGP (Principal or School):** The mean of the SGPs for students linked to a principal (or school) based on prior achievement scores only, without taking into consideration ELL, students with disabilities, or economic student characteristics.
- **Unadjusted MGP (Teacher):** The weighted mean of the SGPs for students who are attributed to a teacher, based on prior achievement scores only, without taking into consideration ELL, students with disabilities, or economic disadvantage student characteristics. The weighted mean is calculated based on the amount of time students were enrolled in and attended a course with a teacher.

<sup>7</sup>Details on measures and results for schools and principals of grades 9–12 can be found in the Principal’s Guide to Interpreting State-Provided Growth Scores for Grades 9–12, which is available on the [NYS ED growth measures toolkits page](#).



- **Adjusted MGP (Principal or School):** The mean of the SGPs for students linked to a principal (or school) based on academic history as well as ELL, students with disabilities, and economically disadvantaged student characteristics. This MGP is used to determine a principal's (or school's) State-provided growth score and growth rating.
- **Adjusted MGP (Teacher):** The weighted mean of the SGPs for students attributed to a teacher that are based on all factors used to define "similar students" (see Table 1 on page 4). This MGP is used to determine a teacher's State-provided growth score and growth rating.
- **Upper Limit and Lower Limit:** Highest and lowest MGP for a 95-percent confidence range.
- **Growth Rating:** Growth rating describes the educator's HEDI performance on the State-provided growth subcomponent.
- **Growth Score:** Using scoring bands for implementation of Education Law §3012-d, a growth score of 0 to 20 points is assigned to each educator based on his or her overall MGP within each growth rating category.

Districts are also provided with student roster files and MGPs disaggregated by grade and subject. These files show which students were included in an educator's MGP along with information about each student. These rosters display information about students who were linked to educators but were not included in the calculation of the educator's MGP. Students who do not meet the minimum enrollment requirements will have a detailed exclusion reason, and those who do meet the minimum enrollment requirements to be included in educators' MGPs will have an exclusion reason of "NA." For students who were included in an educator's growth score (exclusion reason of "NA"), the following information will be provided:

- Year, which indicates the end of the school year to which the information applies
- District, school, and educator (teacher or principal) name and ID
- Student name and ID
- Assessment subject and grade ("Item Description")
- Student background characteristics:
  - Disability: Students identified as having disabilities, based on district, BOCES, or charter school-provided information
  - ELL: Students who have been identified as English language learners in accordance with Part 154 of the Commissioner's Regulations, based on district, BOCES, or charter school- provided information <sup>8</sup>
  - Economic disadvantage: 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, Safety net Assistance, the Bureau of Indian Affairs, or Temporary Assistance for Needy Families, based on district, BOCES, or charter school-provided information
  - Students with disabilities spending less than 40 percent of time in general education settings
  - NYSESLAT form and score
  - New to school
  - Retained in grade
- 2018 State test score and prior year(s) State test score(s)
- SGP (unadjusted and adjusted)



<sup>8</sup> See Part 154 of the Commissioner's Regulations.



## Questions for Consideration

Following are some questions to consider as you review your State-provided growth score information:

- 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 leadership practice received through observations or other measures? Why might this be?
- How do my MGPs in these subjects compare? Why might they be similar or different?
- How do my MGPs compare across grade levels? Why might they be similar or different?

## 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 superintendent or district data personnel for assistance.** If unable to obtain answers to questions, contact [educatoreval@nysed.gov](mailto:educatoreval@nysed.gov).

## Disclaimer

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