A Principal's Guide to Interpreting State-Provided Growth Scores for Grades 9–12 in 2016–17

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 and principals of buildings that include all of grades 9-12 will receive State-provided growth scores based on 2016-17 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. Development of the growth measures for principals of grades 9-12 was informed by the growth model for principals of grades 4-8. Where possible, the New York State Education Department used the same definitions of similar students and the same rules about student attrition as those that were used for the grades 4-8 principal measures.[1]

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 2016-17 are expected to be distributed to districts during the last week of August 2017.

Where can I get more information?

- Detailed information on State-provided growth scores
- 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.

Development of Growth Measures

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

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[1] See *A Principal's Guide to Interpreting State-Provided Growth Scores for Grades 4-8*, available on the NYSED growth scores resources page.

technical accuracy and utility of the statistical methodology used to calculate scores.[2] Revisions to the State-provided growth model will be considered during the 2016-17 school year.

Measures for grades 9–12 include the mean growth percentile (MGP) measure based on Algebra and ELA Regents Exams (Common Core versions only) and the Comparative Growth in Regents Exams Passed measure. For the Comparative Growth in Regents Exams Passed measure, students who dropped out were counted in the school from which they dropped out until they would have reached their fourth year since entering grade 9 or until they enrolled at another school, starting with those who dropped out in the 2013-14 school year. Students who dropped out prior to the 2013-14 school year were not counted.

Staff assignment data submitted by districts, Boards of Cooperative Educational Services (BOCES), and charter schools 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. However, scores are produced only for schools that serve all of grades 9–12 and for principals of schools with all of grades 9–12.

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.[3] By measuring academic *growth* rather than *proficiency*, we can identify strengths and gaps in student progress and help teachers to better support students who have a wide range of academic needs.

The goal of growth measures for principals of grades 9–12 is to measure student growth toward graduation as well as college and career readiness, using available Regents Exam data. To achieve this goal, two different growth measures are reported. These two measures are intended to acknowledge progress in passing Regents Exams required for graduation, as well as to account for high-level performance on Regents Exams and passing Regents Exams beyond the minimum of five exams required. Using these two measures allows us to capture two different, but equally important, aspects of student progress toward graduation and college and career readiness. They also allow us to include most students for at least one measure in computing a score for high school principals. Each measure is described in detail in the sections that follow.

How Does New York State Measure Student Growth?

One growth measure for grades 9-12 principals is based on Algebra 1 Common Core and ELA Common Core Regents Exams.

The approach New York State uses compares the current-year Regents Exam 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.[4] This method of measuring growth is illustrated in **Figure 1**, which is the same as that used for grades 4–8 teachers and principals. In Figure 1,

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[2] For a list of task force members and technical advisory committee members, visit the NYSED growth scores resources page.
[3] 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."
[4] This "comparison" is done through a regression modeling approach. For more details, please see the Technical Report for Growth Measures (2015-16). The 2016-17 Technical Report will be available on the NYSED website in the fall of 2017.

Student A (red checkerboard dot) had an eighth grade ELA score of 340 in 2016. Compared with other students (solid blue dots) who also had a score of 340 in 2016, Student A's 2017 ELA Regents Exam test score was somewhere in the middle. We can describe Student A's growth in relative terms as a **"student growth percentile" or SGP**. In this example, because Student A's SGP is 56, it means that this student performed as well as or better than 56 percent of similar students who took the ELA Regents exam. 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 he or she performed the same as or better than). In New York State's evaluation system, SGPs are calculated separately for the ELA and Algebra Regents Exams.

Figure 1. Measuring Student Growth Compared to Similar Students
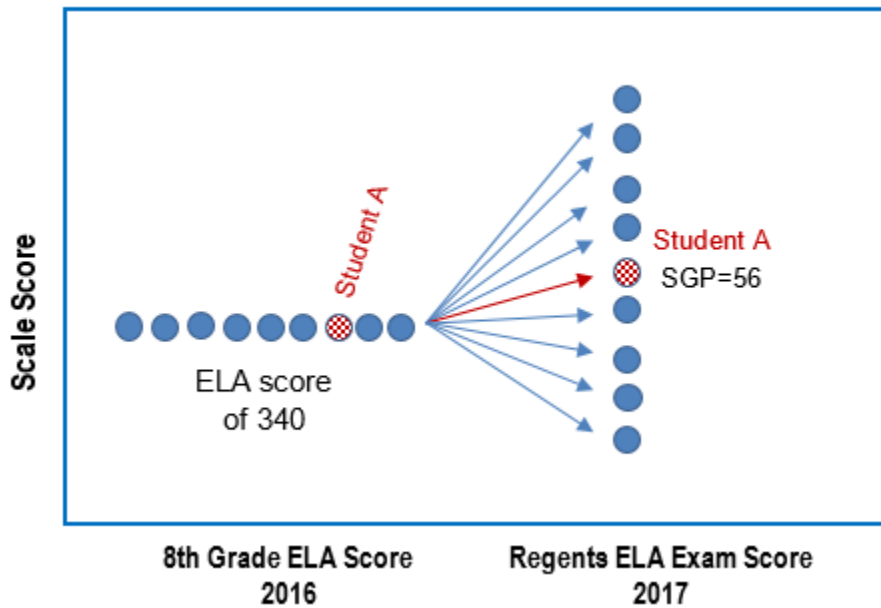
Once we have computed SGPs for students, we average them to compute a school- or principal-level **"mean growth percentile" or MGP**. **Table 2** illustrates how an MGP is calculated for a school or principal. Students who do not meet the continuous enrollment requirement (i.e., those who were not enrolled on BEDS day and during the June Regents test administration) are not included in a school's or principal's MGP. **The minimum sample size required to report an MGP is 16** (note that for purposes of illustration only, Table 2 displays a score based on fewer than 16 students), and only schools with all of grades 9–12 and principals of schools with all of grades 9–12 receive MGPs. An ELA, Algebra, and combined MGP is reported for schools and principals if they have the minimum of 16 for each MGP.[5] To combine Algebra and ELA MGPs into an overall MGP, we take the average of all SGPs attributed to the school or principal.

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[5] A principal receives an **MGP in each subject area** if he or she has a minimum of 16 SGPs attributed to him or her for each subject. A principal receives **a combined MGP** as long as he or she has a total of 16 SGPs across the two subjects (e.g., eight SGPs each in ELA and Algebra would be adequate to calculate a combined MGP).

Table 1. Example of Students Who Count in a School's or Principal's MGP: Sample Data

Student	Algebra SGP	ELA SGP	BEDS Day-Regents Exam Enrollment	Include Student in MGP Calculation	Grade
Student Q	--	75	Yes	Yes	11
Student R	40	50	Yes	Yes	9
Student S	70	80	Yes	Yes	10
Student T	60	55	No	No	12
Student U	40	43	Yes	Yes	11

To determine the school's MGP, we find the average of the SGPs for Algebra I Common Core and ELA Common Core Regents Exams for students who were attributed to the school (i.e., those who were enrolled on BEDS day and during the June Regents Exam administration). In this case, the computations are as follows:

- **Step 1**: Sum "Algebra SGP" and "ELA SGP" for all students to be included in the calculation across exams.
  Table 1 example: 40 + 70 + 40 + 75 + 50 + 80 + 43 = **398**

- **Step 2:** Divide Step 1 result by the total number of SGPs.
  Table 1 example: 398 / 7 = **57**

The school's MGP is 57.

To determine a principal's MGP, we find the average of the SGPs for all students who were enrolled on BEDS day and during June Regents exams 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 (grades 9–12), and therefore the principal's MGP is also 57. If, however, two principals were assigned to this school (for example, one to oversee grade 9 and one to oversee grades 10–12), neither principal would receive a principal-level MGP because neither was responsible for all of grades 9–12, although a school-level MGP would be reported.

Because Regents Exams are offered multiple times each year and students take Regents Exams at different points in their schooling, we include students and test scores using the following rules:

- Students who take any version of the Algebra or ELA Regents Exams prior to high school are NOT included in the MGP of a principal of grades 9–12.

- Students must have a valid prior score from grades 7 or 8 ELA or mathematics (the score must be from ELA to be used in the ELA MGP model and from mathematics to be used for the Algebra MGP model).

- We count Regents Exam scores from the following administrations: August of the prior year (except for ninth graders), January, and June.

- If a student takes a Regents Exam more than once during the year, we use the higher test score.

- Student scores are used until they pass (after students pass, we do not want the measure alone to encourage additional test taking, which may not be necessary).

- Students are included for up to eight years after first entering ninth grade.

Comparative Growth in Regents Exams Passed

Another growth measure for principals of grades 9–12 is the Comparative Growth in Regents Exams Passed (GRE) metric. Because a major graduation requirement is for students to pass five Regents Exams (more for advanced Regents diplomas), this measure compares how much progress a school's students are making from one year to the next toward passing up to eight Regents Exams (the five required Regents Exams plus up to three more). A principal's score on this measure reflects whether his or her students exceeded the average change in number of Regents Exams passed each year by similar students statewide. Over time, an average of over 80 percent of students in a high school have been included in the GRE measure.

As with the MGP measure, students who do not meet the continuous enrollment requirement (i.e., students who were not enrolled both on BEDS day and during the June Regents test administration) are not included in the GRE measure for schools or principals of grades 9–12. **The minimum sample size required to report a GRE measure score for a school or principal is 16 students, and only schools with all of grades 9–12 and principals of schools with all of grades 9–12 will receive GRE measure scores.**

Figure 2 provides an example of how the GRE measure works (note that for purposes of illustration only, Figure 2 displays a score based on fewer than 16 students).

Figure 2. Simplified Illustrative Example of Computing GRE Score

Student	Number of Regents Passed This Year for This Student	Number of Regents Passed This Year by Similar Students	Difference
Jessica	1	1	0
Tyler	2	2	0
Ashley	1	2	-1
Emily	3	2	1
Jacob	3	2	1
Total Difference (Sum of Differences)			1
Average Difference (Total Difference / Number of Students)			1/5 = .2

Principal's score on this metric is 0.2. On average, students at this school are passing 0.2 Regents Exams more than similar students statewide. A zero represents average or effective results.

Note: 0 means student or school achieved the average (or "effective") result compared to similar students statewide.

Because Regents Exams are offered multiple times each year and students take Regents Exams at different points in their schooling, we include students and test scores for the comparative GRE growth measure using the following rules:

- We count Regents Exam scores from the following administrations: August of prior year, January, and June.
- If a student takes a Regents Exam more than once during the year, we use the higher test score.
- Students must have a valid prior score from grade 7 or 8 ELA or mathematics.

- Student scores count up until they pass.

- Four required Regents Exams (one each ELA, Math, Science, and Social Studies), plus a second social studies exam, and no more than three additional exams, are counted. The scores for students who exceed eight Regents Exams passed are NOT included in a school's or principal's results.

- Modified passing score rules for students with disabilities are used.

- **All students** who meet the minimum enrollment requirement (i.e., students who are enrolled on BEDS and during the June Regents Exam administration) are included in determining a school's score, whether or not they take a Regents Exam during the year.

- Students are included for up to eight years after first entering ninth grade.

- Students who dropped out are counted in the school from which they dropped out until they would have reached their fourth year since entering grade 9 or until they enrolled at another school, starting with those who dropped out in the 2013-14 school year. Students who dropped out prior to the 2013-14 school year are not counted.

Defining "Similar Students" in Grades 9-12 School and Principal Growth Measures for 2016-17

For all growth measures used in New York State for purposes of educator evaluation, students are always compared to similar students in the State. That is, when computing student-level growth, we always assess a student's progress relative to students with a similar academic history and other defined characteristics. We do this because we want to capture the effects of instruction on student performance separate from the effects of factors that principals or teachers cannot control. We know that a student's starting level of academic achievement is one important factor in how well the student will achieve in the future; other factors, such as a student's English language proficiency, disability, or economically disadvantaged status, also could play a role in the student's performance. We include these characteristics in our definition of similar students. We do this to ensure that principals whose schools serve students with different characteristics are not advantaged or disadvantaged by the composition of the schools, which they cannot control.

Table 2 provides details about how each of these characteristics is defined in the grade 9–12 principal growth measures for 2016-17. Both student- and school-level characteristics are included. We account for whether a student is an English language learner (ELL), for example, and we also account for the percentage of ELL students in a school. This type of school-level factor is intended to address *peer effects*, acknowledging that it may be a different experience for a student to be in school with many ELL students (and a different job for a principal to lead a school with many ELL students) than it is to be in a school with fewer ELL students. The factors shown in Table 2 are the same as those used for growth measures for teachers and principals in grades 4–8, with a few additions for the high school context (e.g., we also account for the total number of Regents Exams a student has passed at the time we measure growth).

Table 2. Factors Used to Define "Similar Students" in 2016-17*

Categories	Factors
Academic History	- Seventh- and/or eighth-grade student State exam scores, same or different subject (Student must have at least one same-subject score for MGP and at least one score for GRE measure.) - Total number of Regents Exams passed to date - Average eighth-grade prior State exam scores for students in school (same subject only for MGP; both subjects for GRE) - Years since ninth-grade entry (instead of grade level)** - New to school in year other than grade 9
Students with Disabilities	- Student with disabilities spending less than 40 percent of time in general education setting - Percentage of students with disabilities in school - Student disability status (yes or no)
Economic Disadvantage	- Student economically disadvantaged status (yes or no) - Percentage of economically disadvantaged students in school
English Language Learners	- Student ELL status (yes or no) - New York State English as a Second Language Test (NYSESLAT) scores - Percentage of ELLs in school

*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.

** GRE scores are calculated separately for each cohort (one, two, three, four, or five or more years since ninth-grade entry); SGPs are calculated separately for each Regents Exam, including students from all cohorts who took the relevant exam.

We refer to measures computed using the characteristics listed in Table 2 as *adjusted* measures. **Adjusted measures are used to determine growth ratings (HEDI) and scores**. Unadjusted measures, taking into account *only* students' prior test scores, also are reported for informational purposes only.

Determining Principal Growth Ratings

All growth measures are reported with an upper limit and a lower limit that represents a 95-percent confidence range (see **Figure 3**).

Figure 3. Growth Measures and Upper and Lower Limits

All statistical calculations contain some uncertainty. Although the reported MGP or GRE score is the best estimate for any school or principal, we also can quantify a range wherein we can expect that the *true* answer lies. The upper- and lower-limit MGP or GRE scores define a set of scores wherein an educator's true MGP or GRE score lies 95 percent of the time. Reporting upper- and lower-limit MGPs is similar to the way we are used to seeing results from other statistical calculations such as political polls reported, in which a candidate can be ahead in the polls by six points plus or minus three 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 limits to assign school and principal growth ratings in a way that fairly takes uncertainty in MGP and GRE measures into account.

To determine the growth rating for a school or principal of grades 9–12, we first find a growth rating and score for each of the two types of metrics: The combined MGP measure and the GRE measure. **Figure 4** shows the rules used to determine these growth ratings. A growth score of 0–20 points is then assigned within each rating category (HEDI) using the scoring bands prescribed in Subpart 30-3 and the Rules of the Board of Regents (i.e., the regulations that govern evaluations pursuant to Education Law §3012-d). Higher MGPs and GRE scores receive more points.

Figure 4. Determining Grades 9-12 School and Principal Growth Ratings
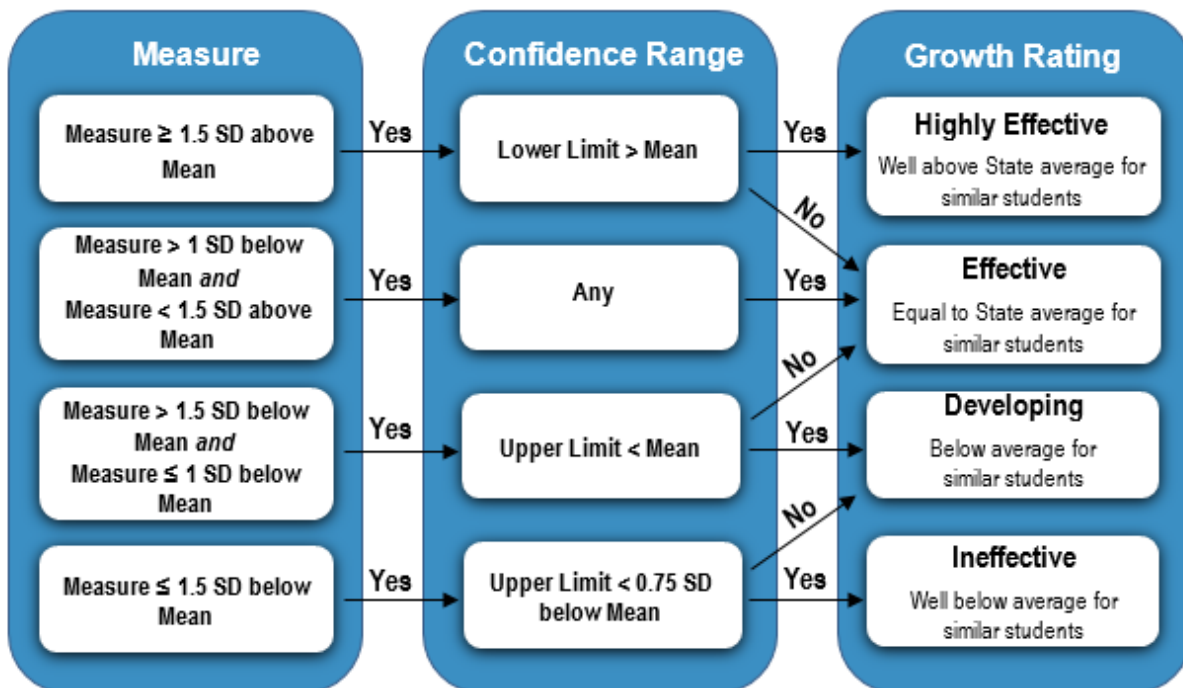
Notes: SD = Standard Deviation
Values are rounded to the nearest .0.5 for MGP and 0.01 for GRE.

Then we average the growth scores together, weighting them by the number of students included **in each measure**. **Figure 5** provides an example. The resulting score determines the State-provided growth subcomponent HEDI rating and growth score for a school or principal of grades 9–12.

Figure 5. Determining Grades 9-12 Principal Growth Ratings

Sample School	Growth Rating	Growth Score	Number of 9-12 Students or Student Scores in Measure	Percentage of 9-12 Students (Measure Weight)	Score x Measure Weight	Weighted Score (Rounded)	
Comparative Growth in Regents Exams Passed	Effective	17	1,635	83%	17 x 0.83	14.1	Multiply growth score (e.g., 17) by measure weight (e.g., .83) to get weighted score (e.g., 14.1)
MGP	Developing	13	335	17%	13 x 0.17	2.2	Sum the weighted scores for the Comparative Growth Measure (in this case, 14.1) and MGP measure (in this case, 2.2) to get the overall subcomponent score (in this case, 16).
9-12 Growth Subcomponent Rating/Growth Score	Effective		1,970	100%		16	

Use the final growth subcomponent score (in this case, 16) to find the final growth subcomponent rating (in this case, Effective).

If schools or principals have only one measure (for example, if they do not meet the minimum sample size requirement of 16 for one measure), then the final State-provided growth score and growth HEDI rating are derived from whichever measure is available.

Principals and schools serving grades 4–8 and grades 9–12 will have additional growth results factored into their final State-provided growth subcomponent rating. The next section provides details about how this process works for those schools and principals.

Growth Ratings for Schools or Principals Serving Grades 4–8 and 9–12

To determine a final State-provided growth subcomponent rating for schools and principals serving 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.[6] The grades 4–8 measure growth rating is determined using the process shown in **Figure 6**. Because multiple grade 9–12 measures exist, growth scores for each grade 9–12 measure are averaged together, and then weighted by the number of students in each measure, to determine an overall grade 9–12 growth rating and score (as shown in Figure 5). 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 as that shown in Figure 5, by averaging the grades 4–8 and grades 9–12 growth scores by the number of students in each measure and finding the final rating. Figure 6 shows an example of this process.

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[6] Details on measures and results for schools and principals of Grades 4–8 can be found in *A Principal's Guide to Interpreting State-Provided Growth Scores for Grades 4–8*, available on the NYSED growth scores resources page.

Figure 6. Determining Growth Ratings for Principals With Grades 4-8 and Grades 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)
4-8 Growth Subcomponent Rating/Growth Score	Effective	16	435	18%	16 x 0.18	2.9
9-12 Growth Subcomponent Rating/Growth Score	Effective	15	1,970	82%	15 x 0.82	12.3
Overall Growth Subcomponent Rating/Growth Score (4-8 and 9-12)	**Effective**		**2,405**	**100%**		**15**

> 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).

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

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 principals and schools. These files contain the following information:

- **Number of Student Scores (for MGP measure) or Student (for GRE measure):** These numbers refer to the SGPs included in an MGP or to the number of students included in the GRE measure.

- **Unadjusted Measure:** This measure is based on student growth and accounts for prior achievement scores only, without taking into consideration ELL, student with disabilities, or economically disadvantaged student characteristics.

- **Adjusted Measure:** This measure is based on student growth and is adjusted for academic history as well as ELL, student with disabilities, and economically disadvantaged characteristics at the student and school levels.

- **Upper Limit and Lower Limit:** Highest and lowest possible measure score for a 95-percent confidence range.

- **Growth Rating:** Growth rating describes the performance category (HEDI) for each individual measure (MGP or GRE) and overall for grades 9-12. The overall growth rating is used in educator evaluation 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 computed for a principal for each individual measure (MGP or GRE) and overall for grades 9-12. The overall growth score is used in educator evaluation on the State-provided growth subcomponent.

Districts are also provided with student roster files. These files show which students were included in an educator's MGP and GRE 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 an educator's MGP and GRE. 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[7]

  - 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

- 2017 State test score and prior year(s) State test score(s)

- SGP (unadjusted and adjusted)

- Cohort (years since entering ninth grade) (GRE only): Students who entered ninth grade one, two, three, four, or five or more years ago

Questions for Consideration

The following questions are intended to help principals evaluate growth scores, interpret scores relative to aggregate data provided, and to provide a framework in which to consider scores in light of institutional practices at each school.

- 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 do my scores compare with the district and State?

- 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 does my MGP in Algebra compare with ELA (if applicable)? Why might they be similar or different?

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[7] See Part 154 of the Commissioner's Regulations.

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 superintendent or district data personnel for assistance. If unable to obtain answers to questions, contact educatoreval@nysed.gov.

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