STATE GROWTH MEASURES TOOLKITS

FOR TEACHERS

Guide to Interpreting State-Provided Teacher Growth Scores for Grades 4-8 in 2021-22

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The Role of Growth Scores in Annual Performance Reviews

New York State teachers of English language arts (ELA) and mathematics in grades 4-8, including teachers of grade 8 students who take the Algebra 1 Regents examination, and their principals will receive State-provided growth scores based on 2021-22 State tests. The growth scores are **for advisory purposes only** pursuant to Chapter 59 of the Laws of 2019, which amended the Student Performance Category requirements of Education Law §3012-d. These growth scores describe how much students are growing academically in ELA and mathematics (as measured by the New York State tests) compared to similar students statewide.

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 technical accuracy and utility of the statistical methodology used to calculate scores.[1]

Where and when will data be available?

State-provided growth scores for 2021-22 are expected to be distributed to districts in November 2022.

Where can I get more information?

Additional information is available on the nysed.gov State-Provided Growth Measures Toolkits page.

Additional information on APPR plans is available under Education Law §3012-d.

Detailed guidance documents on New York's law and regulations are also available.

Teachers should contact their district/Board of Cooperative Educational Services (BOCES) leaders for additional information about APPR or the calculation of State-provided growth scores.

[1] For a list of task force members and technical advisory committee members, visit the NYSED Growth Measures Toolkits page.

Why Growth?

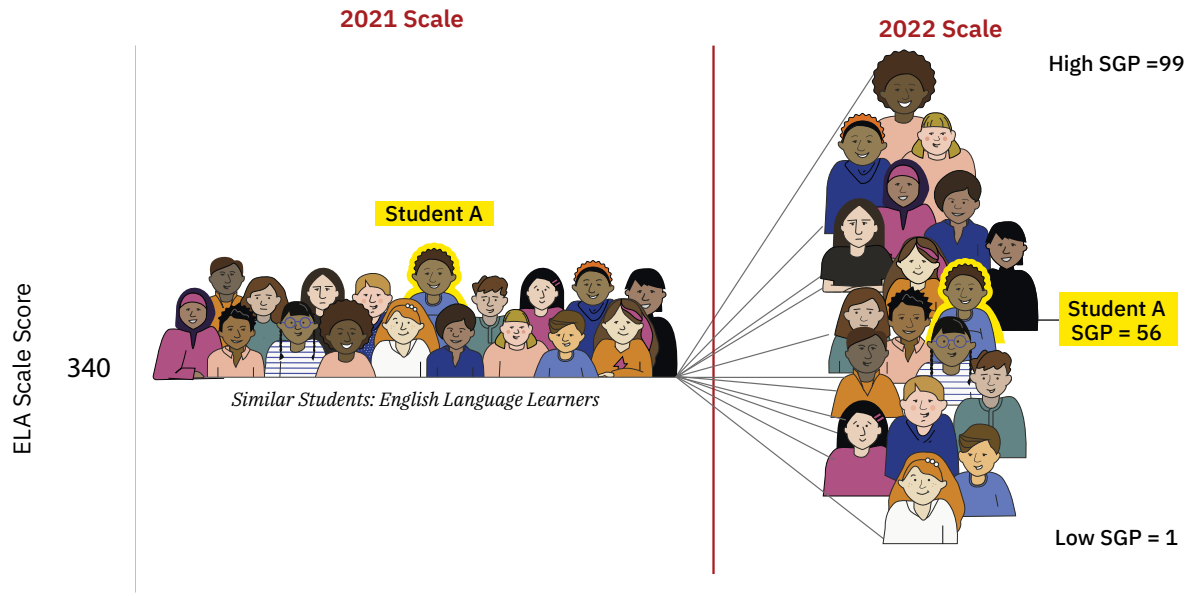
All students enter their teachers' classrooms at differing levels of academic proficiency or achievement. One way to measure proficiency is student performance on standardized assessments. By measuring the amount of progress, or "academic growth" a student makes during a given school year on these assessments, we can begin to understand the influence of that particular school year experience on student learning.[2] By measuring academic growth in addition to 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.

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 their test score in the current year (e.g., test score in spring 2022 minus test score in spring 2021). 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.[3]

This method, illustrated in **Figure 1**, shows Student A (highlighted in yellow) with an ELA score of 340 in 2021.[4] Compared to other students (solid blue students) who also had scores of 340 in 2021, Student A's ELA test score in 2022 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 56 (Student A scored 10th out of 18 similar students; 10 divided by 18 equals 56% or an SGP of 56), it means that this student achieved an ELA test score as high or better than 56 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 he or she performed the same as or better than). New York State's growth model calculates SGPs separately by subject and grade.

FIGURE 1. MEASURING STUDENT GROWTH COMPARED TO SIMILAR STUDENTS



[2] 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."
[3] This "comparison" is done through a regression modeling approach. For more details, please see the Growth Model for Educator Evaluation 2018-19 Technical Report, which is available on the NYSED Growth Measures Toolkits page. The 2021-22 Technical Report will be available on the NYSED website in the fall of 2022.
[4] Note that the sample scaled scores are for illustrative purposes only.

What is the impact of the Coronavirus pandemic on student growth?

Due to the Coronavirus pandemic, Spring 2020 State assessments were not administered. Therefore, the 2021-22 State-provided growth model was adjusted to allow the Spring 2018 assessments to be used as the third prior year assessment. Moreover, given that an immediate prior year assessment in the same subject is required to generate an SGP, and that participation in the 2021 grades 3-8 State assessments was much lower than typical, fewer SGPs will be generated for the 2021-22 school year. Extensive analysis was conducted to determine the impact of lower test participation on growth results. This analysis confirmed that growth results remain reliable despite lower test participation.

In response to the USDE waiver that turned off accountability, NYSED did not calculate growth for 2021. In 2022, growth may be generated for about 40 percent of students who have 2020-21 pre-tests. Differential participation patterns across groups of students will impact growth calculations in 2022. An additional layer of complexity is that growth calculations for grades 5-8 students will have a missing prior year assessment (2020). See **Table 1.**

TABLE 1. ASSESSMENTS AVAILABLE FOR GROWTH SCORES

		Current Year Assessment				
		Grade 4	Grade 5	Grade 6	Grade 7	Grade 8/ Algebra 1
Prior Years Assessment Same Subject	Grade 3	REQUIRED	2020 DATA NOT AVAILABLE	USE IF AVAILABLE	USE DUE TO MISSING DATA	
	Grade 4		REQUIRED	2020 DATA NOT AVAILABLE	USE IF AVAILABLE	USE DUE TO MISSING DATA
	Grade 5			REQUIRED	2020 DATA NOT AVAILABLE	USE IF AVAILABLE
	Grade 6				REQUIRED	2020 DATA NOT AVAILABLE
	Grade 7					REQUIRED

Notes: Assessments available for use in 2022:

- *Growth scores are generated for students with both the current year and prior year assessment in the same subject*
- *Grades 4 and 5 will have one prior assessment (2021)*
- *Grade 6 will have two years prior assessments (2021 and 2019)*
- *Grades 7 and 8 will have three years prior assessments (2021, 2019, and/or 2018)*

Factors Used to Define "Similar Students" in the Growth Model

For educator growth scores, 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 teacher on a student's 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 2** 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 2. FACTORS USED TO DEFINE "SIMILAR STUDENTS"*

Categories	Factors
Academic History	• Up to three years of student state exam scores, same subject • Prior-year test score, different subject • Retained in grade • Average prior achievement and range around average prior score in student's course (same subject) • New to school in a non-articulation year (e.g., entered middle school as an 8th grader)
English Language Learners	• Student's ELL status • Percentage of ELLs in a student's ***course*** • New York State English as a Second Language Achievement Test (NYSESLAT) scores
Economic Disadvantage	• Student's economic disadvantage status • Percentage of economically disadvantaged students in student's ***course***
Students with Disabilities	• Student's disability status • Student's status for spending less than 40% of time in general education setting • Percentage of students with disabilities in student's ***course***

** 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 attributed to teachers?

A teacher's State-provided growth rating (the HEDI rating) and growth score (0-20) are based on their "mean growth percentile" or MGP, the aggregate measure of their students' growth. An MGP is calculated by finding the weighted average of all the SGPs for students attributed to a teacher, across grades and subjects.

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, BOCES, and charter schools). **Table 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. Finally, an MGP is reported only if it is based on at least 16 SGPs.

TABLE 3. EXAMPLE OF CALCULATION OF TEACHER'S MGP BASED ON WEIGHTED SGPS: SAMPLE CLASSROOM DATA[5]

To measure teacher performance, we find the MGP for their students, which is the weighted average of the SGPs that take into account the enrollment duration and attendance for each student. In the case described in Table 3, the steps to calculate a teacher's MGP would be:

Step 1: *Multiply each student's SGP by their "Enrollment x Attendance" value; add all results together*

Student	SGP	Enrollment	Include Student in MGP Calculation*	Attendance	Enrollment x Attendance (Weight)	Weighted SGP
Student A	45	80%	Yes	90%	0.72	32.4
Student B	40	100%	Yes	95%	0.95	38
Student C	70	50%	No	80%	NA	NA
Student D	60	100%	Yes	90%	0.9	54
Student E	40	100%	Yes	75%	0.75	30
Cumulative					3.32	154.4

(≥60% enrollment)

Step 2: *Sum the weight results across all students to total 3.32*

Teacher MGP = 47

Step 3: *Divide cumulative SGP by the cumulative weight (3.32) to get Teacher MGP of 47 (rounded to the whole number)*

Note: This simplified example includes fewer than 16 SGPs. MGPs are reported only when at least 16 SGPs are linked to a teacher.

The teacher described in Table 3 has an MGP of 47, meaning that, on average, students linked to this teacher performed as well as or better than about 47 percent of similar students.

For purposes of teacher growth scores, we calculate each teacher's MGP based on the weighted 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 take into account only students' prior achievement and are reported for informational purposes only. Finally, 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.

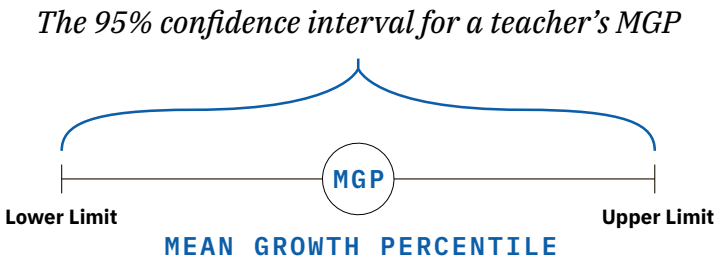
[5] For purposes of illustration, this example includes fewer than 16 SGPs. MGPs are reported **only when at least 16 SGPs are available.**

Confidence Range

In addition, MGPs also are reported with an upper limit and a lower limit that represents a 95-percent confidence range.

All statistical calculations contain some uncertainty. Although 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 an educator's true MGP lies 95 percent of the time as shown in **Figure 2**. 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.

FIGURE 2. MGP AND CONFIDENCE INTERVAL



Wider confidence intervals are asociated with smaller classes or broader variability within classes.

We report the upper- and lower-limit MGPs 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 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 their growth rating, as shown in **Figures 3 and 4**. 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 to each teacher based on their overall MGP within each growth rating category (HEDI) using the scoring bands prescribed by 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 each growth rating category receive more points.

FIGURE 3. HOW MGP IS CLASSIFIED INTO 3012-D GROWTH RATING FOR TEACHERS WITH GRADES 4-8

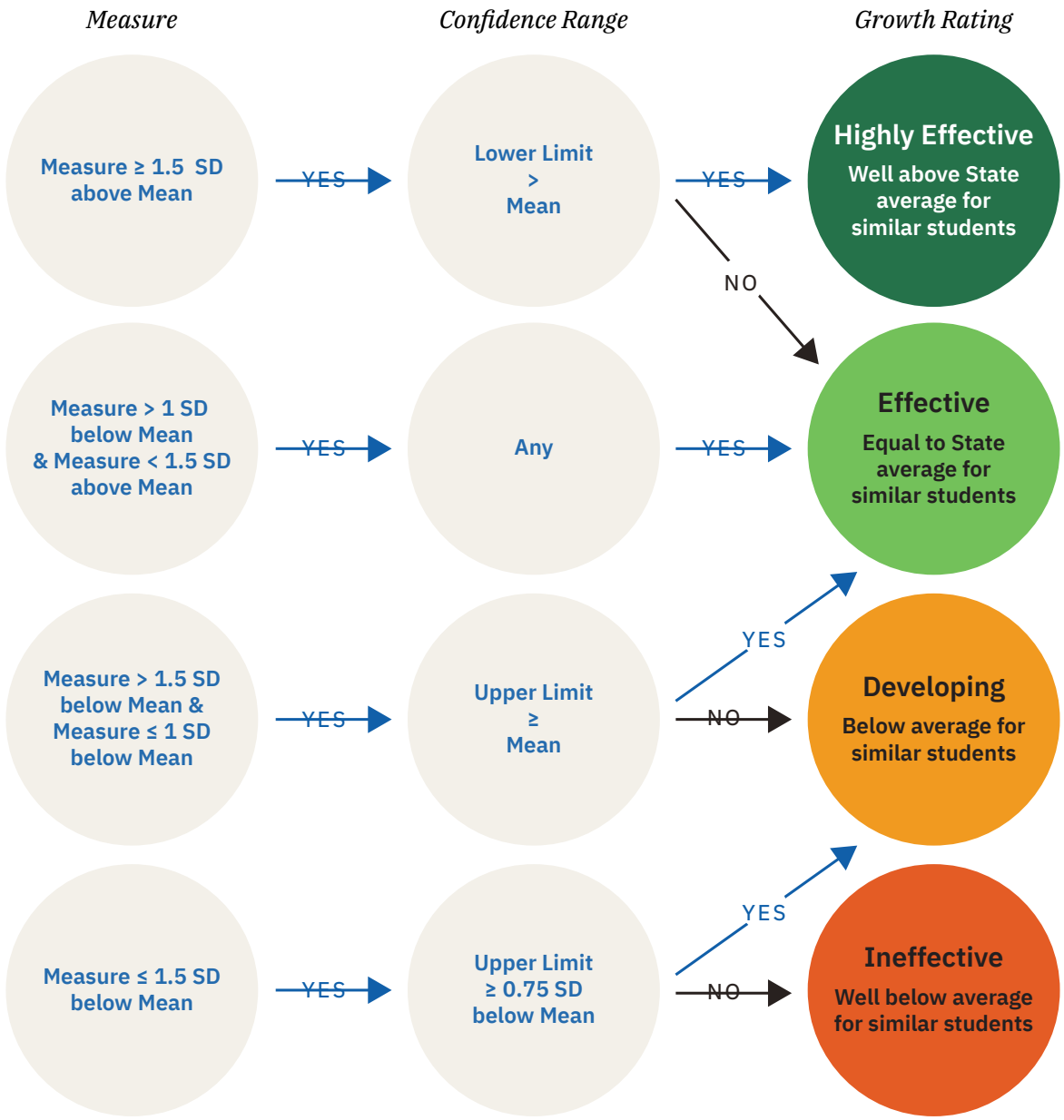
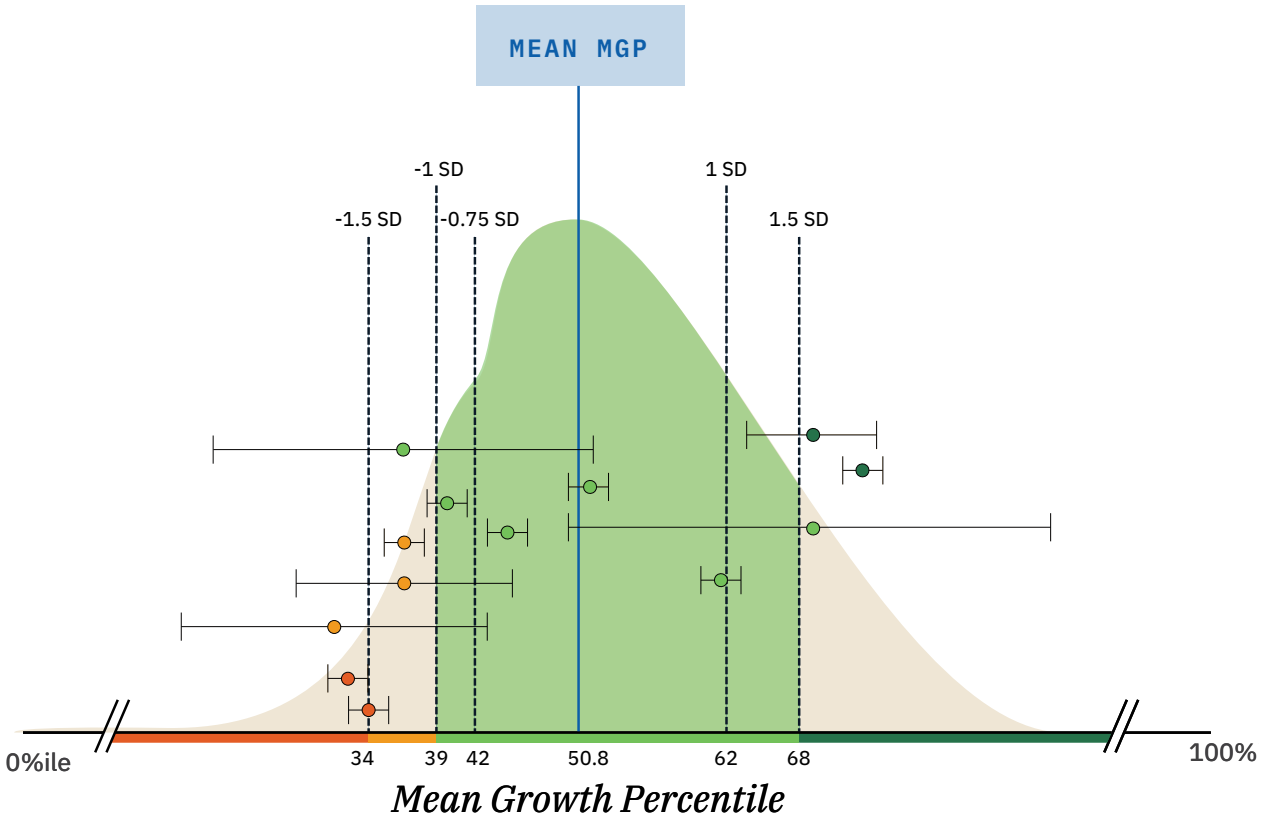


FIGURE 4. MGP CLASSIFICATION DIAGRAM



= *The confidence interval for a teachers's MGP* *SD = Standard Deviation*

Ineffective	*Developing*	*Effective*	*Highly Effective*
0-12 Points	13-14 Points	15-17 Points	18-20 Points
Well below state average for similar students	**Below state average for similar students**	**Equal to state average for similar students**	**Well above state average for similar students**

Information Available in District Files

State-provided growth scores are made available to districts by September each school year. These files contain the following information:

- **Number of Student Scores:** The number of SGPs included in a teacher's 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:** The weighted mean of the SGPs for students who are attributed to a teacher that are based on prior achievement scores without taking into consideration a student's ELL, student with disabilities, or economically disadvantaged 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:** 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 2 on page 4). The Adjusted 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:** Based on an overall MGP for a teacher across grades and subjects, the growth rating describes the teacher's performance category (HEDI) 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 teacher based on their 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 a teacher's MGP along with information about each student. These rosters display information about students who were linked to teachers but were not included in the calculation of the teacher's MGP. Students who do not meet the minimum enrollment requirements will have a detailed exclusion reason (this will be missing if the student was included).

For students who were included in a teacher's growth score (exclusion reason of "missing"), the following information will be provided:

- Year, 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 (percent)
- SGP weight in teacher MGP [enrollment duration x attendance (percent)]
- Student background characteristics (see box below)
- 2022 State test score and prior year(s) State test score(s)
- SGP (unadjusted and adjusted)

Student Background Characteristics include:

- **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[6]
- **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

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

Questions for Consideration

The following are questions for teachers to consider in reviewing 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 instructional practice received through observations or other measures? Why might this be?
- **For teachers with MGPs in both ELA and mathematics:** 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?

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. If unable to obtain answers to questions, contact evaldata@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.