The Rhode Island Growth Model: FREQUENTLY ASKED QUESTIONS (FAQS)

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Resources for the Rhode Island Growth Model (RIGM) are available at www.ride.ri.gov/RIGM

If you have a question that is not answered in this document, please send your question to RIGM@ride.ri.gov

QUESTIONS ABOUT THE GROWTH MODEL

1. What is the Rhode Island Growth Model?

The Rhode Island Growth Model is a statistical model based on students' PARCC scores in Mathematics and English Language Arts/Literacy. Students' scores are used to create student growth percentiles (SGP), which are then aggregated to calculate median SGPs for districts, schools, teachers and other groups. The Growth Model requires at least two consecutive years of PARCC data in order to measure growth across years. Therefore, growth scores are only able to be calculated for students in grades 4-11. The model associates the growth in which the test was administered.

2. What questions can the Rhode Island Growth Model help us answer?

The RIGM enables districts and schools to more easily identify promising or potentially struggling programs and practices and thus look deeper into what may or may not be working. It can also help answer such questions as:

- How much academic progress on the PARCC assessment did a student or group of students make in a year?
- How does an individual student's growth compare to that of students with similar prior PARCC test scores?
- In which schools or districts did students demonstrate better than (or less than) typical[1] growth as compared to students in schools or districts with similar overall PARCC achievement?
- Which schools or districts produced the highest sustained rates of growth on the PARCC assessment?

3. How are Student Growth Percentiles calculated?

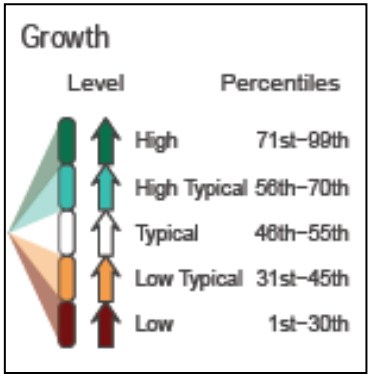
The RIGM uses a statistical model to create student growth percentiles (SGPs). In simplest terms, SGPs describe the relative location of a student's current score compared to the current scores of students with similar score histories. The location in this reference group of "academic peers" is expressed as a percentile rank. For example, a student earning an SGP of 80 performed as well as or better than 80 percent of her academic peers.

In creating SGPs, students are compared to their academic peers who scored similarly on the PARCC in the past (the model goes as far back as possible to calculate a "cohort" for each student). Academic history is the *only* factor by which students are grouped to create SGPs. For example, low-performing students are only compared to other low-performing students while high-performing students are only compared to other high-

[1] "Typical" in this context indicates neither high nor low, but moderate growth that places a district's or school's performance in the middle of a distribution.

performing students. Student demographic characteristics (e.g., race/ethnicity, gender, socioeconomic status) are **not** used to create a student cohort.[2]

After students are grouped according to academic history, the most recent PARCC score distribution for each academic peer group is used to determine the percentile at which an individual student scored within his or her cohort. This percentile indicates their student growth percentile (SGP). Student growth percentiles are expressed as whole number values from 1 to 99, with an SGP of 1 indicating the lowest growth percentile and 99 representing the highest growth percentile. There are 5 levels of growth for the categorization of SGPs. Cut points are as follows:



4. What should I consider when drawing conclusions from the growth model results?

Although the growth data is useful for many reasons, there is a danger in over-interpreting or misinterpreting the results of the growth model. When interpreting the results, keep in mind that currently only two years' worth of growth data are being displayed in the Visualization Tool. That is why we are unable to make inferences about the long term growth trends of a school or district. If a school (or district) has a *high* median SGP in one year it does not necessarily indicate that it will have a high median SGP the next year. Likewise, if a school (or district) has a *low* median SGP in one year it does not necessarily indicate that it will have a low median SGP the following year.

5. For which grades and subjects does Rhode Island report growth?

Rhode Island reports growth for English Language Arts/Literacy and mathematics for grades 4 through 11. Because the RIGM requires a minimum of 2 consecutive years of teaching-year[3] PARCC test data, only grades 4-8 are included in growth calculations.

[2] When median SGPs (observed growth scores) are displayed for student groups, such as by demographic characteristics, the median is found for all of those students in that group/school/district. For example, if a median SGP for Hispanic students within a particular school is reported as 60, this indicates that of those Hispanic students in that particular school, one-half of the Hispanic students had SGPs above 60 and one-half had SGPs below 60. The SGPs are still calculated without taking student characteristics into consideration in the model other than academic history, but are being displayed by demographic (or other) group.

[3] The grade-specific PARCC English Language Arts/Literacy tests are administered in grades 3-9 and the grade-specific mathematics tests are administered in grades 3-8. Algebra I, Algebra II, and Geometry are administered to students in middle and high school students enrolled in those courses Note that the RIGM requires two or more consecutive years of content-specific data (e.g. two years of English Language Arts/Literacy assessment results) for each student in order for an SGP to be generated.

QUESTIONS ABOUT GROWTH

1. What is the "average" student growth at our school or district?

Growth scores are not reported as averages because medians are much more appropriate. Whereas an average is highly influenced by very high and very low values, the median is not and therefore it's a better indicator of the true center of a set of data. A median is a measure of central median growth percentile for a school or district summarizes the growth percentiles for all students in the school or district providing an indication of typical growth for a school or district.

2. How do we compare student growth in our school or district with other schools or districts?

The median growth percentile for a school or district can be used for comparison purposes. These comparisons are made possible by using the Visualization Tool to search for a school or district and then adding the ones you wish to use for comparison purposes.

3. How does student growth differ between groups of students?

To make student group comparisons or to see if there are any patterns, you'll need to look at the median growth percentile for each group. You can use the Visualization Tool to compare the median growth percentiles of *Males* vs. *Females* or *Students with Disabilities* vs. *Students without Disabilities* in different districts. Just click on the "Discover" button and select "All Districts/LEAs" and then click "Ok." Next, click on the "Performance" tab near the top of the page and use the pull-down menu under "Multiple Districts/LEAs" to select the "By Student Group" comparison. You can also use the list of districts on the right of the page to view how different student groups perform within each district.

QUESTIONS ABOUT THE GROWTH MODEL VISUALIZATION TOOL

1. What is the Rhode Island Growth Model Visualization Tool?

Rhode Island has invested a great deal of time and effort into providing informative and interactive internet-based data visualization for parents, educators, and other stakeholders in the public education system. This web-based Visualization Tool shows district and school results from the Rhode Island Growth Model to facilitate use by educators and members of the public at large.

The Growth Model Visualization Tool provides a summary-level view of schools' and districts' growth and achievement results. Users only need an active internet connection and a relatively up-to-date version of a web browser that can display Adobe "Flash" content. With the Visualization Tool, users can explore and compare schools and districts on growth and achievement levels. District and school users with a need for access to student-level data will use a restricted-access version of the Visualization Tool that will allow users to explore teacher and student growth data in their district or school. Access to this version is protected by a password so that confidential data are only accessible to authorized personnel.

2. What does the Percent *At or Above Proficiency* mean in the Visualization Tool? What year does it reflect?

The vertical axis (*Y-axis*) in the Visualization Tool represents the percentage of students in the selected school (or subgroup or district) that were classified as Proficient or Above Proficient on the PARCC. Currently the Visualization Tool displays this percentage based upon the most recent test and is displayed and aggregated by the testing year grouping.

3. What students are being included in the bubbles?

The Visualization Tool includes growth data for students who completed either (or both) the PARCC English Language Arts/Literacy or Mathematics test in 2015 or 2016. Students who completed the alternate assessment are not included. Students who are placed by the district in an out-placement facility for a period of time, but who took PARCC, are included in the displayed data for their original or "sending" district.

4. How are the different schools in our district doing? Are there any patterns?

To make school comparisons or to see if there are any patterns, you'll need to look at the schools' median growth percentiles in the Visualization Tool. Just click on the "Discover" button and select "All Districts/LEAs" and then click "Ok." Next, click on the "Performance" tab near the top of the page and use the pull-down menu under "Multiple Districts/LEAs" to select the "By School" comparison. You can also use the list of districts on the right of the page to view how different student schools perform within each district.

5. Is there an established minimum group size for creating a median growth percentile for a school, disaggregated group, classroom, etc?

The Visualization Tool only displays medians for a minimum number of 10 students. This is done for two reasons. First, it is a violation of FERPA[4] regulations to release data to the public that could compromise the anonymity and privacy of individual students. With small numbers of students in a given group at schools, it becomes possible to figure out the identity of a student along with his/her data.

Second, groups with fewer than 10 members are not accurately characterized by the median because unusually high or low percentiles may skew the true center of the data. Data for groups with fewer than 10 members can, however, be better understood by looking at the complete set of numbers rather than by attempting to capture them in a single summary statistic. Educators are now able to examine their own student-level data via the restricted-access version of the Growth Model Visualization Tool.

6. Are all students with student growth percentiles included in the bubble for a district/school/other group?

No. In order to receive a student growth percentile in a PARCC content area, a student needs to have valid scores in that content area from two consecutive years, following a normal grade progression. Every student who meets these criteria will have a student growth percentile calculated. The observed growth for a school or any subgroup of a school includes only those students who were enrolled in that school on or before Oct. 1 of a given academic year. Similarly the observed growth for a district or any subgroup of a district includes only those students who were enrolled in a school in that district on or before Oct. 1 of a given academic year (or if they were continuously enrolled in that district for two consecutive years regardless of their Oct. 1 status). NOTE: Bubbles are only displayed for groups with 10 or more students with growth scores.

7. Why are some bubbles bigger than others?

The size of a bubble reflects the size of a school's or district's *total student enrollment* (not just the number of test takers or students in tested grades). Note that total enrollment can be quite different from the total number of kids who took PARCC tests, or the number of kids with growth percentiles, or the number of kids included in school or district growth calculations. This is because at least two consecutive years of PARCC scores are required to calculate growth percentiles.

[4] Family Educational Rights and Privacy Act (FERPA): http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html

8. Some bubbles look really small. How many kids are in those bubbles?

Public data are always protected by only showing bubbles that represent 10 or more individual growth scores. For that reason, you will never see a bubble that represents fewer than 10 individuals. This practice protects the privacy of those individuals so that it would be impossible to deduce the identity of individual students through a process of elimination.

9. If I check two different boxes in the Explore menu, does it find schools that match both of those criteria?

No. In this case the application displays schools that match *either* of those criteria. In order to determine whether a school matches both criteria you must toggle the check boxes one at a time while keeping track of your targets.

10. How can I remove schools from the display list?

You can only filter out a whole school level (e.g. middle schools). You cannot remove individual schools in this version of the application.

11. Why does the link to a school's website take me to the district's website?

If a school does not supply RIDE with a link to an up-to-date website, RIDE substitutes the district's website instead. This generally enables users to easily navigate to a school's website, provided one exists.

12. I cannot hover over a school's bubble because there are too many other bubbles around it. What can I do?

If you click on the name of the school in the alphabetical list on the right, it will be easier to see exactly where the bubble is. You can click on name of the school in the alphabetical list on the right and then click on the school's bubble to see individual grade performance(s) within the school. If you are interested in a different breakout (such as ethnicity or student group) you can select one from the pull-down menu in the upper left-hand corner of the window.

GLOSSARY OF TERMS

Academic Peer

Academic peers are defined as students in a particular grade with a similar PARCC score history. The PARCC score history examined includes all past scores available for a given student. So, for a student who has had low PARCC scores (consistently less than the *Approaching Expectations* level) for two or more consecutive years, his or her growth is compared to students who have scored similarly. This method of using academic peer groups also means that the Rhode Island Growth Model is fair in its estimation of growth percentiles for *all* students, because the model is blind to differences such as race, ethnicity, gender, and other demographic characteristics. To illustrate, since growth is estimated using only prior test scores, the growth of students in traditionally at-risk groups such as those from families with low income are neither penalized nor advantaged for making strong academic progress simply for being a member of an at-risk group.

English Language Learner (ELL) / Limited English Proficient (LEP)

The phrases "English-language learner" and "limited-English proficient" and their respective acronyms, "ELL" and "LEP," are similar in meaning. A child is ELL or LEP when they speak another language at home AND their limited English abilities slow down their learning in school.

Free/Reduced-Price Lunch

The National School Lunch Program is a federally assisted meal program that provides nutritionally balanced, low-cost or free lunches to children each day. School districts that choose to take part in the lunch program get cash subsidies and donated commodities from the USDA for each meal they serve. Any child at a participating school may purchase a meal through the program. In order to qualify for this program, you must be a resident of the State of Rhode Island and a parent or primary caregiver responsible for a child(ren) who attends school (high school or under). *Free Lunch* eligibility: Children from families with incomes at or below 130% of the poverty level. *Reduced-Price Lunch* eligibility: Children from families with incomes between 130% and 185% of the poverty level.

Growth

For an individual student, growth is a measure of progress in academic achievement. For some states, this measure might simply be a change (a gain or a loss) in test scores from one year to the next. For Rhode Island, growth is not expressed in test score point gains or losses, but in percentiles of gain. An individual's gain or loss in test score points is used as the basis for a growth calculation, using a statistical model called *quantile regression*. The calculations use all available test scores to estimate a student growth percentile for each student. The student growth percentile score tells us how a student's test score change from one year to the next compares with that of other similar students (members of his or her academic peer group). In this way, Rhode Island's measure of growth is a *normative* rather than an *absolute* one.

Growth Model

For K-12 education, the phrase "growth model" describes a method of measuring individual student progress on statewide assessments by tracking the scores of the same students from one year to the next. Traditional student assessment reports tell you about a student's achievement, whereas growth reports tell you how much change or "growth" there has been in achievement from year to year.

Individual Education Plan (IEP)

An IEP is designed to meet the unique educational needs of a child who may have a disability as defined by federal regulations. In all cases the IEP must be tailored to the individual student's needs—as identified by the IEP evaluation process—and must effectively help teachers and related service providers (such as paraprofessional educators) understand the student's disability and how the disability affects the learning process.

District

A district is an entity that operates local primary and secondary public schools. In Rhode Island, charter schools are also districts. A commonly used synonym for a public school district is *Local Education Agency* (often just referred to as "LEA").

Median

For the RIGM, the median is found by 1) taking all the individual SGPs of students in the group being analyzed; 2) ordering them from lowest to highest; and 3) identifying the middle score or median. The median may not be as familiar to people as the *mean* or *average*, but it is nonetheless similar in interpretation. Medians have been shown to be more appropriate than averages when summarizing a collection of percentile scores.

Median Growth Percentile (also called **Observed Growth** in Visualization Tool)

The median growth percentile summarizes student growth rates by district, school, grade level, or other group of interest. The Visualization Tool uses the phrase "Observed Growth" to refer to the median student growth percentile.

Minimum Group/Cell Size

The Rhode Island Growth Model (RIGM) Visualization Tool only displays medians for a minimum number of 10 students. This is done for two reasons. First, it is a violation of FERPA[5] regulations to release data to the public that could compromise the anonymity and privacy of individual students. With small numbers of students in a given group at schools, it becomes possible to figure out the identity of a student along with his/her data. Second, groups with fewer than 10 members are not accurately characterized by the median because unusually high or low percentiles may skew the true center of the data. Data for groups with fewer than 10 members can, however, be better understood by looking at the complete set of numbers rather than by attempting to capture them in a single summary statistic.

PARCC

The Partnership for Assessment of Readiness for College and Careers (PARCC) is a group of states working together to develop a set of assessments that measure whether students are on track to be successful in college and their careers. These high quality K–12 assessments in Mathematics and English Language Arts/Literacy give teachers, schools, students, and parents better information whether students are on track in their learning and for success after high school, and tools to help teachers customize learning to meet student needs.

Race/Ethnicity

Race and ethnicity, as defined by the Federal Office of Management and Budget (OMB) and the United States Census Bureau, are self-identification data items in which individuals choose the race or races with which they most closely identify, and indicate whether or not they are of Hispanic or Latino origin (ethnicity). States are required to report aggregated data to the U.S. Department of Education according to the following seven categories: American Indian or Alaska Native; Asian; Black or African American; Native Hawaiian or Other Pacific Islander; White; Two or more races; Hispanic of any race.

Rhode Island Growth Model (RIGM)

The Rhode Island Growth Model (RIGM) is a statistical model used to calculate each student's progress on the PARCC English Language Arts/Literacy and Mathematics tests. Student's scores are used to create student growth percentiles (SGP), which are then aggregated to calculate median SGPs for teachers and schools. The RIGM requires at least two consecutive years of PARCC data in order to measure growth across years. Therefore, growth scores are only able to be calculated for grades 4-11.

Student Growth Percentile (SGP)

A ***student growth percentile*** (SGP) defines how much relative growth a student made. The Rhode Island Growth Model (RIGM) serves as a way for educators to understand how much growth a student makes from one year to the next relative to a student's academic peers. More specifically, the RIGM compares each student's current achievement to students in the same grade throughout Rhode Island who had similar PARCC scores in past years. The model then produces a student growth percentile much like children's height and weight percentiles that pediatricians share with parents. For example, a child who is in the 76th percentile in weight is as heavy as or heavier than 76% of other children of the same age. Similarly, SGP scores have a relatively straightforward interpretation. In terms of the RIGM, a SGP of 60 indicates the student grew academically as well or better than 60% of his/her academic peers.

5 Family Educational Rights and Privacy Act (FERPA): http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html

State-Operated Schools

State-operated schools are those that are managed by RIDE. These schools include William J. Davies, Jr. Career-Technical High School, Metropolitan Career-Technical School, Rhode Island School for the Deaf, and the Department of Children, Youth, and Families (DCYF).

Title I

Title I, Part A (Title I) of the Elementary and Secondary Education Act (ESEA) provides financial assistance to local educational agencies (districts) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards. Federal funds are currently allocated through four statutory formulas that are based primarily on census poverty estimates and the cost of education in each state. Schools in which children from low-income families make up at least 40 percent of enrollment are eligible to use Title I funds for schoolwide programs that serve all children in the school. Districts also must use Title I funds to provide academic enrichment services to eligible children enrolled in private schools.

Urbanicity

Urbanicity is the degree to which a geographical unit is urban. When referring to the level of urbanicity for each district, RIDE maintains a standard policy of categorizing school districts into the following:

Urban Districts:	Central Falls, Pawtucket, Providence, Woonsocket
Urban Ring Districts:	Cranston, East Providence, Johnston, North Providence, Newport, Warwick, West Warwick
Charter Schools:	Achievement First, Beacon, Blackstone Academy, Blackstone Valley Prep, Highlander, International, Kingston Hill, Nowell Leadership Academy, Paul Cuffee, Rhode Island Nurses Academy, RIDE Mayoral Academy, Segue, SouthSide, The Compass School, The Greene School, The Hope Academy, The Learning Community, Trinity Academy, Urban Collaborative, Village Green
State Schools:	Davies Career & Tech, DCYF, MET Regional Career & Tech, and Rhode Island School for the Deaf
Suburban Districts:	All other districts.