

Pennsylvania Value Added Assessment System (PVAAS) Guide to PVAAS Public Reporting

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**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF EDUCATION**

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Achievement AND Growth

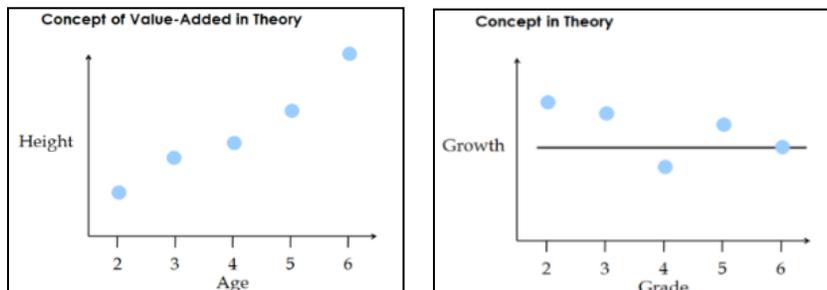
1. Achievement and Growth are complementary but different types of academic measures.
2. Achievement
 - a. The result of an academic experience
 - b. Measures students' performance at a single point in time
 - c. Often affected by factors outside the school and highly correlated with students' demographics, such as socioeconomic status
 - d. Compares students' performance to a standard
 - e. Critical to students' post-secondary opportunities

PVAAS data provides information to:
- *Raise achievement*
- *Close achievement gaps*
- *Decrease dropouts*
- *Increase college & career readiness*

3. Growth
 - a. Measures students' academic growth across time; i.e., across years
 - b. Typically, little to no correlation, or relationship, with students' demographic background when students' prior achievement is adequately accounted for
 - c. Dependent on what happens as a result of schooling
 - d. Compares students' performance to their own prior performance
 - e. Underlying concept of Value-Added analysis and reporting
 - f. Critical to ensuring students' future academic success
4. By measuring students' academic achievement AND growth, schools and districts have a more comprehensive picture of their own effectiveness in raising student achievement.

The Concept of Value-Added

To understand the concept of value-added analysis and reporting, imagine a child's physical growth curve. Every year, a child stands against the wall; the parent places a ruler on his or her head and measures the child's height at ages 2, 3, 4, and so on.



From these data points, the parent can construct a graph to illustrate the height of the child, as you see above (left), and then use these points to construct a graph of the growth of the child. Often, parents discover that this growth curve does not resemble the smooth line seen on a pediatrician's chart. Instead, there are "dimples" and "bubbles" in this constructed graph. For example, children may have growth spurts. In addition, errors of measurement are possible; the child may not have stood straight, or the parent may not have held the ruler level.

Now apply the same process to education. This graph (above right) measures the academic growth for the same group of students for each grade. Imagine that a school has been testing each student annually in math and that the scores from these tests are used to construct each student group's math growth curve. The curve for any group of students will likely exhibit a pattern of dimples and bubbles similar to the physical growth curve seen for an individual child. However, if by aggregating the information on many students we discover a dimple effect occurring in 4th grade math at a specific school, then the dimple is evidence that the "standards-aligned system" for 4th grade math may need to be examined.

Value-added follows the growth of groups of students over time in order to estimate their growth. With value-added assessment, educators get a sense of whether they are making appropriate academic growth for their students. More specifically, value-added accomplishes this by following the same students over time thus looking at the growth of groups of students in order to make an accurate estimate of educational effectiveness. These schooling influences accumulate across the years and measurably thus affect students' attainment at least four years beyond the grade in which students encountered them. Without a value-added metric for measuring effective schooling, districts and schools have no way of knowing if they are capitalizing on the academic growth opportunities for all students. Student opportunities to grow each year must be maximized to allow more students to be college and career ready.

What is Value-Added?

1. Value-added is a statistical analysis used to measure districts' and schools' impact on the academic growth rates of groups of students from year to year.
2. Conceptually and as a simple explanation, a value-added "score" is calculated in the following manner:
 - a. Growth = Current Achievement (current results) compared to Prior Achievement (all prior results), with achievement being measured by an appropriate test, such as Pennsylvania's state assessments.
 - b. Simple approaches to value-added analysis (such as, comparing two scores) yield results that are confounded by measurement error and several other issues of concern and quality.
 - c. The methodology used in Pennsylvania for value-added assessment is based on the EVAAS® methodology. This methodology has been nationally peer-reviewed and published since 1997.
 - d. Pennsylvania's implementation of EVAAS® is called the Pennsylvania Value-Added Assessment System (PVAAS).

The Benefits of Value-Added

1. Value-added offers an objective, more accurate way to measure the academic growth of groups of students and the influence districts and schools have on students' educational experiences. With this information, educators are better able to:
 - a. Monitor the growth of all groups of students from low-achieving to high-achieving, thus ensuring growth opportunities for all students.
 - b. Measure the impact of educational practices, classroom curricula, instructional methods, and professional development on student achievement and growth.
 - c. Make informed, data-driven decisions about where to focus resources to help students make greater growth and perform at higher levels.
 - d. Modify and differentiate instruction to address the needs of all students.
 - e. Align professional learning efforts in the areas of greatest need.
 - f. Network with other districts and schools that may be yielding different growth results.
 - g. Identify best practices and implement programs that best meet the needs of their students.

More Information

For additional information on PVAAS, please visit the [PVAAS login page](#).

A Look at PVAAS Reports

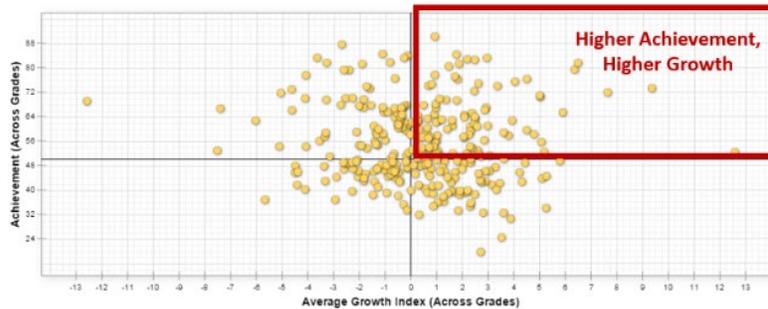
Web-based Scatterplots

The Scatterplot Report visually displays the growth and achievement of groups of students in Pennsylvania’s public districts and schools. This report is useful in assisting districts and schools to establish a better picture of student performance by providing information on both achievement (where students are) and growth (how students are progressing). The pattern you see in the scatterplots can provide insight into the effects of educational practices and policies in your area. SAS® EVAAS® analyses typically show little to no relationship between students’ growth and their achievement level. Therefore, schools and districts with high, average, or low percentages of high-achieving students are all equally likely to make good growth. Likewise, schools and districts with high, average, or low percentage of low-achieving students are also all equally likely to make good growth.

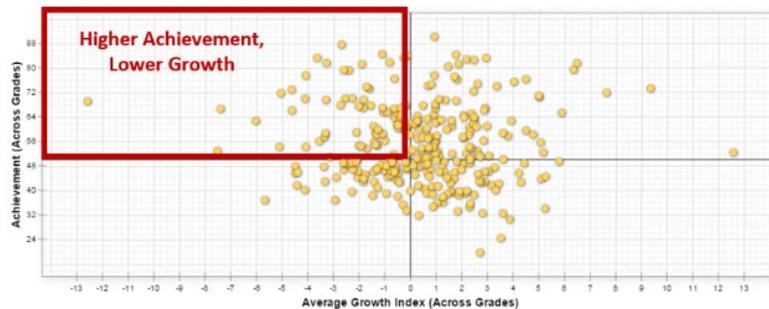
What do you need to know about this report?

When viewing the default scatterplot axes for Achievement versus the PVAAS Average Growth Index, this is how you would interpret the scatterplot:

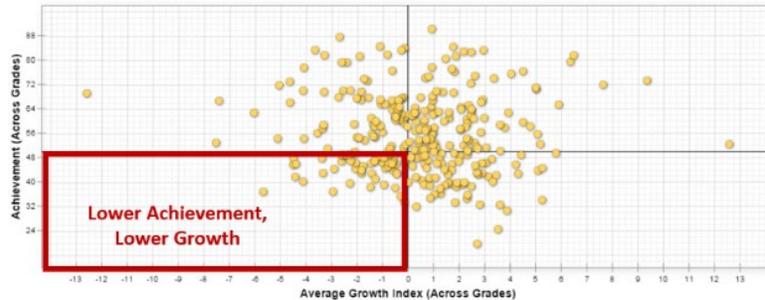
1. If a school’s dot is in the first quadrant, this indicates that the tested students in this school have made adequate achievement and positive growth. The farther the school’s dot is away from the intersection of the boundaries, the higher the achievement and/or the greater the evidence of growth. Some apply the term “Excelling” to schools in this quadrant.



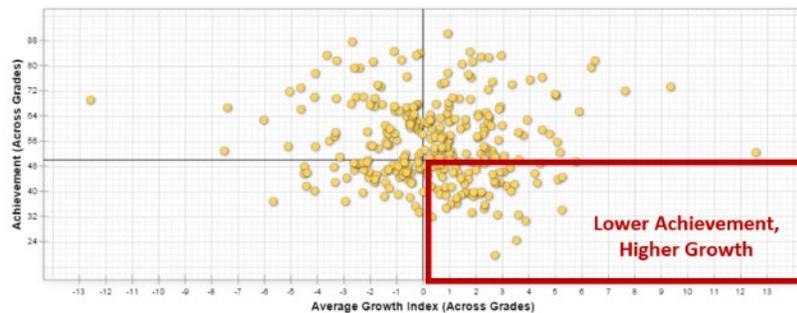
2. If a school’s dot is in the second quadrant, this indicates that the tested students in this school made adequate achievement but negative growth. Negative growth should be of great concern since continued adequate achievement may be in jeopardy. Some apply the term “Slipping” to schools in this quadrant.



3. If a school's dot is in the third quadrant, this indicates that the tested students in this school made below adequate achievement and negative growth. This situation suggests that substantial investigation and remediation is necessary since the students are not achieving and are also headed in the wrong direction. Some apply the term "Underperforming" to schools in this quadrant.



4. If a school's dot is in the fourth quadrant, this indicates the tested students in this school did not make adequate achievement; however, their growth is positive. This situation may indicate that instructional supports being provided are producing positive results. Some apply the term "Improving" to schools in this quadrant.



District/School Search

Users can find and view the achievement and growth of public districts and schools, and search for similar districts and schools based on grade levels tested, subjects, Keystone content areas, and various demographics.

The first table displayed on the top portion of the screen provides the selected district's or school's demographics, including the percentage of tested students identified as Economically Disadvantaged students, Minority (non-Caucasian) students, Limited English Proficient students, and Special Education students. The table also lists the tested grades served by the selected district or school and, the graduation rate if applicable.

The second table displayed on the bottom portion of the screen provides a list of districts and schools that meet your search criteria. This table includes for each district or school the Average Growth Index across tested grade levels served in the district or school, as well as achievement and growth information for the district or school.

Reference School
Boxer Elementary/Middle School in Big City School District

School Information			
Min PSSA Tested Grade	3	Max PSSA Tested Grade	8
% Tested Economically Disadv.	12	% Tested Limited English Proficiency	2
% Tested Minority	24	% Tested Special Ed	18
% Graduation Rate	N/A		

Comparison Schools
For Pennsylvania System of School Assessment (PSSA) Math
All schools in Pennsylvania

restrict search ⓘ

The search returned 277 schools

Average Growth Index (AGI) = 0 : On average, the students met the standard for PA Academic Growth.
Average Growth Index (AGI) > 0 : On average, the students exceeded the standard for PA Academic Growth. The farther the AGI is above 0.0, the more evidence there is that, on average, students in this school exceeded the standard for PA Academic Growth.
Average Growth Index (AGI) < 0 : On average, the students did not meet the standard for PA Academic Growth. The farther the AGI is below 0.0, the more evidence there is that, on average, students did not meet the standard for PA Academic Growth.

Achievement results (PA state assessment) and growth results (PIVAAS) must be used together to get a complete picture of student learning. To view the achievement results of Pennsylvania's public LEA/districts/schools, please visit the PDE website at <http://www.pde.state.pa.us>

[View color legend](#)

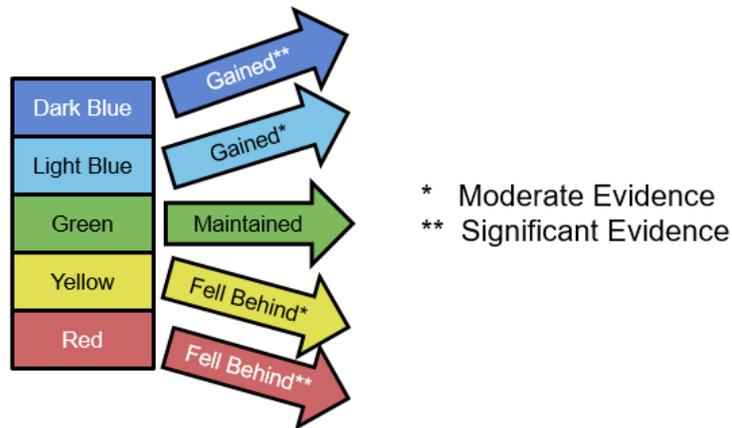
School	District	Tested Grades	Growth Measure	Std Err	Average Growth Index	% Prof	% Adv	% Total
Boxer Elementary/Middle School	Big City School District	3-8	1.7	1.1	1.57	21.9	36.0	57.9
Dugong Junior High School	West Suburb School District	7-9	7.1	0.6	12.58	17.5	73.8	91.3
Iowana Junior High School	West Suburb School District	7-8	4.2	0.5	9.36	2.6	91.1	93.7
Cattle Upper Elementary School	East Suburb School District	3-5	6.5	1.0	6.49	11.8	85.0	96.9
Trojan Elementary School	East Suburb School District	3-5	6.6	1.0	6.36	16.1	78.2	94.3
Pearcock Middle School	West Suburb School District	6-8	2.7	0.5	5.90	10.5	78.9	89.4
Hound Middle School	East Suburb School District	6-8	5.1	0.9	5.79	15.6	60.6	76.2

What do you need to know about these reports?

1. The Growth Measure is an estimate of a district's or school's influence on students' academic growth in each state assessed grade and subject or Keystone content area. For Grades 4-8 ELA and Math, the Growth Measure is approximately the difference between the group's prior student achievement and current student achievement. For Science and the Keystone content areas of Algebra I, Literature, and Biology, the Growth Measure is approximately the difference between students' actual scores and their predicted scores.
2. The Average Growth Index is a measure of student growth across the tested grade levels in a district or school. This index is a value based on the Growth Measure over grade levels and its relationship to the standard error so that comparison among districts

and schools is meaningful. PVAAS utilizes this index (based on the standard error) to allow for a view across districts and schools. If the standard error is not accounted for, users might get a skewed picture of the relative effectiveness of different districts and schools.

- a. If the Average Growth Index (AGI) is equal to or near 0, this means that on average, the group of students made progress similar to the growth standard.
 - b. If the Average Growth Index (AGI) is greater than 0, this means that on average, students made more progress than the growth standard. A larger AGI provides more evidence that the group of students exceeded the growth standard.
 - c. If the Average Growth Index (AGI) is less than 0, this means that on average, students made less progress than the growth standard. A smaller AGI provides more evidence that the group of students did not meet the growth standard.
3. The Average Growth Index is also color-coded to aid in the interpretation of the information. As a general guideline, PVAAS reports can be interpreted using the colors provided in the graphic below. On average, did the students gain, maintain, or fall behind regarding their achievement?
- a. A Dark Blue or Light Blue indicates there is evidence the group of students gained ground. A Dark Blue would indicate more evidence of students gaining ground than a Light Blue.
 - b. A Green indicates there is evidence that the group of students maintained their achievement.
 - c. A Yellow or Red indicates there is evidence the group of students fell behind. A Red would indicate more evidence of students falling behind than a Yellow.



Value-Added Frequently Asked Questions (FAQs)

Measuring Growth

- 1. How can growth be measured when a change is made in the state assessment system?**
 - a. PDE's Executive Leadership, PDE's Bureau of Assessment and Accountability, along with the PVAAS Statewide Team, work with SAS[®] EVAAS[®] continuously as any changes are considered or implemented with Pennsylvania's assessment system. The goal has always been, and will continue to be, to provide fair, accurate, and meaningful value-added measures for PA districts, schools, and educators.
 - b. Pennsylvania's state assessment data is assessed annually to ensure the quality needed to provide value-added reporting at all levels for all students, such as reliability and sufficient stretch to measure both extremes of achievement (low and high).
 - c. No matter what type of change is made in Pennsylvania's state assessments and even if the assessment is being given for the first time in a particular subject, academic growth as measured by PVAAS can be calculated – as long as sufficient evidence exists regarding the relationships between and among the assessments, as well as the strength of these relationships. Examples of these types of situations include, but are not limited to:
 - A gap year exists in state testing
 - Tests are made more rigorous, or have a higher level of difficulty
 - Tests are transitioned to be aligned to new standards
 - Tests given for the first time statewide in a particular subject
 - Tests given for the first time at a particular grade level or in a specific course
 - Tests are shortened or lengthened

- 2. How can our percent of Proficient and Advanced students have increased or stayed the same last year, but our PVAAS reports did not indicate meeting or exceeding the growth standard?**
 - a. It is important to remember that the academic performance levels for Proficient and Advanced are ranges of scores and are in fact quite broad. Students can lose ground within an academic performance level without dropping to the next lower level.
 - b. A district or school may be effective at raising low achieving students to Proficient but may not be effective in helping higher achieving students maintain their initially high level of achievement. For example, a school may be decreasing the percentages of students who are performing at the non-proficient levels (Below Basic or Basic) which in effect increases the percentage of students who are reaching proficiency or beyond (Proficient or Advanced). At the same time, however, a school may be seeing a decrease in the percentages of students who are performing at the Advanced level; perhaps there are a number of students performing at a Proficient level rather than Advanced, or they may be performing at a lower point in the Advanced range than they were before. These students would still be counted in the overall percentage of students scoring at the Proficient or Advanced level; however, they dropped in terms of their average achievement.

- c. Remember also that different cohorts of students enter a grade at different levels of achievement with different average achievement scores. For instance, if the percent of Proficient and Advanced students for this year's math students is greater than the percent of Proficient and Advanced for last year's math students, it may be because this year's math students began the year at a higher level of achievement (i.e., higher average assessment score) than last year's students did. The PVAAS Growth Measure at a district or school level depends entirely on the academic growth students make within a grade and subject, or Keystone content area. So, if students entered a grade, subject, or course at a high level of achievement and left it at a lower level of achievement, PVAAS would indicate not meeting the growth standard, even if students maintained their overall academic performance level of Proficient or Advanced.
- d. PVAAS considers the academic growth of all students—below, at, or above grade level. PVAAS results reflect a district's or school's effectiveness in supporting the academic growth of ALL students.

3. The value-added methodology seems complicated. How can people understand the measure?

- a. While the statistical methodology used for value-added analysis is robust, the data produced are valid, reliable, and presented in readable charts and graphs.
- b. There are additional explanations in this guide that clarify the concepts behind value-added analyses. Other resources that are helpful in understanding how growth is measured are the Concept of Growth e-learning modules available through the e-Learning link accessed on the [PVAAS login page](#).
- c. Providing robust value-added measures that yield quality information as compared to simplistic growth measures that are questionable in quality and accuracy makes the most sense for students. If we understand the information derived from the value-added reports, we can use it to make sound decisions about improving student performance.

4. Does value-added analysis require additional testing?

- a. No new testing is required. The PVAAS analyses use existing state assessment data to produce academic growth reports.
- b. Test data must meet the following criteria to be used for value-added analysis. Pennsylvania's state assessments meet all of these criteria.
 - Must be highly correlated with curricular objectives
 - Must have enough "stretch" to measure the achievement and growth of both low- and high-achieving students
 - Must meet the appropriate standards of test reliability

5. Can you measure growth in districts and schools with high mobility rates?

- a. Yes, the PVAAS value-added analyses provide reliable and valid estimates of academic growth and the effectiveness of districts and schools in supporting students to meet or exceed the growth standard, including districts and schools with high mobility. PVAAS value-added analyses include all students for which there are sufficient test data, including highly mobile students.

- b. From a statistical perspective, it is important to include highly mobile students in the analysis because their exclusion could bias the results. From a philosophical perspective, all students must be included in the district's, or school's value-added analysis to ensure that highly mobile students receive the same level of attention as the non-mobile students. The PVAAS modeling approaches consider the quantity and quality of information available for each student.

Demographics and Growth

1. Is it possible to show growth with all groups of students, including students with IEPs, students with GIEPs, high-achieving, and low-achieving students?

- a. Yes, if assessments have enough "stretch" to measure the achievement of both low-achieving and high-achieving students, it is possible to measure the academic growth of all groups of students. Pennsylvania's state assessments do in fact have sufficient "stretch" and meet the criteria needed for such value-added analyses.
- b. The PVAAS value-added methodology used to determine growth is sensitive to changes in students' achievement. It uses students' past testing history across years in all subjects tested to establish their entering achievement. It is then possible to determine whether students met or exceeded the growth standard, regardless of whether they began the year below, at, or above grade level.

2. Do socioeconomic or other demographic factors of a school's student population impact growth?

- a. Demographic variables typically have little or no relationship with district or school growth measures when sufficient prior achievement data are included in the value-added analyses.
- b. Value-added analysis, as measured by PVAAS, measures the changes in students' academic achievement from one point in time to another using all prior data. Factors that remain relatively constant over time, such as socioeconomic status, have typically shown to have little or no impact on students' academic growth as long as you can sufficiently account for the prior achievement of students.
- c. As such, SAS® EVAAS® does not enter demographic variables directly into its analyses. This information is already captured in students' achievement. If value-added analyses, such as EVAAS®, are able to utilize all available test scores on each individual student to sufficiently dampen the measurement error in test scores, then it becomes unnecessary to adjust for demographics when measuring value-added. Essentially, every student serves as his or her own control, and the effects of demographic factors are already accounted for in the past testing history of each student.
- d. Evidence from PVAAS reporting in Pennsylvania has, in fact, yielded results to show that there are many schools in Pennsylvania making significant growth with students with IEPs, English Learners, minority students, and economically disadvantaged students.

Teaching practices

- 1. How can value-added information help educators improve teaching and learning?**
 - a. Value-added analysis provides important diagnostic information that was not previously available with traditional achievement reporting.
 - b. It allows districts and schools to assess their impact on student learning.
 - c. It helps initiate conversations about the effectiveness of curriculum, instructional strategies, assessment practices, and academic programs.
 - d. Value-added information also allows educators to better identify what is working well and to focus on areas for improvement in order to support the academic growth of all students.

- 2. How can teachers be innovative or creative if academic growth is based on test scores?**
 - a. The value-added approach was developed to estimate the academic growth of a group of students.
 - b. It does not suggest a particular method or instructional approach for encouraging this growth. Thus, teachers can and must be flexible, innovative, and evidence-based in their instructional approaches to move all students toward higher levels of achievement.

- 3. PVAAS only gives information on growth in Math, ELA, Science, and the Keystone content areas of Algebra I, Biology, and Literature. How is this useful to teachers in other content areas?**
 - a. Successful districts and schools know that many of the concepts measured by Pennsylvania's state assessments can and should be reinforced and applied in other content areas. Grade-level teams, subject-area teams, and other groups of teachers can work together to use their knowledge of effective curriculum, assessment, and instruction to take students to increased levels of growth in all areas.

PVAAS as a Tool

- 1. Who provides PVAAS reporting for Pennsylvania?**
 - a. The SAS® EVAAS® team has more than 20 years of experience of delivering value-added results in a production environment, and the statistical modeling behind EVAAS® reporting has been made available to the public for many years.
 - b. The reliability of EVAAS® reporting has been reviewed and confirmed by prominent experts.
 - US Government Accounting Office
 - Four US Department of Education Peer Review Committees
 - The RAND Corporation
 - c. The rigor of the EVAAS® value-added models protects students while more fairly informing the effectiveness of public districts and schools.

2. How is PVAAS different from assessments already in use in districts?

- a. PVAAS is the analysis of existing state assessment data to produce measures of district and school effectiveness on the academic growth of groups of students. These growth measures are different from measures of achievement, attainment, and proficiency.

3. How is PVAAS different from other data tools being used in local districts?

- a. PVAAS is a unique measure of the academic growth of groups of students. This measure is based on a robust statistical methodology. PVAAS reporting is complementary to information yielded from other data tools, such as PSSA Data Interaction by eMetric, benchmark assessments, the Classroom Diagnostic Tool, and locally used data systems and warehouses.

4. Is there a cost for the PVAAS analyses, reports, and training opportunities and resources?

- a. Data submission, analyses, and web-based reporting are funded by the Pennsylvania Department of Education. In addition, school districts and IUs may obtain, free of charge, Pennsylvania Department of Education developed print resources, professional learning, and materials.

PVAAS Reporting was provided publicly in 2011 as a result of Act 104 (House Bill 101) passed in December 2010.

Section 2. The act is amended by adding sections to read: Section 221. "value-added assessment system. —

- (a) beginning on the effective date of this section, the Department of Education shall make available on its publicly accessible Internet website the following:*

(1) value-added assessment system data for the school district level and the school level. The department of education's disclosure of value-added assessment system data shall be subject to the family educational rights and privacy act of 1974 (public law 90-247, 20 u.s.c. § 1232g) or a successor federal statute.

(2) instructions that may assist the public in understanding and interpreting the data provided under paragraph (1).

- (b) for purposes of this section: "value-added assessment system" shall mean a statistical analysis of results on the Pennsylvania system of school assessment test or any other test established by the State Board of Education to meet the requirements of section 2603-b(d)(10) (i) pursuant to 22 pa. Code § 403.3 (relating to single accountability system) that uses measures of student learning to enable the estimation of school or school district statistical distributions."*

Glossary of Terms

Average Growth Index

1. The Average Growth Index is a measure of student growth for the selected test and subject. This index is a value based on the average growth across grade levels divided by its Standard Error, so that comparison among districts and schools is meaningful.
2. *What question does this answer?* In lay terms, how does the growth of students in this district or school compare to the growth of students in other districts or schools who were tested in the same subject?

EVAAS®

1. EVAAS® stands for Education Value-Added Assessment System and is the statistical methodology used for value-added reporting in Pennsylvania.
2. The EVAAS® methodology is based on mixed-model multivariate longitudinal analyses of assessment data. In Pennsylvania, it is an analysis of the state assessment data.
3. Pennsylvania's implementation of EVAAS® is called PVAAS, Pennsylvania Value-Added Assessment System.

Growth Measure

1. The Growth Measure is a conservative estimate of a district's or school's influence on students' academic growth.
2. Grades 4-8, ELA and Math
 - a. ELA and Math are tested consecutively in grades 3-8. The Growth Measure indicates how much movement a group of students has made on the NCE scale (that ranges from approximately 1 to 100) as compared to the previous year (all prior data is used to estimate previous year and current year's performance).
 - b. *The Growth Measure* is the approximation of the difference between the Estimated District (or School) NCE from the most recent year and Estimated District (or School) NCE from the previous year for EACH group of students. It is not a simple comparison of this year's achievement in a grade/subject to the previous year's achievement in the same grade/subject. The estimation is based on all longitudinal data, not just two scores.
 - c. The Growth Measure provides educators with a measure of growth students have made during the previous school year. The Growth Measure is reported in NCE (Normal Curve Equivalent) units. NCEs are used to place test scores on a common scale so that academic growth can be measured across time, and different subjects and grades.
 - d. For example, a Growth Measure of -2.7 indicates that the group of students declined in their achievement position by about 2.7 NCEs from one grade level to the next. Similarly, a Growth Measure of 5.9 indicates that the group of students improved their achievement position by approximately 5.9 NCEs from one grade level to the next.

3. Science and Keystone content areas (Algebra I, Literature, Biology)
 - a. For Science and all Keystone content areas, students are not tested in consecutive years. The Growth Measure is a function of the difference between the students' actual scores (Average Scale Score) and their predicted scores (Average Predicted Scale Score). If students score as predicted (i.e., students' actual scores are equal to their predicted scores), the estimated Growth Measure would be 0, indicating growth similar to the average district or school in the state. In other words, the Growth Measure is the amount of growth made by that group of students.

Keystone Exams

1. Keystone Exams are end of course assessments designed to assess students' achievement against PA Academic Standards in various Keystone content areas.
2. Keystone Exams are currently available in Algebra I, Literature, and Biology.

NCE

1. NCE stands for Normal Curve Equivalent. NCEs allow for PSSA scores to be on a common scale across grades. PSSA scale scores are converted to NCE scores prior to the PVAAS analyses.
2. The conversion of all scale scores to NCE scores allows the scores in any year and grade to be on the same scale, and therefore allows meaningful comparisons of position in the distribution relative to statewide student achievement.
3. The NCE is simply a standard score where the mean is always 50 and the standard deviation is 21.06. There are four important points to remember when thinking about the use of NCEs.
 - a. Due to rescaling, NCEs have an equal-interval relationship so averages and differences of test scores remain meaningful. This allows Growth Measures to be comparable for all districts and schools no matter what the average achievement level is for that district or school.
 - b. NCEs are about rescaling so that scores can be compared from grade level to grade level, and from year to year. It is like putting the scores into a common language so they can talk to each other – in order to yield a measure of growth on a group of students.
 - c. The shape of the distributions of scale scores in each year is irrelevant in the application of NCEs that are used in the PVAAS analyses.
 - d. There is no relationship between Normal Curve Equivalents and norm-referenced tests. The intent is to put the scores on a common scale for comparison.

PSSA

1. PSSA stands for the Pennsylvania System of School Assessment.
2. The annual Pennsylvania System of School Assessment (PSSA) is a standards-based, criterion-referenced assessment used to measure a student's attainment of the academic standards while also determining the degree to which school programs enable students to attain proficiency of the standards.
3. Each school year, every Pennsylvania student is assessed in:
 - a. grades 3 through 8 in ELA and Math; and
 - b. grades 4 and 8 in Science.

PVAAS

1. PVAAS is the Pennsylvania Value-Added Assessment System.
2. PVAAS is Pennsylvania's approach for providing value-added reporting to local education agencies.
3. The PVAAS methodology is based on the EVAAS® methodology which is a mixed-model multivariate longitudinal analyses of assessment data. In PVAAS, it is an analysis of the state assessment data.

Standard Error

1. Growth values reported on the PVAAS reports are estimates of academic growth for groups of students. There is natural error involved with any estimate, and this error is expressed in terms of the Standard Error. The Standard Error allows users to establish a confidence band around the Growth Measure to determine if growth is evident for the group of students in question. The inclusion of more data (i.e., more students, more data points) generally yields a smaller Standard Error and makes the Growth Measure more precise. One of the major functions of the Standard Error is that it allows us to evaluate the significance or level of evidence that the estimate provides.
2. The Standard Error is used in determining the color-coding given to each Average Growth Index.