Performance Series

Diagnostic Assessment

Assessment Solutions

Performance Series®
WEB-BASED DIAGNOSTICS

SCANTRON™

Performance Series Scores

Quick Reference

Scaled Score (SS).....page 1

Standard Error of Measurement (SEM) and Standard Error (SE).....page 3

Gain.....page 5

National Percentile Ranking (NPR).....page 7

Normal Curve Equivalent (NCE).....page 9

Standard Item Pool Score (SIP).....page 11

Reading Rate.....page 13

Lexile® Measure.....page 15

Grade Level Estimate (GLE).....page 17

Suggested Learning Objective (SLO).....page 19

Unit Score Range (USR).....page 21

Product Training.....page 23

Getting Support.....page 24

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Scaled Score (SS)

The scaled score is a transformation of a student's underlying ability estimate, as calculated by the Rasch[1] model of measurement, and is independent of grade level. Scaled score values in Performance Series typically range from 1300 to 3700 (for the High School Algebra and Geometry tests, values range from 5000 to 6000). Most computer-adaptive tests use an Item Response Theory (IRT) based measurement model to determine a student's expected level of performance within a subject area.

How Do You Use the Scaled Score?

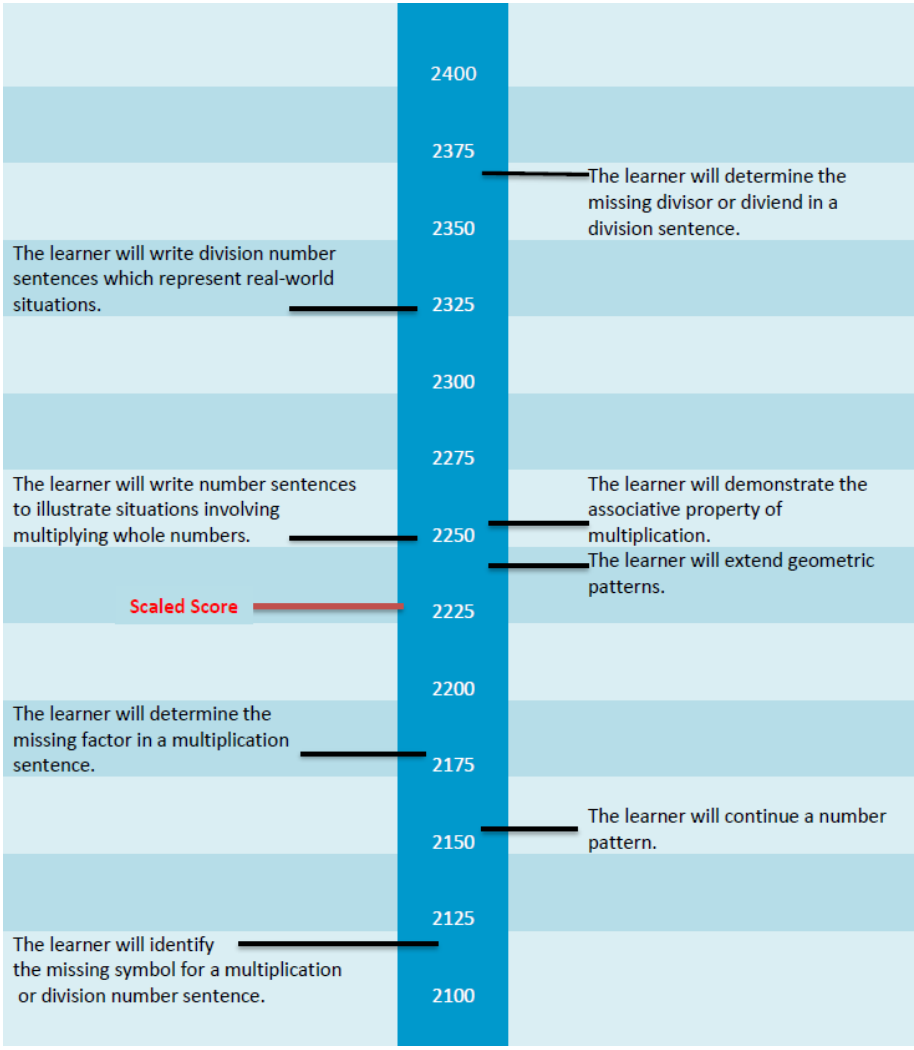
Use this score to track progress over time, from fall to spring or year after year, as a sort of educational yardstick. Changes in scaled scores provide estimates of student improvement or growth in the underlying subject area knowledge over time.

See "Gain" score on page 5 for additional information on tracking progress over time.

1. Item Response Theory (IRT) is a family of mathematical models used to estimate an individual's proficiency level for a given construct or content domain. The Rasch model is an IRT model that utilizes a single parameter, item difficulty, to estimate an individual's proficiency or ability level based on his or her responses to the items on an assessment.

From: de Ayala, R.J. (2009). *The theory and practice of item response theory.* New York: Guilford.

The scaled score is the "yardstick" for measuring students' skill levels and determining learning objectives. The diagram below shows, for a student with a scaled score of 2230, the skills that student has attained (those skills below the scaled score) and suggested learning objectives (those skills above the scaled score).



Standard Error of Measurement (SEM) and Standard Error (SE)

The SEM is presented in scaled score points. It provides an indication of the level of precision associated with the student's Performance Series scaled score. The SEM can be used to determine the range in which a student's score would likely fall under repeated test administrations (and without additional learning). Performance Series scaled scores typically have an SEM close to 60, which corresponds to a reliability estimate of approximately .90 for adaptive assessments. This number is presented inside parentheses next to the scaled score.

The SE provides an indication of the level of accuracy associated with an average score (e.g., Mean SS) or difference score (e.g., Gain score). An SE is presented for the following:

- Average or Mean SS
- Gain Score
- Mean Gain Score

How Do You Use the SEM and SE?

Use the SEM and SE to establish confidence intervals around the scaled score estimates. For example, if a student has a SS of 2000 and an SEM of (50), we are 68% confident that his or her score would fall between 1950 and 2050 if the test was taken again without additional learning.

The circled items in the report below are the SE for the column and row.

All Subjects Summary

Report Scope: Locations
Broken Down By: Location
Export XLS

Location	Grade	Item Pool	Reading Student Count	Mean Reading SS	SE of Mean Reading SS	Reading Overall SIP (%)	Math Student Count	Mean Math SS	SE of Mean Math SS
Scantron School District	Overall		2821	2777			2821	2586	
	Grade 2	Grade 2	190	1868	(34)	33	190	2095	(14)
	Grade 3	Grade 3	179	2203	(34)	56	179	2205	(15)
	Grade 4	Grade 4	170	2465	(31)	67	170	2386	(13)
	Grade 5	Grade 5	180	2637	(24)	69	180	2373	(17)
	Grade 6	Grade 6	301	2766	(19)	73	301	2580	(13)
	Grade 7	Grade 7 *	302	2857	(19)	72	302	2655	(13)
	Grade 8	Grade 8 *	299	2903	(20)	66	299	2715	(14)
	Grade 9	Grade 9 *	300	2919	(26)	62	300	2672	(16)
	Grade 10	Grade 10 *	300	3019	(22)	66	300	2725	(17)
	Grade 11	Grade 11-12 *	300	3061	(20)	55	300	2764	(19)
	Grade 12	Grade 11-12 *	300	3089	(24)	58	300	2769	(18)

Gain

The student Gain score is the difference between scaled scores from two Performance Series assessments. Most often, this is the difference between the fall score and the spring score. For classes or groups, this is an average, or mean, of all the students in that category. This can be displayed as a positive or negative number. If a gain (either positive or negative) is not statistically significant (i.e., is less than the SEM), a footnote to that effect is displayed with the gain value.

How Do You Use the Gain Score?

Use this score, along with the growth target, to evaluate knowledge gained over time, either by individual students or aggregated in a variety of ways. The growth target is calculated based on a choice of target types—either grade-level average comparison, quartile group, or decile group—defined by your district. This enables you to determine whether students are improving at an appropriate rate in comparison to their peers in the national norm sample.

Performance Series provides two reports that contain gains data:

- **Gains Report**: Shows the gain, in scaled score points, between two testing periods (typically between fall and spring of the same school year, though you can customize this).
- **Gains Analysis Report**: Shows the gain, in scaled score points, between two testing periods, and also shows the target gains for the entire school year, using the fall and spring testing periods.

Note: While you can configure either of these reports to display a different time frame, no target gains are calculated if the tests are taken outside of defined testing periods. Also, if the time frame selected is less than a full school year, displayed gains represent partial progress toward target gains.

Gains Report

Math Gains

Report Scope: Classes
Broken Down By: Class
Export XLS

Time F
Stude

Class	Student Count	Testing Period 1 (7/1/03 to 11/30/03) Mean SS	Testing Period 1 SE of Mean SS	Testing Period 2 (4/1/04 to 6/30/04) Mean SS	Testing Period 2 SE of Mean SS	Gain Mean SS Difference	Gain SE
Grade 2 Homeroom, Sec. 1	35	1955	(22)	2071	(29)	+116	
Grade 2 Homeroom, Sec. 2	35	1977	(27)	2101	(34)	+124	
Grade 2 Reading, Sec. 1	30	1935	(23)	2054	(31)	+119	
Grade 2 Reading, Sec. 2	30	1991	(28)	2136	(31)	+145	
Grade 3 Homeroom, Sec. 1	30	2161	(34)	2241	(32)	+80	
Grade 3 Homeroom, Sec. 2	30	2163	(37)	2239	(40)	+76	

Gains Analysis Report

Growth Target defined for ONE FULL school year. ANY other time frame selected only displays partial progress toward target.

Report Scope: Grade Levels
Broken Down By: Grade Level
Export CSV

Time Frame: All Dates
Student Filtering: OFF
Count: 9

Grade Level	Student Count	Students Enrolled	Met Annual Target (%)	Growth Category Far Below	Below	Above	Far Above	Fall (8/1/09 to 10/20/09) Mean SS	Spring (4/13/10 to 6/20/10) Mean SS
Grade 2	150	150	52%	31	41	40	38	2028	2295
Grade 3	150	150	59%	29	33	55	33	2258	2456
Grade 4	147	147	53%	17	52	47	31	2457	2622
Grade 5	150	150	45%	33	49	47	21	2607	2690
Grade 6	150	151	58%	19	44	52	35	2716	2834
Grade 7	150	150	55%	22	45	43	40	2802	2896
Grade 8	150	150	62%	21	36	50	43	2849	2936
Grade 9	150	150	65%	13	40	53	44	2946	3044
Grade 10	150	150	68%	16	32	60	42	3009	3103
Aggregate	1347	1348	57%	201	372	447	327	2630	2764

Time Frame Clear | Testing Periods
Time Frame: Test Periods in Current School Year

Student Filtering: Demographics Clear | Change
Demographic Filtering: All Included

Student Filtering: Groups Clear | Change
Group Filtering: All Included

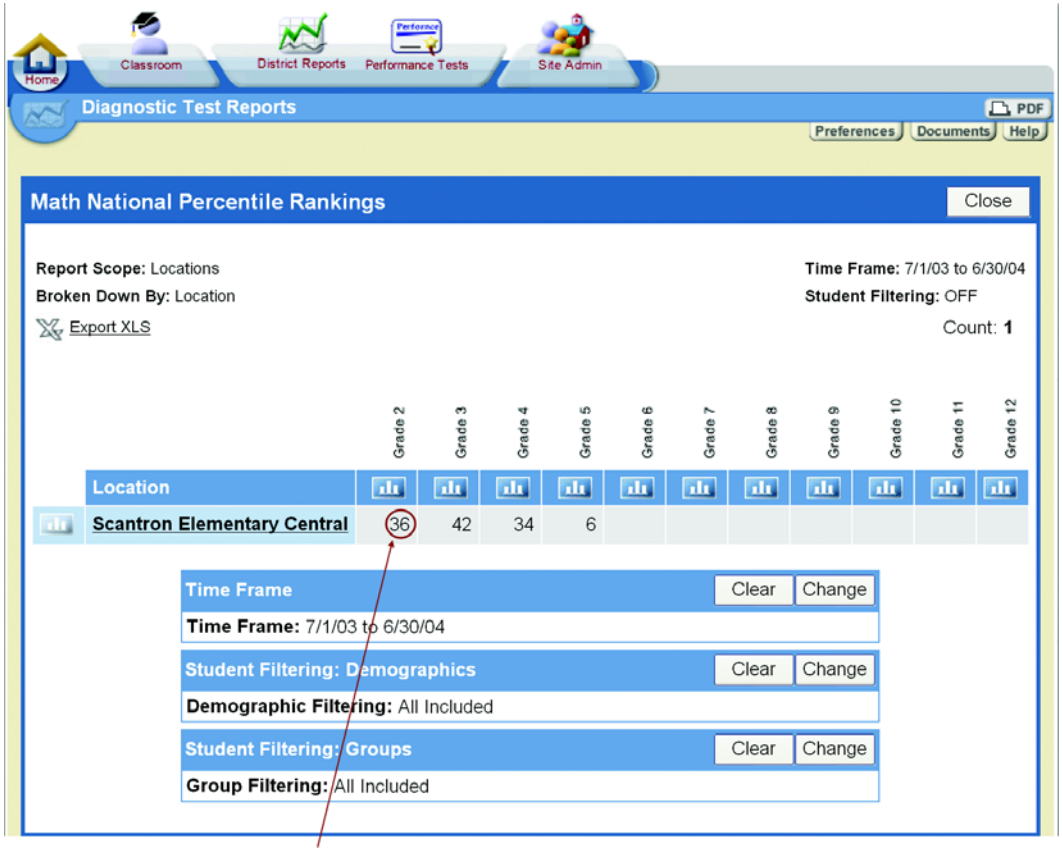
National Percentile Ranking (NPR)

The NPR uses the SS to compare the student to members of the Performance Series national norm group within the same grade level. The numerical value illustrates the percentage of students that the selected student would be expected to score above in a norm group comparison. Different values appear for fall, winter, and spring test administrations, to reflect different levels of knowledge for those time periods. NPRs are available for students who tested within the following windows:

Fall: August 20–November 22
Winter: January 1–February 22
Spring: March 22–June 15

How Do You Use the NPR?

For example, an NPR of 74 for a student would mean that his or her score is above 74% of grade-level peers in the national norm group. This data is not related to state standards, and it is not comparable over time. It provides a national perspective for student performance to both teachers and parents.



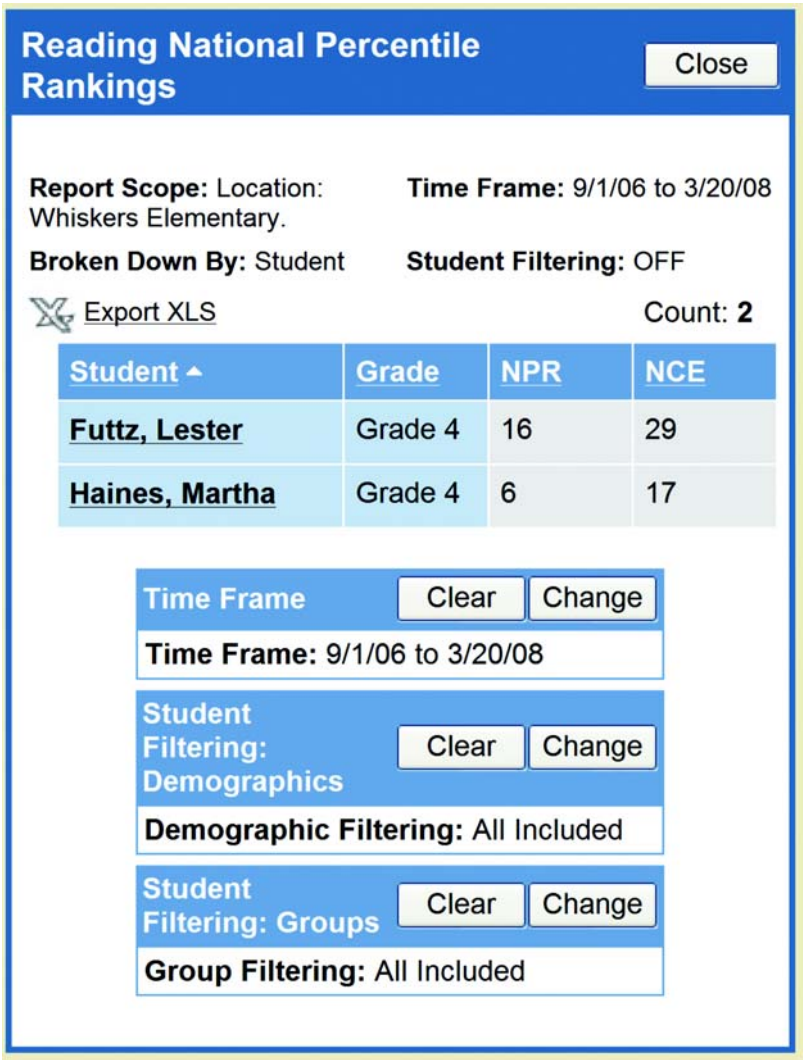
This school scores above 36% of 2nd graders from the national sample.

Normal Curve Equivalent (NCE)

Normal Curve Equivalents, or NCEs, are a transformation of the NPR onto a normal curve. NCEs are equal interval scores, while NPRs are not. Many state tests also provide an NCE score.

How Do You Use the NCEs?

You can use NCEs to determine growth within one year. Gains in NCE can indicate that a student is progressing faster than his or her peers. The reverse is also true.



Reading National Percentile Rankings

Close

Report Scope: Location: Whiskers Elementary.

Time Frame: 9/1/06 to 3/20/08

Broken Down By: Student

Student Filtering: OFF

Export XLS

Count: **2**

Student	Grade	NPR	NCE
Futtz, Lester	Grade 4	16	29
Haines, Martha	Grade 4	6	17

Time Frame	Clear	Change
Time Frame: 9/1/06 to 3/20/08		

Student Filtering: Demographics	Clear	Change
Demographic Filtering: All Included		

Student Filtering: Groups	Clear	Change
Group Filtering: All Included		

NPR National Percentile Rank for a student represents the percentage of students within his/her grade level with Scaled Scores below his/her Scaled Score.

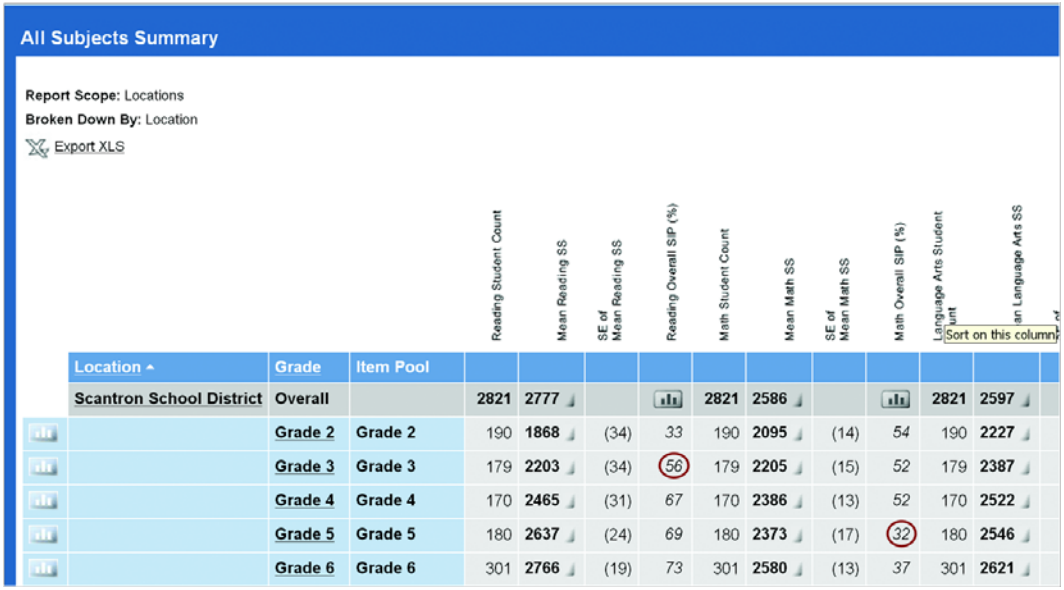
NCE Normal Curve Equivalent (NCE) represents where a student score lies in the normal distribution (bell curve).

Standard Item Pool Score (SIP)

SIP scores express the probability of a student correctly answering each item within the item pool for his or her enrolled grade in the student's state.

How Do You Use the SIP Score?

The SIP score, along with the SS, should be used to determine growth from the beginning of the school year to the end. A lower SIP is expected for fall results, since students have not yet been instructed on that grade-level material. A SIP of 23 in Numbers & Operations does not mean that a student "failed" Numbers & Operations. The SIP Score Table provided for each state displays the SIP scores for each SS in relation to each grade level. Find the SIP score table in Performance Series Help, under each state's curriculum alignment information. SIP scores are comparable only within one school year, since they relate to items in one specific grade level.



All Subjects Summary

Report Scope: Locations
Broken Down By: Location
Export XLS

Location	Grade	Item Pool	Reading Student Count	Mean Reading SS	SE of Mean Reading SS	Reading Overall SIP (%)	Math Student Count	Mean Math SS	SE of Mean Math SS	Math Overall SIP (%)	Language Arts Student Count	Mean Language Arts SS
Scantron School District	Overall		2821	2777			2821	2586			2821	2597
	Grade 2	Grade 2	190	1868	(34)	33	190	2095	(14)	54	190	2227
	Grade 3	Grade 3	179	2203	(34)	56	179	2205	(15)	52	179	2387
	Grade 4	Grade 4	170	2465	(31)	67	170	2386	(13)	52	170	2522
	Grade 5	Grade 5	180	2637	(24)	69	180	2373	(17)	32	180	2546
	Grade 6	Grade 6	301	2766	(19)	73	301	2580	(13)	37	301	2621

Sort on this column

Circled values are the SIP scores for that grade and subject.

Reading Rate

This rate is a silent reading rate and is calculated by dividing the number of words in the passages the student read by the time it took the student to read those passages. This score will be accurate only if the student reads the story, by him- or herself, before clicking **I am finished reading** and answering questions.

How Do You Use the Reading Rate?

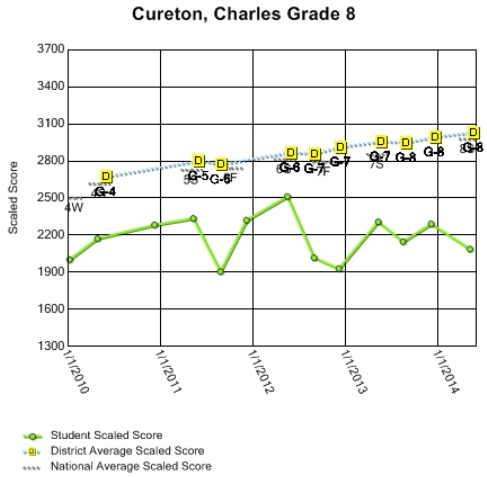
When available, this score can be used as one indicator of reading fluency.

Not Applicable (NA) means that either the student did not reach a level of questions that could measure his or her reading rate, or the unit is not adequately represented in the state or national standards for the student's grade level. By contrast, Not Measured (N/M) means the student clicked **I am finished reading** in less than five seconds, making Reading Rate a measure that cannot be calculated.

Reading Diagnostic Results

Reading Test History

View Trend Data



All — Enlarge View

SchoolYear — Export XLS

Previous

Next

Reading Test (Grade 8) — **Test Date: 5/5/14**

Score	Ability Estimate	
Scaled Score	2089	SEM: (64)

	SIP (0% – 100%)
Reading Overall	5

Score	Words Per Minute
Reading Rate	185

Score	Ability Estimate
Overall	
Unit Score Range	1300 – 3700
Vocabulary 2154–**2249**–2344	
Long Passage 1829–**1962**–2095	
Fiction 1691–**1862**–2033	
Nonfiction 1939–**2102**–2265	

Score	Lexile (0L – 1400L)
Lexile® Measure	*645L*
Lexile Measure	*245L*

Lexile® Measure

The Lexile[1] scale is a development scale for reading, ranging from BR400L[2] for beginning readers to above 1825L for advanced readers. The goal of the Lexile Measure is to match the reader and the text. This allows you to select text that is targeted to a reader's ability, and the result is an expected 75% comprehension rate—not so difficult that it frustrates the reader, but difficult enough to encourage reading progress.

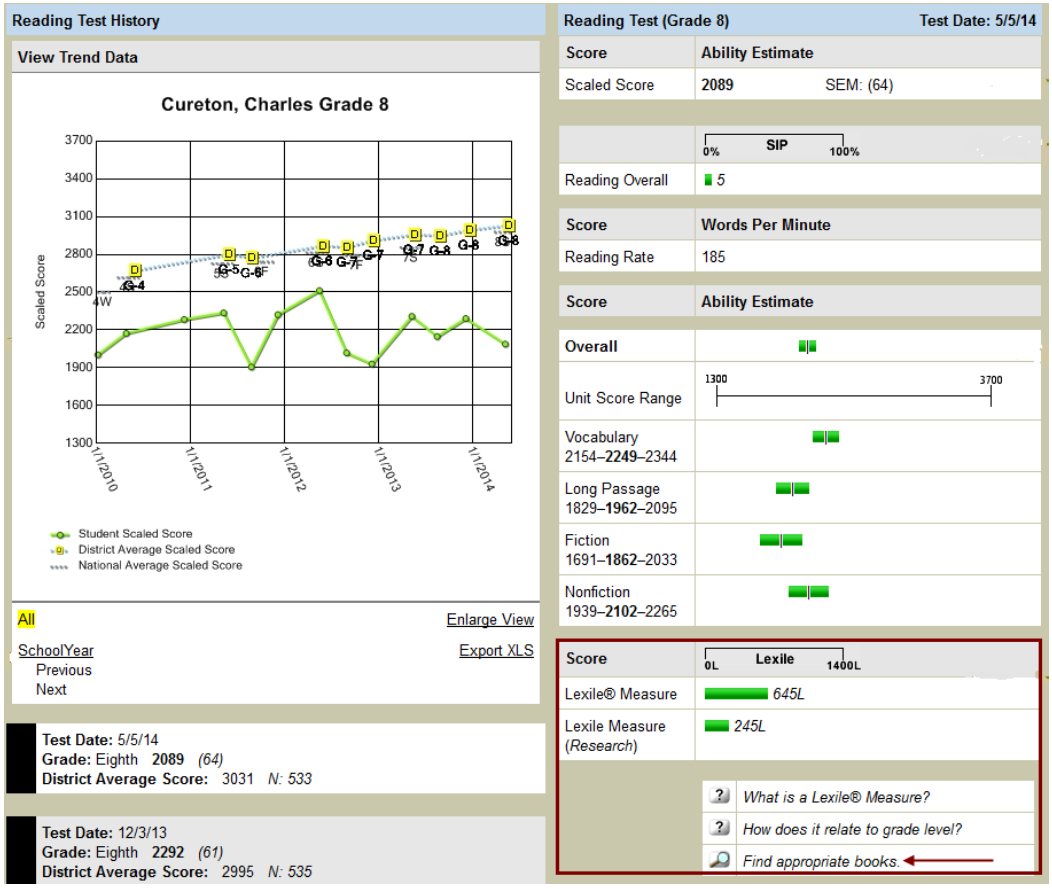
The Lexile Measure is directed by developmental/age-related guidelines; the Lexile Measure (Research) is not. Since the Research measure is not bound by the same guidelines, these two scores might occasionally be different.

Note: The Lexile Measure (Research) is calculated using the same formula as the Lexile Measure, but it does not include the maximum and minimum values (based on developmental level) that are a component of the Lexile Measure.

How Do You Use the Lexile Measure?

Books and other texts are assigned numbers that align to the Lexile scale. You can use these numbers to determine appropriate reading materials in the school library, and you can provide the Lexile scores to parents so they can locate books at the appropriate level at www.lexile.com. In addition, you can use the Lexile Measure (Research) to track growth across grades, similar to the scaled score.

1. For more information about the Lexile measure developed by MetaMetrics Inc., refer to https://www.lexile.com/.
2. "BR" in a Lexile score indicates "Beginning Reader."



With Lexile scores, links are provided from the Student Profile directly to the Lexile site, where you can search for appropriate books.

Grade Level Estimate (GLE)

This optional feature uses a student's overall SS and positions it in relation to the National Norm Group. GLE values can range from less than 2.0 (< 2.0), 2.0 to 9.9, and greater than 9.9 (> 9.9). Since the national norm samples were used to develop the subject-specific GLE scales, this is a national data point and does not relate to individual state standards documents. For example, a third grader takes a Performance Series Math test at the beginning of the school year and receives a scaled score of 2371—a score equivalent to performance in the 86th percentile of the fall norm group. The scaled score of 2371 translates to a GLE of 4.1.

How Do You Use the GLE?

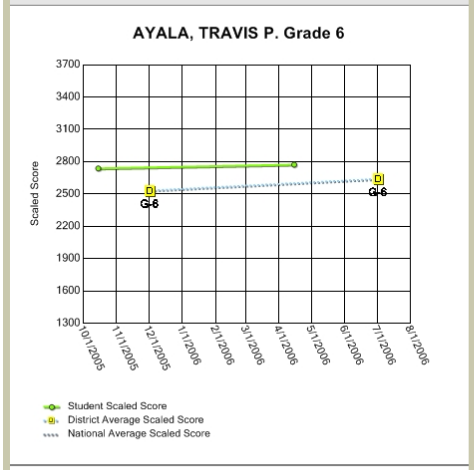
In the example above, the GLE score should not be interpreted to mean that the student should be promoted to the fourth grade, since he or she may not have the curricular framework to do actual fourth grade work. Instead, this score suggests that the student should be challenged throughout the year with more complex materials that meet necessary state objectives at the current grade level. It might also be inferred that this state has fairly aggressive expectations for third graders, compared to the national norm sample.

Performance Series Scores

Grade Level Estimate (GLE)

Mathematics Test History

View Trend Data



All Enlarge View

SchoolYear Export XLS

Previous

Next

Test Date: 4/15/06
Grade: Sixth **2772** *(56)*
District Average Score: 2639 *N: 150*

Test Date: 10/15/05
Grade: Sixth **2737** *(56)*
District Average Score: 2531 *N: 150*

Mathematics Test (Grade 6) **Test Date: 4/15/06**

Score	Ability Estimate
Scaled Score	**2772** SEM: (56)

	SIP 0% 100%
Mathematics Overall	*64*

Score	Ability Estimate
Overall	
Unit Score Range	1300 3700
Number & Operations 2605–**2722**–2839	
Algebra 2556–**2683**–2810	
Geometry 2689–**2818**–2947	
Measurement 2736–**2861**–2986	
Data Analysis & Probability 2654–**2781**–2908	
Performance	
Rating	Level 4

Score	NPR 1 99
National Percentile Ranking	*81*

	SIP 0% 100%
Mathematics Overall	*64*

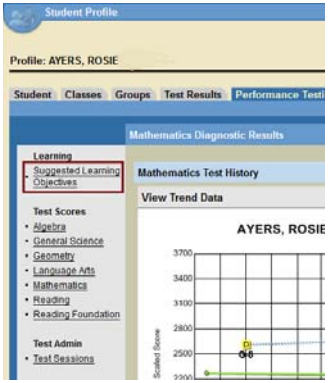
Score	GLE <2.0 >9.9
Grade Level Equivalent (GLE)	*9.3*

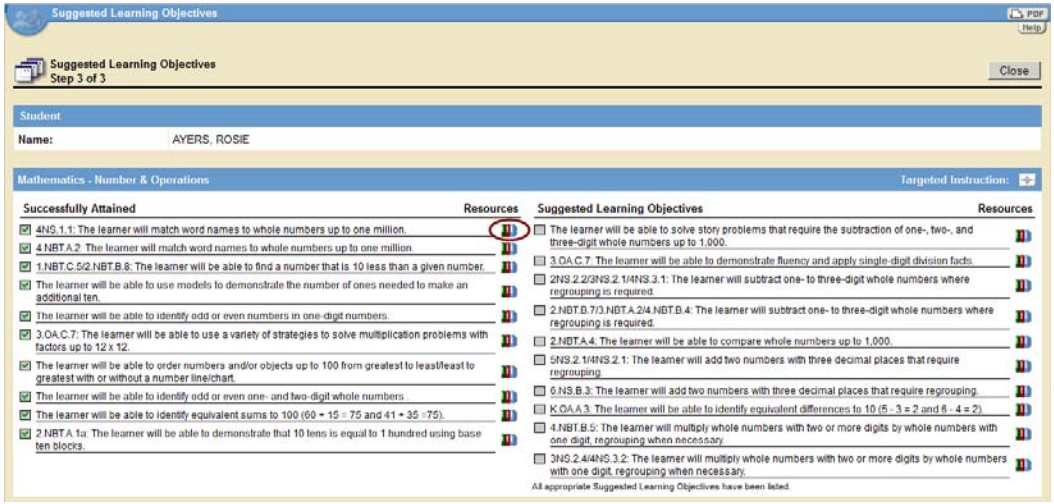
Suggested Learning Objective (SLO)

This report uses the scaled score and your state alignment guides to determine where to focus the student's learning. Options allow you to display objectives that are expected to be mastered on future assessments alongside objectives or skill areas that the student should focus on to improve performance. These are always listed in the order of difficulty, with the first being the least difficult.

How Do You Use the SLO Report?

This data should direct individual interventions in the classroom based upon skills within the aligned state standards. The SLO report can assist with additional skills-based material through the study guides available in the Skills Connection Online module. SLO data is also helpful in letting parents know where their student has succeeded and how to focus their assistance in helping their student to improve.





A list of suggested learning objectives is provided, in order of difficulty, for immediate instructional adjustment.

You can click the **Resources** icon to go to Skills Connection Online and access targeted study guides.

Unit Score Range (USR)

The Unit Score Range is an estimate of ability based on responses for each unit within a subject, with a confidence interval (i.e., range) of +/- 1 Standard Error of Measurement.

The USR represents the possible range that a student might score, within each unit, if he or she took the test again. So, if a student has a USR of 2447-2563-2679—or, on district reports, as 2563 (116)—there is a strong likelihood that he or she could score as low as 2447 or as high as 2679, in the same unit, if he or she took the same test again without additional instruction.

How Do I Use USRs?

USRs provide the ability to compare performance within one unit, either to overall performance in the subject, or to other units. When USRs overlap, that means that the student's performance is statistically similar. When USRs do not overlap, it means that the student's performance is statistically different, and instruction can be targeted appropriately.

Because USRs are not grade- or state-specific, they can be compared across grades, years, and districts, and they can be used to measure unit-specific growth.

Mathematics Test (Grade 6)	Test Date: 4/15/13
Score	**Ability Estimate**
Scaled Score	**2920** SEM: (55)
	0% SIP 100%
Mathematics Overall	77
Score	**Ability Estimate**
Overall	
Unit Score Range	1300 3700
Number & Operations 2725–**2841**–2957	
Algebra 2611–**2740**–2869	
Geometry 2673–**2800**–2927	
Measurement 2944–**3077**–3210	
Data Analysis & Probability 2991–**3124**–3257	

Product Training

Our experienced training team has a strong background in education and is dedicated to building capacity for change within schools through a series of training and consulting activities.

Training and staff development courses are offered on site at customer locations or via online webinars, and can be customized to meet your needs. For additional information on courses offered or to schedule training, please contact us at 1.800.SCANTRON ext. 7458 or at k12sales@scantron.com.

The Data-Driven Classroom: Professional Development Series I, II, and III

Part of a successful implementation includes the ability to use scores to improve student learning. The Data-Driven Classroom for Performance Series includes three programs that can be administered together or separately to provide techniques to combine student scores, state standards, and instructional resource options that connect classroom progress and communications with both peers and students.

- PD Series I: Classroom Applications of Data
- PD Series II: Making the Connection—Students, Parents, and Peers
- PD Series III: Evaluating Student Progress and Growth

Getting Support

Your first line of support is the Support team within your organization. If your Support team is unable to resolve an issue, the Scantron Technical Support team can provide product support in a variety of ways:

Website: www.scantron.com
Phone: (800) 445-3141
Fax: (714) 437-4210
Email: support@scantron.com