

Predicting Proficiency on the Virginia Standards of Learning (VA SOL) End-of-Course (EOC) Tests Based on NWEA MAP Growth Scores

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NWEA Psychometrics and Analytics

Linking Study Updates

Date	Description
2026-08-10	Initial study was conducted for the Virginia SOL End-of-Course (EOC) tests in Algebra I, Geometry, and Reading using Spring 2025 data and the 2025 MAP Growth norms.

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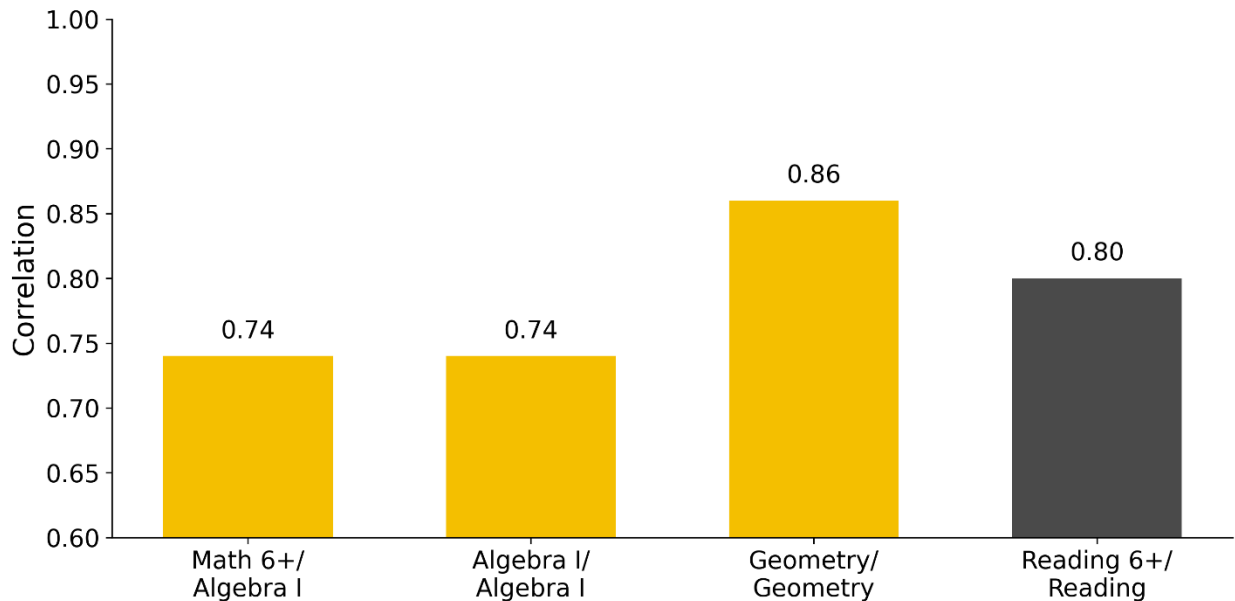
Executive Summary

Linking studies allow partners to use MAP® Growth™ Rasch Unit (RIT) scores throughout the year to predict students' likely performance levels on state summative assessments. This is accomplished through statistical analyses that produce RIT cut scores that correspond to state summative performance levels. A “cut score” is the minimum score a student must get on a test to be placed in a certain performance level. The linking study for the Virginia Standards of Learning (VA SOL) End-of-Course (EOC) assessment described in this report provides fall, winter, and spring MAP Growth RIT cut scores that correspond to the VA SOL EOC performance levels for Algebra I, Geometry, and Reading.

The linking study is based on test scores from students who took both the MAP Growth and VA SOL EOC assessments in Spring 2025. The linking study sample included 21,502 students across 4 districts and 90 schools in Virginia. Scores from both assessments were used as the basis for linking the tests together.

Before the linking analyses began, NWEA confirmed that the MAP Growth and VA SOL EOC assessments were aligned on the same or similar set of content standards, thus warranting a connection. The link between the two tests was further investigated by calculating the Pearson correlation coefficients that relate the specific MAP Growth and VA SOL test scores. A high positive correlation (e.g., ≥ 0.70) shows that students who perform well on one assessment also tend to perform well on the other, and vice versa, with 1.00 being a perfect positive correlation. The correlations between the MAP Growth and VA SOL EOC test scores are all higher than 0.70, as shown in Figure E.1, indicating that MAP Growth is an effective assessment for predicting student performance on the VA SOL EOC tests.

Figure E.1. Correlation Between MAP Growth and VA SOL EOC Test Scores



The equipercentile linking method (Kolen & Brennan, 2004) was used to produce the RIT cut scores for the spring administration that correspond to performance levels on the VA SOL EOC tests for every subject and/or grade. While RIT cut scores were generated for every performance level on the VA SOL EOC assessment, Table E.1 presents the *Proficient* cut scores that indicate the minimum score a student must get to be considered proficient (reaching *Proficient* or *Advanced*) for accountability purposes.

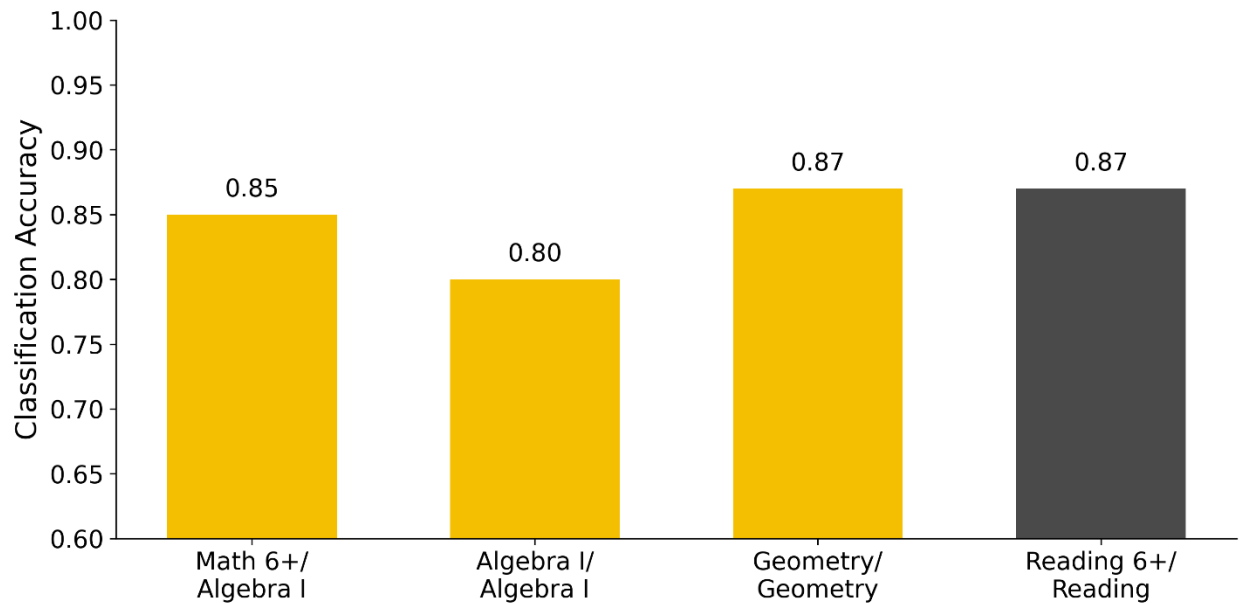
Table E.1. MAP Growth RIT Cut Scores for VA SOL EOC Proficiency

Assessment		Proficient Cut Score by Grade				
		6	7	8	9	10
VA SOL EOC Algebra I Spring		453	453	453	453	453
MAP Growth Math 6+	Fall	230	234	234	239	238
	Winter	237	239	239	240	240
	Spring	241	241	241	241	241
VA SOL EOC Algebra I Spring		453				
MAP Growth Algebra I	Fall	232				
	Winter	236				
	Spring	240				
VA SOL EOC Geometry Spring		452				
MAP Growth Geometry	Fall	249				
	Winter	255				
	Spring	259				
VA SOL EOC Reading Spring		400	400	400	400	400
MAP Growth Reading 6+	Fall	209	209	210	210	210
	Winter	210	210	211	210	210
	Spring	212	212	212	212	212

Educators can use these cut scores to determine whether students are on track for proficiency on the state assessment. For example, the *Proficient* cut score on the VA SOL EOC Algebra I test is 453. A grade 7 student with a MAP Growth Math 6+ RIT score of 234 in the fall is likely to meet proficiency on the VA SOL EOC Algebra I test in the spring, whereas a grade 7 student with a RIT score lower than 234 in the fall is in jeopardy of not meeting proficiency.

As further evidence that MAP Growth scores can be used to predict students' proficiency on the state tests, NWEA calculated classification accuracy statistics that show how well the RIT scores correctly classified, or predicted, students as *Proficient* on the VA SOL EOC tests. A high statistic indicates high accuracy. Across the subject areas, the MAP Growth scores have at least a 0.80 classification accuracy rate, meaning they accurately predicted student proficiency on the state tests for 80% or more of the sample. These results indicate that MAP Growth scores have a high accuracy rate of identifying student proficiency on the VA SOL EOC Algebra I, Geometry, and Reading tests that are the focus of this report, as illustrated in Figure E.2.

Figure E.2. Classification Accuracy of MAP Growth Scores in Predicting Proficiency on VA SOL EOC Tests



Please note that the purpose of this report is to explain NWEA's linking study methodology. It is not meant as the main reference for determining a student's likely performance on the state summative assessments. The cut scores in this report are based on the default instructional weeks for each term (i.e., Weeks 4, 20, and 32 for fall, winter, and spring, respectively), whereas instructional weeks often vary by district. The cut scores in this report may therefore differ from the results in the NWEA reporting system that reflect the specific instructional weeks set by partners. Partners should therefore reference their MAP Growth score reports instead.

1. Introduction

1.1. Purpose of the Study

NWEA® is committed to providing partners with useful tools to help make inferences about student learning from MAP® Growth™ test scores. One important use of MAP Growth results is to predict a student's performance on state summative assessments at different times throughout the year. This allows educators and parents to determine if a student is on track in their learning to meet state standards by the end of the school year or, given a student's learning profile, is on track to obtain rigorous, realistic growth in their content knowledge and skills.

This report presents findings from a linking study performed by NWEA aiming to statistically connect scores from the Virginia Standards of Learning (VA SOL) End-of-Course (EOC) Algebra I, Geometry, and Reading tests with Rasch Unit (RIT) scores from the MAP Growth Math 6+, Algebra I, Geometry, and Reading 6+ tests. Specifically, this report presents the following results:

1. Student sample demographics
2. Descriptive statistics of test scores
3. MAP Growth cut scores from fall, winter, and spring that correspond to the performance levels on the spring VA SOL EOC tests
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the VA SOL EOC tests
5. The probability of achieving proficiency on the VA SOL EOC tests based on MAP Growth RIT scores from fall, winter, and spring

1.2. Assessment Overview

The VA SOL EOC tests are part of Virginia's summative assessment system aligned to the Standards of Learning (SOL) curriculum. Based on their test scores, students are placed into one of three performance levels: *Fail*, *Proficient*, and *Advanced*. The *Proficient* cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

To support the transition to more rigorous proficiency standards and to avoid a substantial one-year increase in cut scores, the Virginia Board of Education approved a multi-year implementation plan to begin in 2026–2027 and extending through the 2029–2030 school year. During this transition period, a new temporary performance level, *Approaching*, will be added. As a result, the EOC assessment will temporarily include four performance levels instead of three. For school accountability purposes, students scoring at the *Approaching*, *Proficient*, or *Advanced* levels are considered to have passed the VA SOL assessment. However, only students achieving the *Proficient* or *Advanced* levels are considered to have demonstrated mastery of Virginia's more rigorous academic standards.

It is important to note that on December 11, 2025, the Board approved a delay in the implementation timeline for VA SOL EOC Reading, with that phase-in now scheduled to begin with the 2028–2029 school year.

MAP Growth tests are an adaptive interim assessment aligned to state-specific content standards and administered in the fall, winter, and spring. Scores are reported on the RIT vertical scale with a range of 100 to 350. To aid the interpretation of scores, NWEA conducts norming studies of student and school performance on MAP Growth. Growth norms provide expected score gains across test administrations (e.g., the relative evaluation of a student's growth from fall to spring), which are used to conduct the linking studies. The most recent norms study was conducted in 2025 (NWEA, 2025) for the general mathematics and reading tests. The norms study for the MAP Growth course-specific tests was conducted and published in December 2022 (He, 2022).

2. Methods

2.1. Data Collection

This linking study is based on data from the Spring 2025 administration of the MAP Growth and VA SOL EOC assessments. Each student's state testing record was matched to their MAP Growth score based on the student's first and last names, date of birth, student ID, and other available identifying information. Only students who have scores on both the MAP Growth and VA SOL EOC assessments in Spring 2025 were included in the study sample.

2.2. Post-Stratification Weighting

Post-stratification weights were applied to the calculations to ensure that the linking study sample represented the state's test-taking student population in terms of race, sex, and performance level. These variables were selected because they are known to be correlated with students' academic achievement and are commonly available in state summative assessment reports. The weighted sample will match the target population as closely as possible for key demographic and performance characteristics.

A raking procedure was used to calculate the post-stratification weights that either compensate for the underrepresentation of certain groups or attenuate the overrepresentation of certain groups. Raking uses iterative procedures to obtain weights that match sample marginal distributions to known population margins. The following steps were taken during this process:

1. Calculate marginal distributions of race, sex, and performance level for the sample and population.
2. Calculate post-stratification weights with the rake function from the survey package in R (Lumley, 2019).
3. Apply the weights to the sample before conducting the linking study analyses.

2.3. Descriptive Statistics

Descriptive statistics are provided to summarize the test scores for both the MAP Growth and VA SOL EOC tests, including the test score mean, standard deviation (SD), minimum, and maximum. The mean presents the average test scores across all students in the study sample, and the SD indicates the variability of test scores, revealing how students' scores are distributed around the average score, or mean. Correlation coefficients between the MAP Growth RIT scores and VA SOL EOC scores are also provided to answer the question "How well do the test scores from MAP Growth (that reference the RIT scale) correlate to the scores obtained from the VA SOL EOC tests (that reference some other scale) in the same subject?" The correlations were calculated as:

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

where r is the correlation coefficient, x_i and y_i are the values of the x - and y -variables in a sample, and $\bar{x}$ and $\bar{y}$ are the mean of the values of the x - and y -variables.

2.4. MAP Growth Cut Scores

MAP Growth cut scores that predict student achievement on the VA SOL EOC Algebra I, Geometry, and Reading tests are reported for each corresponding subject. Since the state EOC tests are not grade dependent (i.e., any student can take the test once they finish the course), the spring RIT cuts were established based on all the students in the study sample regardless of their grade. Fall and winter RIT cut scores were then projected using the growth norms and the spring RIT cuts. The RIT cuts for grades 6–10 mathematics and grades 7–10 reading are reported because students in these grade ranges may take the VA SOL EOC Algebra I, Geometry, and Reading tests. Since the growth norms from fall or winter to spring for the MAP Growth Math 6+ and Reading 6+ tests are grade specific, the corresponding RIT cut scores vary across grades. In contrast, the growth norms for the fall or winter to spring projections for MAP Growth Algebra I and Geometry tests are available for all eligible grades combined; therefore, the fall and winter RIT cuts were reported independent of grade level for these subjects.

Percentile ranks based on the NWEA norms are also provided. These are useful for understanding how students' scores compare with peers nationwide and the relative rigor of a state's performance level designations for its summative assessment.

The equipercentile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores that correspond to the spring VA SOL EOC performance level cut scores. The equipercentile linking procedure matches scores on the two scales that have the same percentile rank (i.e., the proportion of tests at or below each score). For example, let x represent a score on Test X (e.g., VA SOL EOC). Its equipercentile equivalent score on Test Y (e.g., MAP Growth), $e_y(x)$, can be obtained through a cumulative-distribution-based linking function defined as:

$$e_y(x) = G^{-1}[P(x)]$$

where $e_y(x)$ is the equipercentile equivalent of score x on VA SOL EOC tests on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on VA SOL EOC tests, and G^{-1} is the inverse of the percentile rank function for the scores on the MAP Growth scale. The inverse function finds the score on MAP Growth that corresponds to a given percentile rank. Polynomial loglinear pre-smoothing was applied to reduce irregularities of the score distributions and equipercentile linking curve.

The MAP Growth conditional growth norms provide students' expected score gains across terms, such as growth from fall to spring within the same grade or from spring of a lower grade to spring of the adjacent higher grade. This information was used to calculate the fall and winter cut scores. The equation below was used to determine the previous term's or grade's MAP Growth score needed to reach the spring cut score, considering the expected growth associated with the previous RIT score:

$$RIT_{PredSpring} = RIT_{previous} + g$$

where:

- $RIT_{PredSpring}$ is the predicted MAP Growth spring score,
- $RIT_{previous}$ is the previous term's or grade's RIT score, and
- g is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT score.

2.5. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the VA SOL EOC tests can be described using classification accuracy statistics based on the MAP Growth spring RIT cut scores. The results show the proportion of students correctly classified by their RIT scores as proficient or not proficient on the VA SOL EOC tests. Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich et al., 2004).

Table 2.1. Description of Classification Accuracy Summary Statistics

Statistic	Description	Interpretation
Overall Classification Accuracy Rate	$(TP + TN) / (\text{total sample size})$	Proportion of the study sample whose proficiency classification on the state test was correctly predicted by MAP Growth cut scores
False Negative (FN) Rate	$FN / (FN + TP)$	Proportion of students identified by MAP Growth as not proficient in those observed as proficient on the state test
False Positive (FP) Rate	$FP / (FP + TN)$	Proportion of students identified by MAP Growth as not proficient in those observed as not proficient on the state test
Sensitivity	$TP / (TP + FN)$	Proportion of students identified by MAP Growth as proficient in those observed as such on the state test
Specificity	$TN / (TN + FP)$	Proportion of students identified by MAP Growth as not proficient in those observed as such on the state test
Precision	$TP / (TP + FP)$	Proportion of students observed as proficient on the state test in those identified as such by the MAP Growth test
Area Under the Curve (AUC)	Area under the receiver operating characteristics (ROC) curve	How well MAP Growth cut scores separate the study sample into proficiency categories that match those from the state test cut scores. An AUC at or above 0.80 is considered “good” accuracy.

Note. FP = false positives; FN = false negatives; TP = true positives; TN = true negatives.

2.6. Proficiency Projections

Given that all test scores contain measurement errors, reaching the *Proficient* RIT cut does not guarantee that the student is proficient on the state test. Instead, it can be claimed that a student meeting the RIT cut score has a 50% chance of reaching proficiency on the state test, with their chances increasing the greater their score is from the cut. The proficiency projections indicate these probabilities for various RIT scores throughout the year.

In addition to calculating the MAP Growth fall and winter cut scores, the MAP Growth conditional growth norms data were also used to calculate the probability of reaching proficiency on the VA SOL EOC tests based on a student’s RIT scores from fall and winter:

$$Pr(\text{Achieving proficiency in spring} | \text{starting RIT}) = \Phi \left(\frac{RIT_{previous} + g - RIT_{SpringCut}}{SD} \right)$$

where:

- Φ is the standard normal cumulative distribution function,
- $RIT_{previous}$ is the student’s RIT score in fall or winter,
- g is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT,
- $RIT_{SpringCut}$ is the MAP Growth *Proficient* cut score for spring, and
- SD is the conditional standard deviation of the expected growth, g .

The equation below was used to estimate the probability of a student achieving *Proficient* performance on the VA SOL EOC tests based on their spring RIT score (RIT_{Spring}):

$$Pr(\text{Achieving proficiency in spring} \mid \text{spring RIT}) = \Phi\left(\frac{RIT_{Spring} - RIT_{SpringCut}}{SE}\right)$$

where SE is the standard error of measurement for MAP Growth.

3. Results

3.1. Study Sample

Only students who took both the MAP Growth and VA SOL EOC tests in Spring 2025 were included in the study sample. The data used in this study were collected from 4 districts and 90 schools across Virginia. Although Algebra II data were also collected, fewer than 1,000 students took both the MAP Growth Algebra II and VA SOL EOC Algebra II tests. Therefore, to ensure reliable prediction results, Algebra II was excluded from the study. Table 3.1 presents the distributions of students by race, sex, and performance level in the original unweighted study sample. Table 3.2 presents the distributions of the target population of students who took the VA SOL EOC tests. Since the student distributions in the original study sample are different from the target population, post-stratification weights were applied to improve the sample's representativeness. Table 3.3 presents the demographic distributions of the sample after weighting, which are almost identical to the VA SOL EOC student population distributions. The analyses in this study were conducted using the weighted sample.

Table 3.1. Linking Study Sample Demographics (Unweighted)

Demographic Subgroup	Assessment	Percentage of Students			
	MAP Growth VA SOL EOC	Math 6+ Algebra I	Algebra I Algebra I	Geometry Geometry	Reading 6+ Reading
Total N-Count		9,406	4,176	3,722	3,592
Race	Black	10.4	19.9	9.3	13.8
	Hispanic	0.0	12.5	0.4	0.7
	Other	43.2	18.9	37.3	37.5
	White	46.3	48.7	53.1	48.0
Sex	Female	48.5	49.8	48.2	41.2
	Male	51.5	50.2	51.8	58.8
Performance Level	<i>Fail</i>	8.3	5.9	12.3	13.2
	<i>Proficient</i>	74.0	79.4	72.8	62.4
	<i>Advanced</i>	17.7	14.6	14.9	24.4

Note. "Other" includes Asian and Native American.

Table 3.2. Linking Study Population Demographics

Demographic Subgroup	Assessment	Percentage of Students			
	MAP Growth VA SOL EOC	Math 6+ Algebra I	Algebra I Algebra I	Geometry Geometry	Reading 6+ Reading
Total N-Count		89,385	89,385	38,830	76,765
Race	Black	24.3	24.3	18.2	22.5
	Hispanic	18.6	18.6	15.5	20.9
	Other	9.4	9.4	13.8	11.0
	White	47.7	47.7	52.5	45.7
Sex	Female	49.5	49.5	48.9	49.4
	Male	50.5	50.5	51.1	50.6
Performance Level	<i>Fail</i>	25.8	25.8	25.8	21.0
	<i>Proficient</i>	62.5	62.5	60.6	51.9
	<i>Advanced</i>	11.8	11.8	13.6	27.1

Note. "Other" includes Asian and Native American.

Table 3.3. Linking Study Sample Demographics (Weighted)

Demographic Subgroup	Assessment	Percentage of Students			
	MAP Growth VA SOL EOC	Math 6+ Algebra I	Algebra I Algebra I	Geometry Geometry	Reading 6+ Reading
Total N-Count		9,415	4,180	3,722	3,592
Race	Black	24.3	24.3	18.2	22.5
	Hispanic	18.6	18.6	15.5	20.9
	Other	9.4	9.4	13.8	11.0
	White	47.7	47.7	52.5	45.7
Sex	Female	49.5	49.5	48.9	49.4
	Male	50.5	50.5	51.1	50.6
Performance Level	<i>Fail</i>	25.8	25.8	25.8	21.0
	<i>Proficient</i>	62.4	62.4	60.6	51.9
	<i>Advanced</i>	11.8	11.8	13.6	27.1

Note. "Other" includes Asian and Native American.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and VA SOL EOC test scores from Spring 2025, including the correlation coefficients (r) between them. The coefficients between the scores range from 0.74 to 0.86. These values indicate a high positive correlation between the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the VA SOL EOC tests.

Table 3.4. Descriptive Statistics of Test Scores

Test	N	r	Mean	SD	Min.	Max.
MAP Growth Math 6+ VA SOL EOC Algebra I	9,415	0.74	232.8 441.3	20.7 51.2	156 332	300 584
MAP Growth Algebra I VA SOL EOC Algebra I	4,180	0.74	233.8 440.4	18.6 47.8	185 348	292 555
MAP Growth Geometry VA SOL EOC Geometry	3,722	0.86	251.7 437.3	19.6 49.3	199 316	333 600
MAP Growth Reading 6+ VA SOL EOC Reading	3,592	0.80	223.6 453.1	19.0 62.1	164 305	268 579

Note. SD = standard deviation; Min. = minimum; Max. = maximum.

3.3. MAP Growth Cut Scores

Table 3.5 to Table 3.8 present the VA SOL EOC scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges. Bold numbers indicate the cut scores considered to be at least proficient. These tables can be used to predict a student's likely performance level on the VA SOL EOC spring tests when MAP Growth is taken in the fall, winter, or spring. For example, a grade 7 student who obtained a MAP Growth Math 6+ RIT score of 234 in the fall is likely to achieve *Proficient* performance on the VA SOL EOC Algebra I test. The same is true for a grade 7 student who obtained a MAP Growth Math 6+ RIT score of 241 in the spring. The spring cut score is higher than the fall cut score because growth is expected between fall and spring as students receive more instruction during the school year.

Within this report, the cut scores for fall and winter are derived from the spring cuts and the typical growth scores from fall to spring or winter to spring. The typical growth scores are based on the default instructional weeks for each term (i.e., Weeks 4, 20, and 32 for fall, winter, and spring, respectively). Since instructional weeks often vary by district, the cut scores in this report may differ slightly from the MAP Growth score reports that reflect instructional weeks set by partners. If the actual instructional weeks deviate substantially from the default ones, a student's expected performance level could be different from the projections presented in this report. Partners are therefore encouraged to use the projected performance level in students' score reports since these reflect the specific instructional weeks set by partners.

Table 3.5. Cut Scores—VA SOL EOC Algebra I & MAP Growth Math 6+

VA SOL EOC Algebra I								
Level	Fail		Approaching		Proficient		Advanced	
Scale Score	0-412		413-452		453-517		518-600	
MAP Growth Math 6+ (Fall)								
Grade	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
6	100-213	1-58	214-229	59-88	230-246	89-98	247-350	99-99
7	100-216	1-49	217-233	50-83	234-251	84-97	252-350	98-99
8	100-216	1-38	217-233	39-73	234-251	74-94	252-350	95-99
9	100-218	1-36	219-238	37-78	239-256	79-96	257-350	97-99
10	100-217	1-31	218-237	32-72	238-256	73-94	257-350	95-99
MAP Growth Math 6+ (Winter)								
6	100-219	1-58	220-236	59-88	237-255	89-98	256-350	99-99
7	100-220	1-49	221-238	50-83	239-256	84-97	257-350	98-99
8	100-220	1-39	221-238	40-74	239-256	75-94	257-350	95-99
9	100-221	1-38	222-239	39-74	240-257	75-94	258-350	95-99
10	100-220	1-33	221-239	34-69	240-257	70-91	258-350	92-99
MAP Growth Math 6+ (Spring)								
6	100-223	1-57	224-240	58-86	241-258	87-97	259-350	98-99
7	100-223	1-49	224-240	50-80	241-258	81-96	259-350	97-99
8	100-223	1-39	224-240	40-72	241-258	73-92	259-350	93-99
9	100-223	1-40	224-240	41-71	241-258	72-91	259-350	92-99
10	100-223	1-36	224-240	37-66	241-258	67-88	259-350	89-99

Table 3.6. Cut Scores—VA SOL EOC Algebra I & MAP Growth Algebra I

VA SOL EOC Algebra I								
Level	Fail		Approaching		Proficient		Advanced	
Scale Score	0-412		413-452		453-517		518-600	
MAP Growth Algebra I								
Term	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall	100-217	1-24	218-231	25-57	232-251	58-91	252-350	92-99
Winter	100-220	1-24	221-235	25-56	236-256	57-90	257-350	91-99
Spring	100-224	1-26	225-239	27-55	240-260	56-88	261-350	89-99

Table 3.7. Cut Scores—VA SOL EOC Geometry & MAP Growth Geometry

VA SOL EOC Geometry								
Level	Fail		Approaching		Proficient		Advanced	
Scale Score	0-412		413-451		452-509		510-600	
MAP Growth Geometry								
Term	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall	100-234	1-38	235-248	39-70	249-267	71-94	268-350	95-99
Winter	100-238	1-38	239-254	39-71	255-273	72-93	274-350	94-99
Spring	100-242	1-41	243-258	42-72	259-278	73-94	279-350	95-99

Table 3.8. Cut Scores—VA SOL EOC Reading & MAP Growth Reading 6+

VA SOL EOC Reading						
Level	Fail		Proficient		Advanced	
Scale Score	0-399		400-499		500-600	
MAP Growth Reading 6+ (Fall)						
Grade	RIT	Percentile	RIT	Percentile	RIT	Percentile
7	100-208	1-41	209-234	42-90	235-350	91-99
8	100-208	1-34	209-234	35-86	235-350	87-99
9	100-209	1-36	210-234	37-84	235-350	85-99
10	100-209	1-32	210-234	33-82	235-350	83-99
MAP Growth Reading 6+ (Winter)						
7	100-209	1-40	210-235	41-90	236-350	91-99
8	100-209	1-33	210-235	34-86	236-350	87-99
9	100-210	1-37	211-235	38-85	236-350	86-99
10	100-209	1-32	210-235	33-83	236-350	84-99
MAP Growth Reading 6+ (Spring)						
7	100-211	1-42	212-236	43-89	237-350	90-99
8	100-211	1-36	212-236	37-86	237-350	87-99
9	100-211	1-38	212-236	39-85	237-350	86-99
10	100-211	1-35	212-236	36-84	237-350	85-99

Note. On December 11, 2025, the Board delayed the phase-in of the more rigorous VA SOL EOC Reading standards until the 2028–2029 school year; therefore, RIT cuts associated with the more rigorous reading performance standards are not reported in this table.

3.4. Classification Accuracy

Table 3.9 presents the classification accuracy summary statistics, including the overall classification accuracy rates. These results indicate how well MAP Growth spring RIT scores predict proficiency on the VA SOL EOC tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rates are between 0.80–0.87. These values suggest that the RIT cut scores effectively classify students as proficient (*Proficient* or *Advanced*) or not proficient on the VA SOL EOC tests.

Although the results show that MAP Growth scores can be used to accurately classify students as likely to be proficient on the VA SOL EOC tests, there is a notable limitation to how these results should be used and interpreted. The VA SOL EOC and MAP Growth assessments are designed for different purposes and measure slightly different constructs even within the same content area. Therefore, scores on these tests cannot be assumed to be interchangeable. MAP Growth may not be used as a substitute for the state tests and vice versa.

Table 3.9. Classification Accuracy Results

N	Proficient Cut		Class. Accuracy	Rate		Sensitivity	Specificity	Precision	AUC
	RIT	State		FP	FN				
VA SOL EOC Algebra I & MAP Growth Math 6+									
9,415	241	453	0.85	0.12	0.21	0.79	0.88	0.77	0.83
VA SOL EOC Algebra I & MAP Growth Algebra I									
4,180	240	453	0.80	0.18	0.24	0.76	0.82	0.75	0.79
VA SOL EOC Geometry & MAP Growth Geometry									
3,722	259	452	0.87	0.14	0.11	0.89	0.86	0.78	0.88
VA SOL EOC Reading & MAP Growth Reading 6+									
3,592	212	400	0.87	0.31	0.08	0.92	0.69	0.92	0.80

Note. Class. Accuracy = overall classification accuracy rate; FP = false positives; FN = false negatives; AUC = area under the ROC curve.

3.5. Proficiency Projections

Table 3.10 to Table 3.13 present the estimated probability of achieving *Proficient* performance on the VA SOL EOC tests based on RIT scores from fall, winter, or spring. Due to measurement errors in all test scores, the *Proficient* MAP Growth cuts do not guarantee that a student will reach proficiency on the VA SOL EOC tests. Instead, they indicate a 50% chance that a student will achieve a particular performance level. Therefore, these projections further elucidate the *Proficient* cut scores by providing the likelihood of reaching proficiency on the state test in the spring at a given percentile throughout the year. For example, an educator can use Table 3.10 to estimate that a grade 7 student who obtained a MAP Growth Math 6+ RIT score of 235 in the fall has a 55% probability of reaching *Proficient* or higher on the VA SOL Algebra I EOC test in the spring.

Table 3.10. Proficiency Projections Based on RIT Scores—Algebra I & Math 6+

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
6	5	241	184	No	<0.01	187	No	<0.01	190	No	<0.01
	10	241	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	241	194	No	<0.01	198	No	<0.01	201	No	<0.01
	20	241	197	No	<0.01	201	No	<0.01	205	No	<0.01
	25	241	199	No	<0.01	204	No	<0.01	208	No	<0.01
	30	241	202	No	<0.01	207	No	<0.01	211	No	<0.01
	35	241	204	No	<0.01	209	No	<0.01	213	No	<0.01
	40	241	206	No	<0.01	212	No	<0.01	216	No	<0.01
	45	241	208	No	<0.01	214	No	<0.01	218	No	<0.01
	50	241	210	No	<0.01	216	No	<0.01	220	No	<0.01
	55	241	212	No	0.01	218	No	<0.01	223	No	<0.01
	60	241	214	No	0.02	220	No	0.01	225	No	<0.01
	65	241	216	No	0.03	223	No	0.03	227	No	<0.01
	70	241	219	No	0.07	225	No	0.05	230	No	<0.01
	75	241	221	No	0.13	228	No	0.11	233	No	0.01
	80	241	224	No	0.23	231	No	0.21	236	No	0.08
	85	241	227	No	0.36	234	No	0.34	239	No	0.28
	90	241	231	Yes	0.55	238	Yes	0.55	244	Yes	0.8
	95	241	237	Yes	0.81	245	Yes	0.86	251	Yes	>0.99
7	5	241	189	No	<0.01	191	No	<0.01	192	No	<0.01
	10	241	195	No	<0.01	197	No	<0.01	199	No	<0.01
	15	241	199	No	<0.01	202	No	<0.01	204	No	<0.01
	20	241	203	No	<0.01	206	No	<0.01	208	No	<0.01
	25	241	206	No	<0.01	209	No	<0.01	211	No	<0.01
	30	241	208	No	<0.01	211	No	<0.01	214	No	<0.01
	35	241	211	No	<0.01	214	No	<0.01	216	No	<0.01
	40	241	213	No	0.01	216	No	<0.01	219	No	<0.01

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	45	241	215	No	0.01	219	No	0.01	221	No	<0.01
	50	241	217	No	0.02	221	No	0.01	224	No	<0.01
	55	241	219	No	0.03	223	No	0.02	226	No	<0.01
	60	241	222	No	0.07	226	No	0.06	229	No	<0.01
	65	241	224	No	0.11	228	No	0.1	231	No	<0.01
	70	241	226	No	0.17	231	No	0.15	234	No	0.02
	75	241	229	No	0.27	233	No	0.22	237	No	0.13
	80	241	232	No	0.4	236	No	0.35	240	No	0.39
	85	241	235	Yes	0.55	240	Yes	0.55	244	Yes	0.8
	90	241	239	Yes	0.73	245	Yes	0.78	249	Yes	0.99
	95	241	246	Yes	0.93	251	Yes	0.94	256	Yes	>0.99
8	5	241	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	241	199	No	<0.01	201	No	<0.01	203	No	<0.01
	15	241	203	No	<0.01	206	No	<0.01	208	No	<0.01
	20	241	207	No	<0.01	210	No	<0.01	212	No	<0.01
	25	241	210	No	<0.01	213	No	<0.01	215	No	<0.01
	30	241	212	No	0.01	216	No	<0.01	218	No	<0.01
	35	241	215	No	0.01	219	No	0.01	221	No	<0.01
	40	241	217	No	0.03	221	No	0.02	224	No	<0.01
	45	241	220	No	0.05	224	No	0.04	226	No	<0.01
	50	241	222	No	0.08	226	No	0.07	229	No	<0.01
	55	241	224	No	0.13	228	No	0.1	231	No	<0.01
	60	241	227	No	0.21	231	No	0.19	234	No	0.02
	65	241	229	No	0.28	233	No	0.26	237	No	0.13
	70	241	232	No	0.41	236	No	0.4	239	No	0.28
	75	241	234	Yes	0.5	239	Yes	0.5	242	Yes	0.61
	80	241	237	Yes	0.63	242	Yes	0.65	246	Yes	0.92
	85	241	241	Yes	0.79	246	Yes	0.81	250	Yes	0.99

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	90	241	246	Yes	0.92	251	Yes	0.93	255	Yes	>0.99
	95	241	252	Yes	0.98	258	Yes	0.99	262	Yes	>0.99
9	5	241	196	No	0.01	196	No	<0.01	194	No	<0.01
	10	241	202	No	0.01	203	No	<0.01	202	No	<0.01
	15	241	207	No	0.03	207	No	0.01	207	No	<0.01
	20	241	210	No	0.04	211	No	0.01	211	No	<0.01
	25	241	213	No	0.06	214	No	0.02	215	No	<0.01
	30	241	216	No	0.08	217	No	0.04	218	No	<0.01
	35	241	218	No	0.11	220	No	0.06	221	No	<0.01
	40	241	220	No	0.14	222	No	0.08	223	No	<0.01
	45	241	223	No	0.17	225	No	0.12	226	No	<0.01
	50	241	225	No	0.2	227	No	0.16	229	No	<0.01
	55	241	227	No	0.25	230	No	0.2	231	No	<0.01
	60	241	229	No	0.27	232	No	0.25	234	No	0.02
	65	241	232	No	0.34	235	No	0.34	237	No	0.13
	70	241	234	No	0.39	237	No	0.4	240	No	0.39
	75	241	237	No	0.45	240	Yes	0.5	243	Yes	0.72
	80	241	240	Yes	0.53	243	Yes	0.6	247	Yes	0.96
	85	241	243	Yes	0.61	247	Yes	0.72	251	Yes	>0.99
	90	241	248	Yes	0.73	252	Yes	0.84	256	Yes	>0.99
	95	241	254	Yes	0.85	259	Yes	0.94	263	Yes	>0.99
10	5	241	196	No	0.01	196	No	<0.01	195	No	<0.01
	10	241	203	No	0.03	204	No	0.01	203	No	<0.01
	15	241	208	No	0.05	208	No	0.01	208	No	<0.01
	20	241	211	No	0.07	212	No	0.03	213	No	<0.01
	25	241	214	No	0.09	216	No	0.05	216	No	<0.01
	30	241	217	No	0.12	219	No	0.07	220	No	<0.01
	35	241	220	No	0.17	222	No	0.11	223	No	<0.01

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	40	241	222	No	0.18	224	No	0.14	226	No	<0.01
	45	241	224	No	0.22	227	No	0.18	229	No	<0.01
	50	241	227	No	0.28	229	No	0.22	231	No	<0.01
	55	241	229	No	0.3	232	No	0.3	234	No	0.02
	60	241	232	No	0.37	235	No	0.35	237	No	0.13
	65	241	234	No	0.42	237	No	0.41	240	No	0.39
	70	241	237	No	0.47	240	Yes	0.5	243	Yes	0.72
	75	241	239	Yes	0.53	243	Yes	0.59	246	Yes	0.92
	80	241	242	Yes	0.58	246	Yes	0.68	250	Yes	0.99
	85	241	246	Yes	0.67	250	Yes	0.78	254	Yes	>0.99
	90	241	251	Yes	0.78	255	Yes	0.88	260	Yes	>0.99
	95	241	257	Yes	0.88	263	Yes	0.96	268	Yes	>0.99

Table 3.11. Proficiency Projections Based on RIT Scores—Algebra I & Algebra I

Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
		RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
			Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
5	240	202	No	<0.01	204	No	<0.01	204	No	<0.01
10	240	208	No	0.01	210	No	<0.01	212	No	<0.01
15	240	212	No	0.02	214	No	0.01	216	No	<0.01
20	240	215	No	0.04	218	No	0.02	220	No	<0.01
25	240	218	No	0.07	221	No	0.04	224	No	<0.01
30	240	220	No	0.12	224	No	0.09	227	No	<0.01
35	240	223	No	0.19	226	No	0.13	229	No	<0.01
40	240	225	No	0.25	228	No	0.18	232	No	0.01
45	240	227	No	0.31	231	No	0.29	234	No	0.04
50	240	229	No	0.38	233	No	0.37	237	No	0.2
55	240	231	No	0.46	235	No	0.45	239	No	0.39

Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
		RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
			Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
60	240	233	Yes	0.54	238	Yes	0.59	242	Yes	0.72
65	240	235	Yes	0.62	240	Yes	0.67	245	Yes	0.92
70	240	237	Yes	0.69	242	Yes	0.75	247	Yes	0.98
75	240	240	Yes	0.81	245	Yes	0.85	250	Yes	>0.99
80	240	243	Yes	0.88	248	Yes	0.91	254	Yes	>0.99
85	240	246	Yes	0.93	252	Yes	0.96	257	Yes	>0.99
90	240	250	Yes	0.97	256	Yes	0.99	262	Yes	>0.99
95	240	256	Yes	0.99	263	Yes	>0.99	269	Yes	>0.99

Table 3.12. Proficiency Projections Based on RIT Scores—Geometry & Geometry

Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
		RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
			Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
5	259	212	No	<0.01	213	No	<0.01	215	No	<0.01
10	259	218	No	<0.01	220	No	<0.01	222	No	<0.01
15	259	222	No	<0.01	225	No	<0.01	227	No	<0.01
20	259	225	No	<0.01	228	No	<0.01	231	No	<0.01
25	259	228	No	0.01	232	No	<0.01	234	No	<0.01
30	259	231	No	0.01	234	No	<0.01	237	No	<0.01
35	259	233	No	0.02	237	No	0.01	240	No	<0.01
40	259	235	No	0.04	239	No	0.02	242	No	<0.01
45	259	238	No	0.09	242	No	0.05	245	No	<0.01
50	259	240	No	0.13	244	No	0.08	247	No	<0.01
55	259	242	No	0.19	247	No	0.15	249	No	<0.01
60	259	244	No	0.25	249	No	0.22	252	No	0.02
65	259	246	No	0.33	251	No	0.3	254	No	0.08
70	259	249	Yes	0.5	254	No	0.45	257	No	0.28
75	259	251	Yes	0.59	257	Yes	0.65	260	Yes	0.61
80	259	254	Yes	0.71	260	Yes	0.78	263	Yes	0.87

Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
		RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
			Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
85	259	257	Yes	0.81	264	Yes	0.9	267	Yes	0.99
90	259	262	Yes	0.94	268	Yes	0.97	272	Yes	>0.99
95	259	268	Yes	0.99	275	Yes	>0.99	279	Yes	>0.99

Table 3.13. Proficiency Projections Based on RIT Scores—Reading & Reading 6+

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
7	5	212	185	No	0.01	186	No	<0.01	187	No	<0.01
	10	212	191	No	0.03	192	No	0.03	193	No	<0.01
	15	212	195	No	0.08	196	No	0.06	197	No	<0.01
	20	212	198	No	0.12	200	No	0.14	201	No	<0.01
	25	212	201	No	0.21	202	No	0.16	203	No	0.01
	30	212	204	No	0.32	205	No	0.27	206	No	0.04
	35	212	206	No	0.36	207	No	0.36	208	No	0.13
	40	212	208	No	0.45	210	Yes	0.5	211	No	0.39
	45	212	210	Yes	0.55	212	Yes	0.55	213	Yes	0.61
	50	212	212	Yes	0.64	214	Yes	0.64	215	Yes	0.8
	55	212	214	Yes	0.68	216	Yes	0.73	217	Yes	0.92
	60	212	217	Yes	0.79	218	Yes	0.8	219	Yes	0.98
	65	212	219	Yes	0.85	220	Yes	0.86	221	Yes	0.99
	70	212	221	Yes	0.9	223	Yes	0.93	224	Yes	>0.99
	75	212	224	Yes	0.95	225	Yes	0.96	226	Yes	>0.99
	80	212	226	Yes	0.97	228	Yes	0.98	229	Yes	>0.99
	85	212	230	Yes	0.99	231	Yes	0.99	232	Yes	>0.99
	90	212	234	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99
	95	212	240	Yes	>0.99	241	Yes	>0.99	243	Yes	>0.99
8	5	212	188	No	0.02	189	No	0.01	190	No	<0.01
	10	212	194	No	0.07	195	No	0.06	196	No	<0.01

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	15	212	198	No	0.15	199	No	0.12	200	No	<0.01
	20	212	201	No	0.21	203	No	0.24	203	No	0.01
	25	212	204	No	0.33	205	No	0.28	206	No	0.04
	30	212	207	No	0.41	208	No	0.41	209	No	0.2
	35	212	209	Yes	0.5	210	Yes	0.5	211	No	0.39
	40	212	211	Yes	0.59	213	Yes	0.59	213	Yes	0.61
	45	212	214	Yes	0.67	215	Yes	0.68	216	Yes	0.87
	50	212	216	Yes	0.75	217	Yes	0.76	218	Yes	0.96
	55	212	218	Yes	0.82	219	Yes	0.83	220	Yes	0.99
	60	212	220	Yes	0.87	221	Yes	0.88	222	Yes	>0.99
	65	212	222	Yes	0.91	223	Yes	0.92	224	Yes	>0.99
	70	212	225	Yes	0.96	226	Yes	0.96	227	Yes	>0.99
	75	212	227	Yes	0.97	228	Yes	0.98	229	Yes	>0.99
	80	212	230	Yes	0.99	231	Yes	0.99	232	Yes	>0.99
	85	212	233	Yes	>0.99	235	Yes	>0.99	236	Yes	>0.99
	90	212	238	Yes	>0.99	239	Yes	>0.99	240	Yes	>0.99
	95	212	244	Yes	>0.99	245	Yes	>0.99	246	Yes	>0.99
9	5	212	186	No	0.02	187	No	0.01	187	No	<0.01
	10	212	193	No	0.06	194	No	0.06	194	No	<0.01
	15	212	197	No	0.13	198	No	0.12	198	No	<0.01
	20	212	201	No	0.21	201	No	0.2	202	No	<0.01
	25	212	204	No	0.31	205	No	0.3	205	No	0.02
	30	212	207	No	0.38	207	No	0.38	208	No	0.13
	35	212	209	No	0.46	210	No	0.46	210	No	0.28
	40	212	212	Yes	0.58	212	Yes	0.54	213	Yes	0.61
	45	212	214	Yes	0.66	214	Yes	0.62	215	Yes	0.8
	50	212	216	Yes	0.73	217	Yes	0.74	217	Yes	0.92
	55	212	218	Yes	0.79	219	Yes	0.8	219	Yes	0.98
	60	212	221	Yes	0.87	221	Yes	0.86	222	Yes	>0.99

Grade	Stat Percentile	Spring RIT Cut	Fall			Winter			Spring		
			RIT	Projected Proficiency		RIT	Projected Proficiency		RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	65	212	223	Yes	0.91	224	Yes	0.92	224	Yes	>0.99
	70	212	226	Yes	0.95	226	Yes	0.94	227	Yes	>0.99
	75	212	228	Yes	0.97	229	Yes	0.97	230	Yes	>0.99
	80	212	231	Yes	0.98	232	Yes	0.99	233	Yes	>0.99
	85	212	235	Yes	0.99	236	Yes	>0.99	236	Yes	>0.99
	90	212	239	Yes	>0.99	240	Yes	>0.99	241	Yes	>0.99
	95	212	246	Yes	>0.99	247	Yes	>0.99	247	Yes	>0.99
10	5	212	188	No	0.04	188	No	0.03	188	No	<0.01
	10	212	195	No	0.11	195	No	0.09	195	No	<0.01
	15	212	199	No	0.19	199	No	0.16	200	No	<0.01
	20	212	203	No	0.28	203	No	0.27	203	No	0.01
	25	212	206	No	0.39	206	No	0.34	206	No	0.04
	30	212	208	No	0.42	209	No	0.46	209	No	0.2
	35	212	211	Yes	0.54	211	Yes	0.5	211	No	0.39
	40	212	213	Yes	0.61	214	Yes	0.62	214	Yes	0.72
	45	212	215	Yes	0.69	216	Yes	0.69	216	Yes	0.87
	50	212	218	Yes	0.78	218	Yes	0.76	218	Yes	0.96
	55	212	220	Yes	0.83	220	Yes	0.82	221	Yes	0.99
	60	212	222	Yes	0.88	223	Yes	0.89	223	Yes	>0.99
	65	212	225	Yes	0.93	225	Yes	0.92	225	Yes	>0.99
	70	212	227	Yes	0.95	228	Yes	0.96	228	Yes	>0.99
	75	212	230	Yes	0.97	230	Yes	0.97	231	Yes	>0.99
	80	212	233	Yes	0.99	233	Yes	0.99	234	Yes	>0.99
	85	212	236	Yes	0.99	237	Yes	>0.99	237	Yes	>0.99
	90	212	241	Yes	>0.99	241	Yes	>0.99	242	Yes	>0.99
	95	212	247	Yes	>0.99	248	Yes	>0.99	248	Yes	>0.99

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