Predicting Proficiency on the Virginia Standards of Learning (SOL) Assessments in Grades 3–8 Based on NWEA MAP Growth Scores

July 2025

NWEA Psychometrics and Analytics

Linking Study Updates

Date	Description
2014-09	Initial study conducted for Virginia in reading and mathematics in grades 3–8 using Spring 2014 data.
2016-03	Incorporated the 2015 MAP Growth norms using Spring 2014 data.
2020-07-23	New study using Spring 2019 data for the mathematics 3–8 assessments administered for the first time in Spring 2019 based on new standards adopted in September 2016 by the Virginia Board of Education.
2022-03-10	New study using Spring 2021 data for the reading 3–8 assessments administered for the first time in Spring 2021 based on new standards adopted in January 2017 by the Virginia Board of Education. The mathematics 3–8 results from July 2020 remain the same but are included in this report so all Virginia SOL linking study results are in one document.
2022-03-25	Amended a clerical error.
2025-07	Updated the linking study based on the 2025 norms.

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Executive Summary

To predict student achievement on the Virginia Standards of Learning (SOL) reading and mathematics assessments in grades 3–8, NWEA® conducted a linking study using Spring 2021 data for reading and Spring 2019 data for mathematics to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the Virginia SOL performance levels. Educators can use this information to identify students at risk of not meeting state proficiency standards early in the year and provide tailored educational interventions.

Table E.1 presents the Virginia SOL *Pass/Proficient* performance level cut scores and the corresponding MAP Growth RIT cut scores that allow teachers to determine whether students are on track for proficiency on the state summative test. For example, the *Pass/Proficient* cut score on the grade 3 Virginia SOL reading test is 400. A grade 3 student with a MAP Growth reading RIT score of 186 in the fall is likely to meet proficiency on the Virginia SOL reading test in the spring, whereas a grade 3 student with a MAP Growth reading RIT score lower than 186 in the fall is in jeopardy of not meeting proficiency. MAP Growth cut scores for grade 2 are also provided so that educators can track early learners' progress toward proficiency on the Virginia SOL test by grade 3.

Table E.1. MAP Growth Cut Scores for Virginia SOL Proficiency

Assessment		*Pass/Proficient* Cut Scores by Grade						
		2	3	4	5	6	7	8
Reading								
Virginia SOL Spring		–	400	400	400	400	400	400
MAP Growth	Fall	172	186	195	203	207	211	214
	Winter	178	191	198	206	208	213	215
	Spring	183	195	201	208	210	214	216
Mathematics								
Virginia SOL Spring		–	400	400	400	400	400	400
MAP Growth	Fall	168	181	193	205	208	216	220
	Winter	176	189	200	211	214	220	224
	Spring	183	196	206	215	218	223	227

Please note that the results in this report may differ from those found in the NWEA reporting system for individual districts. The typical growth scores from fall to spring or winter to spring used in this report are based on the default instructional weeks most encountered for each term (i.e., Weeks 4, 20, and 32 for fall, winter, and spring, respectively). However, instructional weeks often vary by district, so the cut scores in this report may differ slightly from the MAP Growth score reports that reflect the specific instructional weeks set by partners.

E.1. Assessment Overview

Virginia's SOL summative assessments in reading and mathematics are aligned to the Virginia Standards of Learning and administered in grades 3–8. Based on their test scores, students are placed into one of four performance levels: *Fail/Below Basic*, *Fail/Basic*, *Pass/Proficient*, and *Pass/Advanced*. The *Pass/Proficient* cut score demarks the minimum level of achievement considered to be passing on the Virginia SOL assessment. MAP Growth tests are adaptive

interim assessments 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.

E.2. Linking Methods

The equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring Virginia SOL performance level cut scores. MAP Growth spring cut scores for grade 2 were then derived from the spring cuts for grade 3 and the growth norms for the adjacent grade (i.e., grades 2 to 3). Similarly, the MAP Growth cut scores for the fall and winter administrations of all grades were derived from the spring administration cuts and the growth norms for either fall to spring or winter to spring, respectively. The spring cuts[1] for mathematics were adjusted for score alignment before deriving the cuts for grade 2 spring and for all grades' fall and winter administrations.

E.3. Student Sample

Only students who took both the MAP Growth and Virginia SOL assessments in Spring 2021 for reading and Spring 2019 for mathematics were included. Table E.2 presents the numbers of Virginia students from 3 districts and 51 schools for reading and 13 districts and 104 schools for mathematics who were included in the linking study sample. The linking study sample is voluntary and can only include student scores from partners who share their data. Also, not all students in a state take MAP Growth. The sample may therefore be different from the general student population in important characteristics. To ensure that the linking study sample represents the state student population in terms of race, sex, and performance level distributions, post-stratification weighting was applied to statistically adjust the sample so that it reflects the target population on these variables. As a result, the RIT cuts derived from the study sample can be generalized to any student from the target population. All analyses in this study for grades 3–8 were conducted based on the weighted sample.

Table E.2. Linking Study Sample

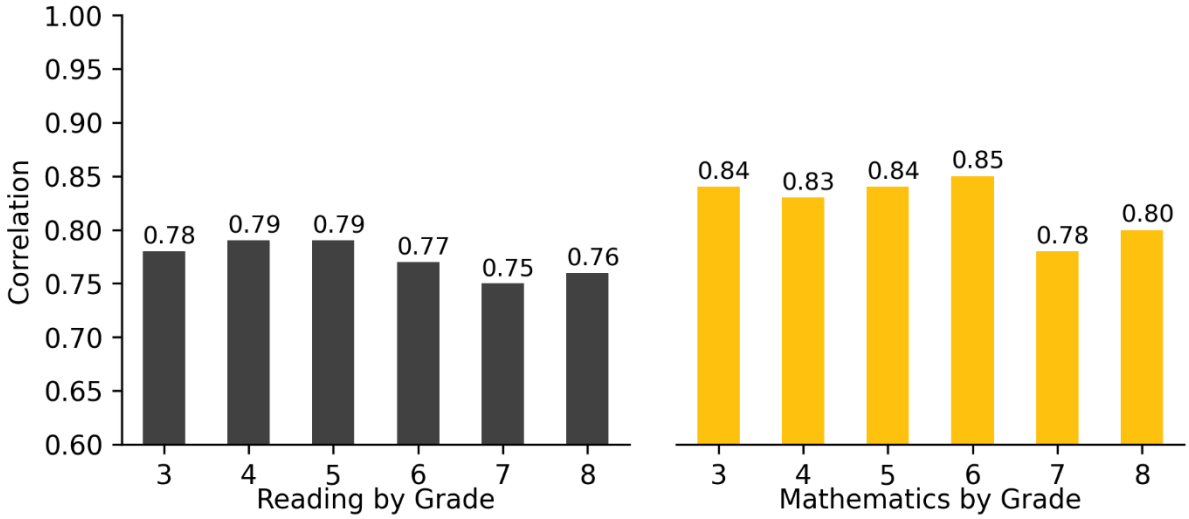
Grade	# Students	
	Reading	Mathematics
3	3,021	4,078
4	2,700	3,542
5	2,833	3,599
6	2,633	4,171
7	2,654	3,406
8	2,610	1,492

[1] To enhance content validity, NWEA developed an Enhanced Item-Selection Algorithm (EISA) for the MAP Growth assessment to prioritize grade-level content. A pilot study (Meyer et al., 2023) showed that students taking MAP Growth with EISA demonstrated higher average math scores compared with those taking traditional MAP Growth. To improve score comparability, NWEA (Lewis & Kuhfeld, 2024) developed concordance tables to adjust mathematics scores from traditional assessments to align with scores from MAP Growth with EISA, or vice versa. Given that the data for this study were collected from traditional MAP Growth tests but that the results will be used for MAP Growth with EISA, the spring cuts for mathematics were adjusted using the concordance tables before being used to derive other cut scores. This score adjustment will become unnecessary for future linking studies once the new data from EISA tests are collected.

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and Virginia SOL scores range from 0.75 to 0.85 across subjects, as shown in Figure E.1. These values indicate a high positive correlation among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the Virginia SOL assessments.

Figure E.1. Correlations Between MAP Growth and Virginia SOL Test Scores

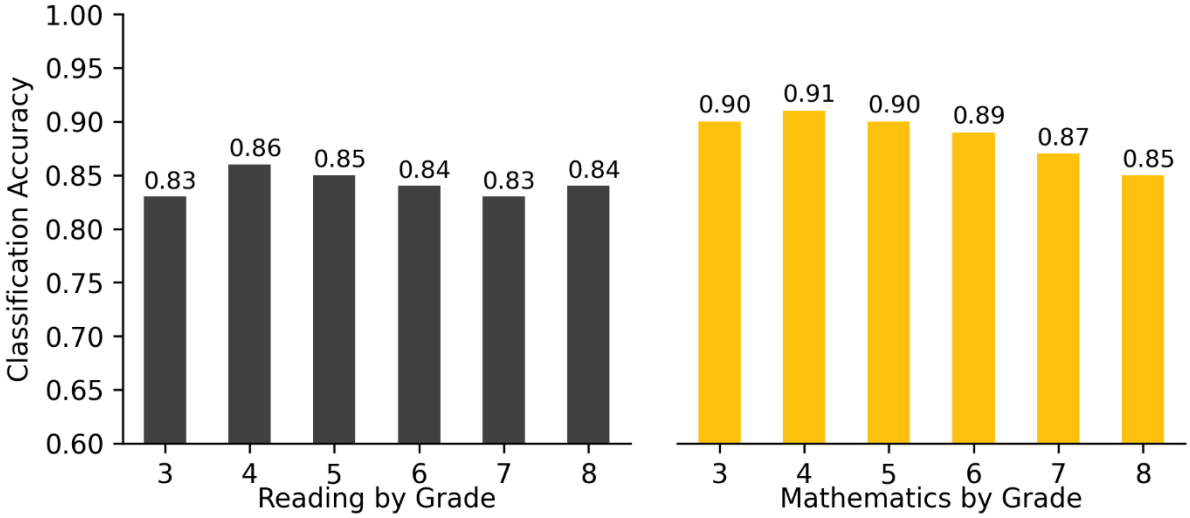


E.5. Accuracy of MAP Growth Classifications

Figure E.2 presents the classification accuracy statistics that show the proportion of students correctly classified by their RIT scores as proficient (*Pass/Proficient* or *Pass/Advanced*) or not proficient (*Fail/Below Basic* or *Fail/Basic*) on the Virginia SOL tests. [2] For example, the grade 3 MAP Growth reading *Pass/Proficient* cut score has a 0.83 accuracy rate, meaning it accurately classified student achievement on the state test for 83% of the sample. The results range from 0.83 to 0.91 across subjects, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the Virginia SOL tests.

[2] The classification accuracy calculations for the mathematics spring cuts were based on the concorded cut scores.

Figure E.2. Accuracy of MAP Growth Classifications



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 the state summative assessment 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 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 results from a linking study conducted by NWEA to statistically connect the scores of the Virginia Standards of Learning (SOL) reading and mathematics assessments in grades 3–8 with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2021 term for reading and Spring 2019 for mathematics. MAP Growth cut scores are also included for grade 2 so that educators can track early learners' progress toward proficiency on the Virginia SOL tests by grade 3. 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 Virginia SOL assessment
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the Virginia SOL tests
5. The probability of achieving grade-level proficiency on the Virginia SOL assessments based on MAP Growth RIT scores from fall, winter, and spring using the 2025 norms

1.2. Assessment Overview

Virginia's SOL summative assessments in reading and mathematics are aligned to the Virginia Standards of Learning and administered in grades 3–8. Each Virginia SOL assessment has three cut scores (i.e., the minimum score a student must get on a test to be placed in a certain performance level) that distinguish between the following performance levels: *Fail/Below Basic*, *Fail/Basic*, *Pass/Proficient*, and *Pass/Advanced*. The *Pass/Proficient* cut score demarks the minimum level of achievement considered to be passing on the Virginia SOL assessment.

MAP Growth interim assessments from NWEA are computer adaptive and aligned to state-specific content standards. Scores are reported on the RIT vertical scale with a range of 100–350. Each content area has its own scale. To aid the interpretation of scores, NWEA periodically conducts norming studies of student and school performance on MAP Growth. Achievement status norms show how well a student performed on the MAP Growth test compared with students in the norming group by associating the student's performance on the MAP Growth test, expressed as a RIT score, with a percentile ranking. Growth norms provide expected score gains across test administrations (e.g., the relative evaluation of a student's growth from fall to spring). The most recent norms study was conducted in 2025 (NWEA, 2025).

2. Methods

2.1. Data Collection

This linking study is based on data from the Spring 2021 administrations of the MAP Growth and Virginia SOL assessments for reading and the Spring 2019 administrations for mathematics. NWEA requested that Virginia districts recruited to participate in the study share their student and score data for the target term. Districts also permitted NWEA to access their students' MAP Growth scores from the NWEA in-house database. Once state score information was available to NWEA, 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 took both the MAP Growth and Virginia SOL assessments in Spring 2021 for reading or Spring 2019 for mathematics 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 often available in state summative assessment reports. The weighted sample will match the target population as closely as possible for the key demographics and performance characteristics defined by the state.

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. MAP Growth Cut Scores

MAP Growth cut scores that predict student achievement on the Virginia SOL assessment are reported for grades 3–8, as well as for grade 2 so that educators can track early learners' progress toward proficiency on the Virginia SOL test by grade 3. Percentile ranks based on the 2025 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 for grades 3–8 that correspond to the spring Virginia SOL 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., Virginia SOL). 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 the Virginia SOL tests on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on the Virginia SOL tests, and G^{-1} is the inverse of the percentile rank function for MAP Growth that indicates the score on MAP Growth corresponding to a given percentile. 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 for grades 3–8. The equation below was used to determine the previous term'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 RIT score, and
- g is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT score.

The MAP Growth conditional growth norms were also used to calculate the fall, winter, and spring cuts for grade 2. Students do not begin taking the Virginia SOL assessment until grade 3. To derive the spring cut scores for grade 2, the growth score from spring of one year to the next was used (i.e., the growth score from spring of grade 2 to spring of grade 3). The calculation of fall and winter cuts for grade 2 followed the same process as for grades 3–8. For example, the growth score from fall to spring in grade 2 was used to calculate the fall cuts for grade 2.

2.4. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the Virginia SOL 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 (*Pass/Proficient* or *Pass/Advanced*) or not proficient (*Fail/Below Basic* or *Fail/Basic*) on the Virginia SOL test. 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) / (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

Statistic	Description	Interpretation
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.

2.5. Proficiency Projections

Given that all test scores contain measurement errors, reaching the *Pass/Proficient* RIT cut does not guarantee that a 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 (and the projected grade 2 cut scores), the MAP Growth conditional growth norms data were also used to calculate the probability of reaching proficiency on the Virginia SOL based on a student's RIT scores from fall, winter, and spring. The equation below was used to calculate the probability of a student achieving proficiency on the Virginia SOL test based on their fall or winter RIT score:

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

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 *Pass/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 proficiency on the Virginia SOL test based on their spring RIT score (RIT_{Spring}):

$$Pr(Achieving\ Pass/Proficient\ in\ spring\ |\ spring\ RIT) = \Phi\left(\frac{RIT_{Spring} - RIT_{SpringCut}}{SE}\right)$$

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 Virginia SOL assessments in Spring 2021 for reading and in Spring 2019 for mathematics were included in the study sample. Data used in this study were collected from 3 districts and 51 schools for reading and 13 districts and 104 schools for mathematics. Table 3.1 presents the demographic distributions of 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 either the Spring 2021 Virginia SOL reading tests or the Spring 2019 Virginia SOL mathematics tests. Since the original study sample is different from the target Virginia SOL population, post-stratification weights were applied to the linking study sample to improve its representativeness. Table 3.3 presents the demographic distributions of the sample after weighting, which are almost identical to the Virginia SOL student population distributions. The analyses in this study were conducted using the weighted sample.

Table 3.1. Linking Study Sample Demographics (Unweighted)

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Reading							
	Total N	3,021	2,700	2,833	2,633	2,654	2,610
Race	American Indian	1.5	1.5	1.7	1.4	1.1	1.6
	Asian	2.5	2.6	3.2	3.2	4.0	3.8
	Black	35.1	32.2	33.0	29.8	32.7	31.5
	Hispanic	7.1	6.4	7.0	6.7	6.6	6.9
	Native Hawaiian/ Pacific Islander	0.4	0.4	0.5	0.3	0.5	0.4
	Non-Hispanic, Two or More	9.2	10.6	9.5	9.6	10.0	9.8
	White	44.2	46.4	45.0	48.9	45.0	46.1
Sex	Female	49.8	49.9	49.8	48.2	48.1	49.3
	Male	50.2	50.1	50.2	51.8	51.9	50.7
Performance Level	*Fail/Below Basic*	2.8	2.4	1.2	3.4	2.4	2.6
	Fail/Basic	31.4	26.6	30.8	25.2	24.2	22.3
	Pass/Proficient	56.2	57.6	59.4	59.5	62.2	63.8
	Pass/Advanced	9.6	13.4	8.6	11.9	11.2	11.3
Mathematics							
	Total N	4,078	3,542	3,599	4,167	3,406	1,492
Race	Asian	2.2	1.8	1.7	2.2	1.5	1.1
	Black	19.5	23.6	24.3	20.7	22.9	27.3
	Hispanic	6.7	6.4	6.5	7.3	7.6	9.3
	Multi-Race	0.5	0.5	0.3	0.4	0.3	0.1
	Other	16.9	20.1	20.1	16.5	19.0	26.8
	White	54.2	47.6	47.1	52.9	48.7	35.4
Sex	Female	48.5	49.2	50.5	49.3	49.6	45.7
	Male	51.5	50.8	49.5	50.7	50.4	54.3

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Performance Level	*Fail/Below Basic*	3.2	2.7	4.4	6.1	4.5	7.0
	Fail/Basic	16.3	16.6	16.9	16.6	21.7	27.7
	Pass/Proficient	61.8	61.2	63.5	62.0	62.9	58.6
	Pass/Advanced	18.7	19.5	15.3	15.3	10.9	6.7

Note. The race categories reflect the Virginia SOL performance reports by term. As such, the categories for reading based on Spring 2021 data differ from those reported for mathematics based on Spring 2019 data.

Table 3.2. Virginia SOL Student Population Demographics

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Reading (Spring 2021)							
	Total N	72,061	72,083	71,421	67,578	66,690	65,327
Race	American Indian	0.3	0.3	0.2	0.3	0.2	0.2
	Asian	7.7	7.6	7.7	8.1	8.2	7.5
	Black	18.9	19.0	19.6	19.1	19.0	19.6
	Hispanic	18.0	17.8	17.7	17.1	16.4	16.1
	Native Hawaiian/ Pacific Islander	0.2	0.2	0.2	0.2	0.1	0.1
	Non-Hispanic, Two or More	6.7	6.7	6.5	6.1	5.9	5.7
	White	48.2	48.4	48.1	49.3	50.1	50.8
Sex	Female	48.9	49.0	48.8	48.8	48.7	48.0
	Male	51.1	51.0	51.2	51.2	51.3	52.0
Performance Level [a]	*Fail/Below Basic* *Fail/Basic*	38.9	32.3	33.9	31.2	29.7	30.9
	Pass/Proficient	52.2	54.7	56.4	55.3	58.3	56.7
	Pass/Advanced	9.0	13.1	9.8	13.5	12.0	12.4
Mathematics (Spring 2019)							
	Total N	92,898	94,931	90,365	77,826	57,725	44,839
Race	Asian	7.4	7.2	6.2	4.4	4.2	3.2
	Black	22.0	21.9	23.2	25.5	24.2	27.8
	Hispanic	16.4	16.9	17.2	18.5	19.2	19.3
	Multi-Race	6.4	6.1	5.9	5.5	5.3	5.2
	Other	0.4	0.5	0.4	0.4	0.4	0.4
	White	47.3	47.4	47.2	45.7	46.8	44.1
Sex	Female	48.9	49.0	49.5	49.5	48.7	46.0
	Male	51.1	51.0	50.5	50.5	51.3	54.0
Performance Level [a]	*Fail/Below Basic* *Fail/Basic*	17.8	16.8	19.0	24.7	27.5	32.4
	Pass/Proficient	63.7	63.8	64.7	65.0	66.3	65.1
	Pass/Advanced	18.5	19.4	16.	10.4	6.2	2.5

Note. The race categories reflect the Virginia SOL performance reports by term. As such, the categories for reading based on Spring 2021 data differ from those reported for mathematics based on Spring 2019 data.

[a] In Virginia's testing results, the percentage of students in *Below Basic* and *Basic* were reported as one category, *Fail*. Therefore, the aggregated percentages for the two lower levels were used as the target to weight the study sample.

Table 3.3. Linking Study Sample Demographics (Weighted)

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Reading							
Total N		3,021	2,700	2,833	2,633	2,654	2,610
Race	American Indian	0.3	0.3	0.2	0.3	0.2	0.2
	Asian	7.7	7.6	7.7	8.1	8.2	7.5
	Black	18.9	19.0	19.6	19.1	19.1	19.6
	Hispanic	18.0	17.8	17.7	17.1	16.4	16.1
	Native Hawaiian/ Pacific Islander	0.2	0.2	0.2	0.2	0.1	0.1
	Non-Hispanic, Two or More	6.7	6.7	6.5	6.1	5.9	5.7
	White	48.2	48.4	48.1	49.3	50.1	50.8
Sex	Female	48.9	49.0	48.8	48.8	48.7	48.0
	Male	51.1	51.0	51.2	51.2	51.3	52.0
Performance Level [a]	*Fail/Below Basic* *Fail/Basic*	38.9	32.3	33.8	31.2	29.7	30.9
	Pass/Proficient	52.2	54.7	56.4	55.3	58.3	56.7
	Pass/Advanced	9.0	13.0	9.8	13.5	12.0	12.4
Mathematics							
Total N		4,078	3,542	3,599	4,171	3,406	1,492
Race	Asian	7.4	7.2	6.2	4.4	4.2	3.2
	Black	22.0	21.9	23.2	25.5	24.2	27.8
	Hispanic	16.4	16.9	17.2	18.5	19.2	19.3
	Multi-Race	6.4	6.1	5.9	5.5	5.3	5.2
	Other	0.4	0.5	0.4	0.4	0.4	0.4
	White	47.3	47.4	47.2	45.7	46.8	44.1
Sex	Female	48.9	49.0	49.5	49.5	48.7	46.0
	Male	51.1	51.0	50.5	50.5	51.3	54.0
Performance Level [a]	*Fail/Below Basic* *Fail/Basic*	17.8	16.8	19.0	24.6	27.5	32.4
	Pass/Proficient	63.7	63.8	64.7	64.9	66.3	65.1
	Pass/Advanced	18.5	19.4	16.3	10.4	6.2	2.5

*The race categories reflect the Virginia SOL performance reports by term. As such, the categories for reading based on Spring 2021 data differ from those reported for mathematics based on Spring 2019 data.
[a] In Virginia's testing results, the percentage of students in *Below Basic* and *Basic* were reported as one category, *Fail*. Therefore, the aggregated percentages for the two lower levels were used as the target to weight the study sample.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and Virginia SOL test scores from Spring 2021 for reading and Spring 2019 for mathematics, including the correlation coefficients (*r*) between them. The coefficients between the scores range from 0.75 to 0.79 for reading and 0.78 to 0.85 for mathematics. These values indicate a high positive correlation among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the Virginia SOL assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	Virginia SOL				MAP Growth			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Reading										
3	3,021	0.78	419.6	60.8	239	600	197.5	15.6	146	238
4	2,700	0.79	428.8	66.0	130	600	205.2	15.8	144	239
5	2,833	0.79	424.2	59.9	244	600	212.2	15.2	146	256
6	2,633	0.77	430.6	63.2	176	600	215.7	16.0	149	253
7	2,654	0.75	432.6	59.2	150	600	220.4	15.4	156	266
8	2,610	0.76	431.9	59.7	202	600	223.0	16.7	156	261
Mathematics										
3	4,078	0.84	447.8	59.6	0	600	204.1	12.8	138	247
4	3,542	0.83	450.4	60.8	0	600	214.1	13.9	153	263
5	3,599	0.84	444.4	60.5	0	600	223.8	15.4	142	280
6	4,171	0.85	434.2	56.5	0	600	224.8	16.6	144	278
7	3,406	0.78	426.1	56.5	0	600	228.1	16.2	146	292
8	1,492	0.80	413.0	48.2	0	600	227.4	17.4	142	310

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the Virginia SOL scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. Bold numbers indicate the cut scores considered to be at least proficient for accountability purposes. These tables can be used to predict a student's likely performance level on the Virginia SOL spring assessment when MAP Growth is taken in the fall, winter, or spring. For example, a grade 3 student who obtained a MAP Growth reading RIT score of 186 in the fall is likely to achieve *Pass/Proficient* performance on the Virginia SOL reading test. A grade 3 student who obtained a MAP Growth reading RIT score of 191 in the winter is also likely to achieve *Pass/Proficient* performance on the Virginia SOL assessment. The winter cut score is higher than the fall cut score because growth is expected between fall and winter 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 most encountered for each term (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 they reflect the specific instructional weeks set by partners.

Table 3.5. MAP Growth Cut Scores—Reading

Virginia SOL Reading								
Grade	***Fail***				***Pass***			
	Below Basic		***Basic***		***Proficient***		***Advanced***	
3	0–309		310–399		**400**–499		500–600	
4	0–302		303–399		**400**–499		500–600	
5	0–294		295–399		**400**–499		500–600	
6	0–316		317–399		**400**–499		500–600	
7	0–314		315–399		**400**–499		500–600	
8	0–316		317–399		**400**–499		500–600	
MAP Growth Reading								
Grade	***Below Basic***		***Basic***		***Proficient***		***Advanced***	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–125	<1	126–171	1–54	**172**–199	55–95	200–350	96–99
3	100–148	1–2	149–185	3–52	**186**–209	53–91	210–350	92–99
4	100–158	≤1	159–194	2–47	**195**–217	48–88	218–350	89–99
5	100–159	<1	160–202	1–47	**203**–226	48–90	227–350	91–99
6	100–175	1–2	176–206	3–44	**207**–229	45–88	230–350	89–99
7	100–177	≤1	178–210	2–46	**211**–233	47–89	234–350	90–99
8	100–178	≤1	179–213	2–45	**214**–237	46–89	238–350	90–99
Winter								
2	100–133	<1	134–177	1–52	**178**–205	53–95	206–350	96–99
3	100–154	1–2	155–190	3–51	**191**–214	52–91	215–350	92–99
4	100–162	≤1	163–197	2–46	**198**–219	47–87	220–350	88–99
5	100–163	<1	164–205	1–48	**206**–227	49–89	228–350	90–99
6	100–178	1–2	179–207	3–43	**208**–230	44–88	231–350	89–99
7	100–179	≤1	180–212	2–47	**213**–234	48–89	235–350	90–99
8	100–180	≤1	181–214	2–45	**215**–238	46–89	239–350	90–99
Spring								
2	100–143	<1	144–182	1–52	**183**–207	53–93	208–350	94–99
3	100–162	1–3	163–194	4–52	**195**–215	53–88	216–350	89–99
4	100–169	1–3	170–200	4–47	**201**–220	48–85	221–350	86–99
5	100–170	<1	171–207	1–48	**208**–228	49–88	229–350	89–99
6	100–183	1–4	184–209	5–44	**210**–231	45–87	232–350	88–99
7	100–184	1–3	185–213	4–47	**214**–235	48–88	236–350	89–99
8	100–185	1–2	186–215	3–45	**216**–239	46–89	240–350	90–99

Table 3.6. MAP Growth Cut Scores—Mathematics

Virginia SOL Mathematics								
Grade	***Fail***				***Pass***			
	Below Basic		***Basic***		***Proficient***		***Advanced***	
3	0–330		331–399		**400**–499		500–600	
4	0–330		331–399		**400**–499		500–600	
5	0–335		336–399		**400**–499		500–600	
6	0–349		350–399		**400**–499		500–600	
7	0–328		329–399		**400**–499		500–600	
8	0–340		341–399		**400**–499		500–600	
MAP Growth Mathematics								
Grade	***Below Basic***		***Basic***		***Proficient***		***Advanced***	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–147	1–4	148–167	5–37	**168**–197	38–94	198–350	95–99
3	100–163	1–9	164–180	10–41	**181**–203	42–89	204–350	90–99
4	100–175	1–8	176–192	9–39	**193**–217	40–90	218–350	91–99
5	100–188	1–13	189–204	14–46	**205**–230	47–93	231–350	94–99
6	100–192	1–13	193–207	14–43	**208**–236	44–94	237–350	95–99
7	100–196	1–11	197–215	12–46	**216**–244	47–94	245–350	95–99
8	100–196	1–8	197–219	9–45	**220**–253	46–95	254–350	96–99
Winter								
2	100–155	1–4	156–175	5–36	**176**–205	37–93	206–350	94–99
3	100–171	1–9	172–188	10–40	**189**–213	41–89	214–350	90–99
4	100–182	1–9	183–199	10–39	**200**–225	40–89	226–350	90–99
5	100–192	1–13	193–210	14–47	**211**–237	48–92	238–350	93–99
6	100–196	1–13	197–213	14–44	**214**–243	45–94	244–350	95–99
7	100–198	1–11	199–219	12–47	**220**–249	48–93	250–350	94–99
8	100–199	1–8	200–223	9–45	**224**–258	46–95	259–350	96–99
Spring								
2	100–164	1–7	165–182	8–38	**183**–209	39–91	210–350	92–99
3	100–179	1–12	180–195	13–42	**196**–218	43–87	219–350	88–99
4	100–188	1–11	189–205	12–40	**206**–230	41–87	231–350	88–99
5	103–197	1–15	198–214	16–47	**215**–241	48–91	242–350	92–99
6	102–201	1–15	202–217	16–44	**218**–247	45–92	248–350	93–99
7	105–202	1–13	203–222	14–47	**223**–251	48–92	252–350	93–99
8	105–203	1–10	204–226	11–45	**227**–260	46–93	261–350	94–99

3.4. Classification Accuracy

Table 3.7 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 Virginia SOL tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rates range from 0.83 to 0.86 for reading and 0.85 to 0.91 for mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the Virginia SOL assessment.

Although the results show that MAP Growth scores can be used to predict student proficiency on the Virginia SOL tests with relatively high accuracy, there is a notable limitation to how these results should be used and interpreted. The Virginia SOL and MAP Growth assessments are designed for different purposes and measure slightly different constructs even within the same content area. Therefore, scores on the two tests cannot be assumed to be interchangeable. MAP Growth may not be used as a substitute for the state tests and vice versa.

Table 3.7. Classification Accuracy Results

Grade	N	Cut Score		Class. Accuracy	Rate		Sensitivity	Specificity	Precision	AUC
		MAP Growth	Virginia SOL		FP	FN				
Reading										
3	3,021	195	400	0.83	0.24	0.13	0.87	0.76	0.85	0.90
4	2,700	201	400	0.86	0.24	0.10	0.90	0.76	0.89	0.92
5	2,833	208	400	0.85	0.27	0.09	0.91	0.73	0.87	0.91
6	2,633	210	400	0.84	0.29	0.11	0.89	0.71	0.87	0.90
7	2,654	214	400	0.83	0.33	0.10	0.90	0.67	0.87	0.89
8	2,610	216	400	0.84	0.31	0.09	0.91	0.69	0.87	0.91
Mathematics										
3	4,078	194	400	0.90	0.28	0.06	0.94	0.72	0.94	0.94
4	3,542	202	400	0.91	0.29	0.05	0.95	0.71	0.94	0.95
5	3,599	213	400	0.90	0.20	0.07	0.93	0.80	0.95	0.95
6	4,171	215	400	0.89	0.26	0.06	0.94	0.74	0.92	0.94
7	3,406	221	400	0.87	0.25	0.09	0.91	0.75	0.91	0.93
8	1,492	223	400	0.85	0.20	0.12	0.88	0.80	0.90	0.92

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

3.5. Proficiency Projections

Table 3.8 and Table 3.9 present the estimated probability of achieving *Pass/Proficient* performance on the Virginia SOL test based on RIT scores from fall, winter, or spring. “Prob.” indicates the probability of obtaining proficiency on the Virginia SOL test in the spring. For example, a grade 3 student who obtained a MAP Growth reading score of 189 in the fall has a 63% chance of reaching *Pass/Proficient* or higher on the Virginia SOL test in the spring.

Table 3.8. Proficiency Projections Based on RIT Scores—Reading

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
2	5	183	142	No	<0.01	149	No	<0.01	153	No	<0.01
	10	183	148	No	0.01	155	No	0.01	159	No	<0.01
	15	183	152	No	0.03	159	No	0.02	164	No	<0.01
	20	183	156	No	0.07	162	No	0.05	167	No	<0.01
	25	183	159	No	0.11	165	No	0.07	170	No	<0.01
	30	183	161	No	0.16	168	No	0.14	173	No	<0.01
	35	183	163	No	0.22	170	No	0.2	175	No	0.01
	40	183	166	No	0.29	172	No	0.27	177	No	0.04
	45	183	168	No	0.37	175	No	0.36	180	No	0.2
	50	183	170	No	0.46	177	No	0.45	182	No	0.39
	55	183	172	Yes	0.5	179	Yes	0.55	184	Yes	0.61
	60	183	174	Yes	0.59	181	Yes	0.59	186	Yes	0.8
	65	183	177	Yes	0.71	183	Yes	0.68	188	Yes	0.92
	70	183	179	Yes	0.75	186	Yes	0.8	191	Yes	0.99
	75	183	182	Yes	0.84	188	Yes	0.86	193	Yes	>0.99
	80	183	184	Yes	0.89	191	Yes	0.91	196	Yes	>0.99
	85	183	188	Yes	0.94	194	Yes	0.95	200	Yes	>0.99
	90	183	192	Yes	0.98	199	Yes	0.98	204	Yes	>0.99
	95	183	198	Yes	0.99	205	Yes	>0.99	210	Yes	>0.99
3	5	195	155	No	<0.01	160	No	<0.01	164	No	<0.01
	10	195	161	No	0.01	167	No	<0.01	171	No	<0.01
	15	195	166	No	0.03	171	No	0.02	175	No	<0.01
	20	195	169	No	0.05	175	No	0.05	179	No	<0.01
	25	195	172	No	0.09	178	No	0.08	182	No	<0.01
	30	195	175	No	0.13	180	No	0.12	184	No	<0.01
	35	195	178	No	0.22	183	No	0.2	187	No	0.01
	40	195	180	No	0.29	185	No	0.24	189	No	0.04

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	45	195	182	No	0.33	188	No	0.36	192	No	0.2
	50	195	185	No	0.46	190	No	0.45	194	No	0.39
	55	195	187	Yes	0.54	192	Yes	0.55	196	Yes	0.61
	60	195	189	Yes	0.63	194	Yes	0.59	198	Yes	0.8
	65	195	192	Yes	0.71	197	Yes	0.73	201	Yes	0.96
	70	195	194	Yes	0.78	199	Yes	0.8	203	Yes	0.99
	75	195	197	Yes	0.84	202	Yes	0.88	206	Yes	>0.99
	80	195	200	Yes	0.91	205	Yes	0.92	209	Yes	>0.99
	85	195	204	Yes	0.95	209	Yes	0.97	213	Yes	>0.99
	90	195	208	Yes	0.98	213	Yes	0.99	217	Yes	>0.99
	95	195	215	Yes	>0.99	220	Yes	>0.99	224	Yes	>0.99
4	5	201	166	No	<0.01	170	No	<0.01	173	No	<0.01
	10	201	173	No	0.01	177	No	0.01	179	No	<0.01
	15	201	177	No	0.04	181	No	0.03	184	No	<0.01
	20	201	181	No	0.08	184	No	0.05	187	No	<0.01
	25	201	184	No	0.14	187	No	0.1	190	No	<0.01
	30	201	186	No	0.17	190	No	0.19	193	No	0.01
	35	201	189	No	0.28	193	No	0.27	195	No	0.04
	40	201	191	No	0.36	195	No	0.35	198	No	0.2
	45	201	194	No	0.45	197	No	0.45	200	No	0.39
	50	201	196	Yes	0.55	199	Yes	0.55	202	Yes	0.61
	55	201	198	Yes	0.64	202	Yes	0.65	204	Yes	0.8
	60	201	200	Yes	0.72	204	Yes	0.73	207	Yes	0.96
	65	201	203	Yes	0.8	206	Yes	0.81	209	Yes	0.99
	70	201	205	Yes	0.86	209	Yes	0.9	211	Yes	>0.99
	75	201	208	Yes	0.92	211	Yes	0.92	214	Yes	>0.99
	80	201	211	Yes	0.95	214	Yes	0.96	217	Yes	>0.99
	85	201	215	Yes	0.98	218	Yes	0.99	220	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	90	201	219	Yes	0.99	222	Yes	>0.99	225	Yes	>0.99
	95	201	226	Yes	>0.99	229	Yes	>0.99	231	Yes	>0.99
5	5	208	175	No	<0.01	178	No	<0.01	180	No	<0.01
	10	208	181	No	0.01	184	No	0.01	186	No	<0.01
	15	208	186	No	0.03	189	No	0.03	191	No	<0.01
	20	208	189	No	0.07	192	No	0.06	194	No	<0.01
	25	208	192	No	0.11	195	No	0.1	197	No	<0.01
	30	208	195	No	0.2	197	No	0.15	199	No	0.01
	35	208	197	No	0.27	200	No	0.26	202	No	0.04
	40	208	199	No	0.31	202	No	0.35	204	No	0.13
	45	208	201	No	0.4	204	No	0.4	206	No	0.28
	50	208	204	Yes	0.55	206	Yes	0.5	208	Yes	0.5
	55	208	206	Yes	0.6	209	Yes	0.65	211	Yes	0.8
	60	208	208	Yes	0.69	211	Yes	0.7	213	Yes	0.92
	65	208	210	Yes	0.77	213	Yes	0.78	215	Yes	0.98
	70	208	213	Yes	0.84	215	Yes	0.85	217	Yes	0.99
	75	208	215	Yes	0.89	218	Yes	0.92	220	Yes	>0.99
	80	208	218	Yes	0.94	221	Yes	0.96	223	Yes	>0.99
	85	208	222	Yes	0.97	224	Yes	0.99	226	Yes	>0.99
	90	208	226	Yes	0.99	228	Yes	>0.99	230	Yes	>0.99
	95	208	232	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99
6	5	210	181	No	<0.01	183	No	<0.01	185	No	<0.01
	10	210	187	No	0.02	189	No	0.02	191	No	<0.01
	15	210	191	No	0.06	193	No	0.04	195	No	<0.01
	20	210	195	No	0.11	197	No	0.1	198	No	<0.01
	25	210	198	No	0.2	199	No	0.16	201	No	0.01
	30	210	200	No	0.23	202	No	0.22	203	No	0.02
	35	210	202	No	0.31	204	No	0.31	206	No	0.13

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	40	210	205	No	0.45	206	No	0.4	208	No	0.28
	45	210	207	Yes	0.5	209	Yes	0.55	210	Yes	0.5
	50	210	209	Yes	0.6	211	Yes	0.6	212	Yes	0.72
	55	210	211	Yes	0.69	213	Yes	0.69	214	Yes	0.87
	60	210	213	Yes	0.77	215	Yes	0.78	216	Yes	0.96
	65	210	215	Yes	0.8	217	Yes	0.84	218	Yes	0.99
	70	210	218	Yes	0.89	219	Yes	0.9	221	Yes	>0.99
	75	210	220	Yes	0.93	222	Yes	0.95	223	Yes	>0.99
	80	210	223	Yes	0.97	225	Yes	0.98	226	Yes	>0.99
	85	210	226	Yes	0.99	228	Yes	0.99	229	Yes	>0.99
	90	210	231	Yes	>0.99	232	Yes	>0.99	233	Yes	>0.99
	95	210	237	Yes	>0.99	238	Yes	>0.99	239	Yes	>0.99
7	5	214	185	No	<0.01	186	No	<0.01	187	No	<0.01
	10	214	191	No	0.02	192	No	0.01	193	No	<0.01
	15	214	195	No	0.05	196	No	0.03	197	No	<0.01
	20	214	198	No	0.08	200	No	0.09	201	No	<0.01
	25	214	201	No	0.15	202	No	0.11	203	No	<0.01
	30	214	204	No	0.24	205	No	0.2	206	No	0.01
	35	214	206	No	0.28	207	No	0.27	208	No	0.04
	40	214	208	No	0.36	210	No	0.4	211	No	0.2
	45	214	210	No	0.45	212	No	0.45	213	No	0.39
	50	214	212	Yes	0.55	214	Yes	0.55	215	Yes	0.61
	55	214	214	Yes	0.59	216	Yes	0.64	217	Yes	0.8
	60	214	217	Yes	0.72	218	Yes	0.73	219	Yes	0.92
	65	214	219	Yes	0.79	220	Yes	0.8	221	Yes	0.98
	70	214	221	Yes	0.85	223	Yes	0.89	224	Yes	>0.99
	75	214	224	Yes	0.92	225	Yes	0.93	226	Yes	>0.99
	80	214	226	Yes	0.95	228	Yes	0.97	229	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	85	214	230	Yes	0.98	231	Yes	0.99	232	Yes	>0.99
	90	214	234	Yes	0.99	235	Yes	>0.99	237	Yes	>0.99
	95	214	240	Yes	>0.99	241	Yes	>0.99	243	Yes	>0.99
8	5	216	188	No	0.01	189	No	<0.01	190	No	<0.01
	10	216	194	No	0.03	195	No	0.02	196	No	<0.01
	15	216	198	No	0.07	199	No	0.05	200	No	<0.01
	20	216	201	No	0.11	203	No	0.12	203	No	<0.01
	25	216	204	No	0.18	205	No	0.14	206	No	<0.01
	30	216	207	No	0.25	208	No	0.24	209	No	0.02
	35	216	209	No	0.33	210	No	0.32	211	No	0.08
	40	216	211	No	0.41	213	No	0.41	213	No	0.2
	45	216	214	Yes	0.5	215	Yes	0.5	216	Yes	0.5
	50	216	216	Yes	0.59	217	Yes	0.59	218	Yes	0.72
	55	216	218	Yes	0.67	219	Yes	0.68	220	Yes	0.87
	60	216	220	Yes	0.75	221	Yes	0.76	222	Yes	0.96
	65	216	222	Yes	0.82	223	Yes	0.83	224	Yes	0.99
	70	216	225	Yes	0.89	226	Yes	0.9	227	Yes	>0.99
	75	216	227	Yes	0.93	228	Yes	0.94	229	Yes	>0.99
	80	216	230	Yes	0.96	231	Yes	0.97	232	Yes	>0.99
	85	216	233	Yes	0.98	235	Yes	0.99	236	Yes	>0.99
	90	216	238	Yes	>0.99	239	Yes	>0.99	240	Yes	>0.99
	95	216	244	Yes	>0.99	245	Yes	>0.99	246	Yes	>0.99

Table 3.9. Proficiency Projections Based on RIT Scores—Mathematics

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
2	5	183	147	No	0.01	155	No	0.01	161	No	<0.01
	10	183	153	No	0.06	161	No	0.03	167	No	<0.01
	15	183	157	No	0.11	165	No	0.09	171	No	<0.01
	20	183	160	No	0.2	168	No	0.18	174	No	0.01
	25	183	162	No	0.27	171	No	0.25	177	No	0.04
	30	183	165	No	0.36	173	No	0.35	179	No	0.13
	35	183	167	No	0.45	175	No	0.45	181	No	0.28
	40	183	169	Yes	0.55	177	Yes	0.55	183	Yes	0.5
	45	183	171	Yes	0.64	179	Yes	0.6	185	Yes	0.72
	50	183	173	Yes	0.73	181	Yes	0.7	187	Yes	0.87
	55	183	175	Yes	0.77	183	Yes	0.79	189	Yes	0.96
	60	183	177	Yes	0.84	185	Yes	0.86	192	Yes	0.99
	65	183	179	Yes	0.89	187	Yes	0.91	194	Yes	>0.99
	70	183	181	Yes	0.93	189	Yes	0.93	196	Yes	>0.99
	75	183	183	Yes	0.96	192	Yes	0.97	198	Yes	>0.99
	80	183	186	Yes	0.97	194	Yes	0.98	201	Yes	>0.99
	85	183	189	Yes	0.99	197	Yes	0.99	204	Yes	>0.99
	90	183	193	Yes	>0.99	201	Yes	>0.99	208	Yes	>0.99
	95	183	198	Yes	>0.99	207	Yes	>0.99	214	Yes	>0.99
3	5	196	158	No	<0.01	166	No	<0.01	171	No	<0.01
	10	196	164	No	0.02	172	No	0.01	177	No	<0.01
	15	196	168	No	0.05	176	No	0.04	181	No	<0.01
	20	196	171	No	0.1	179	No	0.08	185	No	<0.01
	25	196	174	No	0.19	182	No	0.17	188	No	0.01
	30	196	176	No	0.26	184	No	0.24	190	No	0.04
	35	196	178	No	0.35	186	No	0.34	193	No	0.2
	40	196	180	No	0.45	189	Yes	0.5	195	No	0.39

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	45	196	182	Yes	0.55	191	Yes	0.61	197	Yes	0.61
	50	196	184	Yes	0.65	193	Yes	0.66	199	Yes	0.8
	55	196	186	Yes	0.74	195	Yes	0.76	201	Yes	0.92
	60	196	188	Yes	0.81	197	Yes	0.83	203	Yes	0.98
	65	196	190	Yes	0.87	199	Yes	0.89	206	Yes	>0.99
	70	196	192	Yes	0.92	201	Yes	0.94	208	Yes	>0.99
	75	196	195	Yes	0.96	204	Yes	0.97	211	Yes	>0.99
	80	196	197	Yes	0.98	206	Yes	0.99	213	Yes	>0.99
	85	196	200	Yes	0.99	210	Yes	>0.99	217	Yes	>0.99
	90	196	204	Yes	>0.99	214	Yes	>0.99	221	Yes	>0.99
	95	196	210	Yes	>0.99	220	Yes	>0.99	227	Yes	>0.99
4	5	206	171	No	<0.01	176	No	<0.01	180	No	<0.01
	10	206	177	No	0.02	183	No	0.01	187	No	<0.01
	15	206	181	No	0.07	187	No	0.03	191	No	<0.01
	20	206	184	No	0.13	190	No	0.08	195	No	<0.01
	25	206	186	No	0.19	193	No	0.16	198	No	0.01
	30	206	189	No	0.31	196	No	0.28	201	No	0.08
	35	206	191	No	0.4	198	No	0.39	203	No	0.2
	40	206	193	Yes	0.5	200	Yes	0.5	206	Yes	0.5
	45	206	195	Yes	0.6	202	Yes	0.61	208	Yes	0.72
	50	206	197	Yes	0.69	204	Yes	0.72	210	Yes	0.87
	55	206	199	Yes	0.77	207	Yes	0.84	212	Yes	0.96
	60	206	201	Yes	0.84	209	Yes	0.87	215	Yes	0.99
	65	206	203	Yes	0.89	211	Yes	0.92	217	Yes	>0.99
	70	206	205	Yes	0.93	213	Yes	0.96	220	Yes	>0.99
	75	206	208	Yes	0.97	216	Yes	0.98	222	Yes	>0.99
	80	206	210	Yes	0.98	219	Yes	0.99	225	Yes	>0.99
	85	206	214	Yes	>0.99	222	Yes	>0.99	229	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	90	206	217	Yes	>0.99	226	Yes	>0.99	233	Yes	>0.99
	95	206	223	Yes	>0.99	232	Yes	>0.99	240	Yes	>0.99
5	5	215	180	No	<0.01	183	No	<0.01	186	No	<0.01
	10	215	185	No	<0.01	189	No	<0.01	192	No	<0.01
	15	215	189	No	0.01	194	No	0.01	197	No	<0.01
	20	215	193	No	0.05	197	No	0.02	200	No	<0.01
	25	215	195	No	0.08	200	No	0.06	204	No	<0.01
	30	215	198	No	0.19	203	No	0.13	206	No	0.01
	35	215	200	No	0.26	205	No	0.2	209	No	0.04
	40	215	202	No	0.35	207	No	0.28	211	No	0.13
	45	215	204	No	0.45	210	No	0.44	214	No	0.39
	50	215	206	Yes	0.55	212	Yes	0.56	216	Yes	0.61
	55	215	208	Yes	0.65	214	Yes	0.67	218	Yes	0.8
	60	215	210	Yes	0.74	216	Yes	0.76	221	Yes	0.96
	65	215	212	Yes	0.81	219	Yes	0.87	223	Yes	0.99
	70	215	215	Yes	0.9	221	Yes	0.92	226	Yes	>0.99
	75	215	217	Yes	0.94	224	Yes	0.97	228	Yes	>0.99
	80	215	220	Yes	0.97	226	Yes	0.98	232	Yes	>0.99
	85	215	223	Yes	0.99	230	Yes	>0.99	235	Yes	>0.99
	90	215	227	Yes	>0.99	234	Yes	>0.99	240	Yes	>0.99
	95	215	233	Yes	>0.99	240	Yes	>0.99	246	Yes	>0.99
6	5	218	184	No	<0.01	187	No	<0.01	190	No	<0.01
	10	218	190	No	0.01	194	No	<0.01	197	No	<0.01
	15	218	194	No	0.03	198	No	0.02	201	No	<0.01
	20	218	197	No	0.09	201	No	0.05	205	No	<0.01
	25	218	199	No	0.13	204	No	0.11	208	No	<0.01
	30	218	202	No	0.23	207	No	0.21	211	No	0.02
	35	218	204	No	0.31	209	No	0.25	213	No	0.08

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	40	218	206	No	0.4	212	No	0.39	216	No	0.28
	45	218	208	Yes	0.5	214	Yes	0.5	218	Yes	0.5
	50	218	210	Yes	0.6	216	Yes	0.61	220	Yes	0.72
	55	218	212	Yes	0.69	218	Yes	0.71	223	Yes	0.92
	60	218	214	Yes	0.77	220	Yes	0.79	225	Yes	0.98
	65	218	216	Yes	0.84	223	Yes	0.89	227	Yes	0.99
	70	218	219	Yes	0.91	225	Yes	0.93	230	Yes	>0.99
	75	218	221	Yes	0.96	228	Yes	0.97	233	Yes	>0.99
	80	218	224	Yes	0.98	231	Yes	0.99	236	Yes	>0.99
	85	218	227	Yes	0.99	234	Yes	>0.99	239	Yes	>0.99
	90	218	231	Yes	>0.99	238	Yes	>0.99	244	Yes	>0.99
	95	218	237	Yes	>0.99	245	Yes	>0.99	251	Yes	>0.99
7	5	223	189	No	<0.01	191	No	<0.01	192	No	<0.01
	10	223	195	No	<0.01	197	No	<0.01	199	No	<0.01
	15	223	199	No	0.01	202	No	0.01	204	No	<0.01
	20	223	203	No	0.04	206	No	0.03	208	No	<0.01
	25	223	206	No	0.11	209	No	0.07	211	No	<0.01
	30	223	208	No	0.17	211	No	0.12	214	No	0.01
	35	223	211	No	0.27	214	No	0.22	216	No	0.02
	40	223	213	No	0.36	216	No	0.3	219	No	0.13
	45	223	215	No	0.45	219	No	0.45	221	No	0.28
	50	223	217	Yes	0.55	221	Yes	0.55	224	Yes	0.61
	55	223	219	Yes	0.64	223	Yes	0.65	226	Yes	0.8
	60	223	222	Yes	0.77	226	Yes	0.78	229	Yes	0.96
	65	223	224	Yes	0.83	228	Yes	0.85	231	Yes	0.99
	70	223	226	Yes	0.89	231	Yes	0.9	234	Yes	>0.99
	75	223	229	Yes	0.94	233	Yes	0.94	237	Yes	>0.99
	80	223	232	Yes	0.97	236	Yes	0.98	240	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Pass/Proficient	Prob.		*Pass/Proficient*	Prob.		*Pass/Proficient*	Prob.
	85	223	235	Yes	0.99	240	Yes	0.99	244	Yes	>0.99
	90	223	239	Yes	>0.99	245	Yes	>0.99	249	Yes	>0.99
	95	223	246	Yes	>0.99	251	Yes	>0.99	256	Yes	>0.99
8	5	227	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	227	199	No	0.01	201	No	<0.01	203	No	<0.01
	15	227	203	No	0.03	206	No	0.02	208	No	<0.01
	20	227	207	No	0.07	210	No	0.05	212	No	<0.01
	25	227	210	No	0.13	213	No	0.08	215	No	<0.01
	30	227	212	No	0.18	216	No	0.16	218	No	0.01
	35	227	215	No	0.28	219	No	0.26	221	No	0.04
	40	227	217	No	0.37	221	No	0.35	224	No	0.2
	45	227	220	Yes	0.5	224	Yes	0.5	226	No	0.39
	50	227	222	Yes	0.59	226	Yes	0.6	229	Yes	0.72
	55	227	224	Yes	0.68	228	Yes	0.69	231	Yes	0.87
	60	227	227	Yes	0.79	231	Yes	0.81	234	Yes	0.98
	65	227	229	Yes	0.85	233	Yes	0.87	237	Yes	>0.99
	70	227	232	Yes	0.92	236	Yes	0.93	239	Yes	>0.99
	75	227	234	Yes	0.95	239	Yes	0.96	242	Yes	>0.99
	80	227	237	Yes	0.97	242	Yes	0.98	246	Yes	>0.99
	85	227	241	Yes	0.99	246	Yes	>0.99	250	Yes	>0.99
	90	227	246	Yes	>0.99	251	Yes	>0.99	255	Yes	>0.99
	95	227	252	Yes	>0.99	258	Yes	>0.99	262	Yes	>0.99

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