

# **Predicting Proficiency on the South Carolina College- and Career-Ready Assessment (SC READY) based on NWEA MAP Growth Scores**

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NWEA Psychometric Solutions

## Linking Study Updates

Date	Description
2016-12	Initial linking study conducted for South Carolina in Mathematics & ELA/Reading in Grades 3–8 using Spring 2015 data.
2018-02-07	Updated results for Mathematics & ELA/Reading in Grades 3–8 using Spring 2017 data.
2020-07-23	Incorporated the 2020 MAP Growth norms using Spring 2020 data for Mathematics & ELA/Reading in Grades 3–8.
2023-04-20	Updated results for Mathematics & ELA/Reading in Grades 3–8 using Spring 2022 data.

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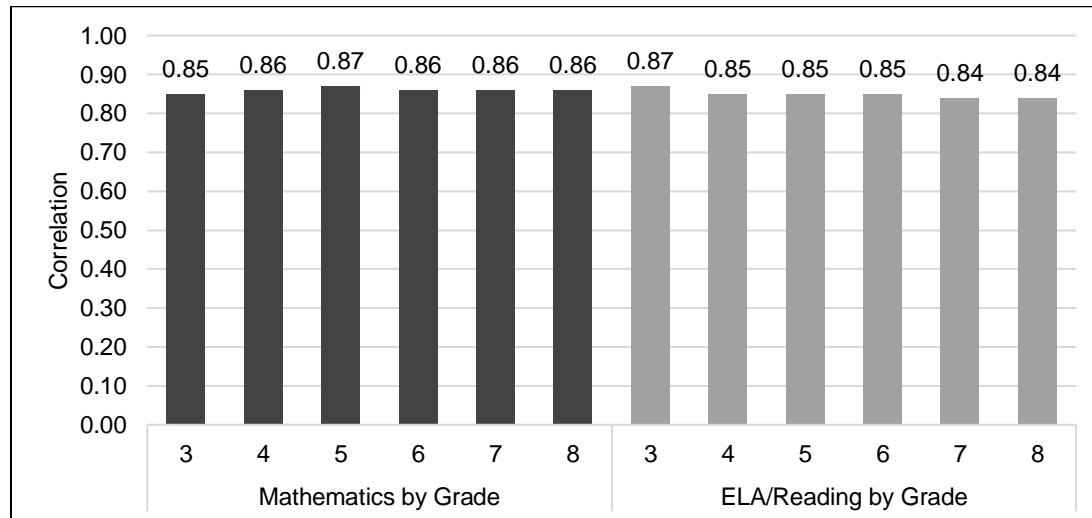
## Executive Summary

Linking studies allow partners to use MAP® Growth™ Rasch Unit (RIT) scores throughout the year to predict their students' likely performance levels on the state summative assessment. This is accomplished through statistical analyses that produce RIT cut scores that correspond to the 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 South Carolina College- and Career-Ready Assessment (SC READY) described in this report provides RIT cut scores for the fall, winter, and spring MAP Growth administrations that correspond to the SC READY performance levels for Mathematics and English Language Arts (ELA) in Grades 3–8.

The linking study is based on test scores from students in Grades 3–8 who took both the MAP Growth and SC READY assessments in Mathematics and ELA/Reading in Spring 2022. The linking study sample included 80,475 students across 23 districts and 253 schools in South Carolina. Scores from both tests were used as the basis for linking the assessments together.

Before the linking analyses began, NWEA confirmed that the MAP Growth and SC READY assessments are aligned on the same or similar set of content standards to warrant a connection. The link between the two tests was further investigated by calculating the Pearson correlation coefficients that relate the relationship between the specific MAP Growth and SC READY test scores. At NWEA, we consider a correlation of  $r \geq 0.70$  as “high” correlation and acceptable for publishing. This indicates that students who perform well on one assessment also tend to perform well on the other, and vice versa. A perfect positive correlation is 1.00. The correlations between the MAP Growth and SC READY test scores from Spring 2022, shown below, are consistent with our expectations that MAP Growth is a good assessment for predicting performance on the SC READY.

**Figure E.1. Correlations between MAP Growth and SC READY Test Scores**



The equipercentile linking method and the 2020 MAP Growth norms (Thum & Kuhfeld, 2020) were then used to produce the RIT cut scores that correlate to performance on the SC READY assessment for every subject and grade. While RIT cut scores were generated for every performance level on the SC READY assessment, Table E.1 presents the *Meets Expectations* cut scores that indicate the minimum score a student must get to be considered proficient (reaching *Meets Expectations* or higher).

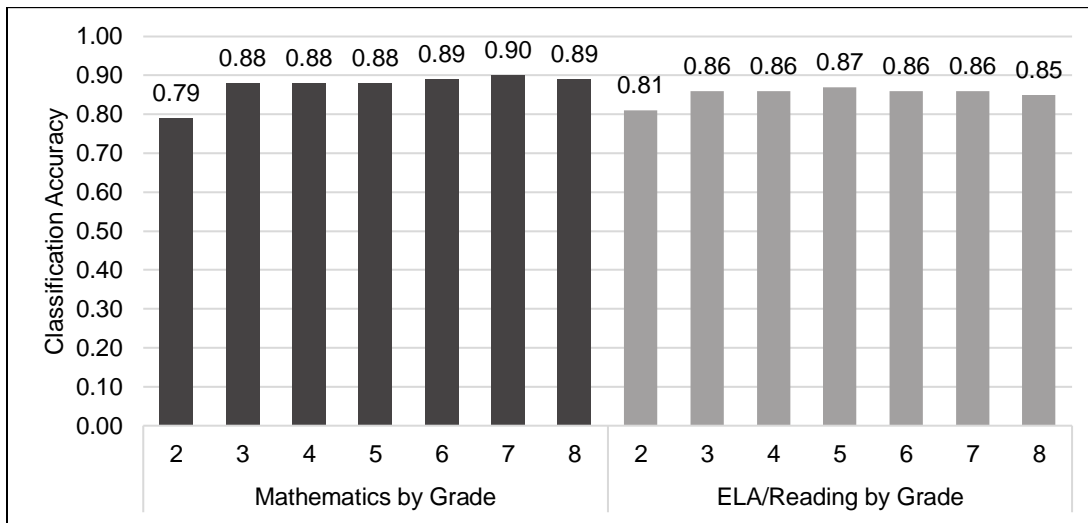
**Table E.1. MAP Growth RIT Cut Scores for SC READY Proficiency**

Assessment		<i>Meets Expectations</i> Cut Scores by Grade						
		2	3	4	5	6	7	8
<b>Mathematics</b>								
SC READY Spring		–	438	482	536	543	578	615
MAP Growth Mathematics	Fall	172	186	200	210	216	225	232
	Winter	182	194	207	216	221	229	235
	Spring	187	199	211	220	224	232	237
<b>ELA/Reading</b>								
SC READY Spring		–	452	509	558	576	615	643
MAP Growth Reading	Fall	175	189	198	208	212	217	221
	Winter	184	196	204	212	216	220	223
	Spring	188	199	206	214	217	221	224

Educators can use these cut scores to determine whether students are on track for proficiency on the state assessment. For example, the *Meets Expectations* cut score on the Grade 3 SC READY Mathematics test is 438. A Grade 3 student with a MAP Growth Mathematics RIT score of 186 in the fall is likely to meet expectations on the SC READY Mathematics test in the spring, whereas a Grade 3 student with a RIT score lower than 186 in the fall is in jeopardy of not meeting expectations. MAP Growth cut scores for Grade 2 are also provided so educators can track early learners' progress toward proficiency on the SC READY assessment by Grade 3.

As further evidence that MAP Growth scores can be used to predict students' proficiency on the state test, NWEA calculated classification accuracy statistics that show how well the RIT scores correctly classified, or predicted, students as proficient on the SC READY tests. For example, the Grade 3 MAP Growth Mathematics *Meets Expectations* cut score has a 0.88 accuracy rate, meaning it accurately predicted student achievement on the state test for 88% of the sample. A high statistic indicates high accuracy. Overall, MAP Growth scores have a high accuracy rate of identifying student proficiency on the SC READY tests, as illustrated below.

**Figure E.2. Accuracy of MAP Growth Classifications**



**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 assessment. The cut scores 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), 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 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 document presents results from a linking study conducted by NWEA to statistically connect Rasch Unit (RIT) scores from the MAP Growth assessments with scores from the South Carolina Career- and College-Ready Assessment (SC READY) for Mathematics and English Language Arts (ELA)/Reading in Grades 3–8 taken during the Spring 2022 term.<sup>1</sup> MAP Growth cut scores are also included for Grade 2 so educators can track early learners' progress toward proficiency on the SC READY test 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 SC READY assessment
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the SC READY tests
5. The probability of achieving grade-level proficiency on the SC READY assessment based on MAP Growth RIT scores from fall, winter, and spring

The linking study has been updated since the previous version published in July 2020.

## 1.2. Assessment Overview

The SC READY Grades 3–8 Mathematics and ELA/Reading tests are South Carolina's state summative assessments aligned to the South Carolina College- and Career-Ready Standards. Based on their test scores, students are placed into one of four performance levels: *Does Not Meet Expectations*, *Approaches Expectations*, *Meets Expectations*, and *Exceeds Expectations*. The *Meets Expectations* cut score demarks the minimum level of achievement considered to be proficient for accountability purposes.

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. NWEA conducts norming studies of student and school performance on MAP Growth assessments to aid the interpretation of scores. Growth norms provide expected score gains for a test from term to term, such as from fall to spring terms. The most recent norms study was conducted in 2020 (Thum & Kuhfeld, 2020).

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<sup>1</sup> This study provides MAP Growth cut scores that predict proficiency on the SC READY for Grades 2–8 only. They represent a higher level of achievement than universal screening cut scores designed to identify students with the most severe learning difficulties who may need intensive intervention. MAP Growth universal screening cut scores for Grades K–8 in Reading and Mathematics are available in a separate report (He & Meyer, 2021).

## 2. Methods

### 2.1. Data Collection

This linking study is based on data from the Spring 2022 administrations of the MAP Growth and SC READY assessments. NWEA recruited South Carolina districts to participate in the study by sharing their student and score data for the target term. Districts also gave NWEA permission to use their students' MAP Growth scores from the NWEA in-house database. Once state score information was received by 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 SC READY assessments in Spring 2022 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 on the key demographics and performance characteristics as 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. Trim the weights that are outside the range of 0.3 to 3.0.
4. 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 SC READY assessments, 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 SC READY 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 SC READY test that references some other scale in the same subject?" The correlations were calculated as follows:

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}} \quad (1)$$

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 SC READY assessment are reported for Grades 3–8, as well as for Grade 2 so educators can track early learners' progress toward proficiency on the SC READY test by Grade 3. Percentile ranks based on the 2020 NWEA norms are also provided. These are useful for understanding how students' scores compare to 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 SC READY 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., SC READY). 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 in Equation 2:

$$e_y(x) = G^{-1}[P(x)] \quad (2)$$

where  $e_y(x)$  is the equipercentile equivalent of score  $x$  on SC READY on the scale of MAP Growth,  $P(x)$  is the percentile rank of a given score on SC READY, 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. Equation 3 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:

$$RIT_{PredSpring} = RIT_{previous} + g \quad (3)$$

where:

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

Students do not take the SC READY assessment in Grade 2. Therefore, the MAP Growth conditional growth norms were also used to estimate the fall, winter, and spring cuts in Grade 2 that are needed to meet SC READY proficiency in Grade 3. To derive the Grade 2 spring cut scores, 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 estimations of fall and winter cuts followed the same process as above for Grades 3–8. For example, the projected growth from fall to spring in Grade 2 was used to calculate the fall cuts for Grade 2.

## 2.5. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the SC READY 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 SC READY test. The classification accuracy statistics for Grade 2 were calculated by obtaining current Grade 3 students' MAP Growth scores from the previous year. Thus, the classification accuracy statistics for Grade 2 represent how well these estimated RIT cuts predict proficiency in the SC READY assessments in Grades 3 for our study sample. 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 not-proficient students identified by MAP Growth in those observed as proficient on the state test
False Positive (FP) Rate	$FP / (FP + TN)$	Proportion of proficient students identified by MAP Growth in those observed as not proficient on the state test
Sensitivity	$TP / (TP + FN)$	Proportion of proficient students identified by MAP Growth in those observed as such on the state test
Specificity	$TN / (TN + FP)$	Proportion of not-proficient students identified by MAP Growth in those observed as such on the state test
Precision	$TP / (TP + FP)$	Proportion of observed proficient students 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.

\*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 *Meets Expectations* RIT cut does not guarantee that the student is proficient at the state test. Instead, we can claim that a student with 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 SC READY test in the spring based on a student's RIT scores from fall and winter (see Equation 4).

$$Pr(\text{Achieving Meets Expectations in spring} | \text{starting RIT}) = \Phi \left( \frac{RIT_{\text{previous} + g} - RIT_{\text{SpringCut}}}{SD} \right) \quad (4)$$

where:

- $\Phi$  is the standard normal cumulative distribution function.
- $RIT_{previous}$  is the student's RIT score in fall or winter (or in spring of Grade 2).
- $g$  is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT.
- $RIT_{SpringCut}$  is the MAP Growth *Meets Expectations* cut score for spring. For Grade 2, this is the Grade 3 cut score for spring.
- $SD$  is the conditional standard deviation of the expected growth,  $g$ .

Equation 5 was used to estimate the probability of a student achieving *Meets Expectations* performance on the SC READY test based on their spring RIT score ( $RIT_{Spring}$ ):

$$Pr(\text{Achieving Meets Expectations in spring} \mid \text{spring RIT}) = \Phi\left(\frac{RIT_{Spring} - RIT_{SpringCut}}{SE}\right) \quad (5)$$

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 SC READY assessments in Spring 2022 for the target subjects were included in the sample. Data were collected from 23 districts and 253 schools in South Carolina. Table 3.1 presents the distributions of student 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 SC READY tests. Since the original study sample is different from the target SC READY population, post-stratification weights were applied. Table 3.3 presents the demographic distributions of the final analytic sample after weighting, which are almost identical to the SC READY student population distributions.

**Table 3.1. Linking Study Sample Demographics (Unweighted)**

Linking Study Sample (Unweighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>Mathematics</b>							
Total N		12,784	12,733	12,810	12,955	13,341	13,191
Race*	AIAN	0.4	0.4	0.4	0.4	0.6	0.4
	Asian/NHPI	1.4	1.5	1.1	1.4	1.3	1.3
	Black	28.6	28.5	28.3	28.8	28.6	29.8
	Hispanic	3.9	3.9	4.2	4.1	4.4	4.4
	Two or More	6.8	6.6	6.9	6.7	5.9	5.7
	White	58.9	59.2	59.1	58.6	59.2	58.4
Sex	Female	49.0	48.8	48.7	49.1	49.1	49.5
	Male	51.0	51.2	51.3	50.9	50.9	50.5
Performance Level	<i>Does Not Meet</i>	26.0	27.8	29.2	34.1	34.7	39.3
	<i>Approaches</i>	23.6	29.2	28.3	30.9	33.9	30.0
	<i>Meets</i>	27.5	20.1	24.2	19.4	15.4	15.1
	<i>Exceeds</i>	23.0	22.9	18.3	15.6	16.0	15.6
<b>ELA/Reading</b>							
Total N		14,157	12,310	12,360	12,439	12,806	12,881
Race*	AIAN	0.4	0.4	0.3	0.4	0.6	0.4
	Asian/NHPI	1.5	1.5	1.0	1.4	1.3	1.4
	Black	31.4	27.4	27.2	27.5	27.4	28.2
	Hispanic	5.2	3.9	4.4	4.1	4.4	4.3
	Two or More	6.8	6.7	6.9	6.7	6.1	5.9
	White	54.7	60.1	60.2	59.8	60.2	59.8
Sex	Female	49.0	48.7	48.5	48.8	48.7	49.1
	Male	51.0	51.3	51.5	51.2	51.3	50.9
Performance Level	<i>Does Not Meet</i>	28.9	28.5	22.7	24.0	27.4	28.4
	<i>Approaches</i>	24.0	22.0	29.8	32.9	30.0	26.0
	<i>Meets</i>	23.6	20.6	28.1	24.9	23.1	28.3
	<i>Exceeds</i>	23.6	28.9	19.5	18.2	19.5	17.3

\*AIAN = American Indian or Alaska Native. NHPI = Native Hawaiian or Other Pacific Islander.

**Table 3.2. Spring 2022 SC READY Student Population Demographics**

Spring 2022 SC READY Student Population							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>Mathematics</b>							
Total N		55,896	56,404	57,066	57,662	60,155	60,987
Race*	AIAN	0.3	0.3	0.2	0.3	0.3	0.3
	Asian/NHPI	2.0	2.0	1.8	1.8	1.8	1.8
	Black	31.2	31.4	31.6	32.4	32.4	33.2
	Hispanic	12.1	12.3	12.3	12.6	12.0	12.3
	Two or More	6.1	5.9	5.7	5.4	5.3	4.8
	White	48.3	48.1	48.3	47.5	48.3	47.7
Sex	Female	49.1	49.2	48.8	49.1	49.4	49.3
	Male	50.9	50.8	51.2	50.9	50.6	50.7
Performance Level	<i>Does Not Meet</i>	26.8	28.7	29.5	33.8	35.8	40.8
	<i>Approaches</i>	22.2	27.9	27.2	30.5	33.3	29.0
	<i>Meets</i>	26.6	19.6	23.6	19.3	15.3	14.1
	<i>Exceeds</i>	24.4	23.7	19.7	16.5	15.5	16.0
<b>ELA</b>							
Total N		55,905	56,397	57,065	57,566	60,109	60,920
Race*	AIAN	0.3	0.3	0.2	0.3	0.3	0.3
	Asian/NHPI	2.0	2.0	1.8	1.8	1.8	1.8
	Black	31.2	31.4	31.6	32.3	32.3	33.1
	Hispanic	12.1	12.3	12.3	12.6	12.0	12.3
	Two or More	6.1	5.9	5.7	5.4	5.3	4.9
	White	48.3	48.2	48.3	47.6	48.4	47.7
Sex	Female	49.1	49.3	48.8	49.1	49.4	49.3
	Male	50.9	50.7	51.2	50.9	50.6	50.7
Performance Level	<i>Does Not Meet</i>	29.0	28.0	22.1	23.1	26.9	27.2
	<i>Approaches</i>	23.0	21.6	29.7	31.9	29.8	26.9
	<i>Meets</i>	23.6	19.8	27.9	25.4	23.1	29.2
	<i>Exceeds</i>	24.4	30.6	20.4	19.7	20.1	16.7

\*AIAN = American Indian or Alaska Native. NHPI = Native Hawaiian or Other Pacific Islander.

**Table 3.3. Linking Study Sample Demographics (Weighted)**

Linking Study Sample (Weighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>Mathematics</b>							
Total N		12,784	12,720	12,810	12,968	13,328	13,178
Race*	AIAN	0.3	0.3	0.2	0.3	0.3	0.3
	Asian/NHPI	2.0	2.0	1.8	1.8	1.8	1.8
	Black	31.2	31.4	31.6	32.4	32.4	33.2
	Hispanic	12.1	12.3	12.3	12.6	12.0	12.3
	Two or More	6.1	5.9	5.7	5.4	5.3	4.8
	White	48.3	48.1	48.3	47.5	48.3	47.7
Sex	Female	49.1	49.2	48.8	49.1	49.4	49.3
	Male	50.9	50.8	51.2	50.9	50.6	50.7
Performance Level	<i>Does Not Meet</i>	26.8	28.7	29.5	33.8	35.8	40.8
	<i>Approaches</i>	22.2	27.9	27.2	30.5	33.3	29.0
	<i>Meets</i>	26.6	19.6	23.6	19.3	15.3	14.1
	<i>Exceeds</i>	24.4	23.7	19.7	16.5	15.5	16.0
<b>ELA/Reading</b>							
Total N		14,157	12,310	12,372	12,451	12,793	12,881
Race*	AIAN	0.3	0.3	0.2	0.3	0.3	0.3
	Asian/NHPI	2.0	2.0	1.8	1.8	1.8	1.8
	Black	31.2	31.4	31.6	32.3	32.3	33.1
	Hispanic	12.1	12.3	12.3	12.6	12.0	12.3
	Two or More	6.1	5.9	5.7	5.4	5.3	4.9
	White	48.3	48.2	48.3	47.6	48.4	47.7
Sex	Female	49.1	49.3	48.8	49.1	49.4	49.3
	Male	50.9	50.7	51.2	50.9	50.6	50.7
Performance Level	<i>Does Not Meet</i>	29.0	28.0	22.1	23.1	26.9	27.2
	<i>Approaches</i>	23.0	21.6	29.7	31.9	29.8	26.9
	<i>Meets</i>	23.6	19.8	27.9	25.4	23.1	29.2
	<i>Exceeds</i>	24.4	30.6	20.4	19.7	20.1	16.7

\*AIAN = American Indian or Alaska Native. NHPI = Native Hawaiian or Other Pacific Islander.

### 3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and SC READY test scores from Spring 2022, including the correlation coefficient ( $r$ ) between them. The correlations between the scores range from 0.85 to 0.87 for Mathematics and 0.84 to 0.87 for ELA/Reading. 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 SC READY assessments.

**Table 3.4. Descriptive Statistics of Test Scores**

Grade	N	r	SC READY*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
<b>Mathematics</b>										
3	12,784	0.85	451.5	120.0	100	825	198.5	15.0	131	273
4	12,720	0.86	477.7	112.5	214	850	207.8	16.1	133	267
5	12,810	0.87	525.1	113.8	120	875	215.4	17.5	144	282
6	12,968	0.86	518.1	109.5	128	900	217.3	16.8	154	284
7	13,328	0.86	542.2	103.7	147	925	222.5	18.1	156	292
8	13,178	0.86	572.1	108.8	280	950	226.3	19.3	158	295
<b>ELA/Reading</b>										
3	14,157	0.87	442.2	124.9	100	825	195.9	17.5	143	239
4	12,310	0.85	509.7	124.2	186	850	204.2	16.6	146	249
5	12,372	0.85	547.5	111.1	227	875	210.2	16.1	146	266
6	12,451	0.85	555.8	117.5	128	900	212.8	16.0	156	260
7	12,793	0.84	595.3	117.5	315	925	216.3	16.4	153	266
8	12,881	0.84	620.5	116.9	215	950	219.7	16.5	159	269

\*SD = standard deviation. Min. = minimum. Max. = maximum.

### 3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the SC READY scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. Bolded numbers highlight the cut scores considered to be proficient for accountability purposes. These tables can be used to predict a student’s likely performance level on the SC READY spring assessment when MAP Growth is taken in the fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Mathematics RIT score of 186 in the fall is likely to achieve *Meets Expectations* performance on the SC READY Mathematics test. The same is true for a Grade 3 student who obtained a MAP Growth Mathematics RIT score of 199 in the spring. The spring cut score is higher than the fall cut score because of expected growth during the school year as students receive more instruction.

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—Mathematics**

<b>SC READY Mathematics</b>									
<b>Grade</b>	<b>Does Not Meet</b>		<b>Approaches</b>		<b>Meets</b>		<b>Exceeds</b>		
3	100–359		360–437		<b>438–543</b>		544–825		
4	100–401		402–481		<b>482–562</b>		563–850		
5	100–447		448–535		<b>536–621</b>		622–875		
6	100–453		454–542		<b>543–627</b>		628–900		
7	100–487		488–577		<b>578–649</b>		650–925		
8	100–526		527–614		<b>615–683</b>		684–950		
<b>MAP Growth Mathematics</b>									
<b>Grade</b>	<b>Does Not Meet</b>		<b>Approaches</b>		<b>Meets</b>		<b>Exceeds</b>		
	<b>RIT</b>	<b>Percentile</b>	<b>RIT</b>	<b>Percentile</b>	<b>RIT</b>	<b>Percentile</b>	<b>RIT</b>	<b>Percentile</b>	
<b>Fall</b>									
2	100–158	1–10	159–171	11–40	<b>172–186</b>	41–81	187–350	82–99	
3	100–174	1–15	175–185	16–42	<b>186–198</b>	43–77	199–350	78–99	
4	100–187	1–20	188–199	21–50	<b>200–209</b>	51–76	210–350	77–99	
5	100–195	1–18	196–209	19–51	<b>210–220</b>	52–77	221–350	78–99	
6	100–200	1–19	201–215	20–52	<b>216–226</b>	53–77	227–350	78–99	
7	100–207	1–23	208–224	24–60	<b>225–235</b>	61–81	236–350	82–99	
8	100–213	1–27	214–231	28–64	<b>232–241</b>	65–81	242–350	82–99	
<b>Winter</b>									
2	100–168	1–11	169–181	12–43	<b>182–194</b>	44–79	195–350	80–99	
3	100–182	1–16	183–193	17–43	<b>194–205</b>	44–75	206–350	76–99	
4	100–193	1–20	194–206	21–52	<b>207–216</b>	53–76	217–350	77–99	
5	100–200	1–18	201–215	19–52	<b>216–226</b>	53–77	227–350	78–99	
6	100–205	1–20	206–220	21–52	<b>221–231</b>	53–76	232–350	77–99	
7	100–210	1–22	211–228	23–60	<b>229–239</b>	61–80	240–350	81–99	
8	100–217	1–29	218–234	30–63	<b>235–244</b>	64–80	245–350	81–99	
<b>Spring</b>									
2	100–174	1–13	175–186	14–42	<b>187–199</b>	43–77	200–350	78–99	
3	100–187	1–17	188–198	18–43	<b>199–210</b>	44–75	211–350	76–99	
4	100–198	1–22	199–210	23–50	<b>211–220</b>	51–74	221–350	75–99	
5	100–204	1–20	205–219	21–52	<b>220–230</b>	53–76	231–350	77–99	
6	100–208	1–20	209–223	21–52	<b>224–234</b>	53–75	235–350	76–99	
7	100–213	1–24	214–231	25–60	<b>232–242</b>	61–80	243–350	81–99	
8	100–219	1–29	220–236	30–62	<b>237–246</b>	63–79	247–350	80–99	



**Table 3.6. MAP Growth Cut Scores—ELA/Reading**

SC READY ELA									
Grade	Does Not Meet		Approaches		Meets		Exceeds		
3	100–358		359–451		452–539		540–825		
4	100–418		419–508		509–592		593–850		
5	100–449		450–557		558–652		653–875		
6	100–454		455–575		576–667		668–900		
7	100–511		512–614		615–704		705–925		
8	100–537		538–642		643–737		738–950		
MAP Growth Reading									
Grade	Does Not Meet		Approaches		Meets		Exceeds		
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	
<b>Fall</b>									
2	100–156	1–15	157–174	16–56	175–189	57–87	190–350	88–99	
3	100–173	1–21	174–188	22–55	189–200	56–80	201–350	81–99	
4	100–184	1–23	185–197	24–52	198–207	53–74	208–350	75–99	
5	100–188	1–16	189–207	17–58	208–218	59–80	219–350	81–99	
6	100–193	1–15	194–211	16–53	212–222	54–77	223–350	78–99	
7	100–200	1–20	201–216	21–56	217–227	57–79	228–350	80–99	
8	100–204	1–21	205–220	22–56	221–232	57–80	233–350	81–99	
<b>Winter</b>									
2	100–166	1–16	167–183	17–56	184–196	57–84	197–350	85–99	
3	100–181	1–22	182–195	23–54	196–206	55–78	207–350	79–99	
4	100–191	1–25	192–203	26–53	204–212	54–73	213–350	74–99	
5	100–194	1–18	195–211	19–56	212–222	57–80	223–350	81–99	
6	100–198	1–17	199–215	18–54	216–225	55–77	226–350	78–99	
7	100–204	1–22	205–219	23–56	220–229	57–78	230–350	79–99	
8	100–207	1–22	208–222	23–55	223–233	56–78	234–350	79–99	
<b>Spring</b>									
2	100–171	1–18	172–187	19–55	188–200	56–83	201–350	84–99	
3	100–185	1–24	186–198	25–54	199–209	55–78	210–350	79–99	
4	100–194	1–26	195–205	27–52	206–214	53–72	215–350	73–99	
5	100–197	1–20	198–213	21–56	214–223	57–78	224–350	79–99	
6	100–200	1–18	201–216	19–53	217–226	54–76	227–350	77–99	
7	100–206	1–23	207–220	24–55	221–230	56–77	231–350	78–99	
8	100–209	1–23	210–223	24–55	224–234	56–78	235–350	79–99	

### 3.4. Third Grade Retention

Beginning in 2017–2018, a student must be retained in Grade 3 if the student fails to demonstrate reading proficiency at the end of Grade 3 as indicated by scoring at the lowest achievement level on the SC READY Reading assessment (*Level 1: Does Not Meet Expectations*). A student may be exempt for good cause from the mandatory retention but shall continue to receive instructional support and services and reading intervention appropriate for their age and reading level. Table 3.7 presents the MAP Growth Reading RIT cut scores corresponding to the *Level 1* sublevels.

**Table 3.7. MAP Growth Score Predictions for *Level 1* Sublevels—ELA/Reading**

SC READY ELA				
Grade	<i>Level 1: Not Met 1</i>		<i>Level 1: Above Not Met 1</i>	
3	100–275		276–358	
MAP Growth Reading				
Grade	<i>Level 1: Not Met 1</i>		<i>Level 1: Above Not Met 1</i>	
	RIT	Percentile	RIT	Percentile
Spring				
3	100–170	1–4	171–185	5–24

### 3.5. Classification Accuracy

Table 3.8 presents the classification accuracy summary statistics, including the overall classification accuracy rate. These results indicate how well MAP Growth spring RIT scores predict proficiency on the SC READY tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.79 to 0.90 for Mathematics and 0.81 to 0.87 for ELA/Reading. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the SC READY assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students' proficiency status on SC READY in Grade 3.

Although the results show that MAP Growth scores can be used to predict student proficiency with relatively high accuracy on the SC READY tests, there is a notable limitation to how these results should be used and interpreted. The SC READY 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 3.8. Classification Accuracy Results**

Grade	N	Cut Score		Class. Accuracy*	Rate*		Sensitivity	Specificity	Precision	AUC*
		MAP Growth	SC READY		FP	FN				
<b>Mathematics</b>										
2	9,540	187	438	0.79	0.17	0.26	0.74	0.83	0.82	0.87
3	12,784	199	438	0.88	0.17	0.08	0.92	0.83	0.85	0.95
4	12,720	211	482	0.88	0.14	0.09	0.91	0.86	0.84	0.96
5	12,810	220	536	0.88	0.09	0.16	0.84	0.91	0.87	0.95
6	12,968	224	543	0.89	0.09	0.14	0.86	0.91	0.84	0.96
7	13,328	232	578	0.90	0.07	0.16	0.84	0.93	0.84	0.96
8	13,178	237	615	0.89	0.07	0.21	0.79	0.93	0.83	0.95
<b>ELA/Reading</b>										
2	10,686	188	452	0.81	0.14	0.24	0.76	0.86	0.83	0.89
3	14,157	199	452	0.86	0.15	0.12	0.88	0.85	0.85	0.94
4	12,310	206	509	0.86	0.16	0.11	0.89	0.84	0.85	0.94
5	12,372	214	558	0.87	0.12	0.15	0.85	0.88	0.87	0.94
6	12,451	217	576	0.86	0.13	0.15	0.85	0.87	0.84	0.94
7	12,793	221	615	0.86	0.12	0.16	0.84	0.88	0.84	0.94
8	12,881	224	643	0.85	0.12	0.18	0.82	0.88	0.85	0.93

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

### 3.6. Proficiency Projections

Table 3.9 and Table 3.10 present the estimated probability of achieving *Meets Expectations* performance on the SC READY test based on RIT scores from fall, winter, or spring. Due to measurement error in all test scores, the *Meets Expectations* MAP Growth cuts do not guarantee that a student will reach proficiency on the SC READY. They instead indicate a 50% chance that a student will reach a particular performance level. Therefore, these projections further elucidate the *Meet Expectations* cut scores by providing the likelihood of reaching proficiency on the SC READY in the spring at a given percentile throughout the year.

For example, the spring Grade 3 *Meets Expectations* RIT cut score for Mathematics is 199, which indicates a 50% chance of achieving proficiency in the spring, as shown in Table 3.9. An educator can also use the table to estimate that a Grade 3 student who obtained a MAP Growth Mathematics score of 183 in the fall has a 31% probability of reaching *Meets Expectations* or higher on the SC READY test in the spring.

**Table 3.9. Proficiency Projections based on RIT Scores—Mathematics**

Mathematics											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
2	5	187	154	No	<0.01	163	No	<0.01	167	No	<0.01
	10	187	158	No	0.02	167	No	<0.01	172	No	<0.01
	15	187	162	No	0.08	171	No	0.02	175	No	<0.01
	20	187	164	No	0.11	173	No	0.05	178	No	<0.01
	25	187	166	No	0.18	175	No	0.10	180	No	0.01
	30	187	168	No	0.27	177	No	0.20	182	No	0.04
	35	187	170	No	0.38	179	No	0.34	184	No	0.15
	40	187	172	Yes	0.50	181	No	0.42	186	No	0.37
	45	187	173	Yes	0.56	182	Yes	0.50	188	Yes	0.63
	50	187	175	Yes	0.62	184	Yes	0.66	189	Yes	0.75
	55	187	177	Yes	0.73	186	Yes	0.80	191	Yes	0.92
	60	187	178	Yes	0.78	187	Yes	0.85	193	Yes	0.98
	65	187	180	Yes	0.86	189	Yes	0.93	195	Yes	>0.99
	70	187	182	Yes	0.92	191	Yes	0.97	196	Yes	>0.99
	75	187	184	Yes	0.96	193	Yes	0.99	198	Yes	>0.99
	80	187	186	Yes	0.97	195	Yes	>0.99	201	Yes	>0.99
	85	187	188	Yes	0.99	198	Yes	>0.99	203	Yes	>0.99
90	187	192	Yes	>0.99	201	Yes	>0.99	207	Yes	>0.99	
95	187	196	Yes	>0.99	205	Yes	>0.99	212	Yes	>0.99	
3	5	199	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	199	171	No	0.01	179	No	<0.01	183	No	<0.01
	15	199	175	No	0.04	182	No	0.01	186	No	<0.01
	20	199	177	No	0.07	185	No	0.03	189	No	<0.01
	25	199	179	No	0.13	187	No	0.07	192	No	0.01
	30	199	181	No	0.21	189	No	0.14	194	No	0.04
	35	199	183	No	0.31	191	No	0.26	196	No	0.15
	40	199	185	No	0.44	193	No	0.42	198	No	0.37
	45	199	187	Yes	0.56	195	Yes	0.58	199	Yes	0.50
	50	199	188	Yes	0.63	196	Yes	0.67	201	Yes	0.75
	55	199	190	Yes	0.74	198	Yes	0.80	203	Yes	0.92
	60	199	192	Yes	0.79	200	Yes	0.90	205	Yes	0.98
	65	199	194	Yes	0.87	201	Yes	0.93	207	Yes	>0.99
	70	199	196	Yes	0.93	203	Yes	0.97	208	Yes	>0.99
	75	199	198	Yes	0.96	205	Yes	0.99	211	Yes	>0.99
	80	199	200	Yes	0.98	208	Yes	>0.99	213	Yes	>0.99
	85	199	202	Yes	0.99	210	Yes	>0.99	216	Yes	>0.99
90	199	206	Yes	>0.99	214	Yes	>0.99	219	Yes	>0.99	
95	199	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99	

Mathematics											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
4	5	211	176	No	<0.01	182	No	<0.01	185	No	<0.01
	10	211	181	No	<0.01	187	No	<0.01	191	No	<0.01
	15	211	185	No	0.01	191	No	<0.01	194	No	<0.01
	20	211	187	No	0.02	194	No	0.01	197	No	<0.01
	25	211	190	No	0.05	196	No	0.01	200	No	<0.01
	30	211	192	No	0.10	198	No	0.03	202	No	<0.01
	35	211	194	No	0.17	200	No	0.07	205	No	0.02
	40	211	196	No	0.26	202	No	0.14	207	No	0.08
	45	211	198	No	0.37	204	No	0.26	209	No	0.25
	50	211	200	Yes	0.50	206	No	0.42	211	Yes	0.50
	55	211	201	Yes	0.56	208	Yes	0.58	212	Yes	0.63
	60	211	203	Yes	0.68	210	Yes	0.74	214	Yes	0.85
	65	211	205	Yes	0.79	212	Yes	0.86	217	Yes	0.98
	70	211	207	Yes	0.87	214	Yes	0.93	219	Yes	>0.99
	75	211	209	Yes	0.93	216	Yes	0.97	221	Yes	>0.99
	80	211	212	Yes	0.97	219	Yes	0.99	224	Yes	>0.99
85	211	214	Yes	0.99	221	Yes	>0.99	227	Yes	>0.99	
90	211	218	Yes	>0.99	225	Yes	>0.99	230	Yes	>0.99	
95	211	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	220	184	No	<0.01	189	No	<0.01	191	No	<0.01
	10	220	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	220	193	No	<0.01	198	No	<0.01	201	No	<0.01
	20	220	196	No	0.01	201	No	<0.01	205	No	<0.01
	25	220	199	No	0.03	204	No	0.01	207	No	<0.01
	30	220	201	No	0.08	206	No	0.02	210	No	<0.01
	35	220	203	No	0.14	209	No	0.07	212	No	<0.01
	40	220	205	No	0.22	211	No	0.15	215	No	0.04
	45	220	207	No	0.32	213	No	0.26	217	No	0.15
	50	220	209	No	0.44	215	No	0.42	219	No	0.37
	55	220	211	Yes	0.56	217	Yes	0.58	221	Yes	0.63
	60	220	213	Yes	0.68	219	Yes	0.74	223	Yes	0.85
	65	220	215	Yes	0.78	221	Yes	0.85	225	Yes	0.96
	70	220	217	Yes	0.86	223	Yes	0.93	228	Yes	>0.99
	75	220	219	Yes	0.92	225	Yes	0.97	230	Yes	>0.99
	80	220	222	Yes	0.97	228	Yes	0.99	233	Yes	>0.99
85	220	225	Yes	0.99	231	Yes	>0.99	236	Yes	>0.99	
90	220	229	Yes	>0.99	235	Yes	>0.99	240	Yes	>0.99	
95	220	234	Yes	>0.99	241	Yes	>0.99	246	Yes	>0.99	

Mathematics											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
6	5	224	188	No	<0.01	192	No	<0.01	194	No	<0.01
	10	224	194	No	<0.01	198	No	<0.01	200	No	<0.01
	15	224	198	No	<0.01	202	No	<0.01	205	No	<0.01
	20	224	201	No	0.01	205	No	<0.01	208	No	<0.01
	25	224	204	No	0.03	208	No	<0.01	211	No	<0.01
	30	224	206	No	0.06	211	No	0.02	214	No	<0.01
	35	224	209	No	0.14	213	No	0.04	216	No	<0.01
	40	224	211	No	0.22	215	No	0.10	218	No	0.02
	45	224	213	No	0.32	217	No	0.20	221	No	0.15
	50	224	215	No	0.44	220	No	0.42	223	No	0.37
	55	224	217	Yes	0.56	222	Yes	0.58	225	Yes	0.63
	60	224	219	Yes	0.68	224	Yes	0.74	227	Yes	0.85
	65	224	221	Yes	0.78	226	Yes	0.86	230	Yes	0.98
	70	224	223	Yes	0.86	228	Yes	0.93	232	Yes	>0.99
	75	224	226	Yes	0.94	231	Yes	0.98	235	Yes	>0.99
	80	224	228	Yes	0.97	234	Yes	>0.99	238	Yes	>0.99
85	224	231	Yes	0.99	237	Yes	>0.99	241	Yes	>0.99	
90	224	235	Yes	>0.99	241	Yes	>0.99	245	Yes	>0.99	
95	224	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	232	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	232	198	No	<0.01	201	No	<0.01	203	No	<0.01
	15	232	202	No	<0.01	205	No	<0.01	207	No	<0.01
	20	232	206	No	<0.01	209	No	<0.01	211	No	<0.01
	25	232	208	No	<0.01	212	No	<0.01	214	No	<0.01
	30	232	211	No	0.01	215	No	<0.01	217	No	<0.01
	35	232	213	No	0.02	217	No	<0.01	220	No	<0.01
	40	232	216	No	0.05	219	No	0.02	222	No	<0.01
	45	232	218	No	0.13	222	No	0.07	224	No	<0.01
	50	232	220	No	0.21	224	No	0.14	227	No	0.04
	55	232	222	No	0.31	226	No	0.26	229	No	0.15
	60	232	225	Yes	0.50	229	Yes	0.50	231	No	0.37
	65	232	227	Yes	0.63	231	Yes	0.67	234	Yes	0.75
	70	232	229	Yes	0.74	233	Yes	0.80	236	Yes	0.92
	75	232	232	Yes	0.87	236	Yes	0.93	239	Yes	0.99
	80	232	235	Yes	0.95	239	Yes	0.98	242	Yes	>0.99
85	232	238	Yes	0.98	243	Yes	>0.99	246	Yes	>0.99	
90	232	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99	
95	232	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	

Mathematics											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
8	5	237	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	237	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	237	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	237	209	No	<0.01	212	No	<0.01	214	No	<0.01
	25	237	212	No	<0.01	215	No	<0.01	217	No	<0.01
	30	237	215	No	0.01	218	No	<0.01	220	No	<0.01
	35	237	218	No	0.02	221	No	<0.01	223	No	<0.01
	40	237	220	No	0.04	223	No	0.01	225	No	<0.01
	45	237	223	No	0.10	226	No	0.03	228	No	<0.01
	50	237	225	No	0.16	228	No	0.07	230	No	0.01
	55	237	227	No	0.24	231	No	0.20	233	No	0.08
	60	237	230	No	0.39	233	No	0.34	235	No	0.25
	65	237	232	Yes	0.50	236	Yes	0.58	238	Yes	0.63
	70	237	235	Yes	0.67	238	Yes	0.73	241	Yes	0.92
	75	237	238	Yes	0.81	241	Yes	0.89	244	Yes	0.99
	80	237	241	Yes	0.90	244	Yes	0.97	247	Yes	>0.99
	85	237	245	Yes	0.97	248	Yes	>0.99	251	Yes	>0.99
90	237	249	Yes	0.99	253	Yes	>0.99	256	Yes	>0.99	
95	237	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	

\*%tile = Percentile.

**Table 3.10. Proficiency Projections based on RIT Scores—ELA/Reading**

ELA/Reading											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
2	5	188	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	188	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	188	157	No	0.02	166	No	<0.01	170	No	<0.01
	20	188	160	No	0.04	169	No	<0.01	173	No	<0.01
	25	188	162	No	0.06	171	No	0.01	175	No	<0.01
	30	188	164	No	0.09	173	No	0.03	177	No	<0.01
	35	188	166	No	0.15	175	No	0.07	180	No	0.01
	40	188	168	No	0.21	177	No	0.13	182	No	0.03
	45	188	170	No	0.25	179	No	0.17	184	No	0.11
	50	188	172	No	0.35	181	No	0.29	186	No	0.27
	55	188	174	No	0.45	183	No	0.43	188	Yes	0.50
	60	188	176	Yes	0.55	185	Yes	0.57	189	Yes	0.62
	65	188	178	Yes	0.65	187	Yes	0.71	192	Yes	0.89
	70	188	180	Yes	0.70	189	Yes	0.83	194	Yes	0.97
	75	188	183	Yes	0.82	191	Yes	0.90	196	Yes	0.99
	80	188	185	Yes	0.88	194	Yes	0.97	199	Yes	>0.99
	85	188	188	Yes	0.93	197	Yes	0.99	202	Yes	>0.99
90	188	192	Yes	0.98	200	Yes	>0.99	205	Yes	>0.99	
95	188	197	Yes	0.99	206	Yes	>0.99	211	Yes	>0.99	
3	5	199	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	199	165	No	<0.01	173	No	<0.01	176	No	<0.01
	15	199	169	No	0.01	177	No	<0.01	180	No	<0.01
	20	199	173	No	0.03	180	No	<0.01	183	No	<0.01
	25	199	175	No	0.05	183	No	0.01	186	No	<0.01
	30	199	178	No	0.11	185	No	0.03	189	No	<0.01
	35	199	180	No	0.14	188	No	0.09	191	No	0.01
	40	199	182	No	0.21	190	No	0.13	193	No	0.03
	45	199	185	No	0.34	192	No	0.23	195	No	0.11
	50	199	187	No	0.39	194	No	0.35	197	No	0.27
	55	199	189	Yes	0.50	196	Yes	0.50	199	Yes	0.50
	60	199	191	Yes	0.61	198	Yes	0.65	201	Yes	0.73
	65	199	193	Yes	0.70	200	Yes	0.77	203	Yes	0.89
	70	199	195	Yes	0.75	202	Yes	0.87	206	Yes	0.99
	75	199	198	Yes	0.86	205	Yes	0.95	208	Yes	>0.99
	80	199	201	Yes	0.93	207	Yes	0.98	211	Yes	>0.99
	85	199	204	Yes	0.96	211	Yes	>0.99	214	Yes	>0.99
90	199	208	Yes	0.99	215	Yes	>0.99	218	Yes	>0.99	
95	199	214	Yes	>0.99	220	Yes	>0.99	224	Yes	>0.99	



ELA/Reading											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
4	5	206	169	No	<0.01	176	No	<0.01	178	No	<0.01
	10	206	175	No	<0.01	182	No	<0.01	184	No	<0.01
	15	206	179	No	0.01	186	No	<0.01	188	No	<0.01
	20	206	183	No	0.04	189	No	<0.01	191	No	<0.01
	25	206	185	No	0.06	192	No	0.02	194	No	<0.01
	30	206	188	No	0.11	194	No	0.04	196	No	<0.01
	35	206	190	No	0.17	196	No	0.09	199	No	0.01
	40	206	192	No	0.24	198	No	0.17	201	No	0.06
	45	206	195	No	0.34	200	No	0.22	203	No	0.17
	50	206	197	No	0.44	202	No	0.35	205	No	0.38
	55	206	199	Yes	0.56	205	Yes	0.58	207	Yes	0.62
	60	206	201	Yes	0.66	207	Yes	0.72	209	Yes	0.83
	65	206	203	Yes	0.71	209	Yes	0.83	211	Yes	0.94
	70	206	205	Yes	0.80	211	Yes	0.91	213	Yes	0.99
	75	206	208	Yes	0.89	213	Yes	0.96	216	Yes	>0.99
	80	206	211	Yes	0.94	216	Yes	0.99	219	Yes	>0.99
85	206	214	Yes	0.97	219	Yes	>0.99	222	Yes	>0.99	
90	206	218	Yes	0.99	223	Yes	>0.99	226	Yes	>0.99	
95	206	224	Yes	>0.99	229	Yes	>0.99	232	Yes	>0.99	
5	5	214	178	No	<0.01	183	No	<0.01	185	No	<0.01
	10	214	183	No	<0.01	189	No	<0.01	191	No	<0.01
	15	214	187	No	0.01	193	No	<0.01	194	No	<0.01
	20	214	191	No	0.02	196	No	<0.01	198	No	<0.01
	25	214	193	No	0.04	198	No	<0.01	200	No	<0.01
	30	214	196	No	0.08	201	No	0.02	203	No	<0.01
	35	214	198	No	0.11	203	No	0.04	205	No	<0.01
	40	214	200	No	0.17	205	No	0.09	207	No	0.01
	45	214	202	No	0.24	207	No	0.17	209	No	0.06
	50	214	204	No	0.34	209	No	0.28	211	No	0.17
	55	214	207	No	0.44	211	No	0.42	213	No	0.38
	60	214	209	Yes	0.56	213	Yes	0.58	215	Yes	0.62
	65	214	211	Yes	0.66	215	Yes	0.72	217	Yes	0.83
	70	214	213	Yes	0.71	217	Yes	0.78	219	Yes	0.94
	75	214	216	Yes	0.83	220	Yes	0.91	222	Yes	0.99
	80	214	218	Yes	0.89	222	Yes	0.96	224	Yes	>0.99
85	214	221	Yes	0.94	226	Yes	0.99	228	Yes	>0.99	
90	214	225	Yes	0.98	229	Yes	>0.99	231	Yes	>0.99	
95	214	231	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99	

ELA/Reading											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
6	5	217	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	217	189	No	<0.01	193	No	<0.01	195	No	<0.01
	15	217	193	No	0.01	197	No	<0.01	199	No	<0.01
	20	217	196	No	0.02	200	No	<0.01	202	No	<0.01
	25	217	199	No	0.06	203	No	0.01	205	No	<0.01
	30	217	202	No	0.10	205	No	0.03	207	No	<0.01
	35	217	204	No	0.16	208	No	0.09	209	No	0.01
	40	217	206	No	0.24	210	No	0.17	211	No	0.03
	45	217	208	No	0.28	212	No	0.28	213	No	0.11
	50	217	210	No	0.39	214	No	0.42	215	No	0.27
	55	217	212	Yes	0.50	216	Yes	0.50	217	Yes	0.50
	60	217	214	Yes	0.61	218	Yes	0.65	219	Yes	0.73
	65	217	217	Yes	0.72	220	Yes	0.78	222	Yes	0.94
	70	217	219	Yes	0.81	222	Yes	0.88	224	Yes	0.99
	75	217	221	Yes	0.87	225	Yes	0.96	226	Yes	>0.99
	80	217	224	Yes	0.92	227	Yes	0.98	229	Yes	>0.99
85	217	227	Yes	0.97	230	Yes	>0.99	232	Yes	>0.99	
90	217	231	Yes	0.99	234	Yes	>0.99	236	Yes	>0.99	
95	217	237	Yes	>0.99	240	Yes	>0.99	242	Yes	>0.99	
7	5	221	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	221	193	No	<0.01	196	No	<0.01	197	No	<0.01
	15	221	197	No	<0.01	200	No	<0.01	201	No	<0.01
	20	221	200	No	0.02	203	No	<0.01	205	No	<0.01
	25	221	203	No	0.03	206	No	0.01	207	No	<0.01
	30	221	206	No	0.08	209	No	0.03	210	No	<0.01
	35	221	208	No	0.12	211	No	0.06	212	No	<0.01
	40	221	210	No	0.19	213	No	0.09	214	No	0.01
	45	221	212	No	0.24	215	No	0.17	216	No	0.06
	50	221	214	No	0.33	217	No	0.28	218	No	0.17
	55	221	216	No	0.44	219	No	0.42	220	No	0.38
	60	221	218	Yes	0.56	221	Yes	0.58	223	Yes	0.73
	65	221	221	Yes	0.67	223	Yes	0.72	225	Yes	0.89
	70	221	223	Yes	0.76	226	Yes	0.88	227	Yes	0.97
	75	221	225	Yes	0.84	228	Yes	0.94	229	Yes	0.99
	80	221	228	Yes	0.92	231	Yes	0.98	232	Yes	>0.99
85	221	231	Yes	0.96	234	Yes	>0.99	235	Yes	>0.99	
90	221	235	Yes	0.99	238	Yes	>0.99	239	Yes	>0.99	
95	221	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	

ELA/Reading											
Grade	Start %ile*	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
8	5	224	190	No	<0.01	193	No	<0.01	194	No	<0.01
	10	224	196	No	<0.01	199	No	<0.01	200	No	<0.01
	15	224	200	No	0.01	203	No	<0.01	204	No	<0.01
	20	224	204	No	0.02	206	No	<0.01	207	No	<0.01
	25	224	207	No	0.05	209	No	0.01	210	No	<0.01
	30	224	209	No	0.08	212	No	0.02	213	No	<0.01
	35	224	211	No	0.11	214	No	0.04	215	No	<0.01
	40	224	214	No	0.20	216	No	0.09	217	No	0.01
	45	224	216	No	0.29	218	No	0.17	220	No	0.11
	50	224	218	No	0.39	221	No	0.35	222	No	0.27
	55	224	220	No	0.45	223	Yes	0.50	224	Yes	0.50
	60	224	222	Yes	0.55	225	Yes	0.65	226	Yes	0.73
	65	224	225	Yes	0.71	227	Yes	0.78	228	Yes	0.89
	70	224	227	Yes	0.80	229	Yes	0.87	231	Yes	0.99
	75	224	230	Yes	0.87	232	Yes	0.96	233	Yes	>0.99
	80	224	232	Yes	0.92	235	Yes	0.99	236	Yes	>0.99
	85	224	236	Yes	0.97	238	Yes	>0.99	239	Yes	>0.99
90	224	240	Yes	0.99	242	Yes	>0.99	243	Yes	>0.99	
95	224	246	Yes	>0.99	248	Yes	>0.99	249	Yes	>0.99	

\*%tile = Percentile.

#### 4. References

- He, W., & Meyer, J. (2021). *MAP Growth universal screening benchmarks: Establishing MAP Growth as an effective universal screener*. NWEA Research Report.  
[https://www.nwea.org/content/uploads/2021/05/MAP-Growth-Universal-Screening-Benchmarks-2021-03-12\\_NWEA\\_report.pdf](https://www.nwea.org/content/uploads/2021/05/MAP-Growth-Universal-Screening-Benchmarks-2021-03-12_NWEA_report.pdf)
- Kolen, M. J., & Brennan, R. L. (2004). *Test equating, scaling, and linking*. Springer.
- Lumley, T. (2019). *Survey: Analysis of complex survey samples*. R package version 3.36.  
<https://CRAN.R-project.org/package=survey>.
- Pommerich, M., Hanson, B., Harris, D., & Sconing, J. (2004). Issues in conducting linkage between distinct tests. *Applied Psychological Measurement*, 28(4), 247–273.
- Thum, Y. M., & Kuhfeld, M. (2020). *NWEA 2020 MAP Growth achievement status and growth norms for students and schools*. NWEA Research Report.  
<https://teach.mapnwea.org/impl/normsResearchStudy.pdf>