

# **Linking Study Report: Predicting Performance on the Mississippi Academic Assessment Program (MAAP) based on NWEA MAP Growth Scores**

July 2020

NWEA Psychometric Solutions



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## Executive Summary

To predict student achievement on the Mississippi Academic Assessment Program (MAAP) in Grades 3–8 English Language Arts (ELA) and Mathematics, NWEA® conducted a linking study using Spring 2018 data to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the MAAP performance levels. With this information, educators can identify students at risk of failing to meet state proficiency standards early in the year and provide tailored educational interventions. The linking study has been updated since the previous version published in February 2017 to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020).

Table E.1 presents the MAAP *Proficient* performance level cut scores and the corresponding MAP Growth RIT cut scores that allow teachers to identify students who are on track for proficiency on the state summative test and those who are not.<sup>1</sup> For example, the *Proficient* cut score on the MAAP Grade 3 ELA test is 365. A Grade 3 student with a MAP Growth Reading RIT score of 193 in the fall is likely to meet proficiency on the MAAP ELA test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 193 in the fall is in jeopardy of not meeting proficiency. MAP Growth cut scores for Grade 2 are also provided so educators can track early learners’ progress toward proficiency on the MAAP test by Grade 3. These cut scores were derived based on the Grade 3 cuts and the 2020 NWEA growth norms for the adjacent grade (i.e., Grade 2 to 3).

**Table E.1. MAP Growth Cut Scores for MAAP Proficiency**

Assessment		Proficient Cut Scores by Grade						
		2	3	4	5	6	7	8
<b>ELA/Reading</b>								
	MAAP Spring	–	365	465	565	665	765	865
MAP Growth	Fall	181	193	203	212	217	222	225
	Winter	189	200	208	216	220	224	227
	Spring	193	203	210	218	221	225	228
<b>Mathematics</b>								
	MAAP Spring	–	365	465	565	665	765	865
MAP Growth	Fall	179	192	202	214	217	223	233
	Winter	188	199	209	220	222	227	236
	Spring	193	204	213	224	225	230	238

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 commonly 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 spring instructional weeks set by partners.

<sup>1</sup> While the previous 2017 linking study report highlighted the *Passing* performance level cuts, this report focuses on the *Proficient* cut scores to align with the accountability requirements.

### E.1. Assessment Overview

The MAAP Grades 3–8 ELA and Mathematics tests are Mississippi’s state summative assessments aligned to the Mississippi College and Career Readiness Standards. Based on their test scores, students are placed into one of five performance levels: *Level 1: Minimal*, *Level 2: Basic*, *Level 3: Passing*, *Level 4: Proficient*, and *Level 5: Advanced*. 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 100–350.

### E.2. Linking Methods

Based on scores from the Spring 2018 test administration, the equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring MAAP performance level cut scores. Spring cuts for Grade 2 were derived based on the cuts for Grade 3 and the 2020 NWEA growth norms. MAP Growth fall and winter cut scores that predict proficiency on the spring MAAP test were then projected using the 2020 NWEA growth norms that provide expected score gains across test administrations.

### E.3. Student Sample

Only students who took both the MAP Growth and MAAP assessments in Spring 2018 were included in the study sample. Table E.2 presents the weighted number of Mississippi students from seven districts and 30 schools who were included in the linking study. 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 not represent the general student population as well as it should. To ensure that the linking study sample represents the state student population in terms of race, sex, and performance level, weighting (i.e., a statistical method that matches the distributions of the variables of interest to those of the target population) was applied to the sample. 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.

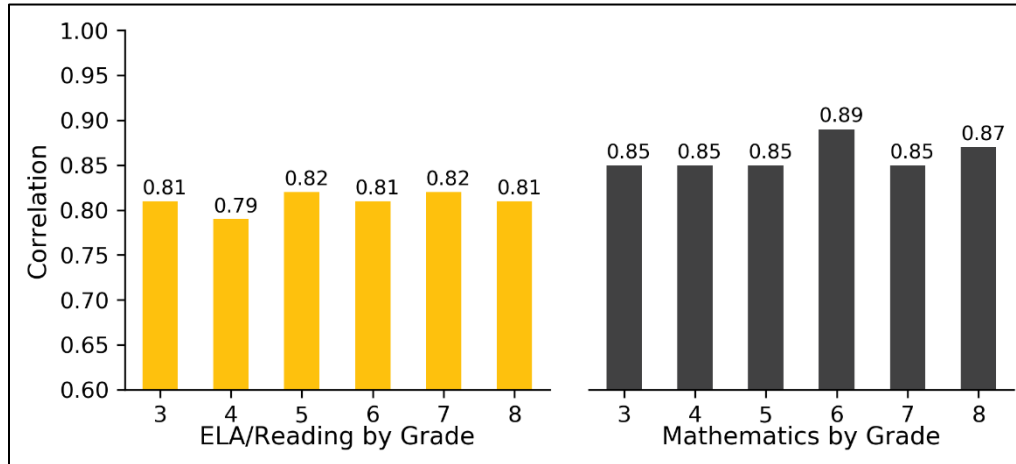
**Table E.2. Linking Study Sample**

Grade	#Students	
	ELA/Reading	Mathematics
3	1,402	1,429
4	1,314	1,352
5	1,408	1,431
6	1,265	1,307
7	1,244	1,248
8	1,242	1,262

#### E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and MAAP scores range from 0.79 to 0.89 across both content areas, as shown in Figure E.1. These values indicate a strong relationship among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the MAAP assessments.

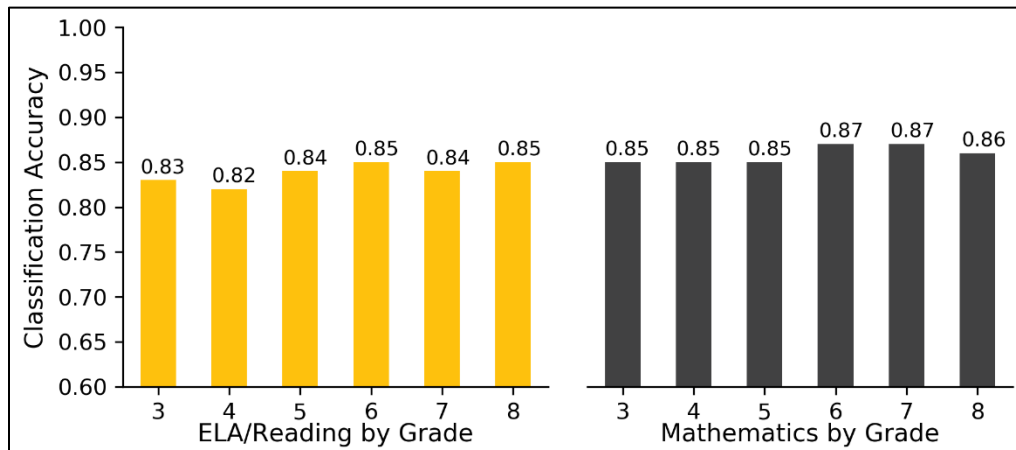
Figure E.1. Correlations between MAP Growth and MAAP



#### 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 or not proficient on the MAAP tests. For example, the MAP Growth Reading Grade 3 *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 0.82 to 0.87 across both content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the MAAP tests.

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 document presents results from a linking study conducted by NWEA in July 2020 to statistically connect the scores of the Mississippi Academic Assessment Program (MAAP) Grades 3–8 English Language Arts (ELA) and Mathematics assessments with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2018 term. The linking study has been updated since the previous version published in December 2019 to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020). In this updated study, MAP Growth cut scores are also included for Grade 2 so educators can track early learners' progress toward proficiency on the MAAP test by Grade 3. This report presents the following results:

1. Student sample demographics
2. Descriptive statistics of test scores
3. MAP Growth cut scores that correspond to the MAAP performance levels and growth levels using the equipercentile linking procedure for the spring results and the 2020 norms for the fall and winter results
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the MAAP tests
5. The probability of achieving grade-level proficiency on the MAAP assessment based on MAP Growth RIT scores from fall, winter, and spring using the 2020 norms

## 1.2. Assessment Overview

The MAAP Grades 3–8 ELA and Mathematics summative assessments are aligned to the Mississippi College and Career Readiness Standards. Each assessment has four 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: *Level 1: Minimal*, *Level 2: Basic*, *Level 3: Passing*, *Level 4: Proficient*, and *Level 5: Advanced*. The *Proficient* cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

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 to 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 2020 (Thum & Kuhfeld, 2020).

## 2. Methods

### 2.1. Data Collection

This linking study is based on data from the Spring 2018 administrations of the MAP Growth and MAAP assessments. NWEA recruited Mississippi districts to participate in the study by sharing their student and score data for the target term. Districts also gave NWEA permission to access students' associated MAP Growth scores from the NWEA in-house database. Once Mississippi state score information was received by NWEA, each student's state testing record was matched to their MAP Growth score by using 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 MAAP assessments in Spring 2018 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 population in terms of race, sex, and performance level. These variables were selected because they are correlated with the student's academic achievement within this study and are often provided in the data for the state population. The weighted sample matches the target population as closely as possible on the key demographics and test score characteristics. Specifically, a raking procedure was used to calculate the post-stratification weights and improve the representativeness of the sample. Raking uses iterative procedures to obtain weights that match sample marginal distributions to known population margins. The following steps were taken during this process:

- Calculate marginal distributions of race, sex, and performance level for the sample and population.
- Calculate post-stratification weights with the rake function from the survey package in R (Lumley, 2019).
- Trim the weight if it is not in the range of 0.3 to 3.0.
- Apply the weights to the sample before conducting the linking study analyses.

### 2.3. MAP Growth Cut Scores

The equipercntile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores that correspond to the spring MAAP performance level cut scores. Spring cuts for Grade 2 were derived based on the cuts for Grade 3 and the 2020 NWEA growth norms. MAP Growth fall and winter cut scores that predict proficiency on the spring MAAP test were then projected using the 2020 growth norms. Percentile ranks are also provided that show how a nationally representative sample of students in the same grade scored on MAP Growth for each administration, which is an important interpretation of RIT scores. This is useful for understanding (1) how student scores compare to peers nationwide and (2) the relative rigor of a state's performance level designations for its summative assessment.

The MAP Growth spring cut scores for Grades 3–8 could be calculated using the equipercntile linking method because that data are directly connected to the MAAP spring data used in the study. The equipercntile 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., MAAP). Its equipercntile 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 1:



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

where  $e_y(x)$  is the equipercentile equivalent of score  $x$  on MAAP on the scale of MAP Growth,  $P(x)$  is the percentile rank of a given score on MAAP, 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 or winter to spring within the same grade or from spring of a lower grade to the spring of the adjacent higher grade. This information can be used to calculate the fall and winter cut scores for Grades 3–8 and the fall, winter, and spring cut scores for Grade 2. Equation 2 was used to determine the previous term's or grade's MAP Growth score needed to reach the spring cut score, considering the expected growth associated with the previous RIT score:

$$RIT_{PredSpring} = RIT_{previous} + g \quad (2)$$

where:

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

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 Grade 2 to spring Grade 3). The calculation of fall and winter cuts for Grade 2 followed the same process as the other grades. 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 MAAP tests can be described using classification accuracy statistics based on the MAP Growth RIT spring cut scores that show the proportion of students correctly classified by their RIT scores as proficient (*Proficient* or *Advanced*) or not proficient (*Minimal*, *Basic*, or *Passing*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich, Hanson, Harris, & Scoring, 2004). The results are based on the Spring 2018 MAP Growth and MAAP data for the *Proficient* cut score.

Since Mississippi students do not begin taking the MAAP assessment until Grade 3, longitudinal data were collected for the 2017–2018 Grade 3 cohort in order to link the MAAP assessment to MAP Growth for Grade 2 to calculate the classification accuracy statistics. To accomplish this, 2017–2018 MAAP Grade 3 results were linked to MAP Growth data from Grade 3 students in 2017–2018 and Grade 2 students in 2016–2017. In this way, the data came from the same cohort of students beginning when they were in Grade 2 and continuing through Grade 3.

**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.

## 2.5. Proficiency Projection

In addition to calculating the MAP Growth fall and winter cut scores, the MAP Growth conditional growth norms data were also used to calculate the probability of reaching proficiency on the MAAP test based on a student’s RIT scores from fall, winter, and spring. Equation 3 was used to calculate the probability of a student achieving *Proficient* on the MAAP test based on their fall or winter RIT score:

$$Pr(\text{Achieving Proficient in spring} | \text{starting RIT}) = \Phi \left( \frac{RIT_{previous} + g - RIT_{SpringCut}}{SD} \right) \quad (3)$$

where:

- $\Phi$  is a standardized normal cumulative distribution.
- $RIT_{previous}$  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 *Proficient* 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 4 was used to estimate the probability of a student achieving *Proficient* on the MAAP test based on their spring RIT score ( $RIT_{Spring}$ ):

$$Pr(\text{Achieving Proficient in spring} | \text{spring RIT}) = \Phi \left( \frac{RIT_{Spring} - RIT_{SpringCut}}{SE} \right) \quad (4)$$

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 MAAP assessments in Spring 2018 were included in the study sample. Data used in this study were collected from seven districts and 30 schools in Mississippi. 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 student population that took the Spring 2018 MAAP tests (MDE, 2018). Since the unweighted data are different from the general MAAP 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 MAAP student population distributions. The analyses in this study were therefore conducted based on the weighted sample.

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

Linking Study Sample (Unweighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>ELA/Reading</b>							
Total N		1,403	1,314	1,407	1,265	1,244	1,242
Race	Asian	1.4	1.4	1.1	1.3	1.1	0.9
	Black	34.1	34.4	35.7	32.6	29.8	28.6
	Hispanic	7.1	5.1	6.1	5.8	5.1	5.6
	Other	1.0	1.1	0.9	1.7	1.6	1.0
	White	56.5	58.1	56.2	58.7	62.3	63.8
Sex	Female	49.5	48.9	48.1	49.6	46.9	48.0
	Male	50.5	51.1	51.9	50.4	53.1	52.0
Performance Level	<i>Minimal</i>	6.1	2.7	5.6	8.0	5.5	8.5
	<i>Basic</i>	15.2	16.2	15.6	17.6	16.9	12.2
	<i>Passing</i>	28.7	28.8	41.2	32.5	36.4	34.4
	<i>Proficient</i>	43.1	40.0	31.1	24.0	24.1	35.6
	<i>Advanced</i>	7.1	12.3	6.5	17.9	17.1	9.4
<b>Mathematics</b>							
Total N		1,430	1,351	1,431	1,307	1,248	1,262
Race	Asian	1.3	1.4	1.2	1.5	1.0	1.0
	Black	34.3	34.0	36.3	32.3	29.7	28.4
	Hispanic	6.8	5.1	5.9	5.7	5.2	5.8
	Other	1.0	1.0	0.9	1.5	1.6	1.0
	White	56.6	58.5	55.6	59.0	62.4	63.8
Sex	Female	49.2	48.9	48.1	49.7	47.0	48.0
	Male	50.8	51.1	51.9	50.3	53.0	52.0
Performance Level	<i>Minimal</i>	3.7	2.9	4.8	7.9	2.8	7.9
	<i>Basic</i>	17.8	12.9	17.0	15.6	15.8	15.0
	<i>Passing</i>	28.2	23.1	33.3	21.7	22.5	25.4
	<i>Proficient</i>	33.8	29.8	25.4	30.8	35.5	35.6
	<i>Advanced</i>	16.5	31.3	19.6	24.1	23.4	16.2

**Table 3.2. Spring 2018 MAAP Student Population Demographics**

		Spring 2018 MAAP Population					
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>ELA</b>							
	Total N	36,640	37,532	37,668	34,700	34,502	34,215
Race	Asian	1.0	1.0	1.0	1.2	1.1	1.1
	Black	48.3	49.0	48.9	47.5	47.2	46.8
	Hispanic	4.2	4.2	4.3	4.0	3.8	3.8
	Other	3.1	2.7	2.4	2.1	2.1	2.0
	White	43.4	43.1	43.4	45.2	45.8	46.3
Sex	Female	49.2	49.3	48.8	49.4	48.7	48.9
	Male	50.8	50.7	51.2	50.6	51.3	51.1
Performance Level	<i>Minimal</i>	6.9	3.4	5.5	6.7	7.2	11.0
	<i>Basic</i>	17.6	22.1	17.0	21.8	22.0	15.9
	<i>Passing</i>	30.1	28.8	41.0	33.2	35.6	37.5
	<i>Proficient</i>	38.9	36.2	30.9	24.1	22.2	27.4
	<i>Advanced</i>	6.4	9.5	5.7	14.2	13.0	8.2
<b>Mathematics</b>							
	Total N	36,455	35,630	37,364	34,644	34,316	34,189
Race	Asian	1.0	1.0	1.0	1.2	1.1	1.1
	Black	48.4	49.8	49.1	47.5	47.3	46.8
	Hispanic	4.2	3.9	4.2	4.0	3.8	3.8
	Other	3.1	2.6	2.4	2.1	2.1	2.0
	White	43.3	42.7	43.4	45.2	45.7	46.3
Sex	Female	49.2	49.2	48.8	49.4	48.7	48.9
	Male	50.8	50.8	51.2	50.6	51.3	51.1
Performance Level	<i>Minimal</i>	4.5	6.9	6.6	7.8	4.4	11.6
	<i>Basic</i>	20.1	19.9	20.7	18.4	20.9	20.4
	<i>Passing</i>	28.6	29.0	38.5	27.0	25.1	26.3
	<i>Proficient</i>	34.8	29.3	23.3	31.8	34.2	29.8
	<i>Advanced</i>	11.9	15.0	10.9	15.	15.4	11.9

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

		Linking Study Sample (Weighted)					
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>ELA/Reading</b>							
Total N		1,402	1,314	1,408	1,265	1,244	1,242
Race	Asian	1.0	1.0	1.0	1.2	1.1	1.1
	Black	48.3	49.0	48.9	47.5	47.2	46.8
	Hispanic	4.2	4.2	4.3	4.0	3.8	3.8
	Other	3.1	2.7	2.4	2.1	2.1	2.0
	White	43.4	43.1	43.4	45.2	45.8	46.3
Sex	Female	49.2	49.3	48.8	49.4	48.7	48.9
	Male	50.8	50.7	51.2	50.6	51.3	51.1
Performance Level	<i>Minimal</i>	6.9	3.4	5.5	6.7	7.2	11.0
	<i>Basic</i>	17.6	22.1	17.0	21.8	22.0	15.9
	<i>Passing</i>	30.1	28.8	41.0	33.2	35.6	37.5
	<i>Proficient</i>	38.9	36.2	30.9	24.1	22.2	27.4
	<i>Advanced</i>	6.4	9.5	5.7	14.2	13.0	8.2
<b>Mathematics</b>							
Total N		1,429	1,352	1,431	1,307	1,248	1,262
Race	Asian	1.0	1.0	1.0	1.2	1.1	1.1
	Black	48.4	49.8	49.1	47.5	47.3	46.8
	Hispanic	4.2	3.9	4.2	4.0	3.8	3.8
	Other	3.1	2.6	2.4	2.1	2.1	2.0
	White	43.3	42.7	43.4	45.2	45.7	46.3
Sex	Female	49.2	49.2	48.8	49.4	48.7	48.9
	Male	50.8	50.8	51.2	50.6	51.3	51.1
Performance Level	<i>Minimal</i>	4.5	6.9	6.6	7.8	4.4	11.6
	<i>Basic</i>	20.1	19.9	20.7	18.4	20.9	20.4
	<i>Passing</i>	28.6	29.0	38.5	27.0	25.1	26.3
	<i>Proficient</i>	34.8	29.3	23.3	31.8	34.2	29.8
	<i>Advanced</i>	11.9	15.0	10.9	15.0	15.4	11.9

### 3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and MAAP test scores from Spring 2018, including the correlation coefficient ( $r$ ) between them. The correlation coefficients between the scores range from 0.79 to 0.82 for ELA and 0.85 to 0.89 for Mathematics. These values indicate a strong relationship among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the MAAP assessments.

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

Grade	N	r	MAAP*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
<b>ELA/Reading</b>										
3	1,402	0.81	361.1	17.9	303	399	199.7	13.9	145	242
4	1,314	0.79	461.8	19.0	409	499	206.2	14.2	142	250
5	1,408	0.82	559.6	14.0	517	599	212.0	13.8	140	246
6	1,265	0.81	659.4	16.5	611	699	216.0	13.2	148	258
7	1,244	0.82	758.6	14.7	712	797	218.5	14.6	147	259
8	1,242	0.81	859.4	14.3	801	899	221.2	15.2	151	266
<b>Mathematics</b>										
3	1,429	0.85	363.0	17.9	316	399	201.9	11.8	147	248
4	1,352	0.85	462.4	19.0	418	499	209.5	14.4	142	256
5	1,431	0.85	559.8	14.3	525	599	217.3	14.8	145	263
6	1,307	0.89	663.3	20.3	609	699	222.6	15.3	158	265
7	1,248	0.85	766.1	20.5	721	799	227.7	17.4	150	284
8	1,262	0.87	861.2	20.0	816	899	231.8	18.3	155	292

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

### 3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the MAAP scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. These tables can be used to predict a student’s likely performance level on the MAAP 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 193 in the fall is likely to reach *Proficient* on the MAAP ELA test. A Grade 3 student who obtained a MAP Growth Reading RIT score of 203 in the spring is also likely to reach *Proficient* on the MAAP. The spring cut score is higher than the fall cut score because growth is expected between fall and spring as students receive more instruction during the school year.

Within this report, the cut scores for fall and winter are derived from the spring cuts and the typical growth scores from fall-to-spring or winter-to-spring. The typical growth scores are based on the default instructional weeks most commonly 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 from the default ones, a student’s projected performance level could be different from the generic projection presented in this document. Partners are therefore encouraged to use the projected performance level in students’ profile, classroom, and grade reports in the NWEA reporting system since they reflect the specific instructional weeks set by partners.

**Table 3.5. MAP Growth Cut Scores—ELA/Reading**

MAAP ELA										
Grade	Level 1: Minimal		Level 2: Basic		Level 3: Passing		Level 4: Proficient		Level 5: Advanced	
3	301–334		335–349		350–364		<b>365–386</b>		387–399	
4	401–428		429–449		450–464		<b>465–487</b>		488–499	
5	501–538		539–549		550–564		<b>565–581</b>		582–599	
6	601–635		636–649		650–664		<b>665–678</b>		679–699	
7	701–737		738–749		750–764		<b>765–775</b>		776–799	
8	801–841		842–849		850–864		<b>865–879</b>		880–899	
MAP Growth Reading*										
Grade	Level 1: Minimal		Level 2: Basic		Level 3: Passing		Level 4: Proficient		Level 5: Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
<b>Fall</b>										
2	100–148	1–5	149–165	6–33	166–180	34–71	<b>181–201</b>	72–96	202–350	97–99
3	100–166	1–11	167–180	12–36	181–192	37–64	<b>193–211</b>	65–93	212–350	94–99
4	100–168	1–4	169–190	5–36	191–202	37–64	<b>203–216</b>	65–88	217–350	89–99
5	100–180	1–7	181–195	8–29	196–211	30–67	<b>212–228</b>	68–92	229–350	93–99
6	100–188	1–9	189–204	10–37	205–216	38–65	<b>217–229</b>	66–88	230–350	89–99
7	100–190	1–7	191–206	8–32	207–221	33–67	<b>222–231</b>	68–85	232–350	86–99
8	100–197	1–11	198–208	12–29	209–224	30–65	<b>225–237</b>	66–87	238–350	88–99
<b>Winter</b>										
2	100–159	1–7	160–174	8–33	175–188	34–69	<b>189–208</b>	70–96	209–350	97–99
3	100–175	1–12	176–187	13–35	188–199	36–64	<b>200–216</b>	65–91	217–350	92–99
4	100–176	1–5	177–196	6–36	197–207	37–62	<b>208–221</b>	63–87	222–350	88–99
5	100–187	1–8	188–201	9–32	202–215	33–66	<b>216–230</b>	67–91	231–350	92–99
6	100–193	1–10	194–208	11–37	209–219	38–64	<b>220–231</b>	65–86	232–350	87–99
7	100–195	1–9	196–209	10–32	210–223	33–66	<b>224–232</b>	67–83	233–350	84–99
8	100–201	1–12	202–212	13–32	213–226	33–64	<b>227–238</b>	65–86	239–350	87–99
<b>Spring</b>										
2	100–164	1–8	165–179	9–35	180–192	36–67	<b>193–211</b>	68–95	212–350	96–99
3	100–179	1–14	180–191	15–37	192–202	38–63	<b>203–218</b>	64–90	219–350	91–99
4	100–180	1–6	181–199	7–37	200–209	38–61	<b>210–222</b>	62–86	223–350	87–99
5	100–190	1–10	191–203	11–32	204–217	33–66	<b>218–231</b>	67–90	232–350	91–99
6	100–196	1–12	197–210	13–38	211–220	39–63	<b>221–232</b>	64–85	233–350	86–99
7	100–197	1–10	198–211	11–34	212–224	35–65	<b>225–233</b>	66–82	234–350	83–99
8	100–203	1–14	204–213	15–31	214–227	32–64	<b>228–239</b>	65–85	240–350	86–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Spring cut scores for Grade 2 were derived from the Grade 3 cuts using the growth norms. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Table 3.6. MAP Growth Cut Scores—Mathematics**

MAAP Mathematics										
Grade	Level 1: Minimal		Level 2: Basic		Level 3: Passing		Level 4: Proficient		Level 5: Advanced	
3	301–332		333–349		350–364		<b>365–383</b>		384–399	
4	401–435		436–449		450–464		<b>465–483</b>		484–499	
5	501–539		540–549		550–564		<b>565–578</b>		579–599	
6	601–635		636–649		650–664		<b>665–686</b>		687–699	
7	701–735		736–749		750–764		<b>765–792</b>		793–799	
8	801–837		838–849		850–864		<b>865–888</b>		889–899	
MAP Growth Mathematics*										
Grade	Level 1: Minimal		Level 2: Basic		Level 3: Passing		Level 4: Proficient		Level 5: Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
<b>Fall</b>										
2	100–147	1–1	148–167	2–28	168–178	29–61	<b>179–190</b>	62–88	191–350	89–99
3	100–164	1–3	165–181	4–31	182–191	32–59	<b>192–201</b>	60–83	202–350	84–99
4	100–177	1–6	178–191	7–29	192–201	30–56	<b>202–211</b>	57–80	212–350	81–99
5	100–185	1–5	186–198	6–24	199–213	25–62	<b>214–224</b>	63–84	225–350	85–99
6	100–192	1–8	193–206	9–31	207–216	32–55	<b>217–228</b>	56–80	229–350	81–99
7	100–195	1–7	196–211	8–31	212–222	32–55	<b>223–237</b>	56–84	238–350	85–99
8	100–203	1–12	204–219	13–39	220–232	40–66	<b>233–246</b>	67–87	247–350	88–99
<b>Winter</b>										
2	100–158	1–2	159–176	3–28	177–187	29–61	<b>188–198</b>	62–86	199–350	87–99
3	100–173	1–4	174–189	5–31	190–198	32–57	<b>199–208</b>	58–82	209–350	83–99
4	100–183	1–6	184–198	7–31	199–208	32–57	<b>209–218</b>	58–80	219–350	81–99
5	100–190	1–6	191–204	7–26	205–219	27–62	<b>220–230</b>	63–84	231–350	85–99
6	100–197	1–9	198–211	10–32	212–221	33–55	<b>222–233</b>	56–80	234–350	81–99
7	100–198	1–7	199–214	8–30	215–226	31–56	<b>227–241</b>	57–83	242–350	84–99
8	100–207	1–14	208–222	15–39	223–235	40–65	<b>236–249</b>	66–86	250–350	87–99
<b>Spring</b>										
2	100–164	1–2	165–182	3–31	183–192	32–60	<b>193–203</b>	61–85	204–350	86–99
3	100–178	1–5	179–194	6–32	195–203	33–57	<b>204–213</b>	58–81	214–350	82–99
4	100–188	1–7	189–202	8–30	203–212	31–55	<b>213–222</b>	56–78	223–350	79–99
5	100–194	1–7	195–208	8–27	209–223	28–61	<b>224–234</b>	62–82	235–350	83–99
6	100–200	1–10	201–214	11–32	215–224	33–54	<b>225–236</b>	55–78	237–350	79–99
7	100–201	1–8	202–217	9–31	218–229	32–56	<b>230–244</b>	57–83	245–350	84–99
8	100–209	1–14	210–224	15–39	225–237	40–64	<b>238–251</b>	65–85	252–350	86–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Spring cut scores for Grade 2 were derived from the Grade 3 cuts using the growth norms. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.



### 3.4. Growth Levels

While the MAAP assessments have five performance levels, there are eight growth levels that measure students' growth from one year to the next: *Level 1a*, *Level 1b*, *Level 2a*, *Level 2b*, *Level 3a*, *Level 3b*, *Level 4*, and *Level 5*. The Mississippi Statewide Accountability System assigns a performance rating of A, B, C, D, or F to each school and district based on points earned. Schools and districts earn points in several categories, including student achievement, individual growth, and participation on statewide assessments (MDE, 2020). Growth points are calculated based on the following criteria (MDE, 2019):

- Moving 1 growth level (e.g., from *Level 1a* to *Level 1b*) = 1 pt.
- Moving 2 performance levels (e.g., from *Level 1* to *Level 2*) = 1.25 pts.
- Moving from any lower level to *Level 5* = 1.25 pts.
- Staying at *Level 5* = 1.25 pts.

Table 3.7 and Table 3.8 present the MAP Growth score predictions for the *Level 1*, *Level 2*, and *Level 3* sublevels. Together, Table 3.5 – Table 3.8 can be used to predict a student's growth in ELA and Mathematics across school years by following the steps below:

1. Find the student's score from a prior MAAP test and identify the corresponding MAP Growth RIT score.
2. Identify the achievement level needed to achieve growth and find the corresponding MAP Growth score.
3. Calculate the difference between the initial and final MAP Growth scores to find out how much a student must grow to show a growth level.

Although these tables provide the projected RIT score ranges that correspond to different achievement levels on the MAAP assessments, in practice one needs to be aware of different sources of measurement error that could lead to an incorrect classification when applying these tables. The reasons for the misclassification may include the following:

1. Measurement errors of state scale scores and RIT scores. For example, if a RIT score is 200 and its SEM is 5, the student score is more likely to be in the range of 195 and 205 if this student took the test again.
2. The imperfect correlation between the state scale scores and RIT scores (i.e., the correlation is not equal to 1).
3. Conditional growth measurement errors in the growth norms when projecting the score ranges in the fall and winter from the scores in the spring.
4. The actual instructional weeks of each school district may differ from the standard default instructional weeks used in this study to estimate the growth from fall or winter to spring, which can impact the classification accuracy of the fall and winter cut scores.
5. The score distribution of the study sample may not represent the distribution of the population perfectly, although the post-stratification is applied to improve the gender, ethnicity, and achievement level distributions correlated with the score distribution.
6. Score distribution irregularities can cause problems in the linking study results (Livingston, 2004). In other words, when no students receive a particular RIT score or range of RIT scores, this can cause problems for equating. The irregularities become worse at the lower and higher ends of the study sample, although a polynomial loglinear pre-smoothing is used to reduce the irregularities in this study. As a result, the RIT score ranges may result in less accurate classification of students into different sublevels.

**Table 3.7. MAP Growth Cut Scores for Level 1, Level 2, and Level 3 Growth Levels—ELA/Reading**

MAAP ELA												
Grade	Level 1: Minimal				Level 2: Basic				Level 3: Passing			
	Level 1a		Level 1b		Level 2a		Level 2b		Level 3a		Level 3b	
3	301–317		318–334		335–342		343–349		350–357		358–364	
4	401–414		415–428		429–439		440–449		450–457		458–464	
5	501–519		520–538		539–544		545–549		550–557		558–564	
6	601–618		619–635		636–642		643–649		650–657		658–664	
7	701–719		720–737		738–743		744–749		750–757		758–764	
8	801–821		822–841		842–845		846–849		850–857		858–864	
MAP Growth Reading*												
Grade	Level 1: Minimal				Level 2: Basic				Level 3: Passing			
	Level 1a		Level 1b		Level 2a		Level 2b		Level 3a		Level 3b	
	RIT	%ile	RIT	%ile	RIT	%ile	RIT	%ile	RIT	%ile	RIT	%ile
<b>Fall</b>												
2	100-126	1-1	127-148	1-5	149-156	6-15	157-165	16-33	166-173	34-53	174-180	54-71
3	100-146	1-1	147-166	1-11	167-173	12-21	174-180	22-36	181-187	37-52	188-192	53-64
4	100-149	1-1	150-168	1-4	169-180	5-17	181-190	18-36	191-196	37-50	197-202	51-64
5	100-151	1-1	152-180	1-7	181-188	8-16	189-195	17-29	196-205	30-53	206-211	54-67
6	100-153	1-1	154-188	1-9	189-196	10-20	197-204	21-37	205-211	38-53	212-216	54-65
7	100-156	1-1	157-190	1-7	191-198	8-17	199-206	18-32	207-214	33-51	215-221	52-67
8	100-157	1-1	158-197	1-11	198-203	12-20	204-208	21-29	209-217	30-49	218-224	50-65
<b>Winter</b>												
2	100-138	1-1	139-159	1-7	160-166	8-16	167-174	17-33	175-182	34-54	183-188	55-69
3	100-157	1-1	158-175	1-12	176-181	13-22	182-187	23-35	188-194	36-52	195-199	53-64
4	100-158	1-1	159-176	1-5	177-187	6-18	188-196	19-36	197-202	37-50	203-207	51-62
5	100-160	1-1	161-187	1-8	188-194	9-18	195-201	19-32	202-209	33-51	210-215	52-66
6	100-161	1-1	162-193	1-10	194-201	11-22	202-208	23-37	209-215	38-54	216-219	55-64
7	100-162	1-1	163-195	1-9	196-202	10-18	203-209	19-32	210-217	33-51	218-223	52-66
8	100-164	1-1	165-201	1-12	202-206	13-20	207-212	21-32	213-220	33-50	221-226	51-64
<b>Spring</b>												
2	100-144	1-1	145-164	1-8	165-171	9-18	172-179	19-35	180-186	36-53	187-192	54-67
3	100-162	1-1	163-179	2-14	180-185	15-24	186-191	25-37	192-197	38-51	198-202	52-63
4	100-163	1-1	164-180	1-6	181-190	7-19	191-199	20-37	200-204	38-49	205-209	50-61
5	100-164	1-1	165-190	1-10	191-197	11-20	198-203	21-32	204-211	33-52	212-217	53-66
6	100-165	1-1	166-196	1-12	197-203	13-23	204-210	24-38	211-216	39-53	217-220	54-63
7	100-166	1-1	167-197	1-10	198-204	11-20	205-211	21-34	212-218	35-51	219-224	52-65
8	100-167	1-1	168-203	1-14	204-208	15-22	209-213	23-31	214-221	32-50	222-227	51-64

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Spring cut scores for Grade 2 were derived from the Grade 3 cuts using the growth norms.

**Table 3.8. MAP Growth Cut Scores for Level 1, Level 2, and Level 3 Growth Levels—Mathematics**

MAAP Mathematics												
Grade	Level 1: Minimal				Level 2: Basic				Level 3: Passing			
	Level 1a		Level 1b		Level 2a		Level 2b		Level 3a		Level 3b	
3	301–316		317–332		333–341		342–349		350–357		358–364	
4	401–418		419–435		436–442		443–449		450–457		458–464	
5	501–520		521–539		540–544		545–549		550–557		558–564	
6	601–618		619–635		636–642		643–649		650–657		658–664	
7	701–718		719–735		736–742		743–749		750–757		758–764	
8	801–819		820–837		838–843		844–849		850–857		858–864	
MAP Growth Mathematics*												
Grade	Level 1: Minimal				Level 2: Basic				Level 3: Passing			
	Level 1a		Level 1b		Level 2a		Level 2b		Level 3a		Level 3b	
	RIT	%ile	RIT	%ile	RIT	%ile	RIT	%ile	RIT	%ile	RIT	%ile
<b>Fall</b>												
2	100-113	1-1	114-147	1-1	148-158	2-10	159-167	11-28	168-172	29-43	173-178	44-61
3	100-133	1-1	134-164	1-3	165-174	4-15	175-181	16-31	182-186	32-45	187-191	46-59
4	100-138	1-1	139-177	1-6	178-185	7-16	186-191	17-29	192-197	30-45	198-201	46-56
5	100-142	1-1	143-185	1-5	186-192	6-13	193-198	14-24	199-207	25-46	208-213	47-62
6	100-167	1-1	168-192	1-8	193-200	9-19	201-206	20-31	207-212	32-45	213-216	46-55
7	100-170	1-1	171-195	1-7	196-203	8-17	204-211	18-31	212-217	32-44	218-222	45-55
8	100-171	1-1	172-203	1-12	204-211	13-24	212-219	25-39	220-227	40-55	228-232	56-66
<b>Winter</b>												
2	100-126	1-1	127-158	1-2	159-168	3-11	169-176	12-28	177-182	29-46	183-187	47-61
3	100-143	1-1	144-173	1-4	174-182	5-16	183-189	17-31	190-194	32-45	195-198	46-57
4	100-145	1-1	146-183	1-6	184-191	7-16	192-198	17-31	199-204	32-46	205-208	47-57
5	100-147	1-1	148-190	1-6	191-197	7-14	198-204	15-26	205-213	27-47	214-219	48-62
6	100-172	1-1	173-197	1-9	198-205	10-20	206-211	21-32	212-217	33-45	218-221	46-55
7	100-173	1-1	174-198	1-7	199-206	8-16	207-214	17-30	215-221	31-44	222-226	45-56
8	100-175	1-1	176-207	1-14	208-215	15-26	216-222	27-39	223-230	40-55	231-235	56-65
<b>Spring</b>												
2	100-133	1-1	134-164	1-2	165-174	3-13	175-182	14-31	183-187	32-45	188-192	46-60
3	100-149	1-1	150-178	1-5	179-187	6-17	188-194	18-32	195-199	33-46	200-203	47-57
4	100-150	1-1	151-188	1-7	189-196	8-18	197-202	19-30	203-208	31-45	209-212	46-55
5	100-151	1-1	152-194	1-7	195-201	8-15	202-208	16-27	209-217	28-47	218-223	48-61
6	100-175	1-1	176-200	1-10	201-208	11-20	209-214	21-32	215-220	33-45	221-224	46-54
7	100-176	1-1	177-201	1-8	202-209	9-17	210-217	18-31	218-224	32-45	225-229	46-56
8	100-177	1-1	178-209	1-14	210-217	15-26	218-224	27-39	225-232	40-54	233-237	55-64

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Spring cut scores for Grade 2 were derived from the Grade 3 cuts using the growth norms.

### 3.5. Classification Accuracy

Table 3.9 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 MAAP tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.80 to 0.85 for ELA/Reading and 0.85 to 0.87 for Mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the MAAP assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students' proficiency status on MAAP in Grade 3.

Although the results show that MAP Growth scores can be used to accurately classify students as likely to be proficient on the MAAP tests, there is a notable limitation to how these results should be used and interpreted. MAAP 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 3.9. Classification Accuracy Results**

Grade	N	Cut Score		Class. Accuracy*	Rate*		Sensitivity	Specificity	Precision	AUC*
		MAP Growth	MAAP		FP	FN				
<b>ELA/Reading</b>										
2	756	193	365	0.80	0.24	0.17	0.83	0.76	0.84	0.88
3	1,402	203	365	0.83	0.13	0.21	0.79	0.87	0.84	0.91
4	1,314	210	465	0.82	0.15	0.22	0.78	0.85	0.81	0.91
5	1,408	218	565	0.84	0.13	0.22	0.78	0.87	0.78	0.92
6	1,265	221	665	0.85	0.12	0.21	0.79	0.88	0.81	0.92
7	1,244	225	765	0.84	0.11	0.25	0.75	0.89	0.79	0.92
8	1,242	228	865	0.85	0.11	0.21	0.79	0.89	0.80	0.93
<b>Mathematics</b>										
2	789	193	365	0.85	0.19	0.13	0.87	0.81	0.88	0.93
3	1,429	204	365	0.85	0.15	0.14	0.86	0.85	0.83	0.94
4	1,352	213	465	0.85	0.14	0.16	0.84	0.86	0.82	0.93
5	1,431	224	565	0.85	0.13	0.19	0.81	0.87	0.77	0.94
6	1,307	225	665	0.87	0.12	0.14	0.86	0.88	0.86	0.95
7	1,248	230	765	0.87	0.10	0.16	0.84	0.90	0.89	0.95
8	1,262	238	865	0.86	0.08	0.22	0.78	0.92	0.88	0.94

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

### 3.6. Proficiency Projection

Table 3.10 and Table 3.11 present the estimated probability of achieving *Proficient* performance on the MAAP test based on RIT scores from fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Reading score of 201 in the fall has an 83% chance of reaching *Proficient* proficiency or higher on the MAAP test. “Prob.” indicates the probability of obtaining proficient status on the MAAP test in the spring.

**Table 3.10. Proficiency Projection 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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
2	5	193	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	193	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	193	157	No	<0.01	166	No	<0.01	170	No	<0.01
	20	193	160	No	0.01	169	No	<0.01	173	No	<0.01
	25	193	162	No	0.01	171	No	<0.01	175	No	<0.01
	30	193	164	No	0.02	173	No	<0.01	177	No	<0.01
	35	193	166	No	0.04	175	No	0.01	180	No	<0.01
	40	193	168	No	0.07	177	No	0.02	182	No	<0.01
	45	193	170	No	0.09	179	No	0.03	184	No	<0.01
	50	193	172	No	0.15	181	No	0.07	186	No	0.01
	55	193	174	No	0.21	183	No	0.13	188	No	0.06
	60	193	176	No	0.30	185	No	0.23	189	No	0.11
	65	193	178	No	0.40	187	No	0.35	192	No	0.38
	70	193	180	No	0.45	189	Yes	0.50	194	Yes	0.62
	75	193	183	Yes	0.60	191	Yes	0.65	196	Yes	0.83
	80	193	185	Yes	0.70	194	Yes	0.83	199	Yes	0.97
	85	193	188	Yes	0.79	197	Yes	0.93	202	Yes	>0.99
90	193	192	Yes	0.91	200	Yes	0.98	205	Yes	>0.99	
95	193	197	Yes	0.97	206	Yes	>0.99	211	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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
3	5	203	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	203	165	No	<0.01	173	No	<0.01	176	No	<0.01
	15	203	169	No	<0.01	177	No	<0.01	180	No	<0.01
	20	203	173	No	0.01	180	No	<0.01	183	No	<0.01
	25	203	175	No	0.02	183	No	<0.01	186	No	<0.01
	30	203	178	No	0.04	185	No	<0.01	189	No	<0.01
	35	203	180	No	0.05	188	No	0.02	191	No	<0.01
	40	203	182	No	0.09	190	No	0.03	193	No	<0.01
	45	203	185	No	0.17	192	No	0.07	195	No	0.01
	50	203	187	No	0.21	194	No	0.13	197	No	0.03
	55	203	189	No	0.30	196	No	0.23	199	No	0.11
	60	203	191	No	0.39	198	No	0.35	201	No	0.27
	65	203	193	Yes	0.50	200	Yes	0.50	203	Yes	0.50
	70	203	195	Yes	0.55	202	Yes	0.65	206	Yes	0.83
	75	203	198	Yes	0.70	205	Yes	0.83	208	Yes	0.94
	80	203	201	Yes	0.83	207	Yes	0.91	211	Yes	0.99
85	203	204	Yes	0.89	211	Yes	0.97	214	Yes	>0.99	
90	203	208	Yes	0.96	215	Yes	>0.99	218	Yes	>0.99	
95	203	214	Yes	0.99	220	Yes	>0.99	224	Yes	>0.99	
4	5	210	169	No	<0.01	176	No	<0.01	178	No	<0.01
	10	210	175	No	<0.01	182	No	<0.01	184	No	<0.01
	15	210	179	No	<0.01	186	No	<0.01	188	No	<0.01
	20	210	183	No	0.01	189	No	<0.01	191	No	<0.01
	25	210	185	No	0.02	192	No	<0.01	194	No	<0.01
	30	210	188	No	0.04	194	No	0.01	196	No	<0.01
	35	210	190	No	0.06	196	No	0.02	199	No	<0.01
	40	210	192	No	0.11	198	No	0.04	201	No	<0.01
	45	210	195	No	0.17	200	No	0.06	203	No	0.01
	50	210	197	No	0.24	202	No	0.13	205	No	0.06
	55	210	199	No	0.34	205	No	0.28	207	No	0.17
	60	210	201	No	0.44	207	No	0.42	209	No	0.38
	65	210	203	Yes	0.50	209	Yes	0.58	211	Yes	0.62
	70	210	205	Yes	0.61	211	Yes	0.72	213	Yes	0.83
	75	210	208	Yes	0.76	213	Yes	0.83	216	Yes	0.97
	80	210	211	Yes	0.83	216	Yes	0.94	219	Yes	>0.99
85	210	214	Yes	0.92	219	Yes	0.98	222	Yes	>0.99	
90	210	218	Yes	0.96	223	Yes	>0.99	226	Yes	>0.99	
95	210	224	Yes	>0.99	229	Yes	>0.99	232	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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
5	5	218	178	No	<0.01	183	No	<0.01	185	No	<0.01
	10	218	183	No	<0.01	189	No	<0.01	191	No	<0.01
	15	218	187	No	<0.01	193	No	<0.01	194	No	<0.01
	20	218	191	No	<0.01	196	No	<0.01	198	No	<0.01
	25	218	193	No	0.01	198	No	<0.01	200	No	<0.01
	30	218	196	No	0.03	201	No	<0.01	203	No	<0.01
	35	218	198	No	0.04	203	No	0.01	205	No	<0.01
	40	218	200	No	0.06	205	No	0.02	207	No	<0.01
	45	218	202	No	0.11	207	No	0.04	209	No	<0.01
	50	218	204	No	0.17	209	No	0.09	211	No	0.01
	55	218	207	No	0.24	211	No	0.17	213	No	0.06
	60	218	209	No	0.34	213	No	0.28	215	No	0.17
	65	218	211	No	0.44	215	No	0.42	217	No	0.38
	70	218	213	Yes	0.50	217	Yes	0.50	219	Yes	0.62
	75	218	216	Yes	0.66	220	Yes	0.72	222	Yes	0.89
	80	218	218	Yes	0.76	222	Yes	0.83	224	Yes	0.97
	85	218	221	Yes	0.83	226	Yes	0.96	228	Yes	>0.99
90	218	225	Yes	0.94	229	Yes	0.99	231	Yes	>0.99	
95	218	231	Yes	0.99	235	Yes	>0.99	237	Yes	>0.99	
6	5	221	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	221	189	No	<0.01	193	No	<0.01	195	No	<0.01
	15	221	193	No	<0.01	197	No	<0.01	199	No	<0.01
	20	221	196	No	<0.01	200	No	<0.01	202	No	<0.01
	25	221	199	No	0.02	203	No	<0.01	205	No	<0.01
	30	221	202	No	0.03	205	No	<0.01	207	No	<0.01
	35	221	204	No	0.06	208	No	0.02	209	No	<0.01
	40	221	206	No	0.10	210	No	0.04	211	No	<0.01
	45	221	208	No	0.13	212	No	0.09	213	No	0.01
	50	221	210	No	0.19	214	No	0.17	215	No	0.03
	55	221	212	No	0.28	216	No	0.22	217	No	0.11
	60	221	214	No	0.39	218	No	0.35	219	No	0.27
	65	221	217	Yes	0.50	220	Yes	0.50	222	Yes	0.62
	70	221	219	Yes	0.61	222	Yes	0.65	224	Yes	0.83
	75	221	221	Yes	0.72	225	Yes	0.83	226	Yes	0.94
	80	221	224	Yes	0.81	227	Yes	0.91	229	Yes	0.99
	85	221	227	Yes	0.90	230	Yes	0.97	232	Yes	>0.99
90	221	231	Yes	0.97	234	Yes	>0.99	236	Yes	>0.99	
95	221	237	Yes	>0.99	240	Yes	>0.99	242	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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
7	5	225	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	225	193	No	<0.01	196	No	<0.01	197	No	<0.01
	15	225	197	No	<0.01	200	No	<0.01	201	No	<0.01
	20	225	200	No	<0.01	203	No	<0.01	205	No	<0.01
	25	225	203	No	0.01	206	No	<0.01	207	No	<0.01
	30	225	206	No	0.02	209	No	<0.01	210	No	<0.01
	35	225	208	No	0.04	211	No	0.01	212	No	<0.01
	40	225	210	No	0.08	213	No	0.02	214	No	<0.01
	45	225	212	No	0.10	215	No	0.04	216	No	<0.01
	50	225	214	No	0.16	217	No	0.09	218	No	0.01
	55	225	216	No	0.24	219	No	0.17	220	No	0.06
	60	225	218	No	0.33	221	No	0.28	223	No	0.27
	65	225	221	No	0.44	223	No	0.42	225	Yes	0.50
	70	225	223	Yes	0.56	226	Yes	0.65	227	Yes	0.73
	75	225	225	Yes	0.67	228	Yes	0.78	229	Yes	0.89
	80	225	228	Yes	0.81	231	Yes	0.91	232	Yes	0.99
85	225	231	Yes	0.88	234	Yes	0.97	235	Yes	>0.99	
90	225	235	Yes	0.96	238	Yes	>0.99	239	Yes	>0.99	
95	225	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	
8	5	228	190	No	<0.01	193	No	<0.01	194	No	<0.01
	10	228	196	No	<0.01	199	No	<0.01	200	No	<0.01
	15	228	200	No	<0.01	203	No	<0.01	204	No	<0.01
	20	228	204	No	<0.01	206	No	<0.01	207	No	<0.01
	25	228	207	No	0.01	209	No	<0.01	210	No	<0.01
	30	228	209	No	0.03	212	No	<0.01	213	No	<0.01
	35	228	211	No	0.04	214	No	0.01	215	No	<0.01
	40	228	214	No	0.08	216	No	0.02	217	No	<0.01
	45	228	216	No	0.13	218	No	0.04	220	No	0.01
	50	228	218	No	0.20	221	No	0.13	222	No	0.03
	55	228	220	No	0.24	223	No	0.22	224	No	0.11
	60	228	222	No	0.34	225	No	0.35	226	No	0.27
	65	228	225	Yes	0.50	227	Yes	0.50	228	Yes	0.50
	70	228	227	Yes	0.61	229	Yes	0.65	231	Yes	0.83
	75	228	230	Yes	0.71	232	Yes	0.83	233	Yes	0.94
	80	228	232	Yes	0.80	235	Yes	0.94	236	Yes	0.99
85	228	236	Yes	0.92	238	Yes	0.98	239	Yes	>0.99	
90	228	240	Yes	0.97	242	Yes	>0.99	243	Yes	>0.99	
95	228	246	Yes	>0.99	248	Yes	>0.99	249	Yes	>0.99	



**Table 3.11. Proficiency Projection 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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
2	5	193	154	No	<0.01	163	No	<0.01	167	No	<0.01
	10	193	158	No	<0.01	167	No	<0.01	172	No	<0.01
	15	193	162	No	0.01	171	No	<0.01	175	No	<0.01
	20	193	164	No	0.01	173	No	<0.01	178	No	<0.01
	25	193	166	No	0.03	175	No	0.01	180	No	<0.01
	30	193	168	No	0.06	177	No	0.02	182	No	<0.01
	35	193	170	No	0.11	179	No	0.05	184	No	<0.01
	40	193	172	No	0.18	181	No	0.07	186	No	0.01
	45	193	173	No	0.22	182	No	0.10	188	No	0.04
	50	193	175	No	0.27	184	No	0.20	189	No	0.08
	55	193	177	No	0.38	186	No	0.34	191	No	0.25
	60	193	178	No	0.44	187	No	0.42	193	Yes	0.50
	65	193	180	Yes	0.56	189	Yes	0.58	195	Yes	0.75
	70	193	182	Yes	0.68	191	Yes	0.74	196	Yes	0.85
	75	193	184	Yes	0.78	193	Yes	0.85	198	Yes	0.96
	80	193	186	Yes	0.82	195	Yes	0.93	201	Yes	>0.99
	85	193	188	Yes	0.89	198	Yes	0.98	203	Yes	>0.99
90	193	192	Yes	0.97	201	Yes	>0.99	207	Yes	>0.99	
95	193	196	Yes	0.99	205	Yes	>0.99	212	Yes	>0.99	
3	5	204	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	204	171	No	<0.01	179	No	<0.01	183	No	<0.01
	15	204	175	No	<0.01	182	No	<0.01	186	No	<0.01
	20	204	177	No	0.01	185	No	<0.01	189	No	<0.01
	25	204	179	No	0.03	187	No	0.01	192	No	<0.01
	30	204	181	No	0.05	189	No	0.02	194	No	<0.01
	35	204	183	No	0.10	191	No	0.04	196	No	<0.01
	40	204	185	No	0.17	193	No	0.10	198	No	0.02
	45	204	187	No	0.26	195	No	0.20	199	No	0.04
	50	204	188	No	0.31	196	No	0.26	201	No	0.15
	55	204	190	No	0.44	198	No	0.42	203	No	0.37
	60	204	192	Yes	0.50	200	Yes	0.58	205	Yes	0.63
	65	204	194	Yes	0.63	201	Yes	0.67	207	Yes	0.85
	70	204	196	Yes	0.74	203	Yes	0.80	208	Yes	0.92
	75	204	198	Yes	0.83	205	Yes	0.90	211	Yes	0.99
	80	204	200	Yes	0.90	208	Yes	0.97	213	Yes	>0.99
	85	204	202	Yes	0.95	210	Yes	0.99	216	Yes	>0.99
90	204	206	Yes	0.99	214	Yes	>0.99	219	Yes	>0.99	
95	204	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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
4	5	213	176	No	<0.01	182	No	<0.01	185	No	<0.01
	10	213	181	No	<0.01	187	No	<0.01	191	No	<0.01
	15	213	185	No	<0.01	191	No	<0.01	194	No	<0.01
	20	213	187	No	0.01	194	No	<0.01	197	No	<0.01
	25	213	190	No	0.03	196	No	<0.01	200	No	<0.01
	30	213	192	No	0.05	198	No	0.01	202	No	<0.01
	35	213	194	No	0.10	200	No	0.03	205	No	<0.01
	40	213	196	No	0.17	202	No	0.07	207	No	0.02
	45	213	198	No	0.26	204	No	0.14	209	No	0.08
	50	213	200	No	0.37	206	No	0.26	211	No	0.25
	55	213	201	No	0.44	208	No	0.42	212	No	0.37
	60	213	203	Yes	0.56	210	Yes	0.58	214	Yes	0.63
	65	213	205	Yes	0.68	212	Yes	0.74	217	Yes	0.92
	70	213	207	Yes	0.79	214	Yes	0.86	219	Yes	0.98
	75	213	209	Yes	0.87	216	Yes	0.93	221	Yes	>0.99
	80	213	212	Yes	0.95	219	Yes	0.98	224	Yes	>0.99
	85	213	214	Yes	0.97	221	Yes	0.99	227	Yes	>0.99
90	213	218	Yes	0.99	225	Yes	>0.99	230	Yes	>0.99	
95	213	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	224	184	No	<0.01	189	No	<0.01	191	No	<0.01
	10	224	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	224	193	No	<0.01	198	No	<0.01	201	No	<0.01
	20	224	196	No	<0.01	201	No	<0.01	205	No	<0.01
	25	224	199	No	0.01	204	No	<0.01	207	No	<0.01
	30	224	201	No	0.02	206	No	<0.01	210	No	<0.01
	35	224	203	No	0.05	209	No	0.01	212	No	<0.01
	40	224	205	No	0.08	211	No	0.03	215	No	<0.01
	45	224	207	No	0.14	213	No	0.07	217	No	0.01
	50	224	209	No	0.22	215	No	0.15	219	No	0.04
	55	224	211	No	0.32	217	No	0.26	221	No	0.15
	60	224	213	No	0.44	219	No	0.42	223	No	0.37
	65	224	215	Yes	0.56	221	Yes	0.58	225	Yes	0.63
	70	224	217	Yes	0.68	223	Yes	0.74	228	Yes	0.92
	75	224	219	Yes	0.78	225	Yes	0.85	230	Yes	0.98
	80	224	222	Yes	0.89	228	Yes	0.95	233	Yes	>0.99
	85	224	225	Yes	0.95	231	Yes	0.99	236	Yes	>0.99
90	224	229	Yes	0.99	235	Yes	>0.99	240	Yes	>0.99	
95	224	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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
6	5	225	188	No	<0.01	192	No	<0.01	194	No	<0.01
	10	225	194	No	<0.01	198	No	<0.01	200	No	<0.01
	15	225	198	No	<0.01	202	No	<0.01	205	No	<0.01
	20	225	201	No	0.01	205	No	<0.01	208	No	<0.01
	25	225	204	No	0.02	208	No	<0.01	211	No	<0.01
	30	225	206	No	0.04	211	No	0.01	214	No	<0.01
	35	225	209	No	0.10	213	No	0.03	216	No	<0.01
	40	225	211	No	0.17	215	No	0.07	218	No	0.01
	45	225	213	No	0.27	217	No	0.14	221	No	0.08
	50	225	215	No	0.38	220	No	0.34	223	No	0.25
	55	225	217	Yes	0.50	222	Yes	0.50	225	Yes	0.50
	60	225	219	Yes	0.62	224	Yes	0.66	227	Yes	0.75
	65	225	221	Yes	0.73	226	Yes	0.80	230	Yes	0.96
	70	225	223	Yes	0.83	228	Yes	0.90	232	Yes	0.99
	75	225	226	Yes	0.92	231	Yes	0.97	235	Yes	>0.99
	80	225	228	Yes	0.96	234	Yes	0.99	238	Yes	>0.99
	85	225	231	Yes	0.99	237	Yes	>0.99	241	Yes	>0.99
90	225	235	Yes	>0.99	241	Yes	>0.99	245	Yes	>0.99	
95	225	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	230	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	230	198	No	<0.01	201	No	<0.01	203	No	<0.01
	15	230	202	No	<0.01	205	No	<0.01	207	No	<0.01
	20	230	206	No	<0.01	209	No	<0.01	211	No	<0.01
	25	230	208	No	<0.01	212	No	<0.01	214	No	<0.01
	30	230	211	No	0.02	215	No	<0.01	217	No	<0.01
	35	230	213	No	0.04	217	No	0.02	220	No	<0.01
	40	230	216	No	0.10	219	No	0.04	222	No	<0.01
	45	230	218	No	0.21	222	No	0.14	224	No	0.02
	50	230	220	No	0.31	224	No	0.26	227	No	0.15
	55	230	222	No	0.44	226	No	0.42	229	No	0.37
	60	230	225	Yes	0.63	229	Yes	0.67	231	Yes	0.63
	65	230	227	Yes	0.74	231	Yes	0.80	234	Yes	0.92
	70	230	229	Yes	0.83	233	Yes	0.90	236	Yes	0.98
	75	230	232	Yes	0.93	236	Yes	0.97	239	Yes	>0.99
	80	230	235	Yes	0.97	239	Yes	>0.99	242	Yes	>0.99
	85	230	238	Yes	0.99	243	Yes	>0.99	246	Yes	>0.99
90	230	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99	
95	230	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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
8	5	238	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	238	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	238	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	238	209	No	<0.01	212	No	<0.01	214	No	<0.01
	25	238	212	No	<0.01	215	No	<0.01	217	No	<0.01
	30	238	215	No	0.01	218	No	<0.01	220	No	<0.01
	35	238	218	No	0.02	221	No	<0.01	223	No	<0.01
	40	238	220	No	0.03	223	No	<0.01	225	No	<0.01
	45	238	223	No	0.07	226	No	0.02	228	No	<0.01
	50	238	225	No	0.12	228	No	0.05	230	No	<0.01
	55	238	227	No	0.19	231	No	0.15	233	No	0.04
	60	238	230	No	0.33	233	No	0.27	235	No	0.15
	65	238	232	No	0.44	236	Yes	0.50	238	Yes	0.50
	70	238	235	Yes	0.61	238	Yes	0.66	241	Yes	0.85
	75	238	238	Yes	0.76	241	Yes	0.85	244	Yes	0.98
	80	238	241	Yes	0.88	244	Yes	0.95	247	Yes	>0.99
	85	238	245	Yes	0.96	248	Yes	0.99	251	Yes	>0.99
90	238	249	Yes	0.99	253	Yes	>0.99	256	Yes	>0.99	
95	238	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	

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