Linking Study Report: Predicting Performance on the Georgia Milestones End-of-Grade (EOG) Assessments based on NWEA MAP Growth Scores

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NWEA Psychometric Solutions

nwea

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Executive Summary

To predict student achievement on the Georgia Milestones End-of-Grade (EOG) assessments in English Language Arts (ELA) and Mathematics, NWEA® conducted a linking study using Spring 2019 data to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the Georgia Milestones achievement 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 2016 to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020).

Table E.1 presents the Georgia Milestones *Proficient Learner* achievement 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. For example, the *Proficient Learner* cut score on the Georgia Milestones Grade 3 ELA test is 525. A Grade 3 student with a MAP Growth Reading RIT score of 192 in the fall is likely to meet proficiency on the Georgia Milestones ELA test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 192 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 Georgia Milestones 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., Grades 2 to 3).

Table E.1. MAP Growth Cut Scores for Georgia Milestones EOG Proficiency

Assessment		***Proficient Learner* Cut Scores by Grade**						
		2	**3**	**4**	**5**	**6**	**7**	**8**
ELA/Reading								
GA Milestones Spring		–	525	525	525	525	525	525
MAP Growth	Fall	180	192	201	208	213	220	222
	Winter	188	199	207	212	217	223	224
	Spring	192	202	209	214	218	224	225
Mathematics								
GA Milestones Spring		–	525	525	525	525	525	525
MAP Growth	Fall	178	190	202	214	218	224	230
	Winter	187	198	209	220	223	228	233
	Spring	192	203	213	224	226	231	235

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.

E.1. Assessment Overview

The Georgia Milestones EOG ELA and Mathematics tests are Georgia's state summative assessments aligned to the Georgia Standards of Excellence and administered in Grades 3–8. Based on their test scores, students are placed into one of four achievement levels: *Beginning Learner, Developing Learner, Proficient Learner,* and *Distinguished Learner.* These tests are used to provide evidence of student achievement in ELA and Mathematics for various test score uses such as meeting the requirements of the state's accountability system. The *Proficient Learner* cut score demarks the minimum level of achievement considered to be proficient. 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 2019 test administration, the equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring Georgia Milestones achievement 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 Georgia Milestones 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 Georgia Milestones assessments in Spring 2019 were included in the study sample. Table E.2 presents the weighted number of Georgia students from 28 districts and 219 schools who were included in the linking study. The linking study sample is voluntary, so the data 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 achievement 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 for Grades 3–8 in this study were conducted based on the weighted sample.

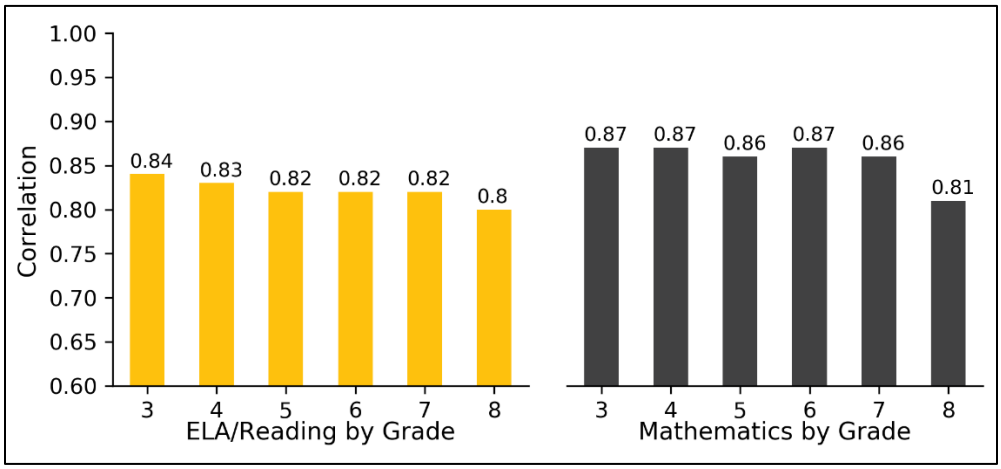
Table E.2. Linking Study Sample

	#Students	
Grade	ELA/Reading	Mathematics
3	12,930	12,890
4	14,537	14,652
5	13,826	13,837
6	14,545	14,791
7	11,752	11,816
8	10,096	9,974

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and Georgia Milestones EOG scores range from 0.80 to 0.87 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 Georgia Milestones EOG assessments.

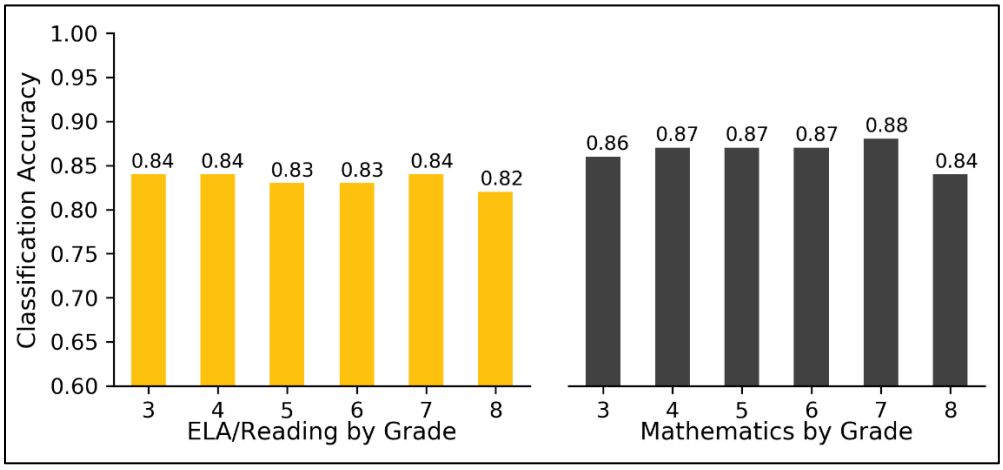
Figure E.1. Correlations between MAP Growth and Georgia Milestones EOG



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 Georgia Milestones EOG tests. For example, the MAP Growth Reading Grade 3 *Proficient Learner* cut score has a 0.84 accuracy rate, meaning it accurately classified student achievement on the state test for 84% of the sample. The results range from 0.82 to 0.88 across both content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the Georgia Milestones EOG 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 Georgia Milestones End-of-Grade (EOG) assessments in English Language Arts (ELA) and Mathematics with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2019 term. The linking study has been updated since the previous version published in February 2016 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 Georgia Milestones 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 Georgia Milestones EOG achievement 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 Georgia Milestones EOG tests
5. The probability of achieving grade-level proficiency on the Georgia Milestones assessment based on MAP Growth RIT scores from fall, winter, and spring using the 2020 norms

1.2. Assessment Overview

The Georgia Milestones EOG ELA and Mathematics summative assessments are aligned to the Georgia Standards of Excellence and administered in Grades 3–8. Each assessment has three cut scores (i.e., the minimum score a student must get on a test to be placed in a certain achievement level) that distinguish between the following achievement levels: *Beginning Learner, Developing Learner, Proficient Learner,* and *Distinguished Learner.* The *Proficient Learner* 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 2019 administrations of the MAP Growth and Georgia Milestones EOG assessments. NWEA recruited Georgia 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 RIT scores from the NWEA in-house database. Once Georgia state score information was received by NWEA, each student's state testing record was matched to their RIT 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 Georgia Milestones EOG assessments in Spring 2019 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 achievement 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 achievement 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 equipercentile linking method (Kolen & Brennan, 2004) was used to identify the spring RIT scores that correspond to the spring Georgia Milestones EOG achievement level cut scores. Spring cuts for Grade 2 were derived based on the cuts for Grade 3 and the 2020 NWEA growth norms. RIT fall and winter cut scores that predict proficiency on the spring summative 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 RIT 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 achievement level designations for its summative assessment.

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

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

where $e_y(x)$ is the equipercentile equivalent of score x on Georgia Milestones on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on Georgia Milestones, 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 from 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 Georgia Milestones tests can be described using classification accuracy statistics based on the MAP Growth spring cut scores that show the proportion of students correctly classified by their RIT scores as proficient (*Proficient Learner* or *Distinguished Learner*) or not proficient (*Beginning Learner* or *Developing Learner*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich, Hanson, Harris, & Sconing, 2004). The results are based on the Spring 2019 MAP Growth and Georgia Milestones data for the *Proficient Learners* cut score.

Since Georgia students do not begin taking the Georgia Milestones EOG assessments until Grade 3, longitudinal data were collected for the 2018–2019 Grade 3 cohort in order to link the Georgia Milestones assessment to MAP Growth for Grade 2 to calculate the classification accuracy statistics. To accomplish this, 2018–2019 Georgia Milestones Grade 3 results were linked to MAP Growth data from Grade 3 students in 2018–2019 and Grade 2 students in 2017–2018. 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) / (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 Georgia Milestones 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 Learner* on the Georgia Milestones test based on their fall or winter RIT score:

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

where:

- Φ 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 Learner* 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 Learner* on the Georgia Milestones test based on their spring RIT score (RIT_{Spring}):

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

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 Georgia Milestones EOG assessments in Spring 2019 were included in the study sample. Data used in this study were collected from 28 districts and 219 schools in Georgia. Table 3.1 presents the demographic distributions of race, sex, and achievement level in the original unweighted study sample, and Table 3.2 presents the distributions of the student population that took the Spring 2019 Georgia Milestones EOG tests (GOSA, 2019). Since the unweighted data are different from the general Georgia Milestones 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 Georgia 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)							
		%Students by Grade					
Demographic Subgroup		3	4	5	6	7	8
ELA/Reading							
	Total N	12,930	14,537	13,826	14,545	11,764	10,106
Race	Asian	1.9	2.1	1.9	2.2	2.2	2.2
	Black	29.4	30.6	29.6	31.0	28.0	28.7
	Hispanic	17.5	17.3	17.8	17.7	19.0	19.7
	Multi-Race	4.5	4.4	4.1	4.3	4.0	3.7
	Other	1.7	1.6	1.6	1.7	2.0	2.5
	White	45.0	44.1	45.1	43.0	44.8	43.2
Sex	Female	49.0	49.2	48.7	47.9	49.9	49.1
	Male	51.0	50.8	51.3	52.1	50.1	50.9
Achievement Level	*Beginning*	30.0	25.6	22.8	27.2	30.3	19.3
	Developing	32.0	34.0	35.9	30.6	35.6	38.3
	Proficient	26.7	26.8	32.6	32.8	27.9	34.2
	Distinguished	11.4	13.6	8.6	9.3	6.2	8.1
Mathematics							
	Total N	12,877	14,652	13,837	14,776	11,828	9,964
Race	Asian	1.9	2.1	1.9	2.2	2.2	1.6
	Black	29.4	30.7	29.6	31.4	28.6	29.5
	Hispanic	17.6	17.2	17.8	17.6	18.9	19.3
	Multi-Race	4.5	4.4	4.2	4.4	4.0	3.8
	Other	1.7	1.6	1.6	1.7	2.0	2.3
	White	45.0	44.0	45.0	42.7	44.4	43.4
Sex	Female	49.0	49.3	48.7	47.9	49.9	49.6
	Male	51.0	50.7	51.3	52.1	50.1	50.4
Achievement Level	*Beginning*	16.9	16.4	22.4	19.5	21.8	20.1
	Developing	33.5	36.3	40.2	41.9	39.0	42.6
	Proficient	39.1	36.1	27.2	29.0	28.3	29.4
	Distinguished	10.5	11.2	10.2	9.6	10.9	7.9

Table 3.2. Spring 2019 Georgia Milestones EOG Student Population Demographics

Spring 2019 Georgia Milestones EOG Population							
		%Students by Grade					
Demographic Subgroup		3	4	5	6	7	8
ELA							
	Total N	128,777	133,027	135,905	136,207	132,786	124,134
Race	Asian	4.4	4.2	4.2	4.2	4.2	4.2
	Black	36.6	37.2	37.1	37.2	36.6	36.8
	Hispanic	17.0	17.0	17.0	17.1	17.0	16.6
	Multi-Race	4.2	4.0	3.9	3.8	3.6	3.5
	Other	0.3	0.3	0.3	0.3	0.3	0.3
	White	37.5	37.3	37.5	37.4	38.3	38.5
Sex	Female	49.1	48.9	48.9	49.1	49.0	48.6
	Male	50.9	51.1	51.1	50.9	51.0	51.4
Achievement Level	*Beginning*	26.3	25.2	19.8	26.4	28.2	17.8
	Developing	31.7	32.4	34.8	27.7	32.9	34.8
	Proficient	27.9	26.6	34.3	34.9	30.7	35.5
	Distinguished	14.1	15.8	11.1	11.0	8.1	11.8
Mathematics							
	Total N	128,610	132,967	135,855	136,159	132,322	102,928
Race	Asian	4.4	4.2	4.2	4.2	4.1	2.2
	Black	36.6	37.2	37.1	37.2	36.6	39.5
	Hispanic	17.0	17.0	17.0	17.1	17.1	16.9
	Multi-Race	4.2	4.0	3.9	3.8	3.6	3.4
	Other	0.3	0.3	0.3	0.3	0.3	0.3
	White	37.5	37.3	37.5	37.4	38.3	37.7
Sex	Female	49.1	48.9	48.9	49.1	49.0	48.4
	Male	50.9	51.1	51.1	50.9	51.0	51.6
Achievement Level	*Beginning*	17.5	17.7	19.4	21.8	22.0	21.9
	Developing	30.8	33.1	39.8	38.7	35.3	43.1
	Proficient	38.6	35.7	27.3	27.3	28.0	27.5
	Distinguished	13.2	13.5	13.5	12.3	14.6	7.6

Table 3.3. Linking Study Sample Demographics (Weighted)

Linking Study Sample (Weighted)							
		%Students by Grade					
Demographic Subgroup		3	4	5	6	7	8
ELA/Reading							
	Total N	12,930	14,537	13,826	14,545	11,752	10,096
Race	Asian	4.4	4.2	4.2	4.2	4.2	4.2
	Black	36.6	37.2	37.1	37.2	36.6	36.8
	Hispanic	17.0	17.0	17.0	17.1	17.0	16.6
	Multi-Race	4.2	4.0	3.9	3.8	3.6	3.5
	Other	0.3	0.3	0.3	0.3	0.3	0.3
	White	37.5	37.3	37.5	37.4	38.3	38.5
Sex	Female	49.1	48.9	48.9	49.1	49.0	48.6
	Male	50.9	51.1	51.1	50.9	51.0	51.4
Achievement Level	*Beginning*	26.3	25.2	19.8	26.4	28.2	17.8
	Developing	31.7	32.4	34.8	27.7	32.9	34.8
	Proficient	27.9	26.6	34.3	34.9	30.7	35.5
	Distinguished	14.1	15.8	11.1	11.0	8.1	11.8
Mathematics							
	Total N	12,890	14,652	13,837	14,791	11,816	9,974
Race	Asian	4.4	4.2	4.2	4.2	4.1	2.2
	Black	36.6	37.2	37.1	37.2	36.6	39.5
	Hispanic	17.0	17.0	17.0	17.1	17.1	16.9
	Multi-Race	4.2	4.0	3.9	3.8	3.6	3.4
	Other	0.3	0.3	0.3	0.3	0.3	0.3
	White	37.5	37.3	37.5	37.4	38.3	37.7
Sex	Female	49.1	48.9	48.9	49.1	49.0	48.4
	Male	50.9	51.1	51.1	50.9	51.0	51.6
Achievement Level	*Beginning*	17.5	17.7	19.4	21.8	22.0	21.9
	Developing	30.8	33.1	39.8	38.7	35.3	43.1
	Proficient	38.6	35.7	27.3	27.3	28.0	27.5
	Distinguished	13.2	13.5	13.5	12.3	14.6	7.6

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and Georgia Milestones EOG test scores from Spring 2019, including the correlation coefficient (*r*) between them. The correlation coefficients between the scores range from 0.80 to 0.84 for ELA/Reading and 0.81 to 0.87 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 Georgia Milestones EOG assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	Georgia Milestones*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
ELA/Reading										
3	12,930	0.84	513.2	59.9	270	779	197.5	15.7	142	243
4	14,537	0.83	513.8	55.1	316	775	204.3	15.7	141	256
5	13,826	0.82	519.7	53.2	316	760	211.0	14.7	142	265
6	14,545	0.82	515.8	65.3	295	769	214.2	15.1	154	262
7	11,752	0.82	510.3	56.8	331	785	218.2	15.6	154	267
8	10,096	0.80	519.8	49.6	339	730	221.3	14.7	152	266
Mathematics										
3	12,890	0.87	524.8	50.8	320	705	201.2	13.5	136	251
4	14,652	0.87	524.7	50.9	360	715	210.9	15.0	134	261
5	13,837	0.86	518.8	52.4	352	725	219.3	16.1	143	277
6	14,791	0.87	516.3	49.8	381	700	220.7	17.0	141	275
7	11,816	0.86	520.6	53.9	381	740	226.9	18.1	144	278
8	9,974	0.81	510.9	45.9	363	755	227.3	16.6	151	298

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the Georgia 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 achievement level on the Georgia Milestones EOG 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 192 in the fall is likely to reach *Proficient Learner* on the Georgia Milestones Grade 3 ELA test in the spring. A Grade 3 student who obtained a MAP Growth Reading RIT score of 202 in the spring is also likely to reach *Proficient Learner* on the Georgia Milestones assessment. 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 achievement level could be different from the generic projection presented in this document. Partners are therefore encouraged to use the projected achievement 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

Georgia Milestones ELA								
Grade	***Beginning Learner***		***Developing Learner***		***Proficient Learner***		***Distinguished Learner***	
3	180–474		475–524		**525**–580		581–830	
4	210–474		475–524		**525**–573		574–775	
5	210–474		475–524		**525**–586		587–760	
6	140–474		475–524		**525**–598		599–820	
7	165–474		475–524		**525**–591		592–785	
8	225–474		475–524		**525**–580		581–730	
MAP Growth Reading*								
	Beginning Learner		***Developing Learner***		***Proficient Learner***		***Distinguished Learner***	
Grade	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–161	1–24	162–179	25–68	**180**–194	69–92	195–350	93–99
3	100–176	1–27	177–191	28–62	**192**–205	63–87	206–350	88–99
4	100–184	1–23	185–200	24–59	**201**–213	60–84	214–350	85–99
5	100–191	1–21	192–207	22–58	**208**–223	59–87	224–350	88–99
6	100–200	1–28	201–212	29–56	**213**–228	57–86	229–350	87–99
7	100–205	1–30	206–219	31–63	**220**–235	64–90	236–350	91–99
8	100–206	1–25	207–221	26–58	**222**–236	59–86	237–350	87–99
Winter								
2	100–170	1–24	171–187	25–66	**188**–201	67–91	202–350	92–99
3	100–184	1–28	185–198	29–61	**199**–211	62–86	212–350	87–99
4	100–191	1–25	192–206	26–60	**207**–217	61–82	218–350	83–99
5	100–197	1–23	198–211	24–56	**212**–226	57–86	227–350	87–99
6	100–204	1–28	205–216	29–57	**217**–230	58–85	231–350	86–99
7	100–208	1–30	209–222	31–63	**223**–236	64–88	237–350	89–99
8	100–209	1–25	210–223	26–57	**224**–237	58–84	238–350	85–99
Spring								
2	100–175	1–26	176–191	27–65	**192**–205	66–90	206–350	91–99
3	100–188	1–30	189–201	31–61	**202**–213	62–84	214–350	85–99
4	100–194	1–26	195–208	27–59	**209**–219	60–81	220–350	82–99
5	100–199	1–24	200–213	25–56	**214**–227	57–85	228–350	86–99
6	100–206	1–29	207–217	30–56	**218**–231	57–84	232–350	85–99
7	100–210	1–32	211–223	33–62	**224**–237	63–87	238–350	88–99
8	100–211	1–27	212–224	28–57	**225**–238	58–84	239–350	85–99

*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

Georgia Milestones Mathematics								
Grade	***Beginning Learner***		***Developing Learner***		***Proficient Learner***		***Distinguished Learner***	
3	290–474		475–524		**525**–579		580–705	
4	270–474		475–524		**525**–584		585–715	
5	265–474		475–524		**525**–579		580–725	
6	285–474		475–524		**525**–579		580–700	
7	265–474		475–524		**525**–579		580–740	
8	275–474		475–524		**525**–578		579–755	
MAP Growth Mathematics*								
	Beginning Learner		***Developing Learner***		***Proficient Learner***		***Distinguished Learner***	
Grade	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–159	1–11	160–177	12–58	**178**–191	59–89	192–350	90–99
3	100–175	1–17	176–189	18–54	**190**–202	55–85	203–350	86–99
4	100–185	1–16	186–201	17–56	**202**–216	57–88	217–350	89–99
5	100–196	1–20	197–213	21–62	**214**–227	63–88	228–350	89–99
6	100–198	1–15	199–217	16–57	**218**–232	58–86	233–350	87–99
7	100–206	1–21	207–223	22–58	**224**–238	59–85	239–350	86–99
8	100–208	1–19	209–229	20–60	**230**–244	61–85	245–350	86–99
Winter								
2	100–169	1–13	170–186	14–58	**187**–199	59–88	200–350	89–99
3	100–183	1–17	184–197	18–54	**198**–209	55–83	210–350	84–99
4	100–191	1–16	192–208	17–57	**209**–223	58–88	224–350	89–99
5	100–201	1–20	202–219	21–62	**220**–233	63–88	234–350	89–99
6	100–203	1–17	204–222	18–57	**223**–237	58–85	238–350	86–99
7	100–209	1–21	210–227	22–58	**228**–242	59–84	243–350	85–99
8	100–212	1–21	213–232	22–59	**233**–247	60–84	248–350	85–99
Spring								
2	100–175	1–15	176–191	16–57	**192**–204	58–87	205–350	88–99
3	100–188	1–19	189–202	20–54	**203**–214	55–83	215–350	84–99
4	100–196	1–18	197–212	19–55	**213**–227	56–86	228–350	87–99
5	100–205	1–21	206–223	22–61	**224**–237	62–87	238–350	88–99
6	100–206	1–17	207–225	18–56	**226**–240	57–84	241–350	85–99
7	100–212	1–22	213–230	23–58	**231**–245	59–84	246–350	85–99
8	100–214	1–21	215–234	22–58	**235**–249	59–83	250–350	84–99

*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. Classification Accuracy

Table 3.7 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 Georgia Milestones EOG tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.80 to 0.84 for ELA/Reading and 0.81 to 0.88 for Mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the Georgia Milestones EOG assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students' proficiency status on Georgia Milestones 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 Georgia Milestones tests, there is a notable limitation to how these results should be used and interpreted. Georgia Milestones and MAP Growth assessments are designed for different purposes and measure slightly different constructs even within the same content area. Therefore, scores on the two tests cannot be assumed to be interchangeable. MAP Growth may not be used as a substitute for the state tests and vice versa.

Table 3.7. Classification Accuracy Results

Grade	N	Cut Score		Class. Accuracy*	Rate*		Sensitivity	Specificity	Precision	AUC*
		MAP Growth	Georgia Milestones		FP	FN				
ELA/Reading										
2	9,451	192	525	0.80	0.15	0.28	0.72	0.85	0.75	0.88
3	12,930	202	525	0.84	0.15	0.17	0.83	0.85	0.80	0.92
4	14,537	209	525	0.84	0.15	0.18	0.82	0.85	0.80	0.92
5	13,826	214	525	0.83	0.18	0.16	0.84	0.82	0.79	0.92
6	14,545	218	525	0.83	0.15	0.20	0.80	0.85	0.82	0.91
7	11,752	224	525	0.84	0.12	0.21	0.79	0.88	0.80	0.92
8	10,096	225	525	0.82	0.13	0.23	0.77	0.87	0.84	0.90
Mathematics										
2	9,334	192	525	0.81	0.16	0.22	0.78	0.84	0.83	0.89
3	12,890	203	525	0.86	0.13	0.15	0.85	0.87	0.88	0.94
4	14,652	213	525	0.87	0.12	0.13	0.87	0.88	0.87	0.95
5	13,837	224	525	0.87	0.11	0.15	0.85	0.89	0.84	0.95
6	14,791	226	525	0.87	0.12	0.14	0.86	0.88	0.83	0.95
7	11,816	231	525	0.88	0.12	0.12	0.88	0.88	0.84	0.95
8	9,974	235	525	0.84	0.10	0.25	0.75	0.90	0.80	0.91

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

3.5. Proficiency Projection

Table 3.8 and Table 3.9 present the estimated probability of achieving *Proficient Learner* achievement on the Georgia Milestones EOG 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 86% chance of reaching *Proficient Learner* or higher on the Georgia Milestones Grade 3 test. "Prob." indicates the probability of obtaining proficient status on the Georgia Milestones test in the spring.

Table 3.8. Proficiency Projection based on RIT Scores—ELA/Reading

ELA/Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
2	5	192	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	192	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	192	157	No	<0.01	166	No	<0.01	170	No	<0.01
	20	192	160	No	0.01	169	No	<0.01	173	No	<0.01
	25	192	162	No	0.02	171	No	<0.01	175	No	<0.01
	30	192	164	No	0.03	173	No	<0.01	177	No	<0.01
	35	192	166	No	0.06	175	No	0.01	180	No	<0.01
	40	192	168	No	0.09	177	No	0.03	182	No	<0.01
	45	192	170	No	0.12	179	No	0.05	184	No	0.01
	50	192	172	No	0.18	181	No	0.10	186	No	0.03
	55	192	174	No	0.25	183	No	0.17	188	No	0.11
	60	192	176	No	0.35	185	No	0.29	189	No	0.17
	65	192	178	No	0.45	187	No	0.43	192	Yes	0.50
	70	192	180	Yes	0.50	189	Yes	0.57	194	Yes	0.73
	75	192	183	Yes	0.65	191	Yes	0.71	196	Yes	0.89
	80	192	185	Yes	0.75	194	Yes	0.87	199	Yes	0.99
	85	192	188	Yes	0.82	197	Yes	0.95	202	Yes	>0.99
	90	192	192	Yes	0.93	200	Yes	0.99	205	Yes	>0.99
	95	192	197	Yes	0.98	206	Yes	>0.99	211	Yes	>0.99

ELA/Reading												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.	
3	5	202	159	No	<0.01	167	No	<0.01	170	No	<0.01	
	10	202	165	No	<0.01	173	No	<0.01	176	No	<0.01	
	15	202	169	No	<0.01	177	No	<0.01	180	No	<0.01	
	20	202	173	No	0.01	180	No	<0.01	183	No	<0.01	
	25	202	175	No	0.02	183	No	<0.01	186	No	<0.01	
	30	202	178	No	0.05	185	No	0.01	189	No	<0.01	
	35	202	180	No	0.07	188	No	0.03	191	No	<0.01	
	40	202	182	No	0.11	190	No	0.05	193	No	<0.01	
	45	202	185	No	0.21	192	No	0.09	195	No	0.01	
	50	202	187	No	0.25	194	No	0.17	197	No	0.06	
	55	202	189	No	0.34	196	No	0.29	199	No	0.17	
	60	202	191	No	0.45	198	No	0.43	201	No	0.38	
	65	202	193	Yes	0.55	200	Yes	0.57	203	Yes	0.62	
	70	202	195	Yes	0.61	202	Yes	0.71	206	Yes	0.89	
	75	202	198	Yes	0.75	205	Yes	0.87	208	Yes	0.97	
	80	202	201	Yes	0.86	207	Yes	0.93	211	Yes	>0.99	
	85	202	204	Yes	0.91	211	Yes	0.98	214	Yes	>0.99	
	90	202	208	Yes	0.97	215	Yes	>0.99	218	Yes	>0.99	
	95	202	214	Yes	0.99	220	Yes	>0.99	224	Yes	>0.99	
4	5	209	169	No	<0.01	176	No	<0.01	178	No	<0.01	
	10	209	175	No	<0.01	182	No	<0.01	184	No	<0.01	
	15	209	179	No	<0.01	186	No	<0.01	188	No	<0.01	
	20	209	183	No	0.01	189	No	<0.01	191	No	<0.01	
	25	209	185	No	0.03	192	No	<0.01	194	No	<0.01	
	30	209	188	No	0.05	194	No	0.01	196	No	<0.01	
	35	209	190	No	0.08	196	No	0.03	199	No	<0.01	
	40	209	192	No	0.13	198	No	0.06	201	No	0.01	
	45	209	195	No	0.20	200	No	0.09	203	No	0.03	
	50	209	197	No	0.29	202	No	0.17	205	No	0.11	
	55	209	199	No	0.39	205	No	0.35	207	No	0.27	
	60	209	201	Yes	0.50	207	Yes	0.50	209	Yes	0.50	
	65	209	203	Yes	0.56	209	Yes	0.65	211	Yes	0.73	
	70	209	205	Yes	0.66	211	Yes	0.78	213	Yes	0.89	
	75	209	208	Yes	0.80	213	Yes	0.87	216	Yes	0.99	
	80	209	211	Yes	0.87	216	Yes	0.96	219	Yes	>0.99	
	85	209	214	Yes	0.94	219	Yes	0.99	222	Yes	>0.99	
	90	209	218	Yes	0.97	223	Yes	>0.99	226	Yes	>0.99	
	95	209	224	Yes	>0.99	229	Yes	>0.99	232	Yes	>0.99	

ELA/Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
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
6	5	218	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	218	189	No	<0.01	193	No	<0.01	195	No	<0.01
	15	218	193	No	<0.01	197	No	<0.01	199	No	<0.01
	20	218	196	No	0.02	200	No	<0.01	202	No	<0.01
	25	218	199	No	0.04	203	No	0.01	205	No	<0.01
	30	218	202	No	0.08	205	No	0.02	207	No	<0.01
	35	218	204	No	0.13	208	No	0.06	209	No	<0.01
	40	218	206	No	0.19	210	No	0.12	211	No	0.01
	45	218	208	No	0.24	212	No	0.22	213	No	0.06
	50	218	210	No	0.33	214	No	0.35	215	No	0.17
	55	218	212	No	0.44	216	No	0.42	217	No	0.38
	60	218	214	Yes	0.56	218	Yes	0.58	219	Yes	0.62
	65	218	217	Yes	0.67	220	Yes	0.72	222	Yes	0.89
	70	218	219	Yes	0.76	222	Yes	0.83	224	Yes	0.97
	75	218	221	Yes	0.84	225	Yes	0.94	226	Yes	0.99
	80	218	224	Yes	0.90	227	Yes	0.97	229	Yes	>0.99
	85	218	227	Yes	0.96	230	Yes	0.99	232	Yes	>0.99
	90	218	231	Yes	0.99	234	Yes	>0.99	236	Yes	>0.99
	95	218	237	Yes	>0.99	240	Yes	>0.99	242	Yes	>0.99

ELA/Reading												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.	
7	5	224	187	No	<0.01	190	No	<0.01	191	No	<0.01	
	10	224	193	No	<0.01	196	No	<0.01	197	No	<0.01	
	15	224	197	No	<0.01	200	No	<0.01	201	No	<0.01	
	20	224	200	No	<0.01	203	No	<0.01	205	No	<0.01	
	25	224	203	No	0.01	206	No	<0.01	207	No	<0.01	
	30	224	206	No	0.03	209	No	0.01	210	No	<0.01	
	35	224	208	No	0.06	211	No	0.02	212	No	<0.01	
	40	224	210	No	0.10	213	No	0.03	214	No	<0.01	
	45	224	212	No	0.12	215	No	0.06	216	No	0.01	
	50	224	214	No	0.19	217	No	0.12	218	No	0.03	
	55	224	216	No	0.28	219	No	0.22	220	No	0.11	
	60	224	218	No	0.39	221	No	0.35	223	No	0.38	
	65	224	221	Yes	0.50	223	Yes	0.50	225	Yes	0.62	
	70	224	223	Yes	0.61	226	Yes	0.72	227	Yes	0.83	
	75	224	225	Yes	0.72	228	Yes	0.83	229	Yes	0.94	
	80	224	228	Yes	0.84	231	Yes	0.94	232	Yes	0.99	
	85	224	231	Yes	0.90	234	Yes	0.98	235	Yes	>0.99	
	90	224	235	Yes	0.97	238	Yes	>0.99	239	Yes	>0.99	
	95	224	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	
8	5	225	190	No	<0.01	193	No	<0.01	194	No	<0.01	
	10	225	196	No	<0.01	199	No	<0.01	200	No	<0.01	
	15	225	200	No	<0.01	203	No	<0.01	204	No	<0.01	
	20	225	204	No	0.01	206	No	<0.01	207	No	<0.01	
	25	225	207	No	0.04	209	No	<0.01	210	No	<0.01	
	30	225	209	No	0.06	212	No	0.01	213	No	<0.01	
	35	225	211	No	0.08	214	No	0.03	215	No	<0.01	
	40	225	214	No	0.17	216	No	0.06	217	No	0.01	
	45	225	216	No	0.24	218	No	0.13	220	No	0.06	
	50	225	218	No	0.34	221	No	0.28	222	No	0.17	
	55	225	220	No	0.39	223	No	0.42	224	No	0.38	
	60	225	222	Yes	0.50	225	Yes	0.58	226	Yes	0.62	
	65	225	225	Yes	0.66	227	Yes	0.72	228	Yes	0.83	
	70	225	227	Yes	0.76	229	Yes	0.83	231	Yes	0.97	
	75	225	230	Yes	0.83	232	Yes	0.94	233	Yes	0.99	
	80	225	232	Yes	0.89	235	Yes	0.98	236	Yes	>0.99	
	85	225	236	Yes	0.96	238	Yes	>0.99	239	Yes	>0.99	
	90	225	240	Yes	0.99	242	Yes	>0.99	243	Yes	>0.99	
	95	225	246	Yes	>0.99	248	Yes	>0.99	249	Yes	>0.99	

Table 3.9. Proficiency Projection based on RIT Scores—Mathematics

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
2	5	192	154	No	<0.01	163	No	<0.01	167	No	<0.01
	10	192	158	No	<0.01	167	No	<0.01	172	No	<0.01
	15	192	162	No	0.01	171	No	<0.01	175	No	<0.01
	20	192	164	No	0.02	173	No	<0.01	178	No	<0.01
	25	192	166	No	0.04	175	No	0.01	180	No	<0.01
	30	192	168	No	0.08	177	No	0.03	182	No	<0.01
	35	192	170	No	0.14	179	No	0.07	184	No	<0.01
	40	192	172	No	0.22	181	No	0.10	186	No	0.02
	45	192	173	No	0.27	182	No	0.15	188	No	0.08
	50	192	175	No	0.32	184	No	0.26	189	No	0.15
	55	192	177	No	0.44	186	No	0.42	191	No	0.37
	60	192	178	Yes	0.50	187	Yes	0.50	193	Yes	0.63
	65	192	180	Yes	0.62	189	Yes	0.66	195	Yes	0.85
	70	192	182	Yes	0.73	191	Yes	0.80	196	Yes	0.92
	75	192	184	Yes	0.82	193	Yes	0.90	198	Yes	0.98
	80	192	186	Yes	0.86	195	Yes	0.95	201	Yes	>0.99
	85	192	188	Yes	0.92	198	Yes	0.99	203	Yes	>0.99
	90	192	192	Yes	0.98	201	Yes	>0.99	207	Yes	>0.99
	95	192	196	Yes	0.99	205	Yes	>0.99	212	Yes	>0.99
3	5	203	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	203	171	No	<0.01	179	No	<0.01	183	No	<0.01
	15	203	175	No	0.01	182	No	<0.01	186	No	<0.01
	20	203	177	No	0.02	185	No	<0.01	189	No	<0.01
	25	203	179	No	0.04	187	No	0.01	192	No	<0.01
	30	203	181	No	0.07	189	No	0.03	194	No	<0.01
	35	203	183	No	0.13	191	No	0.07	196	No	0.01
	40	203	185	No	0.21	193	No	0.14	198	No	0.04
	45	203	187	No	0.31	195	No	0.26	199	No	0.08
	50	203	188	No	0.37	196	No	0.33	201	No	0.25
	55	203	190	Yes	0.50	198	Yes	0.50	203	Yes	0.50
	60	203	192	Yes	0.56	200	Yes	0.67	205	Yes	0.75
	65	203	194	Yes	0.69	201	Yes	0.74	207	Yes	0.92
	70	203	196	Yes	0.79	203	Yes	0.86	208	Yes	0.96
	75	203	198	Yes	0.87	205	Yes	0.93	211	Yes	>0.99
	80	203	200	Yes	0.93	208	Yes	0.98	213	Yes	>0.99
	85	203	202	Yes	0.96	210	Yes	0.99	216	Yes	>0.99
	90	203	206	Yes	0.99	214	Yes	>0.99	219	Yes	>0.99
	95	203	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99

Mathematics												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	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												
			Fall			Winter			Spring			
				Projected Proficiency			Projected Proficiency			Projected Proficiency		
Grade	Start %ile	Spring Cut	Fall RIT	*Proficient*	Prob.	Winter RIT	*Proficient*	Prob.	Spring RIT	*Proficient*	Prob.	
6	5	226	188	No	<0.01	192	No	<0.01	194	No	<0.01	
	10	226	194	No	<0.01	198	No	<0.01	200	No	<0.01	
	15	226	198	No	<0.01	202	No	<0.01	205	No	<0.01	
	20	226	201	No	<0.01	205	No	<0.01	208	No	<0.01	
	25	226	204	No	0.01	208	No	<0.01	211	No	<0.01	
	30	226	206	No	0.03	211	No	0.01	214	No	<0.01	
	35	226	209	No	0.08	213	No	0.02	216	No	<0.01	
	40	226	211	No	0.14	215	No	0.04	218	No	<0.01	
	45	226	213	No	0.22	217	No	0.10	221	No	0.04	
	50	226	215	No	0.32	220	No	0.26	223	No	0.15	
	55	226	217	No	0.44	222	No	0.42	225	No	0.37	
	60	226	219	Yes	0.56	224	Yes	0.58	227	Yes	0.63	
	65	226	221	Yes	0.68	226	Yes	0.74	230	Yes	0.92	
	70	226	223	Yes	0.78	228	Yes	0.86	232	Yes	0.98	
	75	226	226	Yes	0.90	231	Yes	0.96	235	Yes	>0.99	
	80	226	228	Yes	0.94	234	Yes	0.99	238	Yes	>0.99	
	85	226	231	Yes	0.98	237	Yes	>0.99	241	Yes	>0.99	
	90	226	235	Yes	>0.99	241	Yes	>0.99	245	Yes	>0.99	
	95	226	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	231	192	No	<0.01	194	No	<0.01	196	No	<0.01	
	10	231	198	No	<0.01	201	No	<0.01	203	No	<0.01	
	15	231	202	No	<0.01	205	No	<0.01	207	No	<0.01	
	20	231	206	No	<0.01	209	No	<0.01	211	No	<0.01	
	25	231	208	No	<0.01	212	No	<0.01	214	No	<0.01	
	30	231	211	No	0.01	215	No	<0.01	217	No	<0.01	
	35	231	213	No	0.03	217	No	0.01	220	No	<0.01	
	40	231	216	No	0.07	219	No	0.03	222	No	<0.01	
	45	231	218	No	0.17	222	No	0.10	224	No	0.01	
	50	231	220	No	0.26	224	No	0.20	227	No	0.08	
	55	231	222	No	0.37	226	No	0.33	229	No	0.25	
	60	231	225	Yes	0.56	229	Yes	0.58	231	Yes	0.50	
	65	231	227	Yes	0.69	231	Yes	0.74	234	Yes	0.85	
	70	231	229	Yes	0.79	233	Yes	0.86	236	Yes	0.96	
	75	231	232	Yes	0.90	236	Yes	0.96	239	Yes	>0.99	
	80	231	235	Yes	0.96	239	Yes	0.99	242	Yes	>0.99	
	85	231	238	Yes	0.99	243	Yes	>0.99	246	Yes	>0.99	
	90	231	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99	
	95	231	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	

Mathematics												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.	
8	5	235	194	No	<0.01	196	No	<0.01	197	No	<0.01	
	10	235	201	No	<0.01	203	No	<0.01	205	No	<0.01	
	15	235	205	No	<0.01	208	No	<0.01	210	No	<0.01	
	20	235	209	No	<0.01	212	No	<0.01	214	No	<0.01	
	25	235	212	No	0.01	215	No	<0.01	217	No	<0.01	
	30	235	215	No	0.02	218	No	<0.01	220	No	<0.01	
	35	235	218	No	0.04	221	No	0.01	223	No	<0.01	
	40	235	220	No	0.07	223	No	0.02	225	No	<0.01	
	45	235	223	No	0.16	226	No	0.07	228	No	0.01	
	50	235	225	No	0.24	228	No	0.15	230	No	0.04	
	55	235	227	No	0.33	231	No	0.34	233	No	0.25	
	60	235	230	Yes	0.50	233	Yes	0.50	235	Yes	0.50	
	65	235	232	Yes	0.61	236	Yes	0.73	238	Yes	0.85	
	70	235	235	Yes	0.76	238	Yes	0.85	241	Yes	0.98	
	75	235	238	Yes	0.88	241	Yes	0.95	244	Yes	>0.99	
	80	235	241	Yes	0.94	244	Yes	0.99	247	Yes	>0.99	
	85	235	245	Yes	0.98	248	Yes	>0.99	251	Yes	>0.99	
	90	235	249	Yes	>0.99	253	Yes	>0.99	256	Yes	>0.99	
	95	235	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	

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