

Linking Study Report: Predicting Performance on the Minnesota Comprehensive Assessments-Series III (MCA-III) based on NWEA MAP Growth Scores

July 2020

NWEA Psychometric Solutions

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Executive Summary

To predict student achievement on the Minnesota Comprehensive Assessments-Series III (MCA-III) Grades 3–8 Reading and Mathematics assessments, 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 MCA-III 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 June 2016 to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020).

Table E.1 presents the MCA-III *Meets the Standards* achievement level cut scores and the corresponding 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 *Meets* cut score on the MCA-III Grade 3 Reading test is 350. A Grade 3 student with a MAP Growth Reading RIT score of 191 in the fall is likely to meet proficiency on the MCA-III Reading test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 191 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 MCA-III 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 MCA-III Proficiency

Assessment		Meets Cut Scores by Grade						
		2	3	4	5	6	7	8
Reading								
MCA-III Spring		–	350	450	550	650	750	850
MAP Growth	Fall	177	191	201	204	211	217	222
	Winter	186	198	207	209	214	220	224
	Spring	190	201	209	211	216	221	225
Mathematics								
MCA-III Spring		–	350	450	550	650	750	850
MAP Growth	Fall	176	189	201	216	222	228	231
	Winter	185	197	208	222	227	232	234
	Spring	190	202	212	226	230	235	236

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 MCA-III Grades 3–8 Reading and Mathematics tests are Minnesota’s state summative assessments aligned to the Minnesota Academic Standards. Based on their test scores, students are placed into one of four achievement levels: *Does Not Meet the Standards*, *Partially Meets the Standards*, *Meets the Standards*, and *Exceeds the Standards*. These MCA-III tests are used to evaluate school and district success in Minnesota’s accountability system. The *Meets* 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 MCA-III 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 MCA-III 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 MCA-III assessments in Spring 2019 were included in the study sample. Table E.2 presents the weighted number of Minnesota students from 24 districts and 118 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 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 in this study for Grades 3–8 were conducted based on the weighted sample.

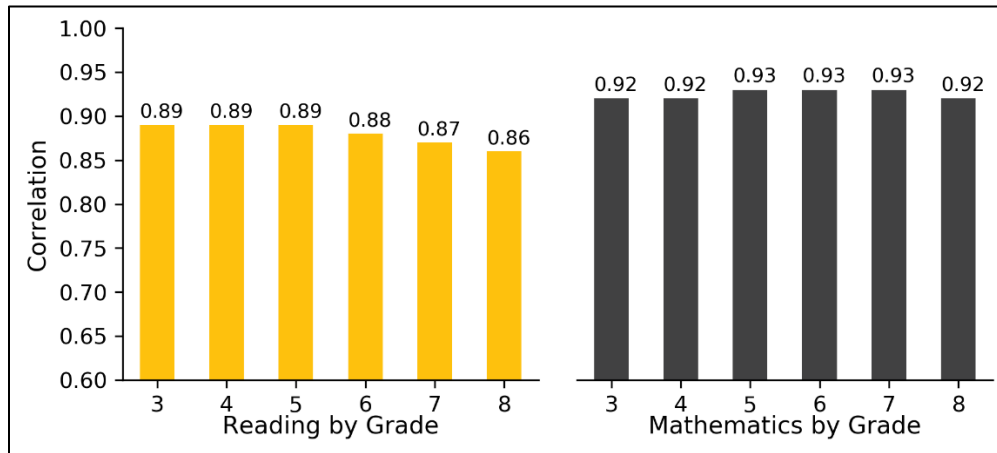
Table E.2. Linking Study Sample

Grade	#Students	
	Reading	Mathematics
3	5,028	4,981
4	5,106	5,036
5	5,183	5,396
6	6,097	5,621
7	4,483	4,068
8	3,389	3,355

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and MCA-III scores range from 0.86 to 0.93 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 MCA-III tests.

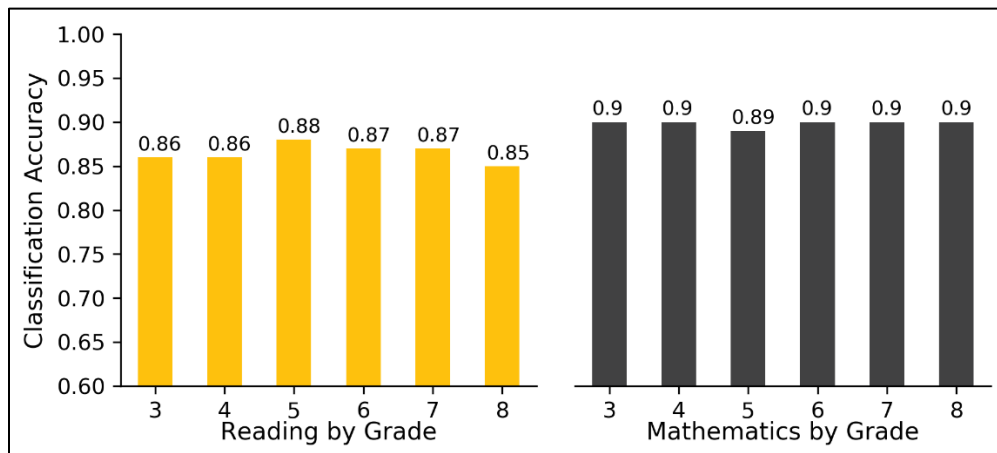
Figure E.1. Correlations between MAP Growth and MCA-III



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 MCA-III tests. For example, the MAP Growth Reading Grade 3 *Meets* cut score has a 0.86 accuracy rate, meaning it accurately classified student achievement on the state test for 86% of the sample. The results range from 0.85 to 0.90 across both content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the MCA-III 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 Minnesota Comprehensive Assessments-Series III (MCA-III) Grades 3–8 Reading and Mathematics assessments 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 June 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 MCA-III 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 MCA-III 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 MCA-III tests
5. The probability of achieving grade-level proficiency on the MCA-III test based on MAP Growth RIT scores from fall, winter, and spring using the 2020 norms

1.2. Assessment Overview

The MCA-III Grades 3–8 Reading and Mathematics summative assessments are aligned to the Minnesota Academic Standards. 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: *Does Not Meet the Standards*, *Partially Meets the Standards*, *Meets the Standards*, and *Exceeds the Standards*. The *Meets* 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 MCA-III assessments. NWEA recruited Minnesota 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 Minnesota 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 MCA-III tests 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 equipercntile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores that correspond to the spring MCA-III 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 MCA-III 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 achievement 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 MCA-III 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., MCA-III). 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 MCA-III on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on MCA-III, 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 MCA-III 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 (*Meets* or *Exceeds*) or not proficient (*Does Not Meet* or *Partially Meets*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich, Hanson, Harris, & Scoring, 2004). The results are based on the Spring 2019 MAP Growth and MCA-III data for the *Meets the Standards* cut score.

Since Minnesota students do not begin taking the MCA-III assessment until Grade 3, longitudinal data were collected for the 2018–2019 Grade 3 cohort in order to link the MCA-III assessment to MAP Growth for Grade 2 to calculate the classification accuracy statistics. To accomplish this, 2018–2019 MCA-III 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	$(TP + TN) / (\text{total sample size})$	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 MCA-III 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 *Meets* proficiency on the MCA-III test based on their fall or winter RIT score:

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

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 *Meets* 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 *Meets* proficiency on the MCA-III test based on their spring RIT score (RIT_{Spring}):

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

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 MCA-III tests in Spring 2019 were included in the study sample. Data used in this study were collected from 24 districts and 118 schools in Minnesota. Table 3.1 presents the demographic distributions of race, sex, and achievement level in the original unweighted study sample. Table 3.2 presents the distributions of the student population that took the Spring 2019 MCA-III tests (MDE, 2019). Since the unweighted data are different from the general MCA-III 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 MCA-III 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
Reading							
Total N		5,033	5,106	5,188	6,097	4,479	3,389
Race	Asian	10.5	11.5	10.6	12.0	10.5	14.4
	Black	12.7	11.7	11.9	13.3	11.0	12.8
	Hispanic	10.4	10.7	11.0	11.6	12.3	13.4
	Multi-Race	6.9	7.4	5.7	6.7	6.0	5.6
	Other	0.6	0.6	0.9	0.6	0.6	0.6
	White	58.9	58.1	59.9	55.8	59.5	53.1
Sex	Female	48.8	49.3	48.4	48.1	47.8	47.2
	Male	51.2	50.7	51.6	51.9	52.2	52.8
Achievement Level	<i>Dose Not Meet</i>	28.3	21.7	16.2	21.1	24.2	30.7
	<i>Partially Meets</i>	15.3	20.4	16.8	17.2	18.5	19.0
	<i>Meets</i>	40.0	39.0	45.5	36.7	37.3	31.5
	<i>Exceeds</i>	16.5	18.8	21.5	25.0	20.0	18.8
Mathematics							
Total N		4,981	5,036	5,396	5,621	4,072	3,355
Race	Asian	10.6	11.7	10.5	12.2	10.2	12.9
	Black	12.8	11.8	11.6	14.2	11.9	11.1
	Hispanic	9.8	9.8	9.6	12.2	12.7	12.8
	Multi-Race	6.9	7.4	5.6	6.5	6.0	4.5
	Other	0.6	0.6	0.9	0.6	0.7	0.5
	White	59.3	58.8	61.8	54.4	58.5	58.1
Sex	Female	48.6	49.2	47.9	48.5	49.5	48.5
	Male	51.4	50.8	52.1	51.5	50.5	51.5
Achievement Level	<i>Dose Not Meet</i>	15.9	18.8	19.8	28.5	25.3	24.1
	<i>Partially Meets</i>	16.3	15.4	22.2	21.8	24.3	19.6
	<i>Meets</i>	36.9	31.8	33.5	27.9	28.7	25.2
	<i>Exceeds</i>	30.8	34.0	24.6	21.7	21.7	31.1

Table 3.2. Spring 2019 MCA-III Student Population Demographics

Spring 2019 MCA-III Population							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
Reading							
Total N		62,648	63,392	65,018	65,387	64,397	63,091
Race	Asian	7.1	7.3	6.9	6.9	6.5	6.9
	Black	11.5	11.3	11.3	11.0	10.7	10.5
	Hispanic	9.8	10.1	10.0	10.1	9.9	9.4
	Multi-Race	5.6	5.7	5.5	5.4	5.0	4.7
	Other	1.8	1.9	1.9	1.8	1.7	1.6
	White	64.2	63.8	64.5	64.8	66.2	66.9
Sex	Female	49.4	48.9	49.3	49.3	49.0	49.3
	Male	50.6	51.1	50.7	50.7	51.0	50.7
Achievement Level	<i>Dose Not Meet</i>	30.5	24.2	17.4	20.9	24.2	25.4
	<i>Partially Meets</i>	16.5	22.0	18.8	18.0	20.0	18.7
	<i>Meets</i>	39.1	38.1	45.4	38.0	37.8	35.9
	<i>Exceeds</i>	13.8	15.7	18.3	23.1	18.1	20.0
Mathematics							
Total N		62,279	62,992	64,666	65,011	64,082	62,674
Race	Asian	7.1	7.3	6.9	6.9	6.5	6.9
	Black	11.5	11.3	11.3	11.0	10.7	10.5
	Hispanic	9.7	9.9	9.9	10.1	9.8	9.3
	Multi-Race	5.6	5.7	5.4	5.3	5.0	4.7
	Other	1.8	1.9	1.9	1.8	1.7	1.6
	White	64.3	63.9	64.5	64.9	66.2	67.0
Sex	Female	49.5	49.0	49.3	49.3	49.0	49.3
	Male	50.5	51.0	50.7	50.7	51.0	50.7
Achievement Level	<i>Dose Not Meet</i>	18.3	21.3	24.7	27.6	23.1	24.1
	<i>Partially Meets</i>	17.4	15.9	24.7	23.3	26.3	22.2
	<i>Meets</i>	37.9	33.1	35.0	29.2	31.3	29.3
	<i>Exceeds</i>	26.4	29.7	15.6	19.9	19.2	24.4

Table 3.3. Linking Study Sample Demographics (Weighted)

Linking Study Sample (Weighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
Reading							
Total N		5,028	5,106	5,183	6,097	4,483	3,389
Race	Asian	7.1	7.3	6.9	6.9	6.5	6.9
	Black	11.5	11.3	11.3	11.0	10.7	10.5
	Hispanic	9.8	10.1	10.0	10.1	9.9	9.4
	Multi-Race	5.6	5.7	5.5	5.4	5.0	4.7
	Other	1.8	1.9	1.9	1.8	1.7	1.6
	White	64.2	63.7	64.4	64.8	66.2	66.9
Sex	Female	49.4	48.9	49.3	49.3	49.0	49.3
	Male	50.6	51.1	50.7	50.7	51.0	50.7
Achievement Level	<i>Dose Not Meet</i>	30.5	24.2	17.4	20.9	24.2	25.4
	<i>Partially Meets</i>	16.5	22.0	18.8	18.0	20.0	18.7
	<i>Meets</i>	39.1	38.1	45.4	38.0	37.8	35.9
	<i>Exceeds</i>	13.8	15.7	18.3	23.1	18.1	20.0
Mathematics							
Total N		4,981	5,036	5,396	5,621	4,068	3,355
Race	Asian	7.1	7.3	6.9	6.9	6.5	6.9
	Black	11.5	11.3	11.3	11.0	10.7	10.5
	Hispanic	9.7	9.9	9.9	10.1	9.8	9.3
	Multi-Race	5.6	5.7	5.4	5.3	5.0	4.7
	Other	1.8	1.9	1.9	1.8	1.7	1.6
	White	64.3	63.9	64.6	64.9	66.2	67.0
Sex	Female	49.5	49.0	49.3	49.3	49.0	49.3
	Male	50.5	51.0	50.7	50.7	51.0	50.7
Achievement Level	<i>Dose Not Meet</i>	18.3	21.3	24.7	27.6	23.1	24.1
	<i>Partially Meets</i>	17.4	15.9	24.7	23.3	26.3	22.2
	<i>Meets</i>	37.9	33.1	35.0	29.2	31.3	29.3
	<i>Exceeds</i>	26.4	29.7	15.6	19.9	19.2	24.4

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and MCA-III test scores from Spring 2019, including the correlation coefficient (r) between them. The correlation coefficients between the scores range from 0.86 to 0.89 for Reading and 0.92 to 0.93 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 MCA-III tests.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	r	MCA-III*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Reading										
3	5,028	0.89	350.1	21.9	301	399	200.5	16.5	139	246
4	5,106	0.89	450.3	15.3	409	490	208.2	16.0	147	258
5	5,183	0.89	553.8	14.7	517	591	214.2	15.7	150	261
6	6,097	0.88	653.4	18.0	606	699	217.9	16.0	156	261
7	4,483	0.87	750.8	17.8	703	798	221.7	15.9	158	267
8	3,389	0.86	850.7	18.9	802	898	225.1	16.2	150	284
Mathematics										
3	4,981	0.92	354.6	16.8	315	399	205.8	15.2	136	272
4	5,036	0.92	454.8	19.2	409	499	216.4	16.9	152	298
5	5,396	0.93	549.0	14.4	515	586	225.3	18.1	137	296
6	5,621	0.93	648.1	15.3	611	688	228.5	18.6	151	284
7	4,068	0.93	748.7	12.9	718	782	233.8	19.9	146	301
8	3,355	0.92	849.8	15.8	813	888	237.2	21.7	151	305

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the MCA-III 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 MCA-III 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 191 in the fall is likely to reach *Meets* proficiency on the MCA-III Reading test. A Grade 3 student who obtained a MAP Growth Reading RIT score of 201 in the spring is also likely to reach *Meets* proficiency on the MCA-III. 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—Reading

MCA-III Reading								
Grade	Does Not Meet		Partially Meets		Meets		Exceeds	
3	301–339		340–349		350–373		374–399	
4	401–439		440–449		450–465		466–499	
5	501–539		540–549		550–566		567–599	
6	601–639		640–649		650–666		667–699	
7	701–739		740–749		750–766		767–799	
8	801–839		840–849		850–866		867–899	
MAP Growth Reading*								
Grade	Does Not Meet		Partially Meets		Meets		Exceeds	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall								
2	100–168	1–40	169–176	41–61	177–199	62–96	200–350	97–99
3	100–183	1–43	184–190	44–59	191–208	60–90	209–350	91–99
4	100–189	1–34	190–200	35–59	201–216	60–88	217–350	89–99
5	100–193	1–25	194–203	26–48	204–222	49–86	223–350	87–99
6	100–201	1–30	202–210	31–51	211–225	52–82	226–350	83–99
7	100–207	1–34	208–216	35–56	217–233	57–87	234–350	88–99
8	100–212	1–37	213–221	38–58	222–235	59–84	236–350	85–99
Winter								
2	100–178	1–43	179–185	44–62	186–205	63–94	206–350	95–99
3	100–191	1–44	192–197	45–59	198–214	60–89	215–350	90–99
4	100–195	1–33	196–206	34–60	207–221	61–87	222–350	88–99
5	100–199	1–27	200–208	28–49	209–225	50–85	226–350	86–99
6	100–205	1–30	206–213	31–49	214–227	50–80	228–350	81–99
7	100–210	1–34	211–219	35–56	220–234	57–86	235–350	87–99
8	100–215	1–38	216–223	39–57	224–236	58–83	237–350	84–99
Spring								
2	100–182	1–42	183–189	43–60	190–209	61–93	210–350	94–99
3	100–194	1–44	195–200	45–58	201–216	59–88	217–350	89–99
4	100–198	1–35	199–208	36–59	209–222	60–86	223–350	87–99
5	100–201	1–28	202–210	29–49	211–226	50–83	227–350	84–99
6	100–207	1–31	208–215	32–51	216–228	52–79	229–350	80–99
7	100–212	1–36	213–220	37–55	221–235	56–85	236–350	86–99
8	100–216	1–38	217–224	39–57	225–237	58–82	238–350	83–99

*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

MCA-III Mathematics								
Grade	Does Not Meet		Partially Meets		Meets		Exceeds	
3	301–339		340–349		350–365		366–399	
4	401–439		440–449		450–465		466–499	
5	501–539		540–549		550–562		563–599	
6	601–639		640–649		650–661		662–699	
7	701–739		740–749		750–759		760–799	
8	801–839		840–849		850–860		861–899	
MAP Growth Mathematics*								
Grade	Does Not Meet		Partially Meets		Meets		Exceeds	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall								
2	100–166	1–26	167–175	27–52	176–191	53–89	192–350	90–99
3	100–180	1–28	181–188	29–51	189–202	52–85	203–350	86–99
4	100–192	1–31	193–200	32–53	201–214	54–85	215–350	86–99
5	100–204	1–38	205–215	39–66	216–231	67–92	232–350	93–99
6	100–210	1–40	211–221	41–66	222–236	67–91	237–350	92–99
7	100–214	1–37	215–227	38–66	228–243	67–90	244–350	91–99
8	100–218	1–37	219–230	38–62	231–246	63–87	247–350	88–99
Winter								
2	100–175	1–26	176–184	27–52	185–199	53–88	200–350	89–99
3	100–188	1–29	189–196	30–51	197–209	52–83	210–350	84–99
4	100–199	1–33	200–207	34–54	208–221	55–85	222–350	86–99
5	100–210	1–40	211–221	41–67	222–237	68–92	238–350	93–99
6	100–215	1–41	216–226	42–66	227–241	67–90	242–350	91–99
7	100–217	1–36	218–231	37–66	232–247	67–90	248–350	91–99
8	100–221	1–37	222–233	38–61	234–249	62–86	250–350	87–99
Spring								
2	100–181	1–28	182–189	29–51	190–204	52–87	205–350	88–99
3	100–193	1–30	194–201	31–52	202–214	53–83	215–350	84–99
4	100–203	1–33	204–211	34–53	212–225	54–83	226–350	84–99
5	100–214	1–40	215–225	41–66	226–241	67–91	242–350	92–99
6	100–218	1–40	219–229	41–65	230–244	66–89	245–350	90–99
7	100–220	1–37	221–234	38–66	235–250	67–89	251–350	90–99
8	100–223	1–37	224–235	38–60	236–251	61–85	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. 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 MCA-III tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.83 to 0.88 for Reading and 0.87 to 0.90 for Mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the MCA-III assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts shown can predict students' proficiency status on MCA-III 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 MCA-III tests, there is a notable limitation to how these results should be used and interpreted. MCA-III 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	MCA-III		FP	FN				
Reading										
2	3,852	190	350	0.83	0.22	0.13	0.87	0.78	0.84	0.92
3	5,028	201	350	0.86	0.18	0.11	0.89	0.82	0.85	0.94
4	5,106	209	450	0.86	0.16	0.12	0.88	0.84	0.87	0.95
5	5,183	211	550	0.88	0.19	0.09	0.91	0.81	0.89	0.95
6	6,097	216	650	0.87	0.17	0.11	0.89	0.83	0.89	0.94
7	4,483	221	750	0.87	0.18	0.10	0.90	0.82	0.86	0.94
8	3,389	225	850	0.85	0.17	0.14	0.86	0.83	0.86	0.93
Mathematics										
2	4,197	190	350	0.87	0.22	0.09	0.91	0.78	0.90	0.93
3	4,981	202	350	0.90	0.17	0.07	0.93	0.83	0.91	0.96
4	5,036	212	450	0.90	0.17	0.06	0.94	0.83	0.90	0.96
5	5,396	226	550	0.89	0.15	0.08	0.92	0.85	0.87	0.96
6	5,621	230	650	0.90	0.12	0.08	0.92	0.88	0.88	0.97
7	4,068	235	750	0.90	0.12	0.08	0.92	0.88	0.89	0.97
8	3,355	236	850	0.90	0.12	0.09	0.91	0.88	0.90	0.96

*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 *Meets* performance on the MCA-III test based on RIT scores from fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Reading score of 204 in the fall has an 93% chance of reaching *Meets* proficiency or higher on the MCA-III test. “Prob.” indicates the probability of obtaining proficient status on the MCA-III test in the spring.

Table 3.8. Proficiency Projection based on RIT Scores—Reading

Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
2	5	190	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	190	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	190	157	No	0.01	166	No	<0.01	170	No	<0.01
	20	190	160	No	0.02	169	No	<0.01	173	No	<0.01
	25	190	162	No	0.03	171	No	<0.01	175	No	<0.01
	30	190	164	No	0.06	173	No	0.01	177	No	<0.01
	35	190	166	No	0.09	175	No	0.03	180	No	<0.01
	40	190	168	No	0.15	177	No	0.07	182	No	0.01
	45	190	170	No	0.18	179	No	0.10	184	No	0.03
	50	190	172	No	0.25	181	No	0.17	186	No	0.11
	55	190	174	No	0.35	183	No	0.29	188	No	0.27
	60	190	176	No	0.45	185	No	0.43	189	No	0.38
	65	190	178	Yes	0.55	187	Yes	0.57	192	Yes	0.73
	70	190	180	Yes	0.60	189	Yes	0.71	194	Yes	0.89
	75	190	183	Yes	0.75	191	Yes	0.83	196	Yes	0.97
	80	190	185	Yes	0.82	194	Yes	0.93	199	Yes	>0.99
	85	190	188	Yes	0.88	197	Yes	0.98	202	Yes	>0.99
90	190	192	Yes	0.96	200	Yes	>0.99	205	Yes	>0.99	
95	190	197	Yes	0.99	206	Yes	>0.99	211	Yes	>0.99	

Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
3	5	201	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	201	165	No	<0.01	173	No	<0.01	176	No	<0.01
	15	201	169	No	0.01	177	No	<0.01	180	No	<0.01
	20	201	173	No	0.02	180	No	<0.01	183	No	<0.01
	25	201	175	No	0.03	183	No	<0.01	186	No	<0.01
	30	201	178	No	0.07	185	No	0.01	189	No	<0.01
	35	201	180	No	0.09	188	No	0.05	191	No	<0.01
	40	201	182	No	0.14	190	No	0.07	193	No	0.01
	45	201	185	No	0.25	192	No	0.13	195	No	0.03
	50	201	187	No	0.30	194	No	0.23	197	No	0.11
	55	201	189	No	0.39	196	No	0.35	199	No	0.27
	60	201	191	Yes	0.50	198	Yes	0.50	201	Yes	0.50
	65	201	193	Yes	0.61	200	Yes	0.65	203	Yes	0.73
	70	201	195	Yes	0.66	202	Yes	0.77	206	Yes	0.94
	75	201	198	Yes	0.79	205	Yes	0.91	208	Yes	0.99
	80	201	201	Yes	0.89	207	Yes	0.95	211	Yes	>0.99
	85	201	204	Yes	0.93	211	Yes	0.99	214	Yes	>0.99
90	201	208	Yes	0.98	215	Yes	>0.99	218	Yes	>0.99	
95	201	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	

Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
5	5	211	178	No	<0.01	183	No	<0.01	185	No	<0.01
	10	211	183	No	<0.01	189	No	<0.01	191	No	<0.01
	15	211	187	No	0.02	193	No	<0.01	194	No	<0.01
	20	211	191	No	0.05	196	No	0.01	198	No	<0.01
	25	211	193	No	0.08	198	No	0.02	200	No	<0.01
	30	211	196	No	0.17	201	No	0.06	203	No	0.01
	35	211	198	No	0.20	203	No	0.13	205	No	0.03
	40	211	200	No	0.29	205	No	0.22	207	No	0.11
	45	211	202	No	0.39	207	No	0.35	209	No	0.27
	50	211	204	Yes	0.50	209	Yes	0.50	211	Yes	0.50
	55	211	207	Yes	0.61	211	Yes	0.65	213	Yes	0.73
	60	211	209	Yes	0.71	213	Yes	0.78	215	Yes	0.89
	65	211	211	Yes	0.80	215	Yes	0.87	217	Yes	0.97
	70	211	213	Yes	0.83	217	Yes	0.91	219	Yes	0.99
	75	211	216	Yes	0.92	220	Yes	0.97	222	Yes	>0.99
	80	211	218	Yes	0.95	222	Yes	0.99	224	Yes	>0.99
	85	211	221	Yes	0.97	226	Yes	>0.99	228	Yes	>0.99
90	211	225	Yes	0.99	229	Yes	>0.99	231	Yes	>0.99	
95	211	231	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99	
6	5	216	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	216	189	No	<0.01	193	No	<0.01	195	No	<0.01
	15	216	193	No	0.01	197	No	<0.01	199	No	<0.01
	20	216	196	No	0.03	200	No	<0.01	202	No	<0.01
	25	216	199	No	0.08	203	No	0.02	205	No	<0.01
	30	216	202	No	0.13	205	No	0.04	207	No	<0.01
	35	216	204	No	0.19	208	No	0.12	209	No	0.01
	40	216	206	No	0.28	210	No	0.22	211	No	0.06
	45	216	208	No	0.33	212	No	0.35	213	No	0.17
	50	216	210	No	0.44	214	Yes	0.50	215	No	0.38
	55	216	212	Yes	0.56	216	Yes	0.58	217	Yes	0.62
	60	216	214	Yes	0.67	218	Yes	0.72	219	Yes	0.83
	65	216	217	Yes	0.76	220	Yes	0.83	222	Yes	0.97
	70	216	219	Yes	0.84	222	Yes	0.91	224	Yes	0.99
	75	216	221	Yes	0.90	225	Yes	0.97	226	Yes	>0.99
	80	216	224	Yes	0.94	227	Yes	0.99	229	Yes	>0.99
	85	216	227	Yes	0.98	230	Yes	>0.99	232	Yes	>0.99
90	216	231	Yes	>0.99	234	Yes	>0.99	236	Yes	>0.99	
95	216	237	Yes	>0.99	240	Yes	>0.99	242	Yes	>0.99	

Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
7	5	221	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	221	193	No	<0.01	196	No	<0.01	197	No	<0.01
	15	221	197	No	<0.01	200	No	<0.01	201	No	<0.01
	20	221	200	No	0.02	203	No	<0.01	205	No	<0.01
	25	221	203	No	0.03	206	No	0.01	207	No	<0.01
	30	221	206	No	0.08	209	No	0.03	210	No	<0.01
	35	221	208	No	0.12	211	No	0.06	212	No	<0.01
	40	221	210	No	0.19	213	No	0.09	214	No	0.01
	45	221	212	No	0.24	215	No	0.17	216	No	0.06
	50	221	214	No	0.33	217	No	0.28	218	No	0.17
	55	221	216	No	0.44	219	No	0.42	220	No	0.38
	60	221	218	Yes	0.56	221	Yes	0.58	223	Yes	0.73
	65	221	221	Yes	0.67	223	Yes	0.72	225	Yes	0.89
	70	221	223	Yes	0.76	226	Yes	0.88	227	Yes	0.97
	75	221	225	Yes	0.84	228	Yes	0.94	229	Yes	0.99
	80	221	228	Yes	0.92	231	Yes	0.98	232	Yes	>0.99
85	221	231	Yes	0.96	234	Yes	>0.99	235	Yes	>0.99	
90	221	235	Yes	0.99	238	Yes	>0.99	239	Yes	>0.99	
95	221	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	
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											
Grade	Start %ile	Spring Cut	Fall		Winter			Spring			
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
2	5	190	154	No	<0.01	163	No	<0.01	167	No	<0.01
	10	190	158	No	0.01	167	No	<0.01	172	No	<0.01
	15	190	162	No	0.03	171	No	<0.01	175	No	<0.01
	20	190	164	No	0.04	173	No	0.01	178	No	<0.01
	25	190	166	No	0.08	175	No	0.03	180	No	<0.01
	30	190	168	No	0.14	177	No	0.07	182	No	<0.01
	35	190	170	No	0.22	179	No	0.15	184	No	0.02
	40	190	172	No	0.32	181	No	0.20	186	No	0.08
	45	190	173	No	0.38	182	No	0.26	188	No	0.25
	50	190	175	No	0.44	184	No	0.42	189	No	0.37
	55	190	177	Yes	0.56	186	Yes	0.58	191	Yes	0.63
	60	190	178	Yes	0.62	187	Yes	0.66	193	Yes	0.85
	65	190	180	Yes	0.73	189	Yes	0.80	195	Yes	0.96
	70	190	182	Yes	0.82	191	Yes	0.90	196	Yes	0.98
	75	190	184	Yes	0.89	193	Yes	0.95	198	Yes	>0.99
	80	190	186	Yes	0.92	195	Yes	0.98	201	Yes	>0.99
	85	190	188	Yes	0.96	198	Yes	>0.99	203	Yes	>0.99
90	190	192	Yes	0.99	201	Yes	>0.99	207	Yes	>0.99	
95	190	196	Yes	>0.99	205	Yes	>0.99	212	Yes	>0.99	
3	5	202	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	202	171	No	<0.01	179	No	<0.01	183	No	<0.01
	15	202	175	No	0.01	182	No	<0.01	186	No	<0.01
	20	202	177	No	0.03	185	No	0.01	189	No	<0.01
	25	202	179	No	0.05	187	No	0.02	192	No	<0.01
	30	202	181	No	0.10	189	No	0.04	194	No	<0.01
	35	202	183	No	0.17	191	No	0.10	196	No	0.02
	40	202	185	No	0.26	193	No	0.20	198	No	0.08
	45	202	187	No	0.37	195	No	0.33	199	No	0.15
	50	202	188	No	0.44	196	No	0.42	201	No	0.37
	55	202	190	Yes	0.56	198	Yes	0.58	203	Yes	0.63
	60	202	192	Yes	0.63	200	Yes	0.74	205	Yes	0.85
	65	202	194	Yes	0.74	201	Yes	0.80	207	Yes	0.96
	70	202	196	Yes	0.83	203	Yes	0.90	208	Yes	0.98
	75	202	198	Yes	0.90	205	Yes	0.96	211	Yes	>0.99
	80	202	200	Yes	0.95	208	Yes	0.99	213	Yes	>0.99
	85	202	202	Yes	0.97	210	Yes	>0.99	216	Yes	>0.99
90	202	206	Yes	>0.99	214	Yes	>0.99	219	Yes	>0.99	
95	202	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99	

Mathematics											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
4	5	212	176	No	<0.01	182	No	<0.01	185	No	<0.01
	10	212	181	No	<0.01	187	No	<0.01	191	No	<0.01
	15	212	185	No	0.01	191	No	<0.01	194	No	<0.01
	20	212	187	No	0.01	194	No	<0.01	197	No	<0.01
	25	212	190	No	0.04	196	No	0.01	200	No	<0.01
	30	212	192	No	0.07	198	No	0.02	202	No	<0.01
	35	212	194	No	0.13	200	No	0.04	205	No	0.01
	40	212	196	No	0.21	202	No	0.10	207	No	0.04
	45	212	198	No	0.32	204	No	0.20	209	No	0.15
	50	212	200	No	0.44	206	No	0.33	211	No	0.37
	55	212	201	Yes	0.50	208	Yes	0.50	212	Yes	0.50
	60	212	203	Yes	0.63	210	Yes	0.67	214	Yes	0.75
	65	212	205	Yes	0.74	212	Yes	0.80	217	Yes	0.96
	70	212	207	Yes	0.83	214	Yes	0.90	219	Yes	0.99
	75	212	209	Yes	0.90	216	Yes	0.96	221	Yes	>0.99
	80	212	212	Yes	0.96	219	Yes	0.99	224	Yes	>0.99
85	212	214	Yes	0.98	221	Yes	>0.99	227	Yes	>0.99	
90	212	218	Yes	>0.99	225	Yes	>0.99	230	Yes	>0.99	
95	212	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	226	184	No	<0.01	189	No	<0.01	191	No	<0.01
	10	226	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	226	193	No	<0.01	198	No	<0.01	201	No	<0.01
	20	226	196	No	<0.01	201	No	<0.01	205	No	<0.01
	25	226	199	No	<0.01	204	No	<0.01	207	No	<0.01
	30	226	201	No	0.01	206	No	<0.01	210	No	<0.01
	35	226	203	No	0.02	209	No	<0.01	212	No	<0.01
	40	226	205	No	0.05	211	No	0.01	215	No	<0.01
	45	226	207	No	0.08	213	No	0.03	217	No	<0.01
	50	226	209	No	0.14	215	No	0.07	219	No	0.01
	55	226	211	No	0.22	217	No	0.15	221	No	0.04
	60	226	213	No	0.32	219	No	0.26	223	No	0.15
	65	226	215	No	0.44	221	No	0.42	225	No	0.37
	70	226	217	Yes	0.56	223	Yes	0.58	228	Yes	0.75
	75	226	219	Yes	0.68	225	Yes	0.74	230	Yes	0.92
	80	226	222	Yes	0.82	228	Yes	0.90	233	Yes	0.99
85	226	225	Yes	0.92	231	Yes	0.97	236	Yes	>0.99	
90	226	229	Yes	0.98	235	Yes	>0.99	240	Yes	>0.99	
95	226	234	Yes	>0.99	241	Yes	>0.99	246	Yes	>0.99	

Mathematics											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
6	5	230	188	No	<0.01	192	No	<0.01	194	No	<0.01
	10	230	194	No	<0.01	198	No	<0.01	200	No	<0.01
	15	230	198	No	<0.01	202	No	<0.01	205	No	<0.01
	20	230	201	No	<0.01	205	No	<0.01	208	No	<0.01
	25	230	204	No	<0.01	208	No	<0.01	211	No	<0.01
	30	230	206	No	0.01	211	No	<0.01	214	No	<0.01
	35	230	209	No	0.02	213	No	<0.01	216	No	<0.01
	40	230	211	No	0.04	215	No	0.01	218	No	<0.01
	45	230	213	No	0.08	217	No	0.02	221	No	<0.01
	50	230	215	No	0.14	220	No	0.07	223	No	0.01
	55	230	217	No	0.22	222	No	0.14	225	No	0.04
	60	230	219	No	0.32	224	No	0.26	227	No	0.15
	65	230	221	No	0.44	226	No	0.42	230	Yes	0.50
	70	230	223	Yes	0.56	228	Yes	0.58	232	Yes	0.75
	75	230	226	Yes	0.73	231	Yes	0.80	235	Yes	0.96
	80	230	228	Yes	0.83	234	Yes	0.93	238	Yes	>0.99
	85	230	231	Yes	0.92	237	Yes	0.98	241	Yes	>0.99
90	230	235	Yes	0.98	241	Yes	>0.99	245	Yes	>0.99	
95	230	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	235	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	235	198	No	<0.01	201	No	<0.01	203	No	<0.01
	15	235	202	No	<0.01	205	No	<0.01	207	No	<0.01
	20	235	206	No	<0.01	209	No	<0.01	211	No	<0.01
	25	235	208	No	<0.01	212	No	<0.01	214	No	<0.01
	30	235	211	No	<0.01	215	No	<0.01	217	No	<0.01
	35	235	213	No	<0.01	217	No	<0.01	220	No	<0.01
	40	235	216	No	0.02	219	No	<0.01	222	No	<0.01
	45	235	218	No	0.05	222	No	0.02	224	No	<0.01
	50	235	220	No	0.10	224	No	0.04	227	No	<0.01
	55	235	222	No	0.17	226	No	0.10	229	No	0.02
	60	235	225	No	0.31	229	No	0.26	231	No	0.08
	65	235	227	No	0.44	231	No	0.42	234	No	0.37
	70	235	229	Yes	0.56	233	Yes	0.58	236	Yes	0.63
	75	235	232	Yes	0.74	236	Yes	0.80	239	Yes	0.92
	80	235	235	Yes	0.87	239	Yes	0.93	242	Yes	0.99
	85	235	238	Yes	0.95	243	Yes	0.99	246	Yes	>0.99
90	235	243	Yes	0.99	247	Yes	>0.99	251	Yes	>0.99	
95	235	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	

Mathematics											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Meets	Prob.		Meets	Prob.		Meets	Prob.
8	5	236	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	236	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	236	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	236	209	No	<0.01	212	No	<0.01	214	No	<0.01
	25	236	212	No	<0.01	215	No	<0.01	217	No	<0.01
	30	236	215	No	0.02	218	No	<0.01	220	No	<0.01
	35	236	218	No	0.03	221	No	<0.01	223	No	<0.01
	40	236	220	No	0.06	223	No	0.01	225	No	<0.01
	45	236	223	No	0.12	226	No	0.05	228	No	<0.01
	50	236	225	No	0.19	228	No	0.11	230	No	0.02
	55	236	227	No	0.28	231	No	0.27	233	No	0.15
	60	236	230	No	0.44	233	No	0.42	235	No	0.37
	65	236	232	Yes	0.56	236	Yes	0.66	238	Yes	0.75
	70	236	235	Yes	0.72	238	Yes	0.80	241	Yes	0.96
	75	236	238	Yes	0.84	241	Yes	0.93	244	Yes	>0.99
	80	236	241	Yes	0.93	244	Yes	0.98	247	Yes	>0.99
	85	236	245	Yes	0.98	248	Yes	>0.99	251	Yes	>0.99
90	236	249	Yes	>0.99	253	Yes	>0.99	256	Yes	>0.99	
95	236	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	

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