Linking Study Report: Predicting Performance on the Arkansas ACT Aspire Summative Assessments based on NWEA MAP Growth Scores

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NWEA Psychometric Solutions

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Executive Summary

To predict student achievement on the Arkansas ACT Aspire summative assessment in Grades 3–10 Reading and Mathematics, NWEA® conducted a linking study using Spring 2018 data to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the ACT Aspire performance levels.[1] 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 July 2019 to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020).

Table E.1 presents the ACT Aspire *Ready* performance level cut scores and the corresponding MAP Growth RIT cut scores that allow teachers to identify students who are on track for proficiency on the state summative test and those who are not. For example, the *Ready* cut score on the ACT Aspire Grade 3 Reading test is 415. A Grade 3 student with a MAP Growth Reading RIT score of 194 in the fall is likely to meet proficiency on the ACT Aspire Reading test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 194 in the fall is in jeopardy of not meeting proficiency.

Table E.1. MAP Growth Cut Scores for ACT Aspire Proficiency

Assessment		*Ready* Cut Scores by Grade							
		3	4	5	6	7	8	9	10
Reading									
ACT Aspire Spring		415	417	420	421	423	424	425	428
MAP Growth	Fall	194	201	211	215	222	223	227	232
	Winter	201	207	215	219	224	225	228	233
	Spring	204	209	217	220	225	226	229	234
Mathematics									
ACT Aspire Spring		413	416	418	420	422	425	428	432
MAP Growth	Fall	187	200	210	214	222	230	241	248
	Winter	195	207	216	219	226	233	243	250
	Spring	200	211	220	222	229	235	244	251

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.

[1] Linking study results for Grades K–2 that predict whether students are on track to be proficient by Grade 3 on the Arkansas ACT Aspire assessment are provided in a separate document (NWEA, 2020).

E.1. Assessment Overview

The ACT Aspire Grades 3–10 Reading and Mathematics tests are Arkansas' state summative assessments aligned to the ACT College Career Readiness Standards (ACT CCRS). Based on their test scores, students are placed into one of four performance levels: *In Need of Support*, *Close*, *Ready,* and *Exceeding.* These tests are used to measure progress toward college and career readiness and to provide evidence of student achievement in Reading and Mathematics for various test score uses such as meeting the requirements of the state's accountability program. The *Ready* 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 2018 test administration, the equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring ACT Aspire performance level cut scores. MAP Growth fall and winter cut scores that predict proficiency on the spring ACT Aspire 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 ACT Aspire assessments in Spring 2018 were included in the study sample. Table E.2 presents the weighted number of Arkansas students from seven districts and 75 schools who were included in the linking study. The linking study sample is voluntary and can only include student scores from partners who share their data. Also, not all students in a state take MAP Growth. The sample may therefore not represent the general student population as well as it should. To ensure that the linking study sample represents the state student population in terms of race, sex, and performance level, weighting (i.e., a statistical method that matches the distributions of the variables of interest to those of the target population) was applied to the sample. As a result, the RIT cuts derived from the study sample can be generalized to any student from the target population. All analyses in this study were conducted based on the weighted sample.

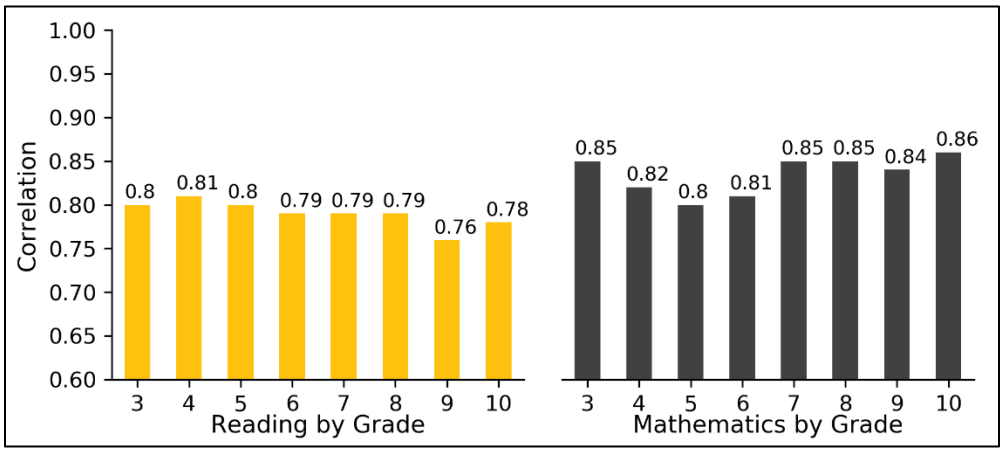
Table E.2. Linking Study Sample

	#Students	
Grade	Reading	Mathematics
3	4,082	4,077
4	3,985	3,887
5	4,074	4,092
6	3,485	3,832
7	3,472	3,442
8	2,257	2,199
9	2,287	1,963
10	1,998	1,756

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and ACT Aspire scores range from 0.76 to 0.86 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 ACT Aspire assessments.

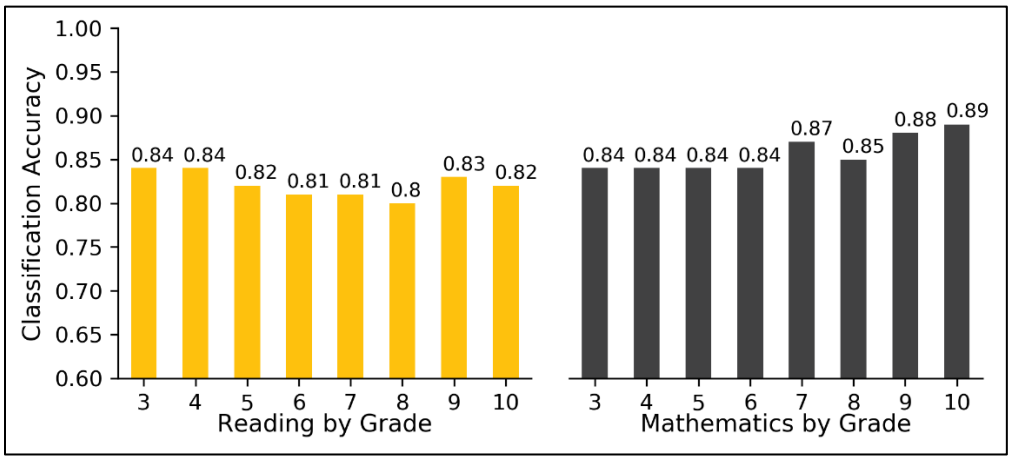
Figure E.1. Correlations between MAP Growth and ACT Aspire



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 ACT Aspire tests. For example, the MAP Growth Reading Grade 3 *Ready* 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 0.80 to 0.89 across both content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the ACT Aspire 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 ACT Aspire Grades 3–10 Reading and Mathematics summative assessments with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2018 term. The linking study has been updated since the previous version published in July 2019 to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020). 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 ACT Aspire performance 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 ACT Aspire tests
5. The probability of achieving grade-level proficiency on the ACT Aspire assessment based on MAP Growth RIT scores from fall, winter, and spring using the 2020 norms

1.2. Assessment Overview

The ACT Aspire Grades 3–10 Reading and Mathematics summative assessments are aligned to the ACT College and Career Readiness Standards (ACT CCRS). Each assessment has three cut scores (i.e., the minimum score a student must get on a test to be placed in a certain performance level) that distinguish between the following performance levels: *In Need of Support*, *Close*, *Ready,* and *Exceeding*. The *Ready* cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

MAP Growth interim assessments from NWEA are computer adaptive and aligned to state-specific content standards. Scores are reported on the RIT vertical scale with a range of 100–350. Each content area has its own scale. To aid the interpretation of scores, NWEA periodically conducts norming studies of student and school performance on MAP Growth. Achievement status norms show how well a student performed on the MAP Growth test compared to students in the norming group by associating the student's performance on the MAP Growth test, expressed as a RIT score, with a percentile ranking. Growth norms provide expected score gains across test administrations (e.g., the relative evaluation of a student's growth from fall to spring). The most recent norms study was conducted in 2020 (Thum & Kuhfeld, 2020).

2. Methods

2.1. Data Collection

This linking study is based on data from the Spring 2018 administrations of the MAP Growth and ACT Aspire assessments. NWEA recruited Arkansas 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 Arkansas 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 ACT Aspire assessments in Spring 2018 were included in the study sample.

2.2. Post-Stratification Weighting

Post-stratification weights were applied to the calculations to ensure that the linking study sample represented the state population in terms of race, sex, and performance level. These variables were selected because they are correlated with the student's academic achievement within this study and are often provided in the data for the state population. The weighted sample matches the target population as closely as possible on the key demographics and test score characteristics. Specifically, a raking procedure was used to calculate the post-stratification weights and improve the representativeness of the sample. Raking uses iterative procedures to obtain weights that match sample marginal distributions to known population margins. The following steps were taken during this process:

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

2.3. MAP Growth Cut Scores

The equipercentile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores that correspond to the spring ACT Aspire performance level cut scores. MAP Growth fall and winter cut scores that predict proficiency on the spring ACT Aspire 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 MAP Growth test scores. This is useful information for understanding (1) how student scores compare to peers nationwide and (2) the relative rigor of a state's performance level designations for its summative assessment.

The MAP Growth spring cut scores could be calculated using the equipercentile linking method because that data are directly connected to the ACT Aspire 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 students at or below each score). For example, let x represent a score on Test X (e.g., ACT Aspire). 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 ACT Aspire on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on ACT Aspire, 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. Equation 2 was used to determine the previous term's MAP Growth score needed to reach the spring cut score, considering the expected growth associated with the previous RIT score:

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

where:

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

2.4. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the ACT Aspire 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 (*Ready* or *Exceeding*) or not proficient (*In Need of Support* or *Close*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich, Hanson, Harris, & Sconing, 2004). The results are based on the Spring 2018 MAP Growth and ACT Aspire data for the *Ready* cut score.

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

Statistic	Description*	Interpretation
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 ACT Aspire 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 *Ready* proficiency on the ACT Aspire test based on their fall or winter RIT score:

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

where:

- Φ is a standardized normal cumulative distribution.
- $RIT_{previous}$ is the student's RIT score in fall or winter.
- g is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT.
- $RIT_{SpringCut}$ is the MAP Growth *Ready* 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 *Ready* proficiency on the ACT Aspire test based on their spring RIT score (RIT_{Spring}):

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

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 ACT Aspire assessments in Spring 2018 were included in the study sample. Data used in this study were collected from seven districts and 75 schools in Arkansas. Table 3.1 presents the demographic distributions of race, sex, and performance level in the original unweighted study sample, and Table 3.2 presents the distributions of the student population that took the Spring 2018 ACT Aspire tests (ACT, 2018). Since the unweighted data are different from the general ACT Aspire 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 ACT Aspire 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	9	10
Reading									
	Total N	4,078	3,985	4,078	3,482	3,475	2,268	2,287	1,996
Race*	AI/AN	0.6	1.1	1.0	1.2	0.9	1.0	0.9	1.2
	Asian/PI	3.5	2.7	3.2	2.4	2.7	3.3	3.3	2.9
	Black	5.5	5.3	4.9	4.8	4.9	5.5	6.0	6.3
	Hispanic	24.4	24.8	25.2	22.6	19.7	10.8	12.1	10.8
	Other	7.3	7.5	6.9	7.1	6.6	3.1	3.8	3.6
	White	58.7	58.6	58.8	61.9	65.2	76.3	73.9	75.2
Sex	Female	48.3	50.5	48.0	48.4	48.6	49.2	47.4	49.8
	Male	51.7	49.5	52.0	51.6	51.4	50.8	52.6	50.2
Performance Level	*In Need of Support*	35.6	22.6	30.8	23.8	21.5	15.4	25.0	28.5
	Close	22.7	25.9	25.2	22.6	29.3	21.4	23.6	26.4
	Ready	21.7	30.2	23.7	25.2	34.5	34.8	26.3	29.5
	Exceeding	20.0	21.2	20.3	28.4	14.7	28.4	25.1	15.6
Mathematics									
	Total N	4,081	3,887	4,092	3,828	3,439	2,199	1,963	1,754
Race*	AI/AN	0.7	1.1	1.0	1.2	0.9	1.1	1.1	1.1
	Asian/PI	3.5	2.7	3.2	2.4	2.7	3.7	3.3	1.9
	Black	5.5	5.3	4.9	4.7	4.9	5.0	6.2	6.6
	Hispanic	24.3	24.0	25.1	24.7	19.7	8.9	10.1	9.0
	Other	7.2	7.5	6.9	7.2	6.8	3.7	3.9	3.4
	White	58.8	59.4	58.8	59.8	65.0	77.6	75.4	78.1
Sex	Female	48.2	50.6	48.1	48.5	48.3	49.2	48.2	49.8
	Male	51.8	49.4	51.9	51.5	51.7	50.8	51.8	50.2
Performance Level	*In Need of Support*	10.9	5.9	5.3	5.0	14.7	16.1	27.7	33.6
	Close	22.8	29.2	33.6	26.1	24.0	22.0	22.6	23.3
	Ready	38.1	43.3	41.8	42.5	28.1	25.7	23.6	22.1
	Exceeding	28.2	21.5	19.3	26.4	33.2	36.1	26.1	21.1

*AI/AN = American Indian/Alaskan Native. PI = Pacific Islander.

Table 3.2. Spring 2018 ACT Aspire Student Population Demographics

Spring 2018 ACT Aspire Population									
		%Students by Grade							
Demographic Subgroup		3	4	5	6	7	8	9	10
Reading									
	Total N	37,072	38,014	38,004	35,514	35,727	35,706	36,065	35,200
Race*	AI/AN	1.8	1.8	2.0	1.9	1.7	1.9	2.0	1.9
	Asian/PI	1.9	1.8	1.7	1.7	1.8	1.9	1.7	1.8
	Black	18.5	19.2	18.4	17.7	18.0	17.7	17.9	17.7
	Hispanic	11.9	11.6	11.8	11.7	10.9	11.2	11.2	11.2
	Other	2.9	2.6	2.5	2.4	2.5	2.4	2.6	2.4
	White	63.2	63.1	63.7	64.5	65.0	64.8	64.6	65.0
Sex	Female	48.5	49.1	49.2	48.9	48.8	49.3	48.3	49.4
	Male	51.5	50.9	50.8	51.1	51.2	50.7	51.7	50.6
Performance Level	*In Need of Support*	39.6	28.7	35.8	32.8	31.0	25.4	37.0	40.6
	Close	22.7	27.2	26.1	22.2	29.1	23.5	24.9	25.5
	Ready	20.5	26.0	21.9	23.1	30.1	31.6	20.5	23.8
	Exceeding	17.3	18.1	16.1	22.0	9.7	19.0	17.6	10.2
Mathematics									
	Total N	37,071	38,010	38,005	35,509	35,727	35,704	36,061	35,206
Race*	AI/AN	1.8	1.8	2.0	1.9	1.7	1.9	2.0	1.9
	Asian/PI	1.9	1.8	1.7	1.7	1.8	1.9	1.7	1.8
	Black	18.5	19.2	18.4	17.7	18.0	17.7	17.9	17.8
	Hispanic	11.9	11.6	11.8	11.7	10.9	11.2	11.2	11.2
	Other	2.9	2.6	2.5	2.4	2.5	2.4	2.6	2.4
	White	63.2	63.1	63.7	64.5	65.0	64.8	64.6	65.0
Sex	Female	48.5	49.1	49.2	48.9	48.8	49.3	48.3	49.4
	Male	51.5	50.9	50.8	51.1	51.2	50.7	51.7	50.6
Performance Level	*In Need of Support*	14.1	9.5	10.0	10.0	21.5	27.1	43.4	49.1
	Close	26.5	38.0	40.0	33.6	31.2	26.5	22.9	22.3
	Ready	36.9	37.9	37.9	37.6	25.1	22.4	18.1	16.5
	Exceeding	22.4	14.6	12.1	18.9	22.3	24.0	15.6	12.2

*AI/AN = American Indian/Alaskan Native. PI = Pacific Islander.

Table 3.3. Linking Study Sample Demographics (Weighted)

Linking Study Sample (Weighted)									
		%Students by Grade							
Demographic Subgroup		3	4	5	6	7	8	9	10
Reading									
	Total N	4,082	3,985	4,074	3,485	3,472	2,257	2,287	1,998
Race*	AI/AN	1.8	1.8	2.0	1.9	1.7	2.0	2.0	1.9
	Asian/PI	1.9	1.8	1.7	1.7	1.8	1.9	1.7	1.8
	Black	18.5	19.2	18.4	17.7	18.0	17.7	17.9	17.8
	Hispanic	11.9	11.6	11.8	11.7	10.9	11.2	11.2	11.2
	Other	2.9	2.6	2.5	2.4	2.5	2.4	2.6	2.4
	White	63.1	63.0	63.6	64.6	65.1	64.8	64.6	64.9
Sex	Female	48.5	49.1	49.2	48.9	48.8	49.3	48.3	49.4
	Male	51.5	50.9	50.8	51.1	51.2	50.7	51.7	50.6
Performance Level	*In Need of Support*	39.6	28.7	35.8	32.8	31.0	25.5	37.0	40.6
	Close	22.7	27.2	26.1	22.2	29.1	23.6	24.9	25.5
	Ready	20.5	26.0	21.9	23.1	30.1	31.8	20.5	23.8
	Exceeding	17.3	18.1	16.1	22.0	9.7	19.1	17.6	10.2
Mathematics									
	Total N	4,077	3,887	4,092	3,832	3,442	2,199	1,963	1,756
Race*	AI/AN	1.8	1.8	2.0	2.0	1.7	2.0	2.0	1.9
	Asian/PI	1.9	1.8	1.7	1.7	1.8	1.9	1.7	1.8
	Black	18.5	19.2	18.4	17.7	18.0	17.7	17.9	17.8
	Hispanic	11.9	11.6	11.8	11.7	10.9	11.2	11.2	11.2
	Other	2.9	2.6	2.5	2.4	2.5	2.4	2.6	2.4
	White	63.1	63.0	63.6	64.5	65.1	64.8	64.6	64.9
Sex	Female	48.5	49.1	49.2	48.9	48.8	49.2	48.3	49.4
	Male	51.5	50.9	50.8	51.1	51.2	50.8	51.7	50.6
Performance Level	*In Need of Support*	14.1	9.5	10.0	10.0	21.5	27.1	43.4	49.1
	Close	26.5	38.0	40.0	33.6	31.2	26.5	22.9	22.3
	Ready	36.9	37.9	37.9	37.6	25.1	22.4	18.1	16.5
	Exceeding	22.4	14.6	12.1	18.9	22.3	24.0	15.6	12.2

*AI/AN = American Indian/Alaskan Native. PI = Pacific Islander.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and ACT Aspire test scores from Spring 2018, including the correlation coefficient (*r*) between them. The correlation coefficients between the scores range from 0.76 to 0.81 for Reading and 0.80 to 0.86 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 ACT Aspire assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	ACT Aspire*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Reading										
3	4,082	0.80	412.9	5.5	400	429	195.5	17.0	140	241
4	3,985	0.81	415.5	6.2	400	431	202.7	16.9	144	246
5	4,074	0.80	417.4	6.5	400	434	209.9	16.2	146	255
6	3,485	0.79	419.4	6.7	401	436	214.5	16.1	145	260
7	3,472	0.79	420.2	6.6	404	438	218.2	16.2	150	261
8	2,257	0.79	422.8	7.3	400	440	220.7	16.1	151	262
9	2,287	0.76	421.9	7.9	405	442	221.5	17.5	152	265
10	1,998	0.78	423.5	7.9	402	442	223.8	18.0	150	269
Mathematics										
3	4,077	0.85	413.3	4.3	400	429	199.9	14.3	139	242
4	3,887	0.82	416.1	4.4	402	440	209.8	15.5	146	266
5	4,092	0.80	418.0	5.4	403	446	217.3	17.3	143	275
6	3,832	0.81	420.7	5.6	402	448	222.4	16.8	149	277
7	3,442	0.85	421.9	7.5	401	445	226.8	17.8	148	291
8	2,199	0.85	424.6	8.2	406	456	232.1	19.3	150	303
9	1,963	0.84	424.6	8.4	407	458	234.2	20.2	155	299
10	1,756	0.86	426.5	8.6	406	454	237.3	20.1	156	295

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the ACT Aspire scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. These tables can be used to predict a student's likely performance level on the ACT Aspire 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 194 in the fall is likely to reach *Ready* proficiency on the ACT Aspire Reading test. A Grade 3 student who obtained a MAP Growth Reading RIT score of 204 in the spring is also likely to reach *Ready* proficiency on the ACT Aspire. The spring cut score is higher than the fall cut score because growth is expected between fall and spring as students receive more instruction during the school year.

Within this report, the cut scores for fall and winter are derived from the spring cuts and the typical growth scores from fall-to-spring or winter-to-spring. The typical growth scores are based on the default instructional weeks most commonly encountered for each term (Weeks 4, 20, and 32 for fall, winter, and spring, respectively). Since instructional weeks often vary by district, the cut scores in this report may differ slightly from the MAP Growth score reports that reflect instructional weeks set by partners. If the actual instructional weeks deviate from the default ones, a student's projected performance level could be different from the generic projection presented in this document. Partners are therefore encouraged to use the projected performance level in students' profile, classroom, and grade reports in the NWEA reporting system since they reflect the specific instructional weeks set by partners.

Table 3.5. MAP Growth Cut Scores—Reading

ACT Aspire Reading*				
Grade	***In Need of Support***	***Close***	***Ready***	***Exceeding***
3	400–410	411–414	**415**–418	419–429
4	400–411	412–416	**417**–421	422–431
5	400–414	415–419	**420**–424	425–434
6	400–415	416–420	**421**–425	426–436
7	400–416	417–422	**423**–428	429–438
8	400–417	418–423	**424**–429	430–440
9	400–418	419–424	**425**–430	431–442
10	400–421	422–427	**428**–433	434–442

MAP Growth Reading*								
	In Need of Support		***Close***		***Ready***		***Exceeding***	
Grade	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
3	100–181	1–38	182–193	39–66	**194**–204	67–86	205–350	87–99
4	100–185	1–25	186–200	26–59	**201**–212	60–82	213–350	83–99
5	100–199	1–38	200–210	39–64	**211**–221	65–85	222–350	86–99
6	100–202	1–32	203–214	33–61	**215**–225	62–82	226–350	83–99
7	100–207	1–34	208–221	35–67	**222**–234	68–89	235–350	90–99
8	100–208	1–29	209–222	30–61	**223**–235	62–84	236–350	85–99
9	100–214	1–41	215–226	42–65	**227**–236	66–82	237–350	83–99
10	100–220	1–48	221–231	49–71	**232**–242	72–88	243–350	89–99
Winter								
3	100–189	1–39	190–200	40–66	**201**–210	67–85	211–350	86–99
4	100–192	1–27	193–206	28–60	**207**–216	61–80	217–350	81–99
5	100–204	1–39	205–214	40–63	**215**–224	64–83	225–350	84–99
6	100–206	1–32	207–218	33–62	**219**–227	63–80	228–350	81–99
7	100–210	1–34	211–223	35–66	**224**–235	67–87	236–350	88–99
8	100–212	1–32	213–224	33–60	**225**–236	61–83	237–350	84–99
9	100–216	1–42	217–227	43–65	**228**–237	66–81	238–350	82–99
10	100–221	1–47	222–232	48–70	**233**–243	71–87	244–350	88–99
Spring								
3	100–192	1–39	193–203	40–65	**204**–212	66–83	213–350	84–99
4	100–195	1–28	196–208	29–59	**209**–218	60–80	219–350	81–99
5	100–206	1–39	207–216	40–64	**217**–225	65–82	226–350	83–99
6	100–208	1–34	209–219	35–60	**220**–228	61–79	229–350	80–99
7	100–212	1–36	213–224	37–65	**225**–236	66–86	237–350	87–99
8	100–213	1–31	214–225	32–59	**226**–237	60–82	238–350	83–99
9	100–217	1–42	218–228	43–65	**229**–238	66–81	239–350	82–99
10	100–222	1–48	223–233	49–71	**234**–244	72–87	245–350	88–99

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

Table 3.6. MAP Growth Cut Scores—Mathematics

ACT Aspire Mathematics*				
Grade	***In Need of Support***	***Close***	***Ready***	***Exceeding***
3	400–408	409–412	**413**–416	417–434
4	400–410	411–415	**416**–420	421–440
5	400–411	412–417	**418**–423	424–446
6	400–413	414–419	**420**–425	426–451
7	400–415	416–421	**422**–427	428–453
8	400–418	419–424	**425**–430	431–456
9	400–421	422–427	**428**–433	434–460
10	400–425	426–431	**432**–437	438–460

MAP Growth Mathematics*								
	In Need of Support		***Close***		***Ready***		***Exceeding***	
Grade	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
3	100–172	1–11	173–186	12–45	**187**–199	46–79	200–350	80–99
4	100–180	1–9	181–199	10–50	**200**–214	51–85	215–350	86–99
5	100–187	1–7	188–209	8–51	**210**–225	52–86	226–350	87–99
6	100–194	1–10	195–213	11–47	**214**–229	48–82	230–350	83–99
7	100–207	1–23	208–221	24–53	**222**–234	54–79	235–350	80–99
8	100–214	1–29	215–229	30–60	**230**–242	61–82	243–350	83–99
9	100–226	1–50	227–240	51–76	**241**–252	77–90	253–350	91–99
10	100–234	1–61	235–247	62–82	**248**–259	83–93	260–350	94–99
Winter								
3	100–181	1–14	182–194	15–45	**195**–206	46–78	207–350	79–99
4	100–186	1–9	187–206	10–52	**207**–221	53–85	222–350	86–99
5	100–192	1–8	193–215	9–52	**216**–231	53–85	232–350	86–99
6	100–199	1–11	200–218	12–48	**219**–234	49–81	235–350	82–99
7	100–210	1–22	211–225	23–53	**226**–238	54–79	239–350	80–99
8	100–218	1–31	219–232	32–59	**233**–245	60–81	246–350	82–99
9	100v229	1–52	230–242	53–75	**243**–254	76–90	255–350	91–99
10	100–236	1–60	237–249	61–81	**250**–261	82–92	262–350	93–99
Spring								
3	100–186	1–15	187–199	16–46	**200**–211	47–77	212–350	78–99
4	100–191	1–11	192–210	12–50	**211**–225	51–83	226–350	84–99
5	100–196	1–9	197–219	10–52	**220**–235	53–84	236–350	85–99
6	100–202	1–12	203–221	13–47	**222**–237	48–80	238–350	81–99
7	100–213	1–24	214–228	25–54	**229**–241	55–78	242–350	79–99
8	100–220	1–31	221–234	32–58	**235**–247	59–80	248–350	81–99
9	100–230	1–51	231–243	52–74	**244**–255	75–89	256–350	90–99
10	100–237	1–59	238–250	60–80	**251**–262	81–91	263–350	92–99

*Cut scores for fall and winter are derived from the spring cuts and growth scores based on the typical instructional weeks. 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 ACT Aspire tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.80 to 0.84 for Reading and 0.84 to 0.89 for Mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the ACT Aspire assessment.

Although the results show that MAP Growth scores can be used to accurately classify students as likely to be proficient on the ACT Aspire tests, there is a notable limitation to how these results should be used and interpreted. ACT Aspire 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	ACT Aspire		FP	FN				
Reading										
3	4,082	204	415	0.84	0.11	0.26	0.74	0.89	0.81	0.92
4	3,985	209	417	0.84	0.12	0.21	0.79	0.88	0.83	0.93
5	4,074	217	420	0.82	0.13	0.25	0.75	0.87	0.78	0.90
6	3,485	220	421	0.81	0.14	0.24	0.76	0.86	0.82	0.90
7	3,472	225	423	0.81	0.14	0.26	0.74	0.86	0.78	0.90
8	2,257	226	424	0.80	0.13	0.28	0.72	0.87	0.85	0.89
9	2,287	229	425	0.83	0.13	0.24	0.76	0.87	0.78	0.91
10	1,998	234	428	0.82	0.12	0.29	0.71	0.88	0.76	0.91
Mathematics										
3	4,077	200	413	0.84	0.15	0.16	0.84	0.85	0.89	0.93
4	3,887	211	416	0.84	0.17	0.14	0.86	0.83	0.84	0.92
5	4,092	220	418	0.84	0.13	0.19	0.81	0.87	0.86	0.92
6	3,832	222	420	0.84	0.19	0.14	0.86	0.81	0.86	0.91
7	3,442	229	422	0.87	0.15	0.12	0.88	0.85	0.84	0.94
8	2,199	235	425	0.85	0.15	0.15	0.85	0.85	0.83	0.93
9	1,963	244	428	0.88	0.08	0.20	0.80	0.92	0.83	0.95
10	1,756	251	432	0.89	0.05	0.26	0.74	0.95	0.85	0.95

*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 *Ready* performance on the ACT Aspire 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 86% chance of reaching *Ready* proficiency or higher on the ACT Aspire test. “Prob.” indicates the probability of obtaining proficient status on the ACT Aspire test in the spring.

Table 3.8. Proficiency Projection based on RIT Scores—Reading

Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.
3	5	204	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	204	165	No	<0.01	173	No	<0.01	176	No	<0.01
	15	204	169	No	<0.01	177	No	<0.01	180	No	<0.01
	20	204	173	No	0.01	180	No	<0.01	183	No	<0.01
	25	204	175	No	0.01	183	No	<0.01	186	No	<0.01
	30	204	178	No	0.03	185	No	<0.01	189	No	<0.01
	35	204	180	No	0.04	188	No	0.01	191	No	<0.01
	40	204	182	No	0.07	190	No	0.02	193	No	<0.01
	45	204	185	No	0.14	192	No	0.05	195	No	<0.01
	50	204	187	No	0.17	194	No	0.09	197	No	0.01
	55	204	189	No	0.25	196	No	0.17	199	No	0.06
	60	204	191	No	0.34	198	No	0.29	201	No	0.17
	65	204	193	No	0.45	200	No	0.43	203	No	0.38
	70	204	195	Yes	0.50	202	Yes	0.57	206	Yes	0.73
	75	204	198	Yes	0.66	205	Yes	0.77	208	Yes	0.89
	80	204	201	Yes	0.79	207	Yes	0.87	211	Yes	0.99
	85	204	204	Yes	0.86	211	Yes	0.95	214	Yes	>0.99
	90	204	208	Yes	0.95	215	Yes	0.99	218	Yes	>0.99
	95	204	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											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.
5	5	217	178	No	<0.01	183	No	<0.01	185	No	<0.01
	10	217	183	No	<0.01	189	No	<0.01	191	No	<0.01
	15	217	187	No	<0.01	193	No	<0.01	194	No	<0.01
	20	217	191	No	0.01	196	No	<0.01	198	No	<0.01
	25	217	193	No	0.01	198	No	<0.01	200	No	<0.01
	30	217	196	No	0.04	201	No	<0.01	203	No	<0.01
	35	217	198	No	0.05	203	No	0.01	205	No	<0.01
	40	217	200	No	0.08	205	No	0.03	207	No	<0.01
	45	217	202	No	0.13	207	No	0.06	209	No	0.01
	50	217	204	No	0.20	209	No	0.13	211	No	0.03
	55	217	207	No	0.29	211	No	0.22	213	No	0.11
	60	217	209	No	0.39	213	No	0.35	215	No	0.27
	65	217	211	Yes	0.50	215	Yes	0.50	217	Yes	0.50
	70	217	213	Yes	0.56	217	Yes	0.58	219	Yes	0.73
	75	217	216	Yes	0.71	220	Yes	0.78	222	Yes	0.94
	80	217	218	Yes	0.80	222	Yes	0.87	224	Yes	0.99
	85	217	221	Yes	0.87	226	Yes	0.97	228	Yes	>0.99
	90	217	225	Yes	0.95	229	Yes	0.99	231	Yes	>0.99
	95	217	231	Yes	0.99	235	Yes	>0.99	237	Yes	>0.99
6	5	220	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	220	189	No	<0.01	193	No	<0.01	195	No	<0.01
	15	220	193	No	<0.01	197	No	<0.01	199	No	<0.01
	20	220	196	No	0.01	200	No	<0.01	202	No	<0.01
	25	220	199	No	0.02	203	No	<0.01	205	No	<0.01
	30	220	202	No	0.04	205	No	0.01	207	No	<0.01
	35	220	204	No	0.08	208	No	0.03	209	No	<0.01
	40	220	206	No	0.13	210	No	0.06	211	No	<0.01
	45	220	208	No	0.16	212	No	0.12	213	No	0.01
	50	220	210	No	0.24	214	No	0.22	215	No	0.06
	55	220	212	No	0.33	216	No	0.28	217	No	0.17
	60	220	214	No	0.44	218	No	0.42	219	No	0.38
	65	220	217	Yes	0.56	220	Yes	0.58	222	Yes	0.73
	70	220	219	Yes	0.67	222	Yes	0.72	224	Yes	0.89
	75	220	221	Yes	0.76	225	Yes	0.88	226	Yes	0.97
	80	220	224	Yes	0.84	227	Yes	0.94	229	Yes	>0.99
	85	220	227	Yes	0.92	230	Yes	0.98	232	Yes	>0.99
	90	220	231	Yes	0.98	234	Yes	>0.99	236	Yes	>0.99
	95	220	237	Yes	>0.99	240	Yes	>0.99	242	Yes	>0.99

Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.
7	5	225	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	225	193	No	<0.01	196	No	<0.01	197	No	<0.01
	15	225	197	No	<0.01	200	No	<0.01	201	No	<0.01
	20	225	200	No	<0.01	203	No	<0.01	205	No	<0.01
	25	225	203	No	0.01	206	No	<0.01	207	No	<0.01
	30	225	206	No	0.02	209	No	<0.01	210	No	<0.01
	35	225	208	No	0.04	211	No	0.01	212	No	<0.01
	40	225	210	No	0.08	213	No	0.02	214	No	<0.01
	45	225	212	No	0.10	215	No	0.04	216	No	<0.01
	50	225	214	No	0.16	217	No	0.09	218	No	0.01
	55	225	216	No	0.24	219	No	0.17	220	No	0.06
	60	225	218	No	0.33	221	No	0.28	223	No	0.27
	65	225	221	No	0.44	223	No	0.42	225	Yes	0.50
	70	225	223	Yes	0.56	226	Yes	0.65	227	Yes	0.73
	75	225	225	Yes	0.67	228	Yes	0.78	229	Yes	0.89
	80	225	228	Yes	0.81	231	Yes	0.91	232	Yes	0.99
	85	225	231	Yes	0.88	234	Yes	0.97	235	Yes	>0.99
	90	225	235	Yes	0.96	238	Yes	>0.99	239	Yes	>0.99
	95	225	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99
8	5	226	190	No	<0.01	193	No	<0.01	194	No	<0.01
	10	226	196	No	<0.01	199	No	<0.01	200	No	<0.01
	15	226	200	No	<0.01	203	No	<0.01	204	No	<0.01
	20	226	204	No	0.01	206	No	<0.01	207	No	<0.01
	25	226	207	No	0.03	209	No	<0.01	210	No	<0.01
	30	226	209	No	0.05	212	No	0.01	213	No	<0.01
	35	226	211	No	0.06	214	No	0.02	215	No	<0.01
	40	226	214	No	0.13	216	No	0.04	217	No	<0.01
	45	226	216	No	0.20	218	No	0.09	220	No	0.03
	50	226	218	No	0.29	221	No	0.22	222	No	0.11
	55	226	220	No	0.34	223	No	0.35	224	No	0.27
	60	226	222	No	0.45	225	Yes	0.50	226	Yes	0.50
	65	226	225	Yes	0.61	227	Yes	0.65	228	Yes	0.73
	70	226	227	Yes	0.71	229	Yes	0.78	231	Yes	0.94
	75	226	230	Yes	0.80	232	Yes	0.91	233	Yes	0.99
	80	226	232	Yes	0.87	235	Yes	0.97	236	Yes	>0.99
	85	226	236	Yes	0.95	238	Yes	0.99	239	Yes	>0.99
	90	226	240	Yes	0.99	242	Yes	>0.99	243	Yes	>0.99
	95	226	246	Yes	>0.99	248	Yes	>0.99	249	Yes	>0.99

Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.
9	5	229	188	No	<0.01	190	No	<0.01	190	No	<0.01
	10	229	195	No	<0.01	197	No	<0.01	197	No	<0.01
	15	229	199	No	<0.01	201	No	<0.01	202	No	<0.01
	20	229	203	No	<0.01	205	No	<0.01	205	No	<0.01
	25	229	206	No	0.01	208	No	<0.01	209	No	<0.01
	30	229	209	No	0.02	211	No	<0.01	211	No	<0.01
	35	229	212	No	0.04	213	No	<0.01	214	No	<0.01
	40	229	214	No	0.07	216	No	0.01	217	No	<0.01
	45	229	217	No	0.13	218	No	0.03	219	No	<0.01
	50	229	219	No	0.16	221	No	0.10	221	No	0.01
	55	229	221	No	0.23	223	No	0.18	224	No	0.06
	60	229	224	No	0.35	225	No	0.29	226	No	0.17
	65	229	226	No	0.45	228	Yes	0.50	229	Yes	0.50
	70	229	229	Yes	0.60	230	Yes	0.64	231	Yes	0.73
	75	229	232	Yes	0.73	233	Yes	0.82	234	Yes	0.94
	80	229	235	Yes	0.84	236	Yes	0.93	237	Yes	0.99
	85	229	239	Yes	0.93	240	Yes	0.99	241	Yes	>0.99
	90	229	243	Yes	0.98	245	Yes	>0.99	246	Yes	>0.99
	95	229	250	Yes	>0.99	251	Yes	>0.99	253	Yes	>0.99
10	5	234	192	No	<0.01	194	No	<0.01	194	No	<0.01
	10	234	199	No	<0.01	200	No	<0.01	200	No	<0.01
	15	234	203	No	<0.01	204	No	<0.01	205	No	<0.01
	20	234	206	No	<0.01	208	No	<0.01	208	No	<0.01
	25	234	209	No	<0.01	211	No	<0.01	211	No	<0.01
	30	234	212	No	0.01	214	No	<0.01	214	No	<0.01
	35	234	215	No	0.02	216	No	<0.01	217	No	<0.01
	40	234	217	No	0.03	218	No	<0.01	219	No	<0.01
	45	234	219	No	0.05	221	No	0.01	221	No	<0.01
	50	234	221	No	0.08	223	No	0.03	224	No	<0.01
	55	234	224	No	0.15	225	No	0.07	226	No	0.01
	60	234	226	No	0.22	227	No	0.13	228	No	0.03
	65	234	228	No	0.30	230	No	0.29	231	No	0.17
	70	234	231	No	0.45	232	No	0.43	233	No	0.38
	75	234	234	Yes	0.60	235	Yes	0.65	236	Yes	0.73
	80	234	237	Yes	0.74	238	Yes	0.82	239	Yes	0.94
	85	234	240	Yes	0.85	241	Yes	0.93	242	Yes	0.99
	90	234	244	Yes	0.94	246	Yes	0.99	247	Yes	>0.99
	95	234	251	Yes	0.99	252	Yes	>0.99	253	Yes	>0.99

Table 3.9. Proficiency Projection based on RIT Scores—Mathematics

Mathematics											
			Fall			Winter			Spring		
				Projected Proficiency			Projected Proficiency			Projected Proficiency	
Grade	Start %ile	Spring Cut	Fall RIT	*Ready*	Prob.	Winter RIT	*Ready*	Prob.	Spring RIT	*Ready*	Prob.
3	5	200	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	200	171	No	0.01	179	No	<0.01	183	No	<0.01
	15	200	175	No	0.03	182	No	<0.01	186	No	<0.01
	20	200	177	No	0.05	185	No	0.02	189	No	<0.01
	25	200	179	No	0.10	187	No	0.04	192	No	<0.01
	30	200	181	No	0.17	189	No	0.10	194	No	0.02
	35	200	183	No	0.26	191	No	0.20	196	No	0.08
	40	200	185	No	0.37	193	No	0.33	198	No	0.25
	45	200	187	Yes	0.50	195	Yes	0.50	199	No	0.37
	50	200	188	Yes	0.56	196	Yes	0.58	201	Yes	0.63
	55	200	190	Yes	0.69	198	Yes	0.74	203	Yes	0.85
	60	200	192	Yes	0.74	200	Yes	0.86	205	Yes	0.96
	65	200	194	Yes	0.83	201	Yes	0.90	207	Yes	0.99
	70	200	196	Yes	0.90	203	Yes	0.96	208	Yes	>0.99
	75	200	198	Yes	0.95	205	Yes	0.98	211	Yes	>0.99
	80	200	200	Yes	0.97	208	Yes	>0.99	213	Yes	>0.99
	85	200	202	Yes	0.99	210	Yes	>0.99	216	Yes	>0.99
	90	200	206	Yes	>0.99	214	Yes	>0.99	219	Yes	>0.99
	95	200	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99
4	5	211	176	No	<0.01	182	No	<0.01	185	No	<0.01
	10	211	181	No	<0.01	187	No	<0.01	191	No	<0.01
	15	211	185	No	0.01	191	No	<0.01	194	No	<0.01
	20	211	187	No	0.02	194	No	0.01	197	No	<0.01
	25	211	190	No	0.05	196	No	0.01	200	No	<0.01
	30	211	192	No	0.10	198	No	0.03	202	No	<0.01
	35	211	194	No	0.17	200	No	0.07	205	No	0.02
	40	211	196	No	0.26	202	No	0.14	207	No	0.08
	45	211	198	No	0.37	204	No	0.26	209	No	0.25
	50	211	200	Yes	0.50	206	No	0.42	211	Yes	0.50
	55	211	201	Yes	0.56	208	Yes	0.58	212	Yes	0.63
	60	211	203	Yes	0.68	210	Yes	0.74	214	Yes	0.85
	65	211	205	Yes	0.79	212	Yes	0.86	217	Yes	0.98
	70	211	207	Yes	0.87	214	Yes	0.93	219	Yes	>0.99
	75	211	209	Yes	0.93	216	Yes	0.97	221	Yes	>0.99
	80	211	212	Yes	0.97	219	Yes	0.99	224	Yes	>0.99
	85	211	214	Yes	0.99	221	Yes	>0.99	227	Yes	>0.99
	90	211	218	Yes	>0.99	225	Yes	>0.99	230	Yes	>0.99
	95	211	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99

Mathematics												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.	
5	5	220	184	No	<0.01	189	No	<0.01	191	No	<0.01	
	10	220	190	No	<0.01	194	No	<0.01	197	No	<0.01	
	15	220	193	No	<0.01	198	No	<0.01	201	No	<0.01	
	20	220	196	No	0.01	201	No	<0.01	205	No	<0.01	
	25	220	199	No	0.03	204	No	0.01	207	No	<0.01	
	30	220	201	No	0.08	206	No	0.02	210	No	<0.01	
	35	220	203	No	0.14	209	No	0.07	212	No	<0.01	
	40	220	205	No	0.22	211	No	0.15	215	No	0.04	
	45	220	207	No	0.32	213	No	0.26	217	No	0.15	
	50	220	209	No	0.44	215	No	0.42	219	No	0.37	
	55	220	211	Yes	0.56	217	Yes	0.58	221	Yes	0.63	
	60	220	213	Yes	0.68	219	Yes	0.74	223	Yes	0.85	
	65	220	215	Yes	0.78	221	Yes	0.85	225	Yes	0.96	
	70	220	217	Yes	0.86	223	Yes	0.93	228	Yes	>0.99	
	75	220	219	Yes	0.92	225	Yes	0.97	230	Yes	>0.99	
	80	220	222	Yes	0.97	228	Yes	0.99	233	Yes	>0.99	
	85	220	225	Yes	0.99	231	Yes	>0.99	236	Yes	>0.99	
	90	220	229	Yes	>0.99	235	Yes	>0.99	240	Yes	>0.99	
	95	220	234	Yes	>0.99	241	Yes	>0.99	246	Yes	>0.99	
6	5	222	188	No	<0.01	192	No	<0.01	194	No	<0.01	
	10	222	194	No	<0.01	198	No	<0.01	200	No	<0.01	
	15	222	198	No	0.01	202	No	<0.01	205	No	<0.01	
	20	222	201	No	0.02	205	No	<0.01	208	No	<0.01	
	25	222	204	No	0.06	208	No	0.01	211	No	<0.01	
	30	222	206	No	0.10	211	No	0.04	214	No	<0.01	
	35	222	209	No	0.22	213	No	0.10	216	No	0.02	
	40	222	211	No	0.32	215	No	0.20	218	No	0.08	
	45	222	213	No	0.44	217	No	0.34	221	No	0.37	
	50	222	215	Yes	0.56	220	Yes	0.58	223	Yes	0.63	
	55	222	217	Yes	0.68	222	Yes	0.74	225	Yes	0.85	
	60	222	219	Yes	0.78	224	Yes	0.86	227	Yes	0.96	
	65	222	221	Yes	0.86	226	Yes	0.93	230	Yes	>0.99	
	70	222	223	Yes	0.92	228	Yes	0.97	232	Yes	>0.99	
	75	222	226	Yes	0.97	231	Yes	0.99	235	Yes	>0.99	
	80	222	228	Yes	0.99	234	Yes	>0.99	238	Yes	>0.99	
	85	222	231	Yes	>0.99	237	Yes	>0.99	241	Yes	>0.99	
	90	222	235	Yes	>0.99	241	Yes	>0.99	245	Yes	>0.99	
	95	222	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	

Mathematics												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.	
7	5	229	192	No	<0.01	194	No	<0.01	196	No	<0.01	
	10	229	198	No	<0.01	201	No	<0.01	203	No	<0.01	
	15	229	202	No	<0.01	205	No	<0.01	207	No	<0.01	
	20	229	206	No	<0.01	209	No	<0.01	211	No	<0.01	
	25	229	208	No	0.01	212	No	<0.01	214	No	<0.01	
	30	229	211	No	0.03	215	No	0.01	217	No	<0.01	
	35	229	213	No	0.05	217	No	0.03	220	No	<0.01	
	40	229	216	No	0.13	219	No	0.07	222	No	0.01	
	45	229	218	No	0.26	222	No	0.20	224	No	0.04	
	50	229	220	No	0.37	224	No	0.33	227	No	0.25	
	55	229	222	Yes	0.50	226	Yes	0.50	229	Yes	0.50	
	60	229	225	Yes	0.69	229	Yes	0.74	231	Yes	0.75	
	65	229	227	Yes	0.79	231	Yes	0.86	234	Yes	0.96	
	70	229	229	Yes	0.87	233	Yes	0.93	236	Yes	0.99	
	75	229	232	Yes	0.95	236	Yes	0.98	239	Yes	>0.99	
	80	229	235	Yes	0.98	239	Yes	>0.99	242	Yes	>0.99	
	85	229	238	Yes	>0.99	243	Yes	>0.99	246	Yes	>0.99	
	90	229	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99	
	95	229	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	
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	

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Ready	Prob.		*Ready*	Prob.		*Ready*	Prob.
9	5	244	194	No	<0.01	196	No	<0.01	196	No	<0.01
	10	244	201	No	<0.01	203	No	<0.01	204	No	<0.01
	15	244	206	No	<0.01	208	No	<0.01	209	No	<0.01
	20	244	210	No	<0.01	212	No	<0.01	213	No	<0.01
	25	244	213	No	<0.01	215	No	<0.01	216	No	<0.01
	30	244	216	No	<0.01	218	No	<0.01	219	No	<0.01
	35	244	219	No	<0.01	221	No	<0.01	222	No	<0.01
	40	244	221	No	0.01	224	No	<0.01	225	No	<0.01
	45	244	224	No	0.02	226	No	<0.01	227	No	<0.01
	50	244	226	No	0.03	229	No	<0.01	230	No	<0.01
	55	244	229	No	0.07	231	No	0.01	233	No	<0.01
	60	244	231	No	0.09	234	No	0.04	235	No	<0.01
	65	244	234	No	0.17	236	No	0.08	238	No	0.02
	70	244	237	No	0.29	239	No	0.21	241	No	0.15
	75	244	240	No	0.45	242	No	0.42	244	Yes	0.50
	80	244	243	Yes	0.61	246	Yes	0.73	247	Yes	0.85
	85	244	247	Yes	0.79	249	Yes	0.89	251	Yes	0.99
	90	244	252	Yes	0.93	254	Yes	0.99	256	Yes	>0.99
	95	244	259	Yes	0.99	262	Yes	>0.99	264	Yes	>0.99
10	5	251	196	No	<0.01	197	No	<0.01	197	No	<0.01
	10	251	203	No	<0.01	205	No	<0.01	205	No	<0.01
	15	251	208	No	<0.01	210	No	<0.01	210	No	<0.01
	20	251	212	No	<0.01	214	No	<0.01	215	No	<0.01
	25	251	215	No	<0.01	217	No	<0.01	218	No	<0.01
	30	251	218	No	<0.01	220	No	<0.01	221	No	<0.01
	35	251	221	No	<0.01	223	No	<0.01	224	No	<0.01
	40	251	224	No	<0.01	226	No	<0.01	227	No	<0.01
	45	251	227	No	<0.01	229	No	<0.01	230	No	<0.01
	50	251	229	No	<0.01	231	No	<0.01	232	No	<0.01
	55	251	232	No	0.01	234	No	<0.01	235	No	<0.01
	60	251	234	No	0.03	236	No	<0.01	238	No	<0.01
	65	251	237	No	0.07	239	No	0.01	241	No	<0.01
	70	251	240	No	0.14	242	No	0.05	244	No	0.01
	75	251	243	No	0.25	245	No	0.16	247	No	0.08
	80	251	246	No	0.39	249	No	0.42	250	No	0.37
	85	251	250	Yes	0.61	253	Yes	0.73	254	Yes	0.85
	90	251	255	Yes	0.83	258	Yes	0.95	260	Yes	>0.99
	95	251	262	Yes	0.97	265	Yes	>0.99	267	Yes	>0.99

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