

Linking Study Report: Predicting Performance on the North Dakota State Assessment (NDSA) 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 North Dakota State Assessment (NDSA) in Grades 3–8 English Language Arts (ELA) and Mathematics, NWEA® conducted a linking study using Spring 2019 data to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the NDSA 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.¹ North Dakota transitioned from the Smarter Balanced Assessment Consortium (SBAC) assessments to the NDSA in 2017–2018. The linking study has been updated since the previous SBAC study published in June 2017 to provide MAP Growth cut scores for the newly developed North Dakota state summative assessment and to incorporate the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020).

Table E.1 presents the NDSA *Proficient* achievement level cut scores and the corresponding MAP Growth RIT cut scores that allow teachers to identify students who are on track for proficiency on the state summative test and those who are not. For example, the *Proficient* cut score on the NDSA Grade 3 ELA test is 585. A Grade 3 student with a MAP Growth Reading RIT score of 193 in the fall is likely to meet proficiency on the NDSA ELA test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 193 in the fall is in jeopardy of not meeting proficiency. MAP Growth cut scores for Grade 2 are also provided so educators can track early learners’ progress toward proficiency on the NDSA 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 NDSA Proficiency

Assessment		Proficient Cut Scores by Grade						
		2	3	4	5	6	7	8
ELA/Reading								
NDSA Spring		–	585	600	622	638	641	650
MAP Growth	Fall	181	193	204	210	215	220	223
	Winter	189	200	209	214	219	223	225
	Spring	193	203	211	216	220	224	226
Mathematics								
NDSA Spring		–	428	465	484	513	550	580
MAP Growth	Fall	179	192	206	212	219	229	234
	Winter	188	199	213	218	224	233	237
	Spring	193	204	217	222	227	236	239

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

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 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 the specific instructional weeks set by partners.

E.1. Assessment Overview

The NDSA Grades 3–8 ELA and Mathematics tests are North Dakota’s state summative assessments aligned to the North Dakota Content Standards. Based on their test scores, students are placed into one of four achievement levels: *Level 1: Novice*, *Level 2: Partially Proficient*, *Level 3: Proficient*, and *Level 4: Advanced*. The *Proficient* cut score demarks the minimum level of achievement considered to be proficient for accountability purposes. MAP Growth tests are adaptive interim assessments aligned to state-specific content standards and administered in the fall, winter, and spring. Scores are reported on the RIT vertical scale with a range of 100–350.

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 NDSA 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 NDSA test were then projected using the 2020 NWEA conditional growth norms that provide expected score gains across test administrations.

E.3. Student Sample

Only students who took both the MAP Growth and NDSA assessments in Spring 2019 were included in the study sample. Table E.2 presents the weighted number of North Dakota students from six districts and 27 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.

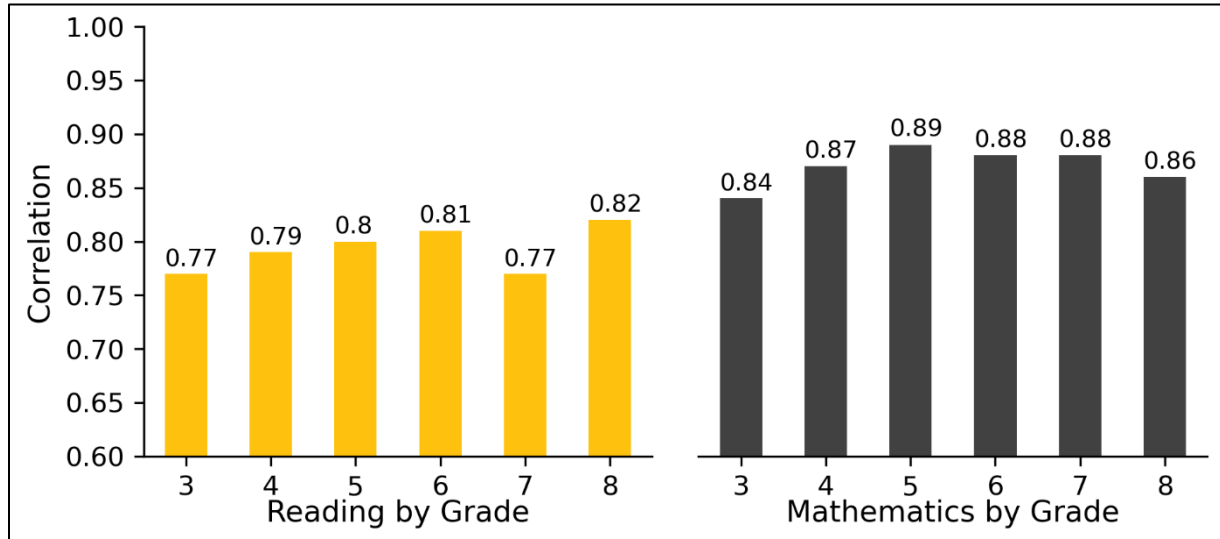
Table E.2. Linking Study Sample

Grade	#Students	
	ELA/Reading	Mathematics
3	1,029	1,038
4	1,058	1,049
5	1,121	1,103
6	1,070	1,073
7	1,043	1,056
8	1,001	1,000

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and NDSA scores range from 0.77 to 0.89 across 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 NDSA assessments.

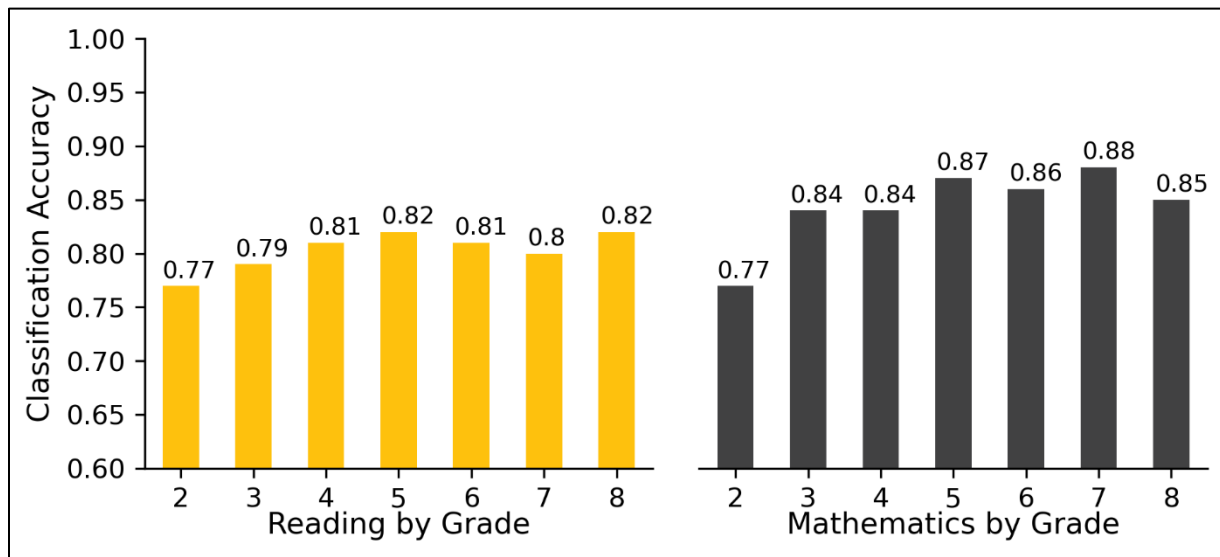
Figure E.1. Correlations between MAP Growth and NDSA Test Scores



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 NDSA tests. For example, the MAP Growth Reading Grade 3 *Proficient* cut score has a 0.79 accuracy rate, meaning it accurately classified student achievement on the state test for 79% of the sample. The results range from 0.77 to 0.88 across content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the NDSA 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 March 2021 to statistically connect the scores of the North Dakota State Assessment (NDSA) Grades 3–8 English Language Arts (ELA) 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 2017 to provide MAP Growth cut scores for the newly developed North Dakota state summative assessment and 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 NDSA 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 NDSA 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 NDSA tests
5. The probability of achieving grade-level proficiency on the NDSA assessment based on MAP Growth RIT scores from fall, winter, and spring using the 2020 norms

1.2. Assessment Overview

The NDSA Grades 3–8 ELA and Mathematics summative assessments are aligned to the North Dakota Content Standards. North Dakota transitioned from the Smarter Balanced Assessment Consortium (SBAC) assessments to the NDSA in 2017–2018. 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: *Level 1: Novice*, *Level 2: Partially Proficient*, *Level 3: Proficient*, and *Level 4: Advanced*. The *Proficient* cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

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

2. Methods

2.1. Data Collection

This linking study is based on data from the Spring 2019 administrations of the MAP Growth and NDSA assessments. NWEA recruited North Dakota 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 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 NDSA assessments in Spring 2019 were included in the study sample.

2.2. Post-Stratification Weighting

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

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

2.3. MAP Growth Cut Scores

The equipercntile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores that correspond to the spring NDSA achievement level cut scores. Spring cuts for Grade 2 were derived based on the cuts for Grade 3 and the 2020 NWEA growth norms. RIT fall and winter cut scores that predict proficiency on the spring NDSA 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 compared 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 NDSA 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., NDSA). 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 NDSA on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on NDSA, 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 NDSA tests can be described using classification accuracy statistics based on the MAP Growth spring RIT cut scores that show the proportion of students correctly classified by their RIT scores as proficient (*Proficient* or *Advanced*) or not proficient (*Novice* or *Partially Proficient*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich et al., 2004). The results are based on the Spring 2019 MAP Growth and NDSA data for the *Proficient* cut score.

North Dakota students do not begin taking the NDSA assessment until Grade 3, so longitudinal data were collected for the Grade 3 cohort to link the NDSA assessment to MAP Growth for Grade 2 to calculate the classification accuracy statistics. To accomplish this, 2018–2019 NDSA 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 NDSA test based on a student’s RIT scores from fall, winter, and spring. Equation 3 was used to calculate the probability of a student achieving *Proficient* performance on the NDSA test based on their fall or winter RIT score:

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

where:

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

Equation 4 was used to estimate the probability of a student achieving *Proficient* performance on the NDSA test based on their spring RIT score (RIT_{Spring}):

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

where SE is the standard error of measurement for MAP Growth.

3. Results

3.1. Study Sample

Only students who took both the MAP Growth and NDSA assessments in Spring 2019 were included in the study sample. Data used in this study were collected from six districts and 27 schools in North Dakota. 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 NDSA tests. Since the unweighted data are different from the general NDSA 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 NDSA 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
ELA/Reading							
Total N		1,029	1,058	1,121	1,081	1,043	1,001
Race*	AI/AN	12.1	10.7	11.9	11.8	11.8	11.7
	Asian/NHPI	1.2	1.5	1.3	1.2	1.7	2.4
	Black	3.7	4.2	5.4	5.6	3.4	2.7
	Hispanic	1.9	2.1	2.9	2.6	1.7	2.4
	White	81.0	81.6	78.6	78.7	81.4	80.8
Sex	Female	49.1	49.1	47.6	49.0	48.2	52.1
	Male	50.9	50.9	52.4	51.0	51.8	47.9
Achievement Level	<i>Novice</i>	25.9	26.7	24.6	25.3	30.1	26.4
	<i>Partially Proficient</i>	27.9	30.0	26.6	25.3	20.6	27.1
	<i>Proficient</i>	34.4	31.8	35.3	29.5	28.5	35.8
	<i>Advanced</i>	11.8	11.6	13.5	19.9	20.8	10.8
Mathematics							
Total N		1,038	1,060	1,103	1,084	1,056	990
Race*	AI/AN	12.2	10.8	12.2	11.8	12.2	11.5
	Asian/NHPI	1.3	1.5	1.5	1.3	1.8	2.2
	Black	3.7	4.3	5.4	5.8	3.6	3.1
	Hispanic	1.9	2.1	2.9	2.7	1.8	2.5
	White	80.8	81.3	77.9	78.4	80.6	80.6
Sex	Female	48.8	49.1	48.1	49.1	48.3	51.7
	Male	51.2	50.9	51.9	50.9	51.7	48.3
Achievement Level	<i>Novice</i>	19.7	25.7	11.6	19.5	23.8	21.1
	<i>Partially Proficient</i>	20.6	27.5	36.5	34.4	38.2	36.1
	<i>Proficient</i>	46.5	37.0	38.4	36.7	27.7	33.1
	<i>Advanced</i>	13.2	9.9	13.4	9.4	10.3	9.7

*AI/AN = American Indian/Alaskan Native. NHPI = Native Hawaiian or Pacific Islander.

Table 3.2. Spring 2019 NDSA Student Population Demographics

Spring 2019 NDSA Population							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
ELA							
Total N		8,530	8,672	8,617	8,615	8,188	7,852
Race*	AI/AN	9.5	9.5	9.6	9.9	9.8	10.1
	Asian/NHPI	2.7	2.6	2.3	2.4	2.4	1.3
	Black	6.5	6.5	6.4	5.9	5.9	5.7
	Hispanic	5.5	5.4	5.5	5.6	5.3	4.8
	White	75.8	76.0	76.4	76.2	76.7	78.0
Sex	Female	48.5	49.2	48.8	48.6	48.5	47.9
	Male	51.5	50.8	51.2	51.4	51.5	52.1
Achievement Level	<i>Novice</i>	26.0	25.0	27.0	26.0	33.0	23.0
	<i>Partially Proficient</i>	26.0	30.0	26.0	24.0	21.0	26.0
	<i>Proficient</i>	36.0	34.0	35.0	29.0	28.0	39.0
	<i>Advanced</i>	12.0	11.0	12.0	20.0	18.0	12.0
Mathematics							
Total N		8,568	8,712	8,639	8,643	8,315	7,966
Race*	AI/AN	9.6	9.5	9.6	9.9	9.8	10.0
	Asian/NHPI	2.5	2.5	2.2	2.3	2.4	2.2
	Black	6.6	6.6	6.5	6.0	5.8	5.8
	Hispanic	5.6	5.5	5.5	5.7	5.4	5.0
	White	75.7	75.9	76.2	76.1	76.6	77.1
Sex	Female	48.4	49.2	48.8	48.6	48.7	47.8
	Male	51.6	50.8	51.2	51.4	51.3	52.2
Achievement Level	<i>Novice</i>	28.0	28.0	16.0	20.0	25.0	19.0
	<i>Partially Proficient</i>	23.0	28.0	36.0	32.0	35.0	35.0
	<i>Proficient</i>	40.0	34.0	35.0	37.0	30.0	36.0
	<i>Advanced</i>	9.0	9.0	13.0	10.0	10.0	11.0

*AI/AN = American Indian/Alaskan Native. NHPI = Native Hawaiian or Pacific Islander.

Table 3.3. Linking Study Sample Demographics (Weighted)

Linking Study Sample (Weighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
ELA/Reading							
Total N		1,029	1,058	1,121	1,070	1,043	1,001
Race*	AI/AN	9.5	9.5	9.6	9.9	9.8	10.1
	Asian/NHPI	2.7	2.6	2.2	2.4	2.4	1.4
	Black	6.5	6.5	6.4	5.9	5.9	5.7
	Hispanic	5.5	5.4	5.5	5.6	5.3	4.8
	White	75.8	76.0	76.4	76.2	76.7	78.0
Sex	Female	48.5	49.2	48.8	48.6	48.4	47.9
	Male	51.5	50.8	51.2	51.4	51.6	52.1
Achievement Level	<i>Novice</i>	26.0	25.0	27.0	26.3	33.0	23.0
	<i>Partially Proficient</i>	26.0	30.0	26.0	24.2	21.0	26.0
	<i>Proficient</i>	36.0	34.0	35.0	29.3	28.0	39.0
	<i>Advanced</i>	12.0	11.0	12.0	20.2	18.0	12.0
Mathematics							
Total N		1,038	1,049	1,103	1,073	1,056	1,000
Race*	AI/AN	9.6	9.5	9.6	9.9	9.8	9.9
	Asian/NHPI	2.5	2.5	2.2	2.3	2.4	2.2
	Black	6.6	6.6	6.5	6.0	5.8	5.8
	Hispanic	5.6	5.5	5.5	5.7	5.4	5.0
	White	75.6	75.9	76.2	76.1	76.6	77.1
Sex	Female	48.4	49.2	48.8	48.6	48.7	47.8
	Male	51.6	50.8	51.2	51.4	51.3	52.2
Achievement Level	<i>Novice</i>	28.0	28.3	16.0	20.2	25.0	18.8
	<i>Partially Proficient</i>	23.0	28.3	36.0	32.3	35.0	34.7
	<i>Proficient</i>	40.0	34.3	35.0	37.4	30.0	35.6
	<i>Advanced</i>	9.0	9.1	13.0	10.1	10.0	10.9

*AI/AN = American Indian/Alaskan Native. NHPI = Native Hawaiian or Pacific Islander.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and NDSA test scores from Spring 2019, including the correlation coefficient (r) between them. The correlation coefficients between the scores range from 0.77 to 0.82 for ELA/reading and 0.84 to 0.89 for mathematics. These values indicate a strong relationship among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the NDSA assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	<i>r</i>	NDSA*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
ELA/Reading										
3	1,029	0.77	581.3	32.7	477	680	201.4	11.8	160	232
4	1,058	0.79	595.3	34.7	480	712	208.0	12.3	160	240
5	1,121	0.80	617.3	38.0	450	727	213.2	12.9	158	254
6	1,070	0.81	634.8	42.1	464	775	218.7	13.2	165	254
7	1,043	0.77	632.0	48.3	470	767	221.3	13.0	163	258
8	1,001	0.82	649.2	44.4	480	803	224.9	13.3	169	262
Mathematics										
3	1,038	0.84	425.9	29.2	308	521	203.7	10.8	158	241
4	1,049	0.87	456.0	36.8	312	608	214.1	13.3	154	259
5	1,103	0.89	481.0	39.0	320	590	221.3	14.9	159	259
6	1,073	0.88	503.3	49.0	330	657	225.4	15.1	174	276
7	1,056	0.88	534.3	54.2	348	750	231.5	16.0	175	274
8	1,000	0.86	568.0	62.3	350	770	235.8	16.6	173	286

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the NDSA 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 NDSA spring assessment when MAP Growth is taken in the fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Reading RIT score of 193 in the fall is likely to achieve *Proficient* performance on the NDSA ELA test. A Grade 3 student who obtained a MAP Growth Reading RIT score of 203 in the spring is also likely to achieve *Proficient* performance on the NDSA assessment. The spring cut score is higher than the fall cut score because growth is expected between fall and spring as students receive more instruction during the school year.

Within this report, the cut scores for fall and winter are derived from the spring cuts and the typical growth scores from fall-to-spring or winter-to-spring. The typical growth scores are based on the default instructional weeks most 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’ score reports since they reflect the specific instructional weeks set by partners.

Table 3.5. MAP Growth Cut Scores—ELA/Reading

NDSA ELA									
Grade	Novice		Partially Proficient		Proficient		Advanced		
3	≤559		560–584		585–620		≥621		
4	≤571		572–599		600–638		≥639		
5	≤594		595–621		622–660		≥661		
6	≤609		610–637		638–670		≥671		
7	≤610		611–640		641–679		≥680		
8	≤615		616–649		650–701		≥702		
MAP Growth Reading*									
Grade	Novice		Partially Proficient		Proficient		Advanced		
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	
Fall									
2	100–167	1–38	168–180	39–71	181–195	72–93	196–350	94–99	
3	100–182	1–40	183–192	41–64	193–206	65–88	207–350	89–99	
4	100–191	1–38	192–203	39–66	204–216	67–88	217–350	89–99	
5	100–199	1–38	200–209	39–62	210–222	63–86	223–350	87–99	
6	100–205	1–39	206–214	40–61	215–226	62–84	227–350	85–99	
7	100–211	1–44	212–219	45–63	220–231	64–85	232–350	86–99	
8	100–212	1–37	213–222	38–61	223–237	62–87	238–350	88–99	
Winter									
2	100–176	1–38	177–188	39–69	189–202	70–92	203–350	93–99	
3	100–190	1–42	191–199	43–64	200–212	65–87	213–350	88–99	
4	100–197	1–38	198–208	39–65	209–221	66–87	222–350	88–99	
5	100–204	1–39	205–213	40–61	214–225	62–85	226–350	86–99	
6	100–209	1–40	210–218	41–62	219–228	63–82	229–350	83–99	
7	100–214	1–44	215–222	45–63	223–232	64–83	233–350	84–99	
8	100–215	1–38	216–224	39–60	225–238	61–86	239–350	87–99	
Spring									
2	100–181	1–40	182–192	41–67	193–206	68–91	207–350	92–99	
3	100–193	1–41	194–202	42–63	203–214	64–85	215–350	86–99	
4	100–200	1–40	201–210	41–64	211–222	65–86	223–350	87–99	
5	100–206	1–39	207–215	40–61	216–226	62–83	227–350	84–99	
6	100–211	1–41	212–219	42–60	220–229	61–81	230–350	82–99	
7	100–215	1–43	216–223	44–62	224–233	63–82	234–350	83–99	
8	100–216	1–38	217–225	39–59	226–239	60–85	240–350	86–99	

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

Table 3.6. MAP Growth Cut Scores—Mathematics

NDSA Mathematics									
Grade	Novice		Partially Proficient		Proficient		Advanced		
3	≤409		410–427		428–462		≥463		
4	≤436		437–464		465–500		≥501		
5	≤445		446–483		484–522		≥523		
6	≤469		470–512		513–557		≥558		
7	≤502		503–549		550–597		≥598		
8	≤518		519–579		580–639		≥640		
MAP Growth Mathematics*									
Grade	Novice		Partially Proficient		Proficient		Advanced		
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	
Fall									
2	100–170	1–37	171–178	38–61	179–193	62–92	194–350	93–99	
3	100–184	1–39	185–191	40–59	192–204	60–88	205–350	89–99	
4	100–195	1–39	196–205	40–66	206–218	67–90	219–350	91–99	
5	100–198	1–24	199–211	25–56	212–227	57–88	228–350	89–99	
6	100–205	1–28	206–218	29–59	219–235	60–90	236–350	91–99	
7	100–215	1–39	216–228	40–68	229–243	69–90	244–350	91–99	
8	100–217	1–35	218–233	36–67	234–249	68–90	250–350	91–99	
Winter									
2	100–180	1–40	181–187	41–61	188–201	62–91	202–350	92–99	
3	100–192	1–40	193–198	41–57	199–212	58–88	213–350	89–99	
4	100–202	1–41	203–212	42–67	213–225	68–90	226–350	91–99	
5	100–203	1–24	204–217	25–57	218–233	58–88	234–350	89–99	
6	100–210	1–29	211–223	30–59	224–240	60–89	241–350	90–99	
7	100–218	1–38	219–232	39–68	233–247	69–90	248–350	91–99	
8	100–220	1–35	221–236	36–67	237–252	68–89	253–350	90–99	
Spring									
2	100–185	1–39	186–192	40–60	193–206	61–89	207–350	90–99	
3	100–197	1–40	198–203	41–57	204–216	58–86	217–350	87–99	
4	100–206	1–40	207–216	41–65	217–229	66–88	230–350	89–99	
5	100–207	1–25	208–221	26–57	222–237	58–87	238–350	88–99	
6	100–213	1–30	214–226	31–58	227–243	59–88	244–350	89–99	
7	100–221	1–39	222–235	40–68	236–250	69–89	251–350	90–99	
8	100–222	1–35	223–238	36–66	239–254	67–88	255–350	89–99	

*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 NDSA tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.77 to 0.82 for ELA/reading and 0.77 to 0.88 for mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the NDSA assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students' proficiency status on NDSA 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 NDSA tests, there is a notable limitation to how these results should be used and interpreted. The NDSA 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	NDSA		FP	FN				
ELA/Reading										
2	981	193	585	0.77	0.25	0.21	0.79	0.75	0.73	0.85
3	1,029	203	585	0.79	0.20	0.22	0.78	0.80	0.78	0.88
4	1,058	211	600	0.81	0.17	0.20	0.80	0.83	0.79	0.90
5	1,121	216	622	0.82	0.16	0.20	0.80	0.84	0.81	0.90
6	1,070	220	638	0.81	0.20	0.18	0.82	0.80	0.80	0.90
7	1,043	224	641	0.80	0.17	0.23	0.77	0.83	0.79	0.90
8	1,001	226	650	0.82	0.17	0.19	0.81	0.83	0.84	0.90
Mathematics										
2	986	193	428	0.77	0.18	0.26	0.74	0.82	0.86	0.86
3	1,038	204	428	0.84	0.19	0.14	0.86	0.81	0.81	0.92
4	1,049	217	465	0.84	0.13	0.18	0.82	0.87	0.83	0.94
5	1,103	222	484	0.87	0.16	0.10	0.90	0.84	0.84	0.95
6	1,073	227	513	0.86	0.15	0.13	0.87	0.85	0.84	0.94
7	1,056	236	550	0.88	0.11	0.15	0.85	0.89	0.84	0.95
8	1,000	239	580	0.85	0.12	0.18	0.82	0.88	0.86	0.94

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

3.5. Proficiency Projection

Table 3.8 and Table 3.9 present the estimated probability of achieving *Proficient* performance on the NDSA test based on RIT scores from fall, winter, or spring. "Prob." indicates the probability of obtaining proficient status on the NDSA test in the spring. For example, a Grade 3 student who obtained a MAP Growth Reading score of 201 in the fall has an 83% chance of reaching the *Proficient* level or higher on the NDSA test.

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

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
2	5	193	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	193	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	193	157	No	<0.01	166	No	<0.01	170	No	<0.01
	20	193	160	No	0.01	169	No	<0.01	173	No	<0.01
	25	193	162	No	0.01	171	No	<0.01	175	No	<0.01
	30	193	164	No	0.02	173	No	<0.01	177	No	<0.01
	35	193	166	No	0.04	175	No	0.01	180	No	<0.01
	40	193	168	No	0.07	177	No	0.02	182	No	<0.01
	45	193	170	No	0.09	179	No	0.03	184	No	<0.01
	50	193	172	No	0.15	181	No	0.07	186	No	0.01
	55	193	174	No	0.21	183	No	0.13	188	No	0.06
	60	193	176	No	0.30	185	No	0.23	189	No	0.11
	65	193	178	No	0.40	187	No	0.35	192	No	0.38
	70	193	180	No	0.45	189	Yes	0.50	194	Yes	0.62
	75	193	183	Yes	0.60	191	Yes	0.65	196	Yes	0.83
	80	193	185	Yes	0.70	194	Yes	0.83	199	Yes	0.97
	85	193	188	Yes	0.79	197	Yes	0.93	202	Yes	>0.99
90	193	192	Yes	0.91	200	Yes	0.98	205	Yes	>0.99	
95	193	197	Yes	0.97	206	Yes	>0.99	211	Yes	>0.99	
3	5	203	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	203	165	No	<0.01	173	No	<0.01	176	No	<0.01
	15	203	169	No	<0.01	177	No	<0.01	180	No	<0.01
	20	203	173	No	0.01	180	No	<0.01	183	No	<0.01
	25	203	175	No	0.02	183	No	<0.01	186	No	<0.01
	30	203	178	No	0.04	185	No	<0.01	189	No	<0.01
	35	203	180	No	0.05	188	No	0.02	191	No	<0.01
	40	203	182	No	0.09	190	No	0.03	193	No	<0.01
	45	203	185	No	0.17	192	No	0.07	195	No	0.01
	50	203	187	No	0.21	194	No	0.13	197	No	0.03
	55	203	189	No	0.30	196	No	0.23	199	No	0.11
	60	203	191	No	0.39	198	No	0.35	201	No	0.27
	65	203	193	Yes	0.50	200	Yes	0.50	203	Yes	0.50
	70	203	195	Yes	0.55	202	Yes	0.65	206	Yes	0.83
	75	203	198	Yes	0.70	205	Yes	0.83	208	Yes	0.94
	80	203	201	Yes	0.83	207	Yes	0.91	211	Yes	0.99
	85	203	204	Yes	0.89	211	Yes	0.97	214	Yes	>0.99
90	203	208	Yes	0.96	215	Yes	>0.99	218	Yes	>0.99	
95	203	214	Yes	0.99	220	Yes	>0.99	224	Yes	>0.99	

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
4	5	211	169	No	<0.01	176	No	<0.01	178	No	<0.01
	10	211	175	No	<0.01	182	No	<0.01	184	No	<0.01
	15	211	179	No	<0.01	186	No	<0.01	188	No	<0.01
	20	211	183	No	0.01	189	No	<0.01	191	No	<0.01
	25	211	185	No	0.01	192	No	<0.01	194	No	<0.01
	30	211	188	No	0.03	194	No	<0.01	196	No	<0.01
	35	211	190	No	0.05	196	No	0.01	199	No	<0.01
	40	211	192	No	0.08	198	No	0.03	201	No	<0.01
	45	211	195	No	0.13	200	No	0.04	203	No	0.01
	50	211	197	No	0.20	202	No	0.09	205	No	0.03
	55	211	199	No	0.29	205	No	0.22	207	No	0.11
	60	211	201	No	0.39	207	No	0.35	209	No	0.27
	65	211	203	No	0.44	209	Yes	0.50	211	Yes	0.50
	70	211	205	Yes	0.56	211	Yes	0.65	213	Yes	0.73
	75	211	208	Yes	0.71	213	Yes	0.78	216	Yes	0.94
	80	211	211	Yes	0.80	216	Yes	0.91	219	Yes	0.99
85	211	214	Yes	0.89	219	Yes	0.97	222	Yes	>0.99	
90	211	218	Yes	0.95	223	Yes	0.99	226	Yes	>0.99	
95	211	224	Yes	0.99	229	Yes	>0.99	232	Yes	>0.99	
5	5	216	178	No	<0.01	183	No	<0.01	185	No	<0.01
	10	216	183	No	<0.01	189	No	<0.01	191	No	<0.01
	15	216	187	No	<0.01	193	No	<0.01	194	No	<0.01
	20	216	191	No	0.01	196	No	<0.01	198	No	<0.01
	25	216	193	No	0.02	198	No	<0.01	200	No	<0.01
	30	216	196	No	0.05	201	No	0.01	203	No	<0.01
	35	216	198	No	0.06	203	No	0.02	205	No	<0.01
	40	216	200	No	0.11	205	No	0.04	207	No	<0.01
	45	216	202	No	0.17	207	No	0.09	209	No	0.01
	50	216	204	No	0.24	209	No	0.17	211	No	0.06
	55	216	207	No	0.34	211	No	0.28	213	No	0.17
	60	216	209	No	0.44	213	No	0.42	215	No	0.38
	65	216	211	Yes	0.56	215	Yes	0.58	217	Yes	0.62
	70	216	213	Yes	0.61	217	Yes	0.65	219	Yes	0.83
	75	216	216	Yes	0.76	220	Yes	0.83	222	Yes	0.97
	80	216	218	Yes	0.83	222	Yes	0.91	224	Yes	0.99
85	216	221	Yes	0.89	226	Yes	0.98	228	Yes	>0.99	
90	216	225	Yes	0.96	229	Yes	>0.99	231	Yes	>0.99	
95	216	231	Yes	0.99	235	Yes	>0.99	237	Yes	>0.99	

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
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	
7	5	224	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	224	193	No	<0.01	196	No	<0.01	197	No	<0.01
	15	224	197	No	<0.01	200	No	<0.01	201	No	<0.01
	20	224	200	No	<0.01	203	No	<0.01	205	No	<0.01
	25	224	203	No	0.01	206	No	<0.01	207	No	<0.01
	30	224	206	No	0.03	209	No	0.01	210	No	<0.01
	35	224	208	No	0.06	211	No	0.02	212	No	<0.01
	40	224	210	No	0.10	213	No	0.03	214	No	<0.01
	45	224	212	No	0.12	215	No	0.06	216	No	0.01
	50	224	214	No	0.19	217	No	0.12	218	No	0.03
	55	224	216	No	0.28	219	No	0.22	220	No	0.11
	60	224	218	No	0.39	221	No	0.35	223	No	0.38
	65	224	221	Yes	0.50	223	Yes	0.50	225	Yes	0.62
	70	224	223	Yes	0.61	226	Yes	0.72	227	Yes	0.83
	75	224	225	Yes	0.72	228	Yes	0.83	229	Yes	0.94
	80	224	228	Yes	0.84	231	Yes	0.94	232	Yes	0.99
85	224	231	Yes	0.90	234	Yes	0.98	235	Yes	>0.99	
90	224	235	Yes	0.97	238	Yes	>0.99	239	Yes	>0.99	
95	224	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
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	

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	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
2	5	193	154	No	<0.01	163	No	<0.01	167	No	<0.01
	10	193	158	No	<0.01	167	No	<0.01	172	No	<0.01
	15	193	162	No	0.01	171	No	<0.01	175	No	<0.01
	20	193	164	No	0.01	173	No	<0.01	178	No	<0.01
	25	193	166	No	0.03	175	No	0.01	180	No	<0.01
	30	193	168	No	0.06	177	No	0.02	182	No	<0.01
	35	193	170	No	0.11	179	No	0.05	184	No	<0.01
	40	193	172	No	0.18	181	No	0.07	186	No	0.01
	45	193	173	No	0.22	182	No	0.10	188	No	0.04
	50	193	175	No	0.27	184	No	0.20	189	No	0.08
	55	193	177	No	0.38	186	No	0.34	191	No	0.25
	60	193	178	No	0.44	187	No	0.42	193	Yes	0.50
	65	193	180	Yes	0.56	189	Yes	0.58	195	Yes	0.75
	70	193	182	Yes	0.68	191	Yes	0.74	196	Yes	0.85
	75	193	184	Yes	0.78	193	Yes	0.85	198	Yes	0.96
	80	193	186	Yes	0.82	195	Yes	0.93	201	Yes	>0.99
	85	193	188	Yes	0.89	198	Yes	0.98	203	Yes	>0.99
90	193	192	Yes	0.97	201	Yes	>0.99	207	Yes	>0.99	
95	193	196	Yes	0.99	205	Yes	>0.99	212	Yes	>0.99	
3	5	204	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	204	171	No	<0.01	179	No	<0.01	183	No	<0.01
	15	204	175	No	<0.01	182	No	<0.01	186	No	<0.01
	20	204	177	No	0.01	185	No	<0.01	189	No	<0.01
	25	204	179	No	0.03	187	No	0.01	192	No	<0.01
	30	204	181	No	0.05	189	No	0.02	194	No	<0.01
	35	204	183	No	0.10	191	No	0.04	196	No	<0.01
	40	204	185	No	0.17	193	No	0.10	198	No	0.02
	45	204	187	No	0.26	195	No	0.20	199	No	0.04
	50	204	188	No	0.31	196	No	0.26	201	No	0.15
	55	204	190	No	0.44	198	No	0.42	203	No	0.37
	60	204	192	Yes	0.50	200	Yes	0.58	205	Yes	0.63
	65	204	194	Yes	0.63	201	Yes	0.67	207	Yes	0.85
	70	204	196	Yes	0.74	203	Yes	0.80	208	Yes	0.92
	75	204	198	Yes	0.83	205	Yes	0.90	211	Yes	0.99
	80	204	200	Yes	0.90	208	Yes	0.97	213	Yes	>0.99
	85	204	202	Yes	0.95	210	Yes	0.99	216	Yes	>0.99
90	204	206	Yes	0.99	214	Yes	>0.99	219	Yes	>0.99	
95	204	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99	

Mathematics											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
4	5	217	176	No	<0.01	182	No	<0.01	185	No	<0.01
	10	217	181	No	<0.01	187	No	<0.01	191	No	<0.01
	15	217	185	No	<0.01	191	No	<0.01	194	No	<0.01
	20	217	187	No	<0.01	194	No	<0.01	197	No	<0.01
	25	217	190	No	0.01	196	No	<0.01	200	No	<0.01
	30	217	192	No	0.01	198	No	<0.01	202	No	<0.01
	35	217	194	No	0.03	200	No	<0.01	205	No	<0.01
	40	217	196	No	0.05	202	No	0.01	207	No	<0.01
	45	217	198	No	0.10	204	No	0.03	209	No	<0.01
	50	217	200	No	0.17	206	No	0.07	211	No	0.02
	55	217	201	No	0.21	208	No	0.14	212	No	0.04
	60	217	203	No	0.32	210	No	0.26	214	No	0.15
	65	217	205	No	0.44	212	No	0.42	217	Yes	0.50
	70	217	207	Yes	0.56	214	Yes	0.58	219	Yes	0.75
	75	217	209	Yes	0.68	216	Yes	0.74	221	Yes	0.92
	80	217	212	Yes	0.83	219	Yes	0.90	224	Yes	0.99
85	217	214	Yes	0.90	221	Yes	0.96	227	Yes	>0.99	
90	217	218	Yes	0.97	225	Yes	0.99	230	Yes	>0.99	
95	217	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	222	184	No	<0.01	189	No	<0.01	191	No	<0.01
	10	222	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	222	193	No	<0.01	198	No	<0.01	201	No	<0.01
	20	222	196	No	<0.01	201	No	<0.01	205	No	<0.01
	25	222	199	No	0.02	204	No	<0.01	207	No	<0.01
	30	222	201	No	0.05	206	No	0.01	210	No	<0.01
	35	222	203	No	0.08	209	No	0.03	212	No	<0.01
	40	222	205	No	0.14	211	No	0.07	215	No	0.01
	45	222	207	No	0.22	213	No	0.15	217	No	0.04
	50	222	209	No	0.32	215	No	0.26	219	No	0.15
	55	222	211	No	0.44	217	No	0.42	221	No	0.37
	60	222	213	Yes	0.56	219	Yes	0.58	223	Yes	0.63
	65	222	215	Yes	0.68	221	Yes	0.74	225	Yes	0.85
	70	222	217	Yes	0.78	223	Yes	0.85	228	Yes	0.98
	75	222	219	Yes	0.86	225	Yes	0.93	230	Yes	>0.99
	80	222	222	Yes	0.94	228	Yes	0.98	233	Yes	>0.99
85	222	225	Yes	0.98	231	Yes	>0.99	236	Yes	>0.99	
90	222	229	Yes	>0.99	235	Yes	>0.99	240	Yes	>0.99	
95	222	234	Yes	>0.99	241	Yes	>0.99	246	Yes	>0.99	

Mathematics											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
6	5	227	188	No	<0.01	192	No	<0.01	194	No	<0.01
	10	227	194	No	<0.01	198	No	<0.01	200	No	<0.01
	15	227	198	No	<0.01	202	No	<0.01	205	No	<0.01
	20	227	201	No	<0.01	205	No	<0.01	208	No	<0.01
	25	227	204	No	0.01	208	No	<0.01	211	No	<0.01
	30	227	206	No	0.02	211	No	<0.01	214	No	<0.01
	35	227	209	No	0.06	213	No	0.01	216	No	<0.01
	40	227	211	No	0.10	215	No	0.03	218	No	<0.01
	45	227	213	No	0.17	217	No	0.07	221	No	0.02
	50	227	215	No	0.27	220	No	0.20	223	No	0.08
	55	227	217	No	0.38	222	No	0.34	225	No	0.25
	60	227	219	Yes	0.50	224	Yes	0.50	227	Yes	0.50
	65	227	221	Yes	0.62	226	Yes	0.66	230	Yes	0.85
	70	227	223	Yes	0.73	228	Yes	0.80	232	Yes	0.96
	75	227	226	Yes	0.86	231	Yes	0.93	235	Yes	>0.99
	80	227	228	Yes	0.92	234	Yes	0.98	238	Yes	>0.99
	85	227	231	Yes	0.97	237	Yes	>0.99	241	Yes	>0.99
90	227	235	Yes	0.99	241	Yes	>0.99	245	Yes	>0.99	
95	227	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	236	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	236	198	No	<0.01	201	No	<0.01	203	No	<0.01
	15	236	202	No	<0.01	205	No	<0.01	207	No	<0.01
	20	236	206	No	<0.01	209	No	<0.01	211	No	<0.01
	25	236	208	No	<0.01	212	No	<0.01	214	No	<0.01
	30	236	211	No	<0.01	215	No	<0.01	217	No	<0.01
	35	236	213	No	<0.01	217	No	<0.01	220	No	<0.01
	40	236	216	No	0.01	219	No	<0.01	222	No	<0.01
	45	236	218	No	0.04	222	No	0.01	224	No	<0.01
	50	236	220	No	0.07	224	No	0.03	227	No	<0.01
	55	236	222	No	0.13	226	No	0.07	229	No	0.01
	60	236	225	No	0.26	229	No	0.20	231	No	0.04
	65	236	227	No	0.37	231	No	0.33	234	No	0.25
	70	236	229	Yes	0.50	233	Yes	0.50	236	Yes	0.50
	75	236	232	Yes	0.69	236	Yes	0.74	239	Yes	0.85
	80	236	235	Yes	0.83	239	Yes	0.90	242	Yes	0.98
	85	236	238	Yes	0.93	243	Yes	0.98	246	Yes	>0.99
90	236	243	Yes	0.99	247	Yes	>0.99	251	Yes	>0.99	
95	236	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	

Mathematics											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
8	5	239	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	239	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	239	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	239	209	No	<0.01	212	No	<0.01	214	No	<0.01
	25	239	212	No	<0.01	215	No	<0.01	217	No	<0.01
	30	239	215	No	<0.01	218	No	<0.01	220	No	<0.01
	35	239	218	No	0.01	221	No	<0.01	223	No	<0.01
	40	239	220	No	0.02	223	No	<0.01	225	No	<0.01
	45	239	223	No	0.06	226	No	0.01	228	No	<0.01
	50	239	225	No	0.10	228	No	0.03	230	No	<0.01
	55	239	227	No	0.16	231	No	0.11	233	No	0.02
	60	239	230	No	0.28	233	No	0.20	235	No	0.08
	65	239	232	No	0.39	236	No	0.42	238	No	0.37
	70	239	235	Yes	0.56	238	Yes	0.58	241	Yes	0.75
	75	239	238	Yes	0.72	241	Yes	0.80	244	Yes	0.96
	80	239	241	Yes	0.84	244	Yes	0.93	247	Yes	>0.99
	85	239	245	Yes	0.94	248	Yes	0.99	251	Yes	>0.99
90	239	249	Yes	0.98	253	Yes	>0.99	256	Yes	>0.99	
95	239	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	

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