

# **Linking Study Report: Predicting Performance on the Iowa Statewide Assessment of Student Progress (ISASP) based on NWEA MAP Growth Scores**

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NWEA Psychometric Solutions





### Linking Study Updates

Date	Description
2010-08	Initial study conducted for Iowa in reading and mathematics using Fall 2007, 2008, and 2009 data.
2017-10	Iowa used the results from the Smarter Balanced Assessment Consortium (SBAC) linking study report.
2020-12-22	Incorporated the 2020 MAP Growth norms using Spring 2019 data for ELA and mathematics Grades 3–8. Not enough data available to include science.
2021-11-02	Added the Grades 9–10 cut scores using Spring 2019 data. Not enough data available to include ELA & Mathematics 11 and Science 10. The Grades 3–8 ELA and mathematics results from December 2020 remain the same but are included in this report so all up-to-date ISASP linking study results are in one location.

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## Executive Summary

To predict student achievement on the Iowa Statewide Assessment of Student Progress (ISASP) in Grades 3–10 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 ISASP performance levels. Educators can use this information to identify students at risk of not meeting state proficiency standards early in the year and provide tailored educational interventions.<sup>1</sup> ISASP replaced the Iowa Assessments and was first administered in Spring 2019. The linking study was updated in December 2020 to generate MAP Growth cut scores for the new summative assessments in Grades 3–8 and to provide percentiles corresponding to the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020). The linking study has been updated again to include the Grades 9–10 cut scores using Spring 2019 data. Results from the December 2020 linking study for Grades 3–8 remain the same but are included in this report so all up-to-date ISASP linking study results are in one location.

Table E.1 presents the ISASP *Proficient* performance level cut scores and the corresponding MAP Growth RIT cut scores that allow teachers to identify students who are on track for proficiency on the state summative test and those who are not. For example, the *Proficient* cut score on the ISASP Grade 3 ELA test is 398. A Grade 3 student with a MAP Growth Reading RIT score of 184 in the fall is likely to meet proficiency on the ISASP ELA test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 184 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 ISASP 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 (e.g., Grades 2 to 3).

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

Assessment		Proficient Cut Scores								
		2	3	4	5	6	7	8	9	10
<b>ELA/Reading</b>										
ISASP Spring		–	398	414	437	456	475	494	505	530
MAP Growth	Fall	169	184	192	201	205	209	213	213	215
	Winter	179	192	198	206	209	213	216	215	217
	Spring	183	195	201	208	211	214	217	216	218
<b>Mathematics</b>										
ISASP Spring		–	390	409	429	450	469	490	513	537
MAP Growth	Fall	168	182	192	200	208	213	218	222	226
	Winter	177	190	199	206	213	216	221	225	228
	Spring	183	195	203	210	216	219	223	226	229

<sup>1</sup> This study provides MAP Growth cut scores that predict proficiency on the ISASP assessments for Grades 2–10 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 in ELA and mathematics 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 ISASP Grades 3–10 ELA and Mathematics tests are Iowa’s state summative assessments aligned to the Iowa Core Standards. Based on their test scores, students are placed into one of three performance levels: *Not Yet Proficient*, *Proficient*, and *Advanced*. The *Proficient* 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 to 350.

### E.2. Linking Methods

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

### E.3. Student Sample

Table E.2 presents the number of Iowa students from nine districts and 50 schools who were included in the linking study sample for Grades 3–8 and from 10 districts and 11 schools who were included for Grades 9–10. Only students who took both the MAP Growth and ISASP assessments in Spring 2019 were included.

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

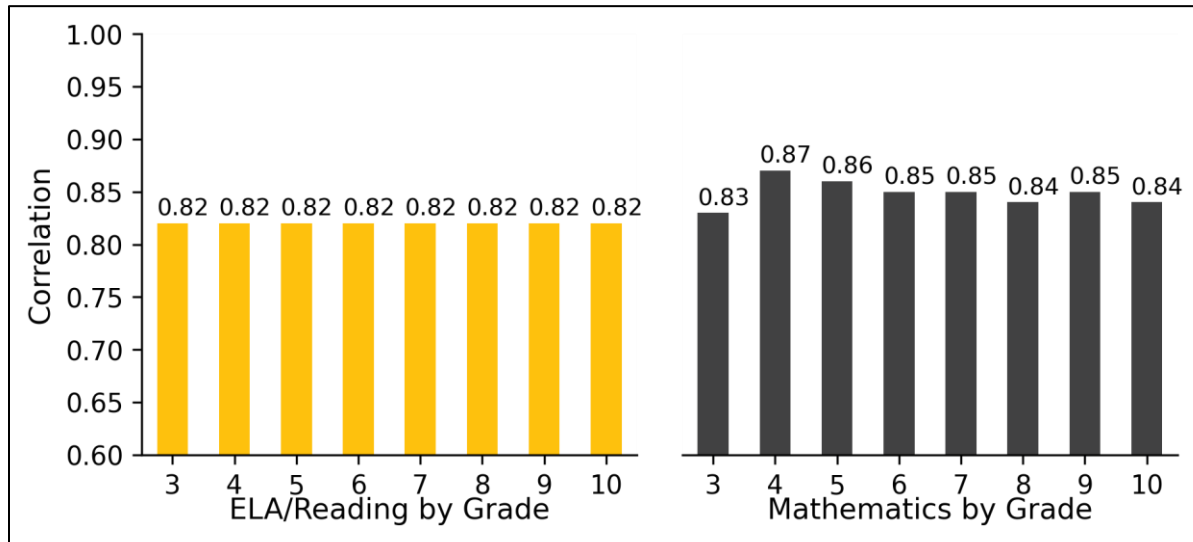
Grade	#Students	
	ELA/Reading	Mathematics
3	1,273	1,270
4	1,449	1,313
5	2,494	2,361
6	2,620	2,606
7	2,698	2,689
8	2,853	2,850
9	1,287	1,269
10	1,185	1,109

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 be different from the general student population in important characteristics. To ensure that the linking study sample represents the state student population in terms of race, sex, and performance level, post-stratification weighting was applied to statistically adjust the sample so it reflects the target population on these variables. 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 3–10 were conducted based on the weighted sample.

#### E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and ISASP scores range from 0.82 to 0.87 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 ISASP assessments.

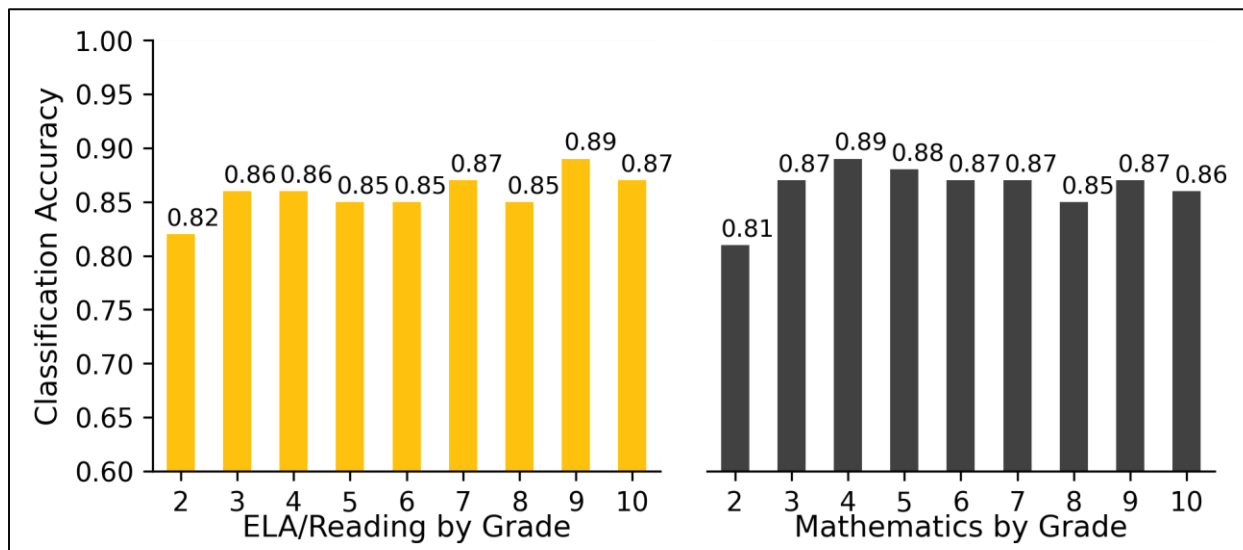
Figure E.1. Correlations between MAP Growth and ISASP Test Scores



#### 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 ISASP tests. For example, the MAP Growth Reading Grade 3 *Proficient* cut score has a 0.86 accuracy rate, meaning it accurately classified student achievement on the state test for 86% of the sample. The results range from 0.81 to 0.89 across both content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the ISASP 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 to statistically connect the scores of the Iowa Statewide Assessment of Student Progress (ISASP) Grades 3–10 English Language Arts (ELA) and Mathematics assessments with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2019 term. MAP Growth cut scores are also included for Grade 2 so educators can track early learners' progress toward proficiency on the ISASP test by Grade 3. Specifically, this report presents the following results:

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

The linking study was updated in December 2020 to generate MAP Growth cut scores for the new Iowa summative assessments in Grades 3–8 and to provide percentiles corresponding to the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020). The linking study has been updated again to include the Grades 9–10 cut scores using Spring 2019 data.

## 1.2. Assessment Overview

The ISASP Grades 3–10 ELA and Mathematics summative assessments are aligned to the Iowa Core Standards. Each assessment has two 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: *Not Yet Proficient*, *Proficient*, and *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 to 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. It does this 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 ISASP assessments. NWEA recruited Iowa districts to participate in the study by sharing their student and score data for the target term. Districts also gave NWEA permission to use their students' 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 based on 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 ISASP 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's test-taking student population in terms of race, sex, and performance level. These variables were selected because they are known to be correlated with students' academic achievement and are often readily available in state summative assessment reports. The weighted sample should match the target population as closely as possible on the key demographics and performance characteristics as defined by the state.

Specifically, a raking procedure was used to calculate the post-stratification weights that either compensate for the underrepresentation of certain groups or attenuate the overrepresentation of certain groups. Raking uses iterative procedures to obtain weights that match sample marginal distributions to known population margins. The following steps were taken during this process:

1. Calculate marginal distributions of race, sex, and performance level for the sample and population.
2. Calculate post-stratification weights with the rake function from the survey package in R (Lumley, 2019).
3. Trim the weights that are outside the range of 0.3 to 3.0.
4. Apply the weights to the sample before conducting the linking study analyses.

### 2.3. MAP Growth Cut Scores

MAP Growth cut scores that predict student achievement on the ISASP assessment are reported for Grades 3–10, as well as for Grade 2 so educators can track early learners' progress toward proficiency on the ISASP test by Grade 3. Percentile ranks based on the 2020 NWEA norms are also provided. These are useful for understanding how students' scores compare to peers nationwide and the relative rigor of a state's performance level designations for its summative assessment.

The equipercntile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores for Grades 3–10 that correspond to the spring ISASP performance level cut scores. 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., ISASP). 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 ISASP on the scale of MAP Growth,  $P(x)$  is the percentile rank of a given score on ISASP, 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 to spring within the same grade or from spring of a lower grade to spring of the adjacent higher grade. This information was used to calculate the fall and winter cut scores for Grades 3–10. 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.

The MAP Growth conditional growth norms were also used to calculate the fall, winter, and spring cuts for Grade 2. 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 ISASP tests can be described using classification accuracy statistics based on the MAP Growth spring RIT cut scores. The results show the proportion of students who are correctly classified by their RIT scores as proficient or not proficient on the ISASP test. Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich et al., 2004).

Iowa students do not begin taking the ISASP assessment until Grade 3. Thus, cut scores for Grade 2 were interpolated by obtaining longitudinal data for the Grade 3 cohort. For each Grade 3 student in the study sample, their MAP Growth data from the prior year when they were in Grade 2 during 2017–2018 were obtained. In this way, the data came from the same cohort of students beginning when they were in Grade 2 and continuing through Grade 3. A summary of how well the interpolated Grade 2 cuts predict Grade 3 proficiency status is reported in the classification accuracy statistics.

**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 (and the Grade 2 cut scores), the MAP Growth conditional growth norms data were also used to calculate the probability of reaching proficiency on the ISASP test based on a student’s RIT scores from fall, winter, and spring. Equation 3 was used to calculate the probability of a student achieving *Proficient* on the ISASP test based on their fall or winter RIT score:

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

where:

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

Equation 4 was used to estimate the probability of a student achieving *Proficient* on the ISASP 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 ISASP assessments in Spring 2019 were included in the study sample. Data used in this study were collected from nine districts and 50 schools in Iowa for Grades 3–8 and from 10 districts and 11 schools for Grades 9–10. As mentioned in Section 2.2, the demographic categories as defined by the state’s assessment report for each grade level were used in the post-stratification weighting calculations. Some race categories were collapsed to avoid having null (e.g., missing) cells that prevent the post-stratification weighting from being performed. In the Grades 3–8 sample, the smaller American Indian/Alaska Native (AI/AN), Native Hawaiian/Pacific Islander (NH/PI), and Not Specified groups were combined into Other to preserve these observations. In the Grades 9–10 sample, NH/PI was combined with Asian to preserve the small counts of the NH/PI observations. The demographic distributions are therefore presented separately for the Grades 3–8 and 9–10 samples.

The first three tables present the sample data for Grades 3–8. Table 3.1 presents the demographic distributions of race, sex, and performance level in the original unweighted study sample. Table 3.2 presents the distributions of the target population of students who took the Spring 2019 ISASP tests. Table 3.3 presents the demographic and performance distributions of the sample after weighting, which are almost identical to the ISASP student population distributions. Table 3.4 presents study sample information for Grades 9–10. The analyses in this study were conducted using the weighted sample.

**Table 3.1. Linking Study Sample Demographics (Unweighted)—Grades 3–8**

Linking Study Sample (Unweighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>ELA/Reading</b>							
Total N		1,273	1,449	2,494	2,620	2,698	2,853
Race	Asian	4.4	4.0	5.3	6.0	5.2	5.0
	Black	2.6	3.0	5.9	5.0	5.0	5.7
	Hispanic	9.7	7.7	4.8	4.8	5.3	5.5
	Multi-race	4.1	2.9	2.8	3.6	2.9	2.5
	Other*	0.7	0.6	0.6	0.8	0.4	0.6
	White	78.6	81.8	80.5	79.7	81.1	80.8
Sex	Female	49.7	47.2	48.1	50.4	47.8	48.4
	Male	50.3	52.8	51.9	49.6	52.2	51.6
Performance Level	<i>Not Yet Proficient</i>	36.7	28.8	29.4	22.9	23.4	23.2
	<i>Proficient</i>	55.9	63.3	62.5	66.4	66.6	64.2
	<i>Advanced</i>	7.4	7.9	8.1	10.7	10.0	12.6

Linking Study Sample (Unweighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>Mathematics</b>							
Total N		1,270	1,313	2,361	2,606	2,689	2,850
Race	Asian	4.4	4.2	5.5	6.1	5.2	4.9
	Black	2.6	3.1	6.2	5.1	5.0	5.4
	Hispanic	9.6	8.5	5.0	4.8	5.4	5.5
	Multi-race	4.1	3.2	2.8	3.7	3.0	2.5
	Other*	0.8	0.6	0.6	0.8	0.4	0.7
	White	78.5	80.4	80.1	79.5	81.0	81.0
Sex	Female	49.7	47.4	47.9	50.2	48.0	48.1
	Male	50.3	52.6	52.1	49.8	52.0	51.9
Performance Level	<i>Not Yet Proficient</i>	25.9	22.8	22.9	20.3	22.4	20.4
	<i>Proficient</i>	55.0	57.1	51.0	53.7	60.8	63.5
	<i>Advanced</i>	19.1	20.0	26.1	26.0	16.8	16.0

\*Other includes American Indian/Alaskan Native (AI/AN), Native Hawaiian/Pacific Islander (NH/PI), and Not Specified.

**Table 3.2. Spring 2019 ISASP Student Population Demographics—Grades 3–8**

Spring 2019 ISASP Population							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>ELA</b>							
Total N		37,243	37,929	39,126	39,189	38,601	37,897
Race	Asian	2.5	2.5	2.4	2.3	2.3	2.4
	Black	6.7	6.7	6.5	6.2	6.0	6.1
	Hispanic	11.3	11.5	11.6	11.4	11.6	11.1
	Multi-race	4.4	4.3	4.3	4.1	3.9	3.8
	Other*	0.8	0.8	0.7	0.7	0.7	0.7
	White	74.3	74.3	74.5	75.3	75.6	75.9
Sex	Female	48.8	48.6	48.8	48.8	48.8	48.8
	Male	51.2	51.4	51.2	51.2	51.2	51.2
Performance Level	<i>Not Yet Proficient</i>	28.9	27.4	32.7	31.8	30.8	31.2
	<i>Proficient</i>	60.6	64.9	62.2	62.0	63.3	60.7
	<i>Advanced</i>	10.5	7.7	5.1	6.2	5.8	8.1
<b>Mathematics</b>							
Total N		37,304	37,982	39,182	39,272	38,672	37,984
Race	Asian	2.5	2.5	2.4	2.3	2.3	2.4
	Black	6.7	6.7	6.5	6.2	6.0	6.1
	Hispanic	11.3	11.5	11.6	11.4	11.6	11.1
	Multi-race	4.4	4.3	4.3	4.1	3.9	3.8
	Other*	0.8	0.8	0.7	0.7	0.7	0.7
	White	74.3	74.3	74.5	75.2	75.5	75.9

Spring 2019 ISASP Population							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
Sex	Female	48.8	48.6	48.8	48.8	48.8	48.8
	Male	51.2	51.4	51.2	51.2	51.2	51.2
Performance Level	<i>Not Yet Proficient</i>	28.4	27.7	30.5	30.6	30.0	28.4
	<i>Proficient</i>	56.2	58.7	54.2	55.2	60.3	61.0
	<i>Advanced</i>	15.5	13.5	15.3	14.2	9.7	10.5

\*Other includes American Indian/Alaskan Native (AI/AN), Native Hawaiian/Pacific Islander (NH/PI), and Not Specified.

**Table 3.3. Linking Study Sample Demographics (Weighted)—Grades 3–8**

Linking Study Sample (Weighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
<b>ELA/Reading</b>							
	Total N	1,273	1,449	2,494	2,620	2,698	2,853
Race	Asian	2.5	2.5	2.4	2.3	2.3	2.4
	Black	6.7	6.7	6.5	6.2	6.0	6.1
	Hispanic	11.3	11.5	11.6	11.4	11.6	11.1
	Multi-race	4.4	4.3	4.3	4.1	3.9	3.8
	Other*	0.8	0.8	0.7	0.7	0.7	0.7
	White	74.3	74.3	74.5	75.3	75.6	75.9
Sex	Female	48.8	48.6	48.8	48.8	48.8	48.8
	Male	51.2	51.4	51.2	51.2	51.2	51.2
Performance Level	<i>Not Yet Proficient</i>	28.9	27.4	32.7	31.8	30.8	31.2
	<i>Proficient</i>	60.6	64.9	62.2	62.0	63.3	60.7
	<i>Advanced</i>	10.5	7.7	5.1	6.2	5.8	8.1
<b>Mathematics</b>							
	Total N	1,270	1,313	2,361	2,606	2,689	2,850
Race	Asian	2.5	2.5	2.4	2.3	2.3	2.4
	Black	6.7	6.7	6.5	6.2	6.0	6.1
	Hispanic	11.3	11.5	11.6	11.4	11.6	11.1
	Multi-race	4.4	4.3	4.3	4.1	3.9	3.8
	Other*	0.8	0.8	0.7	0.7	0.7	0.7
	White	74.3	74.3	74.5	75.2	75.5	75.8
Sex	Female	48.8	48.6	48.8	48.8	48.8	48.8
	Male	51.2	51.4	51.2	51.2	51.2	51.2
Performance Level	<i>Not Yet Proficient</i>	28.4	27.7	30.5	30.6	30.0	28.4
	<i>Proficient</i>	56.2	58.7	54.2	55.2	60.3	61.0
	<i>Advanced</i>	15.5	13.5	15.3	14.2	9.7	10.5

\*Other includes American Indian/Alaskan Native (AI/AN), Native Hawaiian/Pacific Islander (NH/PI), and Not Specified.

**Table 3.4. Linking Study Sample and Spring 2019 ISASP Student Population Demographic and Performance Distributions—Grades 9–10**

Demographic Subgroup		Spring 2019 ISASP		Linking Study Sample			
				Unweighted		Weighted	
		9	10	9	10	9	10
<b>ELA/Reading</b>							
Total N		36,413	35,866	1,287	1,185	1,287	1,185
Race	Asian/Pacific Islander	2.9	2.9	3.9	4.1	2.9	2.9
	Black	6.0	5.7	3.3	3.5	6.0	5.7
	Hispanic	11.2	10.7	12.4	10.6	11.2	10.7
	Multi-race	3.6	3.1	3.0	2.7	3.6	3.1
	Native American	0.4	0.4	0.5	1.0	0.4	0.4
	White	76.1	77.2	76.9	78.0	76.1	77.2
Sex	Female	48.6	49.0	48.3	49.8	48.6	49.0
	Male	51.4	51.0	51.7	50.2	51.4	51.0
Performance Level	<i>Not Yet Proficient</i>	24.8	26.2	28.0	26.7	24.8	26.2
	<i>Proficient</i>	65.7	64.3	61.0	62.4	65.7	64.3
	<i>Advanced</i>	9.5	9.6	11.0	10.9	9.5	9.6
<b>Mathematics</b>							
Total N		36,491	35,964	1,269	1,109	1,269	1,109
Race	Asian/Pacific Islander	2.9	2.9	3.0	2.6	2.9	2.9
	Black	6.0	5.7	3.6	3.5	6.0	5.7
	Hispanic	11.2	10.7	13.2	12.1	11.2	10.7
	Multi-race	3.6	3.1	2.8	2.3	3.6	3.1
	Native American	0.4	0.4	0.5	1.1	0.4	0.4
	White	76.0	77.1	76.9	78.4	76.0	77.1
Sex	Female	48.6	49.0	48.5	49.1	48.6	49.0
	Male	51.4	51.0	51.5	50.9	51.4	51.0
Performance Level	<i>Not Yet Proficient</i>	31.3	33.4	35.0	36.0	31.3	33.4
	<i>Proficient</i>	57.7	55.4	51.4	58.6	57.7	55.4
	<i>Advanced</i>	11.0	11.2	13.6	5.4	11.0	11.2

### 3.2. Descriptive Statistics

Table 3.5 presents descriptive statistics of the MAP Growth and ISASP test scores from Spring 2019, including the correlation coefficient ( $r$ ) between them. The correlation coefficient between the scores is 0.82 for all grades in ELA/reading and ranges from 0.83 to 0.87 for mathematics. These values indicate a strong relationship among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the ISASP assessments.

**Table 3.5. Descriptive Statistics of Test Scores**

Grade	N	r	ISASP *				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
<b>ELA/Reading</b>										
3	1,273	0.82	412.4	26.9	353	491	200.7	15.0	147	239
4	1,449	0.82	433.2	31.9	358	532	207.3	13.9	151	252
5	2,494	0.82	455.0	37.8	368	582	212.5	14.1	148	251
6	2,620	0.82	479.0	43.8	376	621	216.6	14.7	160	259
7	2,698	0.82	501.5	47.7	392	672	220.4	14.8	156	270
8	2,853	0.82	523.8	52.1	400	709	223.0	15.4	160	280
9	1,287	0.82	544.7	57.2	417	718	224.2	17.0	157	271
10	1,185	0.82	569.3	58.1	446	744	226.3	16.9	152	277
<b>Mathematics</b>										
3	1,270	0.83	409.9	29.2	354	510	202.1	13.7	145	246
4	1,313	0.87	433.1	35.0	364	540	212.1	15.0	158	264
5	2,361	0.86	456.2	42.1	378	590	219.1	16.6	148	277
6	2,606	0.85	478.7	46.4	385	640	223.6	16.4	165	284
7	2,689	0.85	503.2	51.0	399	680	228.8	17.1	165	291
8	2,850	0.84	528.4	56.3	427	720	233.1	18.7	152	292
9	1,269	0.85	545.1	58.4	429	736	233.8	20.1	154	287
10	1,109	0.84	566.4	58.1	456	752	236.6	20.3	158	294

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

### 3.3. MAP Growth Cut Scores

Table 3.6 and Table 3.7 present the ISASP 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 ISASP 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 184 in the fall is likely to reach *Proficient* on the ISASP ELA test. A Grade 3 student who obtained a MAP Growth Reading RIT score of 195 in the spring is also likely to reach *Proficient* on the ISASP 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 substantially from the default ones, a student’s expected performance level could be different from the projections 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 3.6. MAP Growth Cut Scores—ELA/Reading**

ISASP ELA						
Grade	Not Yet Proficient		Proficient		Advanced	
3	345–397		<b>398</b> –446		447–510	
4	350–413		<b>414</b> –477		478–540	
5	355–436		<b>437</b> –512		513–590	
6	360–455		<b>456</b> –540		541–640	
7	370–474		<b>475</b> –568		569–680	
8	385–493		<b>494</b> –593		594–720	
9	410–504		<b>505</b> –617		618–750	
10	435--529		<b>530</b> –641		642–780	
MAP Growth Reading*						
Grade	Not Yet Proficient		Proficient		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile
<b>Fall</b>						
2	100–168	1–40	<b>169</b> –200	41–96	201–350	97–99
3	100–183	1–43	<b>184</b> –210	44–92	211–350	93–99
4	100–191	1–38	<b>192</b> –219	39–91	220–350	92–99
5	100–200	1–41	<b>201</b> –228	42–92	229–350	93–99
6	100–204	1–37	<b>205</b> –231	38–90	232–350	91–99
7	100–208	1–37	<b>209</b> –236	38–91	237–350	92–99
8	100–212	1–37	<b>213</b> –238	38–88	239–350	89–99
9	100–212	1–37	<b>213</b> –240	38–87	241–350	88–99
10	100–214	1–35	<b>215</b> –242	36–88	243–350	89–99
<b>Winter</b>						
2	100–178	1–43	<b>179</b> –207	44–95	208–350	96–99
3	100–191	1–44	<b>192</b> –215	45–90	216–350	91–99
4	100–197	1–38	<b>198</b> –223	39–90	224–350	91–99
5	100–205	1–41	<b>206</b> –230	42–91	231–350	92–99
6	100–208	1–37	<b>209</b> –233	38–89	234–350	90–99
7	100–212	1–39	<b>213</b> –237	40–89	238–350	90–99
8	100–215	1–38	<b>216</b> –239	39–87	240–350	88–99
9	100–214	1–37	<b>215</b> –241	38–86	242-350	87–99
10	100–216	1–36	<b>217</b> –243	37–87	244-350	88–99
<b>Spring</b>						
2	100–182	1–42	<b>183</b> –210	43–94	211–350	95–99
3	100–194	1–44	<b>195</b> –217	45–89	218–350	90–99
4	100–200	1–40	<b>201</b> –224	41–88	225–350	89–99
5	100–207	1–42	<b>208</b> –231	43–90	232–350	91–99
6	100–210	1–38	<b>211</b> –234	39–88	235–350	89–99
7	100–213	1–38	<b>214</b> –238	39–89	239–350	90–99
8	100–216	1–38	<b>217</b> –240	39–86	241–350	87–99
9	100–215	1–38	<b>216</b> –242	39–86	243–350	87–99
10	100–217	1–37	<b>218</b> –244	38–87	245–350	88–99

\*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 3.7. MAP Growth Cut Scores—Mathematics**

ISASP Mathematics						
Grade	Not Yet Proficient		Proficient		Advanced	
3	345–389		<b>390</b> –442		443–510	
4	350–408		<b>409</b> –475		476–540	
5	355–428		<b>429</b> –502		503–590	
6	360–449		<b>450</b> –531		532–640	
7	370–468		<b>469</b> –574		575–680	
8	385–489		<b>490</b> –605		606–720	
9	410–512		<b>513</b> –625		626–750	
10	435–536		<b>537</b> –653		654–780	

MAP Growth Mathematics*						
Grade	Not Yet Proficient		Proficient		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile
<b>Fall</b>						
2	100–167	1–28	<b>168</b> –192	29–91	193–350	92–99
3	100–181	1–31	<b>182</b> –203	32–87	204–350	88–99
4	100–191	1–29	<b>192</b> –217	30–89	218–350	90–99
5	100–199	1–26	<b>200</b> –226	27–87	227–350	88–99
6	100–207	1–33	<b>208</b> –232	34–86	233–350	87–99
7	100–212	1–33	<b>213</b> –243	34–90	244–350	91–99
8	100–217	1–35	<b>218</b> –250	36–91	251–350	92–99
9	100–221	1–40	<b>222</b> –254	41–92	255–350	93–99
10	100–225	1–43	<b>226</b> –259	44–93	260–350	94–99
<b>Winter</b>						
2	100–176	1–28	<b>177</b> –200	29–89	201–350	90–99
3	100–189	1–31	<b>190</b> –211	32–87	212–350	88–99
4	100–198	1–31	<b>199</b> –224	32–89	225–350	90–99
5	100–205	1–28	<b>206</b> –232	29–87	233–350	88–99
6	100–212	1–34	<b>213</b> –237	35–85	238–350	86–99
7	100–215	1–32	<b>216</b> –247	33–90	248–350	91–99
8	100–220	1–35	<b>221</b> –253	36–90	254–350	91–99
9	100–224	1–42	<b>225</b> –256	43–91	257–350	92–99
10	100–227	1–43	<b>228</b> –261	44–92	262–350	93–99
<b>Spring</b>						
2	100–182	1–31	<b>183</b> –205	32–88	206–350	89–99
3	100–194	1–32	<b>195</b> –215	33–84	216–350	85–99
4	100–202	1–30	<b>203</b> –228	31–87	229–350	88–99
5	100–209	1–29	<b>210</b> –236	30–85	237–350	86–99
6	100–215	1–34	<b>216</b> –240	35–84	241–350	85–99
7	100–218	1–33	<b>219</b> –250	34–89	251–350	90–99
8	100–222	1–35	<b>223</b> –255	36–89	256–350	90–99
9	100–225	1–41	<b>226</b> –257	42–90	258–350	91–99
10	100–228	1–43	<b>229</b> –262	44–91	263–350	92–99

\*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 3.8 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 ISASP tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.82 to 0.89 for ELA/reading and 0.81 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 ISASP assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students' proficiency status on ISASP 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 ISASP tests, there is a notable limitation to how these results should be used and interpreted. ISASP 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 3.8. Classification Accuracy Results**

Grade	N	Cut Score		Class. Accuracy*	Rate*		Sensitivity	Specificity	Precision	AUC*
		MAP Growth	ISASP		FP	FN				
<b>ELA/Reading</b>										
2	722	183	398	0.82	0.20	0.17	0.83	0.80	0.83	0.89
3	1,273	195	398	0.86	0.26	0.09	0.91	0.74	0.90	0.92
4	1,449	201	414	0.86	0.25	0.10	0.90	0.75	0.91	0.92
5	2,494	208	437	0.85	0.24	0.10	0.90	0.76	0.88	0.92
6	2,620	211	456	0.85	0.29	0.08	0.92	0.71	0.87	0.93
7	2,698	214	475	0.87	0.27	0.07	0.93	0.73	0.88	0.94
8	2,853	217	494	0.85	0.29	0.09	0.91	0.71	0.88	0.92
9	1,287	216	505	0.89	0.25	0.06	0.94	0.75	0.92	0.93
10	1,185	218	530	0.87	0.28	0.07	0.93	0.72	0.90	0.92
<b>Mathematics</b>										
2	717	183	390	0.81	0.27	0.14	0.86	0.73	0.86	0.88
3	1,270	195	390	0.87	0.26	0.08	0.92	0.74	0.90	0.94
4	1,313	203	409	0.89	0.26	0.06	0.94	0.74	0.90	0.95
5	2,361	210	429	0.88	0.24	0.07	0.93	0.76	0.90	0.94
6	2,606	216	450	0.87	0.26	0.08	0.92	0.74	0.89	0.94
7	2,689	219	469	0.87	0.30	0.06	0.94	0.70	0.88	0.94
8	2,850	223	490	0.85	0.32	0.08	0.92	0.68	0.88	0.93
9	1,269	226	513	0.87	0.23	0.09	0.91	0.77	0.90	0.94
10	1,109	229	537	0.86	0.23	0.10	0.90	0.77	0.89	0.92

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

### 3.5. Proficiency Projection

Table 3.9 and Table 3.10 present the estimated probability of achieving *Proficient* performance on the ISASP test based on RIT scores from fall, winter, or spring. “Prob.” indicates the probability of obtaining proficient status on the ISASP test in the spring. For example, a Grade 3 student who obtained a MAP Growth Reading score of 198 in the fall has a 95% chance of reaching *Proficient* or higher on the ISASP test in the spring.

**Table 3.9. 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	183	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	183	153	No	0.02	162	No	<0.01	166	No	<0.01
	15	183	157	No	0.07	166	No	0.01	170	No	<0.01
	20	183	160	No	0.15	169	No	0.05	173	No	<0.01
	25	183	162	No	0.18	171	No	0.10	175	No	0.01
	30	183	164	No	0.25	173	No	0.17	177	No	0.03
	35	183	166	No	0.35	175	No	0.29	180	No	0.17
	40	183	168	No	0.45	177	No	0.43	182	No	0.38
	45	183	170	Yes	0.50	179	Yes	0.50	184	Yes	0.62
	50	183	172	Yes	0.60	181	Yes	0.65	186	Yes	0.83
	55	183	174	Yes	0.70	183	Yes	0.77	188	Yes	0.94
	60	183	176	Yes	0.79	185	Yes	0.87	189	Yes	0.97
	65	183	178	Yes	0.85	187	Yes	0.93	192	Yes	>0.99
	70	183	180	Yes	0.88	189	Yes	0.97	194	Yes	>0.99
	75	183	183	Yes	0.94	191	Yes	0.99	196	Yes	>0.99
	80	183	185	Yes	0.97	194	Yes	>0.99	199	Yes	>0.99
	85	183	188	Yes	0.98	197	Yes	>0.99	202	Yes	>0.99
90	183	192	Yes	>0.99	200	Yes	>0.99	205	Yes	>0.99	
95	183	197	Yes	>0.99	206	Yes	>0.99	211	Yes	>0.99	

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
3	5	195	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	195	165	No	0.01	173	No	<0.01	176	No	<0.01
	15	195	169	No	0.04	177	No	<0.01	180	No	<0.01
	20	195	173	No	0.09	180	No	0.02	183	No	<0.01
	25	195	175	No	0.14	183	No	0.07	186	No	<0.01
	30	195	178	No	0.25	185	No	0.13	189	No	0.03
	35	195	180	No	0.30	188	No	0.29	191	No	0.11
	40	195	182	No	0.39	190	No	0.35	193	No	0.27
	45	195	185	Yes	0.55	192	Yes	0.50	195	Yes	0.50
	50	195	187	Yes	0.61	194	Yes	0.65	197	Yes	0.73
	55	195	189	Yes	0.70	196	Yes	0.77	199	Yes	0.89
	60	195	191	Yes	0.79	198	Yes	0.87	201	Yes	0.97
	65	195	193	Yes	0.86	200	Yes	0.93	203	Yes	0.99
	70	195	195	Yes	0.89	202	Yes	0.97	206	Yes	>0.99
	75	195	198	Yes	0.95	205	Yes	0.99	208	Yes	>0.99
	80	195	201	Yes	0.98	207	Yes	>0.99	211	Yes	>0.99
85	195	204	Yes	0.99	211	Yes	>0.99	214	Yes	>0.99	
90	195	208	Yes	>0.99	215	Yes	>0.99	218	Yes	>0.99	
95	195	214	Yes	>0.99	220	Yes	>0.99	224	Yes	>0.99	
4	5	201	169	No	<0.01	176	No	<0.01	178	No	<0.01
	10	201	175	No	0.02	182	No	<0.01	184	No	<0.01
	15	201	179	No	0.05	186	No	0.01	188	No	<0.01
	20	201	183	No	0.13	189	No	0.04	191	No	<0.01
	25	201	185	No	0.20	192	No	0.13	194	No	0.01
	30	201	188	No	0.29	194	No	0.22	196	No	0.06
	35	201	190	No	0.39	196	No	0.35	199	No	0.27
	40	201	192	Yes	0.50	198	Yes	0.50	201	Yes	0.50
	45	201	195	Yes	0.61	200	Yes	0.58	203	Yes	0.73
	50	201	197	Yes	0.71	202	Yes	0.72	205	Yes	0.89
	55	201	199	Yes	0.80	205	Yes	0.87	207	Yes	0.97
	60	201	201	Yes	0.87	207	Yes	0.94	209	Yes	0.99
	65	201	203	Yes	0.89	209	Yes	0.97	211	Yes	>0.99
	70	201	205	Yes	0.94	211	Yes	0.99	213	Yes	>0.99
	75	201	208	Yes	0.97	213	Yes	>0.99	216	Yes	>0.99
	80	201	211	Yes	0.99	216	Yes	>0.99	219	Yes	>0.99
85	201	214	Yes	>0.99	219	Yes	>0.99	222	Yes	>0.99	
90	201	218	Yes	>0.99	223	Yes	>0.99	226	Yes	>0.99	
95	201	224	Yes	>0.99	229	Yes	>0.99	232	Yes	>0.99	

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
5	5	208	178	No	<0.01	183	No	<0.01	185	No	<0.01
	10	208	183	No	0.01	189	No	<0.01	191	No	<0.01
	15	208	187	No	0.05	193	No	0.01	194	No	<0.01
	20	208	191	No	0.11	196	No	0.04	198	No	<0.01
	25	208	193	No	0.17	198	No	0.06	200	No	0.01
	30	208	196	No	0.29	201	No	0.17	203	No	0.06
	35	208	198	No	0.34	203	No	0.28	205	No	0.17
	40	208	200	No	0.44	205	No	0.42	207	No	0.38
	45	208	202	Yes	0.56	207	Yes	0.58	209	Yes	0.62
	50	208	204	Yes	0.66	209	Yes	0.72	211	Yes	0.83
	55	208	207	Yes	0.76	211	Yes	0.83	213	Yes	0.94
	60	208	209	Yes	0.83	213	Yes	0.91	215	Yes	0.99
	65	208	211	Yes	0.89	215	Yes	0.96	217	Yes	>0.99
	70	208	213	Yes	0.92	217	Yes	0.97	219	Yes	>0.99
	75	208	216	Yes	0.96	220	Yes	0.99	222	Yes	>0.99
	80	208	218	Yes	0.98	222	Yes	>0.99	224	Yes	>0.99
85	208	221	Yes	0.99	226	Yes	>0.99	228	Yes	>0.99	
90	208	225	Yes	>0.99	229	Yes	>0.99	231	Yes	>0.99	
95	208	231	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99	
6	5	211	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	211	189	No	0.02	193	No	<0.01	195	No	<0.01
	15	211	193	No	0.06	197	No	0.01	199	No	<0.01
	20	211	196	No	0.13	200	No	0.04	202	No	<0.01
	25	211	199	No	0.24	203	No	0.12	205	No	0.03
	30	211	202	No	0.33	205	No	0.22	207	No	0.11
	35	211	204	No	0.44	208	No	0.42	209	No	0.27
	40	211	206	Yes	0.56	210	Yes	0.58	211	Yes	0.50
	45	211	208	Yes	0.61	212	Yes	0.72	213	Yes	0.73
	50	211	210	Yes	0.72	214	Yes	0.83	215	Yes	0.89
	55	211	212	Yes	0.81	216	Yes	0.88	217	Yes	0.97
	60	211	214	Yes	0.87	218	Yes	0.94	219	Yes	0.99
	65	211	217	Yes	0.92	220	Yes	0.97	222	Yes	>0.99
	70	211	219	Yes	0.96	222	Yes	0.99	224	Yes	>0.99
	75	211	221	Yes	0.98	225	Yes	>0.99	226	Yes	>0.99
	80	211	224	Yes	0.99	227	Yes	>0.99	229	Yes	>0.99
85	211	227	Yes	>0.99	230	Yes	>0.99	232	Yes	>0.99	
90	211	231	Yes	>0.99	234	Yes	>0.99	236	Yes	>0.99	
95	211	237	Yes	>0.99	240	Yes	>0.99	242	Yes	>0.99	

ELA/Reading											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
7	5	214	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	214	193	No	0.02	196	No	<0.01	197	No	<0.01
	15	214	197	No	0.06	200	No	0.01	201	No	<0.01
	20	214	200	No	0.12	203	No	0.04	205	No	<0.01
	25	214	203	No	0.19	206	No	0.12	207	No	0.01
	30	214	206	No	0.33	209	No	0.28	210	No	0.11
	35	214	208	No	0.44	211	No	0.42	212	No	0.27
	40	214	210	Yes	0.56	213	Yes	0.50	214	Yes	0.50
	45	214	212	Yes	0.61	215	Yes	0.65	216	Yes	0.73
	50	214	214	Yes	0.72	217	Yes	0.78	218	Yes	0.89
	55	214	216	Yes	0.81	219	Yes	0.88	220	Yes	0.97
	60	214	218	Yes	0.88	221	Yes	0.94	223	Yes	>0.99
	65	214	221	Yes	0.92	223	Yes	0.97	225	Yes	>0.99
	70	214	223	Yes	0.96	226	Yes	0.99	227	Yes	>0.99
	75	214	225	Yes	0.98	228	Yes	>0.99	229	Yes	>0.99
	80	214	228	Yes	0.99	231	Yes	>0.99	232	Yes	>0.99
85	214	231	Yes	>0.99	234	Yes	>0.99	235	Yes	>0.99	
90	214	235	Yes	>0.99	238	Yes	>0.99	239	Yes	>0.99	
95	214	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	
8	5	217	190	No	<0.01	193	No	<0.01	194	No	<0.01
	10	217	196	No	0.02	199	No	<0.01	200	No	<0.01
	15	217	200	No	0.06	203	No	0.01	204	No	<0.01
	20	217	204	No	0.13	206	No	0.04	207	No	<0.01
	25	217	207	No	0.24	209	No	0.13	210	No	0.01
	30	217	209	No	0.34	212	No	0.22	213	No	0.11
	35	217	211	No	0.39	214	No	0.35	215	No	0.27
	40	217	214	Yes	0.55	216	Yes	0.50	217	Yes	0.50
	45	217	216	Yes	0.66	218	Yes	0.65	220	Yes	0.83
	50	217	218	Yes	0.76	221	Yes	0.83	222	Yes	0.94
	55	217	220	Yes	0.80	223	Yes	0.91	224	Yes	0.99
	60	217	222	Yes	0.87	225	Yes	0.96	226	Yes	>0.99
	65	217	225	Yes	0.94	227	Yes	0.98	228	Yes	>0.99
	70	217	227	Yes	0.96	229	Yes	0.99	231	Yes	>0.99
	75	217	230	Yes	0.98	232	Yes	>0.99	233	Yes	>0.99
	80	217	232	Yes	0.99	235	Yes	>0.99	236	Yes	>0.99
85	217	236	Yes	>0.99	238	Yes	>0.99	239	Yes	>0.99	
90	217	240	Yes	>0.99	242	Yes	>0.99	243	Yes	>0.99	
95	217	246	Yes	>0.99	248	Yes	>0.99	249	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.
9	5	216	188	No	<0.01	190	No	<0.01	190	No	<0.01
	10	216	195	No	0.02	197	No	<0.01	197	No	<0.01
	15	216	199	No	0.05	201	No	0.01	202	No	<0.01
	20	216	203	No	0.13	205	No	0.03	205	No	<0.01
	25	216	206	No	0.23	208	No	0.10	209	No	0.01
	30	216	209	No	0.31	211	No	0.23	211	No	0.06
	35	216	212	No	0.45	213	No	0.36	214	No	0.27
	40	216	214	Yes	0.55	216	Yes	0.57	217	Yes	0.62
	45	216	217	Yes	0.69	218	Yes	0.71	219	Yes	0.83
	50	216	219	Yes	0.73	221	Yes	0.86	221	Yes	0.94
	55	216	221	Yes	0.81	223	Yes	0.93	224	Yes	0.99
	60	216	224	Yes	0.89	225	Yes	0.97	226	Yes	>0.99
	65	216	226	Yes	0.93	228	Yes	0.99	229	Yes	>0.99
	70	216	229	Yes	0.97	230	Yes	>0.99	231	Yes	>0.99
	75	216	232	Yes	0.99	233	Yes	>0.99	234	Yes	>0.99
	80	216	235	Yes	>0.99	236	Yes	>0.99	237	Yes	>0.99
85	216	239	Yes	>0.99	240	Yes	>0.99	241	Yes	>0.99	
90	216	243	Yes	>0.99	245	Yes	>0.99	246	Yes	>0.99	
95	216	250	Yes	>0.99	251	Yes	>0.99	253	Yes	>0.99	
10	5	218	192	No	<0.01	194	No	<0.01	194	No	<0.01
	10	218	199	No	0.03	200	No	<0.01	200	No	<0.01
	15	218	203	No	0.08	204	No	0.01	205	No	<0.01
	20	218	206	No	0.12	208	No	0.05	208	No	<0.01
	25	218	209	No	0.22	211	No	0.13	211	No	0.01
	30	218	212	No	0.35	214	No	0.29	214	No	0.11
	35	218	215	Yes	0.50	216	No	0.43	217	No	0.38
	40	218	217	Yes	0.55	218	Yes	0.57	219	Yes	0.62
	45	218	219	Yes	0.65	221	Yes	0.77	221	Yes	0.83
	50	218	221	Yes	0.74	223	Yes	0.87	224	Yes	0.97
	55	218	224	Yes	0.85	225	Yes	0.93	226	Yes	0.99
	60	218	226	Yes	0.90	227	Yes	0.97	228	Yes	>0.99
	65	218	228	Yes	0.94	230	Yes	0.99	231	Yes	>0.99
	70	218	231	Yes	0.97	232	Yes	>0.99	233	Yes	>0.99
	75	218	234	Yes	0.99	235	Yes	>0.99	236	Yes	>0.99
	80	218	237	Yes	>0.99	238	Yes	>0.99	239	Yes	>0.99
85	218	240	Yes	>0.99	241	Yes	>0.99	242	Yes	>0.99	
90	218	244	Yes	>0.99	246	Yes	>0.99	247	Yes	>0.99	
95	218	251	Yes	>0.99	252	Yes	>0.99	253	Yes	>0.99	



**Table 3.10. Proficiency Projection based on RIT Scores—Mathematics**

Mathematics											
Grade	Start %ile	Spring Cut	Fall		Winter RIT	Winter		Spring RIT	Spring		
			Fall RIT	Projected Proficiency		Projected Proficiency	Prob.		Projected Proficiency	Prob.	
				Proficient	Prob.			Proficient			Prob.
2	5	183	154	No	0.02	163	No	<0.01	167	No	<0.01
	10	183	158	No	0.08	167	No	0.02	172	No	<0.01
	15	183	162	No	0.22	171	No	0.10	175	No	<0.01
	20	183	164	No	0.27	173	No	0.20	178	No	0.04
	25	183	166	No	0.38	175	No	0.34	180	No	0.15
	30	183	168	Yes	0.50	177	Yes	0.50	182	No	0.37
	35	183	170	Yes	0.62	179	Yes	0.66	184	Yes	0.63
	40	183	172	Yes	0.73	181	Yes	0.74	186	Yes	0.85
	45	183	173	Yes	0.78	182	Yes	0.80	188	Yes	0.96
	50	183	175	Yes	0.82	184	Yes	0.90	189	Yes	0.98
	55	183	177	Yes	0.89	186	Yes	0.95	191	Yes	>0.99
	60	183	178	Yes	0.92	187	Yes	0.97	193	Yes	>0.99
	65	183	180	Yes	0.96	189	Yes	0.99	195	Yes	>0.99
	70	183	182	Yes	0.98	191	Yes	>0.99	196	Yes	>0.99
	75	183	184	Yes	0.99	193	Yes	>0.99	198	Yes	>0.99
	80	183	186	Yes	0.99	195	Yes	>0.99	201	Yes	>0.99
	85	183	188	Yes	>0.99	198	Yes	>0.99	203	Yes	>0.99
90	183	192	Yes	>0.99	201	Yes	>0.99	207	Yes	>0.99	
95	183	196	Yes	>0.99	205	Yes	>0.99	212	Yes	>0.99	
3	5	195	166	No	0.01	174	No	<0.01	178	No	<0.01
	10	195	171	No	0.05	179	No	0.01	183	No	<0.01
	15	195	175	No	0.13	182	No	0.04	186	No	<0.01
	20	195	177	No	0.21	185	No	0.14	189	No	0.02
	25	195	179	No	0.31	187	No	0.26	192	No	0.15
	30	195	181	No	0.44	189	No	0.42	194	No	0.37
	35	195	183	Yes	0.56	191	Yes	0.58	196	Yes	0.63
	40	195	185	Yes	0.69	193	Yes	0.74	198	Yes	0.85
	45	195	187	Yes	0.79	195	Yes	0.86	199	Yes	0.92
	50	195	188	Yes	0.83	196	Yes	0.90	201	Yes	0.98
	55	195	190	Yes	0.90	198	Yes	0.96	203	Yes	>0.99
	60	195	192	Yes	0.93	200	Yes	0.98	205	Yes	>0.99
	65	195	194	Yes	0.96	201	Yes	0.99	207	Yes	>0.99
	70	195	196	Yes	0.98	203	Yes	>0.99	208	Yes	>0.99
	75	195	198	Yes	0.99	205	Yes	>0.99	211	Yes	>0.99
	80	195	200	Yes	>0.99	208	Yes	>0.99	213	Yes	>0.99
	85	195	202	Yes	>0.99	210	Yes	>0.99	216	Yes	>0.99
90	195	206	Yes	>0.99	214	Yes	>0.99	219	Yes	>0.99	
95	195	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	203	176	No	0.01	182	No	<0.01	185	No	<0.01
	10	203	181	No	0.04	187	No	0.01	191	No	<0.01
	15	203	185	No	0.13	191	No	0.07	194	No	<0.01
	20	203	187	No	0.21	194	No	0.20	197	No	0.02
	25	203	190	No	0.37	196	No	0.26	200	No	0.15
	30	203	192	Yes	0.50	198	No	0.42	202	No	0.37
	35	203	194	Yes	0.63	200	Yes	0.58	205	Yes	0.75
	40	203	196	Yes	0.74	202	Yes	0.74	207	Yes	0.92
	45	203	198	Yes	0.83	204	Yes	0.86	209	Yes	0.98
	50	203	200	Yes	0.90	206	Yes	0.93	211	Yes	>0.99
	55	203	201	Yes	0.93	208	Yes	0.97	212	Yes	>0.99
	60	203	203	Yes	0.96	210	Yes	0.99	214	Yes	>0.99
	65	203	205	Yes	0.98	212	Yes	>0.99	217	Yes	>0.99
	70	203	207	Yes	0.99	214	Yes	>0.99	219	Yes	>0.99
	75	203	209	Yes	>0.99	216	Yes	>0.99	221	Yes	>0.99
	80	203	212	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99
85	203	214	Yes	>0.99	221	Yes	>0.99	227	Yes	>0.99	
90	203	218	Yes	>0.99	225	Yes	>0.99	230	Yes	>0.99	
95	203	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	210	184	No	<0.01	189	No	<0.01	191	No	<0.01
	10	210	190	No	0.05	194	No	0.01	197	No	<0.01
	15	210	193	No	0.11	198	No	0.05	201	No	<0.01
	20	210	196	No	0.22	201	No	0.15	205	No	0.04
	25	210	199	No	0.38	204	No	0.34	207	No	0.15
	30	210	201	Yes	0.56	206	Yes	0.50	210	Yes	0.50
	35	210	203	Yes	0.68	209	Yes	0.74	212	Yes	0.75
	40	210	205	Yes	0.78	211	Yes	0.85	215	Yes	0.96
	45	210	207	Yes	0.86	213	Yes	0.93	217	Yes	0.99
	50	210	209	Yes	0.92	215	Yes	0.97	219	Yes	>0.99
	55	210	211	Yes	0.95	217	Yes	0.99	221	Yes	>0.99
	60	210	213	Yes	0.98	219	Yes	>0.99	223	Yes	>0.99
	65	210	215	Yes	0.99	221	Yes	>0.99	225	Yes	>0.99
	70	210	217	Yes	>0.99	223	Yes	>0.99	228	Yes	>0.99
	75	210	219	Yes	>0.99	225	Yes	>0.99	230	Yes	>0.99
	80	210	222	Yes	>0.99	228	Yes	>0.99	233	Yes	>0.99
85	210	225	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
90	210	229	Yes	>0.99	235	Yes	>0.99	240	Yes	>0.99	
95	210	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	216	188	No	<0.01	192	No	<0.01	194	No	<0.01
	10	216	194	No	0.01	198	No	<0.01	200	No	<0.01
	15	216	198	No	0.06	202	No	0.01	205	No	<0.01
	20	216	201	No	0.14	205	No	0.04	208	No	<0.01
	25	216	204	No	0.27	208	No	0.14	211	No	0.04
	30	216	206	No	0.38	211	No	0.34	214	No	0.25
	35	216	209	Yes	0.56	213	Yes	0.50	216	Yes	0.50
	40	216	211	Yes	0.68	215	Yes	0.66	218	Yes	0.75
	45	216	213	Yes	0.78	217	Yes	0.80	221	Yes	0.96
	50	216	215	Yes	0.86	220	Yes	0.93	223	Yes	0.99
	55	216	217	Yes	0.92	222	Yes	0.97	225	Yes	>0.99
	60	216	219	Yes	0.96	224	Yes	0.99	227	Yes	>0.99
	65	216	221	Yes	0.98	226	Yes	>0.99	230	Yes	>0.99
	70	216	223	Yes	0.99	228	Yes	>0.99	232	Yes	>0.99
	75	216	226	Yes	>0.99	231	Yes	>0.99	235	Yes	>0.99
	80	216	228	Yes	>0.99	234	Yes	>0.99	238	Yes	>0.99
85	216	231	Yes	>0.99	237	Yes	>0.99	241	Yes	>0.99	
90	216	235	Yes	>0.99	241	Yes	>0.99	245	Yes	>0.99	
95	216	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	219	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	219	198	No	0.01	201	No	<0.01	203	No	<0.01
	15	219	202	No	0.04	205	No	0.01	207	No	<0.01
	20	219	206	No	0.13	209	No	0.07	211	No	<0.01
	25	219	208	No	0.21	212	No	0.20	214	No	0.04
	30	219	211	No	0.37	215	No	0.42	217	No	0.25
	35	219	213	Yes	0.50	217	Yes	0.58	220	Yes	0.63
	40	219	216	Yes	0.69	219	Yes	0.74	222	Yes	0.85
	45	219	218	Yes	0.83	222	Yes	0.90	224	Yes	0.96
	50	219	220	Yes	0.90	224	Yes	0.96	227	Yes	>0.99
	55	219	222	Yes	0.95	226	Yes	0.98	229	Yes	>0.99
	60	219	225	Yes	0.98	229	Yes	>0.99	231	Yes	>0.99
	65	219	227	Yes	0.99	231	Yes	>0.99	234	Yes	>0.99
	70	219	229	Yes	>0.99	233	Yes	>0.99	236	Yes	>0.99
	75	219	232	Yes	>0.99	236	Yes	>0.99	239	Yes	>0.99
	80	219	235	Yes	>0.99	239	Yes	>0.99	242	Yes	>0.99
85	219	238	Yes	>0.99	243	Yes	>0.99	246	Yes	>0.99	
90	219	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99	
95	219	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	223	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	223	201	No	0.01	203	No	<0.01	205	No	<0.01
	15	223	205	No	0.04	208	No	<0.01	210	No	<0.01
	20	223	209	No	0.12	212	No	0.03	214	No	<0.01
	25	223	212	No	0.24	215	No	0.11	217	No	0.02
	30	223	215	No	0.39	218	No	0.27	220	No	0.15
	35	223	218	Yes	0.50	221	Yes	0.50	223	Yes	0.50
	40	223	220	Yes	0.61	223	Yes	0.66	225	Yes	0.75
	45	223	223	Yes	0.76	226	Yes	0.85	228	Yes	0.96
	50	223	225	Yes	0.84	228	Yes	0.93	230	Yes	0.99
	55	223	227	Yes	0.90	231	Yes	0.98	233	Yes	>0.99
	60	223	230	Yes	0.96	233	Yes	0.99	235	Yes	>0.99
	65	223	232	Yes	0.98	236	Yes	>0.99	238	Yes	>0.99
	70	223	235	Yes	0.99	238	Yes	>0.99	241	Yes	>0.99
	75	223	238	Yes	>0.99	241	Yes	>0.99	244	Yes	>0.99
	80	223	241	Yes	>0.99	244	Yes	>0.99	247	Yes	>0.99
85	223	245	Yes	>0.99	248	Yes	>0.99	251	Yes	>0.99	
90	223	249	Yes	>0.99	253	Yes	>0.99	256	Yes	>0.99	
95	223	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	
9	5	226	194	No	<0.01	196	No	<0.01	196	No	<0.01
	10	226	201	No	<0.01	203	No	<0.01	204	No	<0.01
	15	226	206	No	0.02	208	No	<0.01	209	No	<0.01
	20	226	210	No	0.05	212	No	<0.01	213	No	<0.01
	25	226	213	No	0.11	215	No	0.02	216	No	<0.01
	30	226	216	No	0.21	218	No	0.08	219	No	0.01
	35	226	219	No	0.34	221	No	0.21	222	No	0.08
	40	226	221	No	0.45	224	No	0.42	225	No	0.37
	45	226	224	Yes	0.61	226	Yes	0.58	227	Yes	0.63
	50	226	226	Yes	0.71	229	Yes	0.79	230	Yes	0.92
	55	226	229	Yes	0.83	231	Yes	0.89	233	Yes	0.99
	60	226	231	Yes	0.86	234	Yes	0.96	235	Yes	>0.99
	65	226	234	Yes	0.93	236	Yes	0.99	238	Yes	>0.99
	70	226	237	Yes	0.97	239	Yes	>0.99	241	Yes	>0.99
	75	226	240	Yes	0.99	242	Yes	>0.99	244	Yes	>0.99
	80	226	243	Yes	>0.99	246	Yes	>0.99	247	Yes	>0.99
85	226	247	Yes	>0.99	249	Yes	>0.99	251	Yes	>0.99	
90	226	252	Yes	>0.99	254	Yes	>0.99	256	Yes	>0.99	
95	226	259	Yes	>0.99	262	Yes	>0.99	264	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.
10	5	229	196	No	<0.01	197	No	<0.01	197	No	<0.01
	10	229	203	No	<0.01	205	No	<0.01	205	No	<0.01
	15	229	208	No	0.01	210	No	<0.01	210	No	<0.01
	20	229	212	No	0.04	214	No	<0.01	215	No	<0.01
	25	229	215	No	0.09	217	No	0.01	218	No	<0.01
	30	229	218	No	0.17	220	No	0.05	221	No	<0.01
	35	229	221	No	0.25	223	No	0.16	224	No	0.04
	40	229	224	No	0.39	226	No	0.34	227	No	0.25
	45	229	227	Yes	0.55	229	Yes	0.58	230	Yes	0.63
	50	229	229	Yes	0.66	231	Yes	0.73	232	Yes	0.85
	55	229	232	Yes	0.79	234	Yes	0.89	235	Yes	0.98
	60	229	234	Yes	0.86	236	Yes	0.95	238	Yes	>0.99
	65	229	237	Yes	0.93	239	Yes	0.99	241	Yes	>0.99
	70	229	240	Yes	0.97	242	Yes	>0.99	244	Yes	>0.99
	75	229	243	Yes	0.99	245	Yes	>0.99	247	Yes	>0.99
	80	229	246	Yes	>0.99	249	Yes	>0.99	250	Yes	>0.99
	85	229	250	Yes	>0.99	253	Yes	>0.99	254	Yes	>0.99
90	229	255	Yes	>0.99	258	Yes	>0.99	260	Yes	>0.99	
95	229	262	Yes	>0.99	265	Yes	>0.99	267	Yes	>0.99	

#### 4. References

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