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

November 2021

NWEA Psychometric Solutions

Linking Study Updates

Date	Description
2014-03	Initial linking study conducted for North Carolina in reading and mathematics Grades 3–8 using Spring 2013 data.
2016-03	Incorporated the 2015 MAP Growth norms using Spring 2013 data.
2020-12-23	Incorporated the 2020 MAP Growth norms using Spring 2019 data for the updated NC EOG Mathematics assessments in Grades 3–8.
2021-11-30	Incorporated the 2020 MAP Growth norms using Spring 2021 data for the updated NC EOG Reading assessments in Grades 3–8. The mathematics results from December 2020 remain the same but are included in this report so all up-to-date NC EOG linking study results are in one place. Projection tables have also been added for both reading and mathematics to reflect *Level 4* college and career readiness. Not enough data available to include science.

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Executive Summary

To predict student achievement on the North Carolina End-of-Grade (NC EOG) assessments in Grades 3–8, NWEA® conducted a linking study using Spring 2021 data for reading and Spring 2019 data for mathematics to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the NC EOG achievement 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.[1] The linking study has been updated since the previous version published in March 2016 for NC EOG Reading to provide percentiles corresponding to the 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020) and to generate MAP Growth cut scores for the updated NC EOG Reading assessment based on new standards. Results from the December 2020 linking study for NC EOG Mathematics remain the same but are included in this report so all up-to-date NC EOG linking study results are in one location.

E.1. Proficiency Cut Scores

Table E.1 presents the NC EOG *Level 3* 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 *Level 3* cut score on the NC EOG Grade 3 Reading test is 540. A Grade 3 student with a MAP Growth Reading RIT score of 194 in the fall is likely to meet proficiency on the NC EOG Reading test in the spring, whereas a Grade 3 student with a MAP Growth Reading RIT score lower than 194 in the fall is in jeopardy of not meeting proficiency. MAP Growth cut scores for Grade 2 are also provided so educators can track early learners' progress toward proficiency on the NC EOG 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 NC EOG Proficiency

Assessment		*Level 3* Cut Scores						
		2	**3**	**4**	**5**	**6**	**7**	**8**
Reading								
NC EOG Spring		–	540	544	550	552	554	557
MAP Growth	Fall	182	194	201	210	214	217	221
	Winter	190	201	207	214	218	220	223
	Spring	194	204	209	216	219	221	224
Mathematics								
NC EOG Spring		–	545	547	546	546	546	543
MAP Growth	Fall	171	185	201	209	214	221	229
	Winter	181	193	208	215	219	225	232
	Spring	186	198	212	219	222	228	234

[1] This study provides MAP Growth cut scores that predict proficiency on the NC EOG assessments 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 in reading 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.2. Assessment Overview

The NC EOG Grades 3–8 Reading and Mathematics tests are North Carolina's state summative assessments aligned to the North Carolina Standard Course of Study (NCSCOS). They were first implemented operationally in Spring 2019 for mathematics and in Spring 2021 for reading. Based on their test scores, students are placed into one of four achievement levels: *Not Proficient*, *Level 3*, *Level 4*, and *Level 5*. Students are considered college and career ready if they score at a *Level 4* or *Level 5*. A *Level 3* score indicates that the student meets on-grade proficiency 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 to 350.

E.3. Linking Methods

The equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring NC EOG achievement level cut scores. MAP Growth fall and winter cut scores that predict proficiency on the spring NC EOG 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.4. Student Sample

Table E.2 presents the number of North Carolina students from six districts and 211 schools for reading and nine districts and 203 schools for mathematics who were included in the linking study sample. Only students who took both the MAP Growth and NC EOG assessments in Spring 2021 for reading or Spring 2019 for mathematics were included.

Table E.2. Linking Study Sample

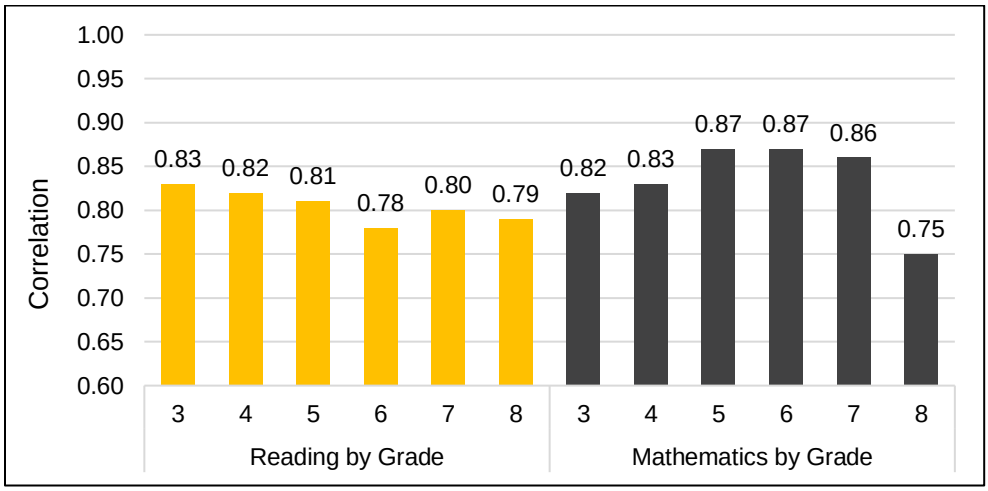
	#Students	
Grade	Reading	Mathematics
3	10,979	15,269
4	13,132	15,873
5	13,193	15,825
6	12,146	14,973
7	12,108	14,255
8	11,581	9,011

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 achievement level distributions, 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 3–8 were conducted based on the weighted sample.

E.5. Test Score Relationships

Correlations between MAP Growth RIT scores and NC EOG scores range from 0.75 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 NC EOG assessments.

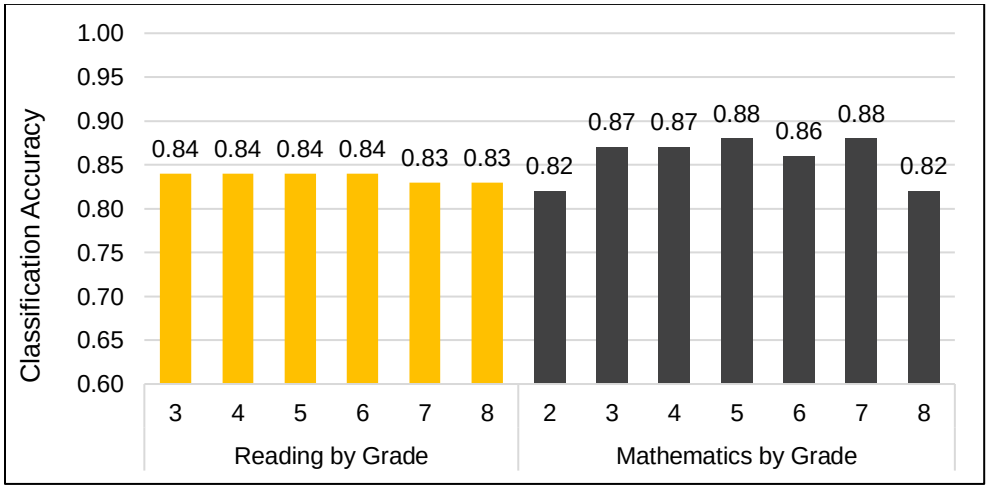
Figure E.1. Correlations between MAP Growth and NC EOG Test Scores



E.6. 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 NC EOG tests. For example, the MAP Growth Reading Grade 3 *Level 3* cut score has a 0.84 accuracy rate, meaning it accurately classified student achievement on the state test for 84% of the sample. The results range from 0.82 to 0.88 across content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the NC EOG tests.

Figure E.2. Accuracy of MAP Growth Classifications



1. Introduction

1.1. Purpose of the Study

NWEA® is committed to providing partners with useful tools to help make inferences about student learning from MAP® Growth™ test scores. One important use of MAP Growth results is to predict a student's performance on the state summative assessment at different times throughout the year. This allows educators and parents to determine if a student is on track in their learning to meet state standards by the end of the year or, given a student's learning profile, is on track to obtain rigorous, realistic growth in their content knowledge and skills.

This document presents results from a linking study conducted by NWEA to statistically connect the scores of the North Carolina End-of-Grade (NC EOG) assessments in Grades 3–8 with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2021 term for reading and the Spring 2019 term for mathematics. MAP Growth cut scores are also included for Grade 2 so educators can track early learners' progress toward proficiency on the NC EOG 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 achievement levels on the spring NC EOG assessment
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the NC EOG tests
5. The probability of achieving *Level 3* or *Level 4* performance on the NC EOG assessment based on MAP Growth RIT scores from fall, winter, and spring

The linking study has been updated since the previous version published in March 2016 for NC EOG Reading to provide percentiles corresponding to the 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020) and to generate MAP Growth cut scores for the updated NC EOG Reading test based on new standards. Results from the December 2020 linking study for NC EOG Mathematics are also included so all up-to-date NC EOG linking study results are in one location.

1.2. Assessment Overview

The NC EOG summative assessments are aligned to the North Carolina Standard Course of Study (NCSCOS) and were first implemented operationally in Spring 2019 for mathematics and in Spring 2021 for reading. A cut score is the minimum score a student must get to be placed in a certain achievement level. Each assessment has three cut scores that distinguish between the following achievement levels: *Not Proficient*, *Level 3*, *Level 4*, and *Level 5*. The *Level 3* cut score demarks the minimum level of performance considered to be proficient for accountability purposes. Students are considered college and career ready if they score at a *Level 4* or *Level 5*.

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. To aid the interpretation of scores, NWEA conducts norming studies of student and school performance on MAP Growth. Achievement status norms show how well a student performed on MAP Growth compared to students in the norming group. It does this by associating the student's 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 2021 and Spring 2019 administrations of the MAP Growth and NG EOG Reading and Mathematics assessments, respectively. NWEA recruited North Carolina 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 North Carolina 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 NC EOG assessments in Spring 2021 for reading and Spring 2019 for mathematics 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 achievement level. These variables were selected because they are known to be correlated with students' academic achievement and are often available in state summative assessment reports. The weighted sample will match the target population as closely as possible on the key demographics and performance characteristics as defined by the state.

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 achievement 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 NC EOG assessments are reported for Grades 3–8, as well as for Grade 2 so educators can track early learners' progress toward proficiency on the NC EOG 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 achievement level designations for its summative assessment.

The equipercentile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores for Grades 3–8 that correspond to the spring NC EOG achievement level cut scores. The equipercentile linking procedure matches scores on the two scales that have the same percentile rank (i.e., the proportion of tests at or below each score). For example, let x represent a score on Test X (e.g., NC EOG). Its equipercentile equivalent score on Test Y (e.g., MAP Growth), $e_y(x)$, can be obtained through a cumulative-distribution-based linking function defined in Equation 1:

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

where $e_y(x)$ is the equipercentile equivalent of score x on NC EOG on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on NC EOG, 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 was used to calculate the fall and winter cut scores for Grades 3–8. 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 score.

The MAP Growth conditional growth norms were used to calculate the fall, winter, and spring cuts for Grade 2. North Carolina students do not begin taking the NC EOG 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 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.
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 above for Grades 3–8. 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 NC EOG tests can be described using classification accuracy statistics based on the MAP Growth spring RIT cut scores. The results show the proportion of students correctly classified by their RIT scores as proficient or not proficient on the NC EOG test. A summary of how well the interpolated Grade 2 cuts predict Grade 3 proficiency status is also reported in the classification accuracy statistics. Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich et al., 2004).

Table 2.1. Description of Classification Accuracy Summary Statistics

Statistic	Description*	Interpretation
Overall Classification Accuracy Rate	(TP + TN) / (total sample size)	Proportion of the study sample whose proficiency classification on the state test was correctly predicted by MAP Growth cut scores
False Negative (FN) Rate	FN / (FN + TP)	Proportion of not-proficient students identified by MAP Growth in those observed as proficient on the state test
False Positive (FP) Rate	FP / (FP + TN)	Proportion of proficient students identified by MAP Growth in those observed as not proficient on the state test
Sensitivity	TP / (TP + FN)	Proportion of proficient students identified by MAP Growth in those observed as such on the state test
Specificity	TN / (TN + FP)	Proportion of not-proficient students identified by MAP Growth in those observed as such on the state test
Precision	TP / (TP + FP)	Proportion of observed proficient students on the state test in those identified as such by the MAP Growth test
Area Under the Curve (AUC)	Area under the receiver operating characteristics (ROC) curve	How well MAP Growth cut scores separate the study sample into proficiency categories that match those from the state test cut scores. An AUC at or above 0.80 is considered "good" accuracy.

*FP = false positives. FN = false negatives. TP = true positives. TN = true negatives.

2.5. Proficiency and Readiness Projections

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 (*Level 3*) on the NC EOG test based on a student's RIT scores from fall, winter, and spring. The same method was also used to calculate the probability of reaching college and career readiness status (*Level 4*) on the NC EOG test. Equation 3 was used to calculate the probability of a student achieving *Level 3* or *Level 4* achievement on the NC EOG test based on their fall or winter RIT score:

$$Pr(Achieving\ Level\ 3/Level\ 4\ in\ spring|\ starting\ RIT) = \Phi\left(\frac{RIT_{previous} + g - RIT_{SpringCut}}{SD}\right) \quad (3)$$

where:

- Φ is the standard normal cumulative distribution function.
- $RIT_{previous}$ 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 *Level 3* or *Level 4* 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 *Level 3* or *Level 4* achievement on the NC EOG test based on their spring RIT score (RIT_{Spring}):

$$Pr(Achieving\ Level\ 3/Level\ 4\ in\ spring\ |\ spring\ RIT) = \Phi\left(\frac{RIT_{Spring} - RIT_{SpringCut}}{SE}\right) \quad (4)$$

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

3. Results

3.1. Study Sample

Only students who took both the MAP Growth and NC EOG assessments in either Spring 2021 for reading or Spring 2019 for mathematics were included in the study sample. Data used in this study were collected from six districts and 211 schools for reading and nine districts and 203 schools for mathematics in North Carolina. 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 target population of students who took the Spring 2019 or Spring 2021 NC EOG tests. Since the original study sample is different from the target NC EOG 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 NC EOG student population distributions. The analyses in this study were conducted using the weighted sample.

Table 3.1. Linking Study Sample Demographics (Unweighted)

Linking Study Sample (Unweighted)							
		%Students by Grade					
Demographic Subgroup		3	4	5	6	7	8
Reading							
	Total N	10,979	13,132	13,193	12,146	12,108	11,581
Race*	American Indian	0.1	0.2	0.2	0.2	0.2	0.2
	Asian	6.2	6.4	6.3	6.4	5.9	5.9
	Black	31.1	29.6	29.5	29.0	28.8	28.7
	Hispanic	30.4	27.4	26.9	28.1	27.2	26.7
	Multi-Race	3.3	4.0	3.5	2.7	2.9	3.0
	White	28.9	32.3	33.6	33.5	35.0	35.5
Sex	Female	48.5	49.6	49.1	49.1	49.7	49.9
	Male	51.5	50.4	50.9	50.9	50.3	50.1
Achievement Level	*Not Proficient*	71.0	56.8	56.9	54.0	51.9	49.2
	Level 3	9.1	13.7	13.0	21.6	16.8	20.3
	Level 4	12.2	21.5	18.6	18.9	19.7	23.5
	Level 5	7.7	8.0	11.5	5.4	11.6	7.0
Mathematics							
	Total N	15,269	15,857	15,825	14,958	14,255	9,011
Race*	American Indian	0.3	0.3	0.3	0.3	0.2	0.4
	Asian	6.0	5.9	5.1	5.0	5.1	2.3
	Black	30.6	31.0	31.8	31.1	30.6	38.1
	Hispanic	24.8	25.9	25.6	25.2	24.0	27.3
	Multi-Race	0.2	0.1	0.2	0.1	0.1	0.1
	Native Hawaiian/Pacific Islander	3.4	2.9	2.7	3.1	3.0	2.8
	White	34.7	33.9	34.4	35.2	36.9	29.0
Sex	Female	49.2	48.7	49.4	49.0	49.0	48.4
	Male	50.8	51.3	50.6	51.0	51.0	51.6

Linking Study Sample (Unweighted)							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
Achievement Level	*Not Proficient*	32.3	38.7	35.9	38.2	38.4	64.7
	Level 3	19.0	17.6	17.7	16.7	13.2	15.1
	Level 4	32.4	27.1	31.6	30.1	31.7	14.3
	Level 5	16.3	16.6	14.8	15.0	16.8	5.8

*The race categories reflect the NC EOG performance reports from each testing term. As such, the categories for reading based on Spring 2021 data differ slightly from those reported for mathematics based on Spring 2019 data.

Table 3.2. NC EOG Student Population Demographics

NC EOG Student Population							
Demographic Subgroup		%Students by Grade					
		3	4	5	6	7	8
Reading (Spring 2021)							
	Total N	106,914	107,563	108,784	112,085	113,042	113,687
Race*	American Indian	1.1	1.1	1.1	1.2	1.1	1.2
	Asian	3.9	3.9	3.8	3.7	3.5	3.5
	Black	24.3	24.4	24.6	24.9	25.0	24.3
	Hispanic	20.1	19.8	20.4	20.2	20.0	20.1
	Multi-Race	5.4	5.4	5.1	4.9	4.9	4.7
	White	44.7	44.7	45.1	44.8	45.5	46.3
Sex	Female	48.8	48.7	48.8	48.4	48.7	48.6
	Male	51.2	50.8	51.2	51.6	51.3	51.4
Achievement Level	*Not Proficient*	56.0	54.9	57.6	54.7	53.3	51.8
	Level 3	18.7	14.2	13.6	21.7	17.2	20.9
	Level 4	15.2	22.4	17.9	18.2	19.1	21.5
	Level 5	10.1	8.5	10.9	5.4	10.4	5.8
Mathematics (Spring 2019)							
	Total N	116,059	120,320	121,935	121,613	118,471	80,897
Race*	American Indian	1.1	1.2	1.1	1.2	1.1	1.3
	Asian	3.8	3.6	3.4	3.4	3.4	1.7
	Black	25.1	25.6	25.3	25.0	25.0	29.0
	Hispanic	19.3	19.2	19.2	19.4	18.8	20.6
	Multi-Race	4.7	4.5	4.7	4.6	4.5	4.4
	Native Hawaiian/Pacific Islander	0.2	0.2	0.1	0.1	0.1	0.1
	White	45.8	45.8	46.1	46.4	47.1	42.9
Sex	Female	48.9	48.6	48.9	48.7	48.9	47.7
	Male	51.1	51.4	51.1	51.3	51.1	52.3
Achievement Level	*Not Proficient*	35.5	42.5	39.5	41.0	41.5	64.3
	Level 3	20.0	17.6	18.2	17.2	13.9	16.0
	Level 4	30.7	25.4	30.8	29.8	31.5	14.0
	Level 5	13.8	14.6	11.5	12.1	13.1	5.7

*The race categories reflect the NC EOG performance reports from each testing term. As such, the categories for reading based on Spring 2021 data differ slightly from those reported for mathematics based on Spring 2019 data.

Table 3.3. Linking Study Sample Demographics (Weighted)

Linking Study Sample (Weighted)							
		%Students by Grade					
Demographic Subgroup		3	4	5	6	7	8
Reading							
	Total N	10,979	13,132	13,193	12,146	12,108	11,581
Race*	American Indian	1.1	1.1	1.1	1.2	1.1	1.2
	Asian	3.9	3.9	3.8	3.7	3.5	3.5
	Black	24.4	24.6	24.6	25.0	25.0	24.3
	Hispanic	20.2	20.0	20.4	20.3	20.1	20.1
	Multi-Race	5.5	5.4	5.1	4.9	4.9	4.7
	White	44.9	45.1	45.1	45.0	45.6	46.3
Sex	Female	48.8	48.9	48.8	48.4	48.7	48.6
	Male	51.2	51.1	51.2	51.6	51.3	51.4
Achievement Level	*Not Proficient*	56.0	54.9	57.6	54.7	53.3	51.8
	Level 3	18.7	14.2	13.6	21.7	17.2	20.9
	Level 4	15.2	22.4	17.9	18.2	19.1	21.5
	Level 5	10.1	8.5	10.9	5.4	10.4	5.8
Mathematics							
	Total N	15,269	15,873	15,825	14,973	14,255	9,011
Race*	American Indian	1.1	1.2	1.1	1.2	1.1	1.3
	Asian	3.8	3.6	3.4	3.4	3.4	1.7
	Black	25.1	25.6	25.3	25.0	25.0	29.0
	Hispanic	19.3	19.2	19.2	19.4	18.8	20.6
	Multi-Race	4.7	4.5	4.7	4.6	4.5	4.4
	Native Hawaiian/Pacific Islander	0.2	0.2	0.1	0.1	0.1	0.1
	White	45.8	45.8	46.1	46.4	47.1	42.9
Sex	Female	48.9	48.6	48.9	48.7	48.9	47.7
	Male	51.1	51.4	51.1	51.3	51.1	52.3
Achievement Level	*Not Proficient*	35.5	42.5	39.5	41.0	41.5	64.3
	Level 3	20.0	17.6	18.2	17.2	13.9	16.0
	Level 4	30.7	25.4	30.8	29.8	31.5	14.0
	Level 5	13.8	14.6	11.5	12.1	13.1	5.7

*The race categories reflect the NC EOG performance reports from each testing term. As such, the categories for reading based on Spring 2021 data differ slightly from those reported for mathematics based on Spring 2019 data.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and NC EOG test scores from Spring 2021 for reading and Spring 2019 for mathematics, including the correlation coefficient (*r*) between them. The correlation coefficients between the scores range from 0.78 to 0.83 for reading and 0.75 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 NC EOG assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	NC EOG*				MAP Growth*			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Reading										
3	10,979	0.83	536.5	10.4	514	566	195.8	18.3	140	248
4	13,132	0.82	542.0	10.0	517	568	203.9	17.6	142	257
5	13,193	0.81	547.4	9.7	524	573	209.6	17.4	143	262
6	12,146	0.78	550.3	9.6	528	578	213.7	17.1	153	276
7	12,108	0.80	552.6	9.9	528	580	217.3	17.3	148	268
8	11,581	0.79	556.3	9.8	532	584	220.4	17.7	153	276
Mathematics										
3	15,269	0.82	548.5	10.2	448	570	202.0	14.2	132	296
4	15,873	0.83	548.4	10.1	449	570	212.8	15.3	132	285
5	15,825	0.87	548.0	10.2	445	570	221.4	17.1	138	297
6	14,973	0.87	548.4	9.8	456	573	224.1	17.0	149	295
7	14,255	0.86	548.3	9.9	452	573	230.3	19.2	147	317
8	9,011	0.75	538.7	9.5	418	570	226.2	17.1	152	289

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the NC EOG scale score ranges and the corresponding MAP Growth Mathematics RIT cut scores and percentile ranges by content area and grade. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes. These tables can be used to predict a student's likely achievement level on the NC EOG spring assessment when MAP Growth is taken in the fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Reading RIT score of 194 in the fall is likely to reach *Level 3* proficiency on the NC EOG Reading test. A Grade 3 student who obtained a MAP Growth Reading RIT score of 204 in the spring is also likely to reach *Level 3* proficiency on the NC EOG 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 achievement level could be different from the projections presented in this report. Partners are therefore encouraged to use the projected achievement level in students' profile, classroom, and grade reports in the NWEA reporting system since they reflect the specific instructional weeks set by partners.

Table 3.5. MAP Growth Cut Scores—Reading

NC EOG Reading								
Grade	***Not Proficient***		***Level 3***		***Level 4***		***Level 5***	
3	515–539		**540**–545		546–550		551–564	
4	517–543		**544**–547		548–555		556–568	
5	524–549		**550**–553		554–559		560–573	
6	528–551		**552**–557		558–566		567–578	
7	527–553		**554**–558		559–565		566–580	
8	532–556		**557**–562		563–571		572–584	
MAP Growth Reading								
	Not Proficient		***Level 3***		***Level 4***		***Level 5***	
Grade	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–181	1–73	**182**–192	74–90	193–201	91–96	202–350	97–99
3	100–193	1–66	**194**–203	67–84	204–211	85–93	212–350	94–99
4	100–200	1–59	**201**–207	60–74	208–219	75–91	220–350	92–99
5	100–209	1–62	**210**–215	63–75	216–224	76–88	225–350	89–99
6	100–213	1–58	**214**–222	59–77	223–235	78–93	236–350	94–99
7	100–216	1–56	**217**–225	57–75	226–236	76–91	237–350	92–99
8	100–220	1–56	**221**–230	57–77	231–241	78–91	242–350	92–99
Winter								
2	100–189	1–71	**190**–199	72–88	200–208	89–96	209–350	97–99
3	100–200	1–66	**201**–208	67–82	209–216	83–91	217–350	92–99
4	100–206	1–60	**207**–212	61–73	213–223	74–90	224–350	91–99
5	100–213	1–61	**214**–219	62–74	220–227	75–87	228–350	88–99
6	100–217	1–59	**218**–225	60–77	226–236	78–92	237–350	93–99
7	100–219	1–56	**220**–227	57–74	228–237	75–89	238–350	90–99
8	100–222	1–55	**223**–231	56–74	232–242	75–90	243–350	91–99
Spring								
2	100–193	1–70	**194**–203	71–87	204–211	88–95	212–350	96–99
3	100–203	1–65	**204**–211	66–81	212–218	82–90	219–350	91–99
4	100–208	1–59	**209**–214	60–72	215–224	73–88	225–350	89–99
5	100–215	1–61	**216**–220	62–72	221–228	73–86	229–350	87–99
6	100–218	1–58	**219**–226	59–76	227–237	77–91	238–350	92–99
7	100–220	1–55	**221**–228	56–73	229–238	74–89	239–350	90–99
8	100–223	1–55	**224**–232	56–74	233–243	75–90	244–350	91–99

Table 3.6. MAP Growth Cut Scores—Mathematics

NC EOG Mathematics								
Grade	***Not Proficient***		***Level 3***		***Level 4***		***Level 5***	
3	520–544		**545**–550		551–559		560–570	
4	520–546		**547**–551		552–559		560–570	
5	520–545		**546**–550		551–560		561–570	
6	525–545		**546**–550		551–560		561–573	
7	525–545		**546**–549		550–559		560–573	
8	515–542		**543**–547		548–554		555–570	
MAP Growth Mathematics								
	Not Proficient		***Level 3***		***Level 4***		***Level 5***	
Grade	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–170	1–37	**171**–180	38–67	181–193	68–92	194–350	93–99
3	100–184	1–39	**185**–193	40–65	194–204	66–88	205–350	89–99
4	100–200	1–53	**201**–206	54–69	207–217	70–89	218–350	90–99
5	100–208	1–49	**209**–216	50–69	217–230	70–92	231–350	93–99
6	100–213	1–47	**214**–221	48–66	222–235	67–90	236–350	91–99
7	100–220	1–51	**221**–227	52–66	228–243	67–90	244–350	91–99
8	100–228	1–58	**229**–236	59–73	237–246	74–87	247–350	88–99
Winter								
2	100–180	1–40	**181**–189	41–67	190–201	68–91	202–350	92–99
3	100–192	1–40	**193**–200	41–63	201–212	64–88	213–350	89–99
4	100–207	1–54	**208**–213	55–69	214–224	70–89	225–350	90–99
5	100–214	1–50	**215**–222	51–69	223–236	70–91	237–350	92–99
6	100–218	1–48	**219**–226	49–66	227–240	67–89	241–350	90–99
7	100–224	1–51	**225**–231	52–66	232–247	67–90	248–350	91–99
8	100–231	1–57	**232**–239	58–72	240–249	73–86	250–350	87–99
Spring								
2	100–185	1–39	**186**–194	40–65	195–206	66–89	207–350	90–99
3	100–197	1–40	**198**–205	41–63	206–216	64–86	217–350	87–99
4	100–211	1–53	**212**–217	54–67	218–228	68–87	229–350	88–99
5	100–218	1–50	**219**–226	51–68	227–240	69–90	241–350	91–99
6	100–221	1–47	**222**–229	48–65	230–243	66–88	244–350	89–99
7	100–227	1–52	**228**–234	53–66	235–250	67–89	251–350	90–99
8	100–233	1–56	**234**–241	57–71	242–251	72–85	252–350	86–99

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 NC EOG tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.83 to 0.84 for reading and 0.82 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 NC EOG assessment. For Grade 2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students' proficiency status on NC EOG in Grade 3. Classification accuracy statistics for Reading Grade 2 cannot be provided because of the low number of Grade 3 students with a MAP Growth test event from Spring 2020 when many partners across the nation, including in North Carolina, waived their MAP Growth assessments.

Although the results show that MAP Growth scores can be used to predict student proficiency on the NC EOG tests with relatively high accuracy, there is a notable limitation to how these results should be used and interpreted. NC EOG 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	NC EOG		FP	FN				
Reading										
3	10,979	204	540	0.84	0.08	0.25	0.75	0.92	0.88	0.93
4	13,132	209	544	0.84	0.14	0.17	0.83	0.86	0.83	0.92
5	13,193	216	550	0.84	0.13	0.19	0.81	0.87	0.82	0.92
6	12,146	219	552	0.84	0.14	0.19	0.81	0.86	0.83	0.92
7	12,108	221	554	0.83	0.17	0.18	0.82	0.83	0.81	0.91
8	11,581	224	557	0.83	0.16	0.19	0.81	0.84	0.82	0.91
Mathematics										
2	10,813	186	545	0.82	0.21	0.17	0.83	0.79	0.91	0.90
3	15,269	198	545	0.87	0.24	0.07	0.93	0.76	0.88	0.93
4	15,873	212	547	0.87	0.18	0.10	0.90	0.82	0.87	0.94
5	15,825	219	546	0.88	0.15	0.10	0.90	0.85	0.90	0.95
6	14,973	222	546	0.86	0.18	0.11	0.89	0.82	0.88	0.94
7	14,255	228	546	0.88	0.14	0.10	0.90	0.86	0.90	0.95
8	9,011	234	543	0.82	0.14	0.25	0.75	0.86	0.74	0.90

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

3.5. Proficiency Projections

Table 3.8 and Table 3.9 present the estimated probability of achieving *Level 3* performance on the NC EOG test based on RIT scores from fall, winter, or spring. “Prob.” indicates the probability of obtaining proficiency status on the NC EOG test in the spring. For example, a Grade 3 student who obtained a MAP Growth Reading score of 208 in the fall has a 95% chance of reaching *Level 3* proficiency or higher on the NC EOG test.

Table 3.8. *Level 3* Proficiency Projections based on RIT Scores—Reading

Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.
2	5	194	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	194	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	194	157	No	<0.01	166	No	<0.01	170	No	<0.01
	20	194	160	No	0.01	169	No	<0.01	173	No	<0.01
	25	194	162	No	0.01	171	No	<0.01	175	No	<0.01
	30	194	164	No	0.02	173	No	<0.01	177	No	<0.01
	35	194	166	No	0.03	175	No	<0.01	180	No	<0.01
	40	194	168	No	0.06	177	No	0.01	182	No	<0.01
	45	194	170	No	0.07	179	No	0.02	184	No	<0.01
	50	194	172	No	0.12	181	No	0.05	186	No	0.01
	55	194	174	No	0.18	183	No	0.10	188	No	0.03
	60	194	176	No	0.25	185	No	0.17	189	No	0.06
	65	194	178	No	0.35	187	No	0.29	192	No	0.27
	70	194	180	No	0.40	189	No	0.43	194	Yes	0.50
	75	194	183	Yes	0.55	191	Yes	0.57	196	Yes	0.73
	80	194	185	Yes	0.65	194	Yes	0.77	199	Yes	0.94
	85	194	188	Yes	0.75	197	Yes	0.90	202	Yes	0.99
	90	194	192	Yes	0.88	200	Yes	0.97	205	Yes	>0.99
	95	194	197	Yes	0.96	206	Yes	>0.99	211	Yes	>0.99

Reading												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.	
3	5	204	159	No	<0.01	167	No	<0.01	170	No	<0.01	
	10	204	165	No	<0.01	173	No	<0.01	176	No	<0.01	
	15	204	169	No	<0.01	177	No	<0.01	180	No	<0.01	
	20	204	173	No	0.01	180	No	<0.01	183	No	<0.01	
	25	204	175	No	0.01	183	No	<0.01	186	No	<0.01	
	30	204	178	No	0.03	185	No	<0.01	189	No	<0.01	
	35	204	180	No	0.04	188	No	0.01	191	No	<0.01	
	40	204	182	No	0.07	190	No	0.02	193	No	<0.01	
	45	204	185	No	0.14	192	No	0.05	195	No	<0.01	
	50	204	187	No	0.17	194	No	0.09	197	No	0.01	
	55	204	189	No	0.25	196	No	0.17	199	No	0.06	
	60	204	191	No	0.34	198	No	0.29	201	No	0.17	
	65	204	193	No	0.45	200	No	0.43	203	No	0.38	
	70	204	195	Yes	0.50	202	Yes	0.57	206	Yes	0.73	
	75	204	198	Yes	0.66	205	Yes	0.77	208	Yes	0.89	
	80	204	201	Yes	0.79	207	Yes	0.87	211	Yes	0.99	
	85	204	204	Yes	0.86	211	Yes	0.95	214	Yes	>0.99	
	90	204	208	Yes	0.95	215	Yes	0.99	218	Yes	>0.99	
	95	204	214	Yes	0.99	220	Yes	>0.99	224	Yes	>0.99	
4	5	209	169	No	<0.01	176	No	<0.01	178	No	<0.01	
	10	209	175	No	<0.01	182	No	<0.01	184	No	<0.01	
	15	209	179	No	<0.01	186	No	<0.01	188	No	<0.01	
	20	209	183	No	0.01	189	No	<0.01	191	No	<0.01	
	25	209	185	No	0.03	192	No	<0.01	194	No	<0.01	
	30	209	188	No	0.05	194	No	0.01	196	No	<0.01	
	35	209	190	No	0.08	196	No	0.03	199	No	<0.01	
	40	209	192	No	0.13	198	No	0.06	201	No	0.01	
	45	209	195	No	0.20	200	No	0.09	203	No	0.03	
	50	209	197	No	0.29	202	No	0.17	205	No	0.11	
	55	209	199	No	0.39	205	No	0.35	207	No	0.27	
	60	209	201	Yes	0.50	207	Yes	0.50	209	Yes	0.50	
	65	209	203	Yes	0.56	209	Yes	0.65	211	Yes	0.73	
	70	209	205	Yes	0.66	211	Yes	0.78	213	Yes	0.89	
	75	209	208	Yes	0.80	213	Yes	0.87	216	Yes	0.99	
	80	209	211	Yes	0.87	216	Yes	0.96	219	Yes	>0.99	
	85	209	214	Yes	0.94	219	Yes	0.99	222	Yes	>0.99	
	90	209	218	Yes	0.97	223	Yes	>0.99	226	Yes	>0.99	
	95	209	224	Yes	>0.99	229	Yes	>0.99	232	Yes	>0.99	

Reading												
			Fall			Winter			Spring			
	Start	Spring	Fall	Projected Proficiency		Winter	Projected Proficiency		Spring	Projected Proficiency		
Grade	%ile	Cut	RIT	*Level 3*	Prob.	RIT	*Level 3*	Prob.	RIT	*Level 3*	Prob.	
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	
6	5	219	183	No	<0.01	188	No	<0.01	189	No	<0.01	
	10	219	189	No	<0.01	193	No	<0.01	195	No	<0.01	
	15	219	193	No	<0.01	197	No	<0.01	199	No	<0.01	
	20	219	196	No	0.01	200	No	<0.01	202	No	<0.01	
	25	219	199	No	0.03	203	No	<0.01	205	No	<0.01	
	30	219	202	No	0.06	205	No	0.01	207	No	<0.01	
	35	219	204	No	0.10	208	No	0.04	209	No	<0.01	
	40	219	206	No	0.16	210	No	0.09	211	No	0.01	
	45	219	208	No	0.19	212	No	0.17	213	No	0.03	
	50	219	210	No	0.28	214	No	0.28	215	No	0.11	
	55	219	212	No	0.39	216	No	0.35	217	No	0.27	
	60	219	214	Yes	0.50	218	Yes	0.50	219	Yes	0.50	
	65	219	217	Yes	0.61	220	Yes	0.65	222	Yes	0.83	
	70	219	219	Yes	0.72	222	Yes	0.78	224	Yes	0.94	
	75	219	221	Yes	0.81	225	Yes	0.91	226	Yes	0.99	
	80	219	224	Yes	0.87	227	Yes	0.96	229	Yes	>0.99	
	85	219	227	Yes	0.94	230	Yes	0.99	232	Yes	>0.99	
	90	219	231	Yes	0.98	234	Yes	>0.99	236	Yes	>0.99	
	95	219	237	Yes	>0.99	240	Yes	>0.99	242	Yes	>0.99	

Reading												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.	
7	5	221	187	No	<0.01	190	No	<0.01	191	No	<0.01	
	10	221	193	No	<0.01	196	No	<0.01	197	No	<0.01	
	15	221	197	No	<0.01	200	No	<0.01	201	No	<0.01	
	20	221	200	No	0.02	203	No	<0.01	205	No	<0.01	
	25	221	203	No	0.03	206	No	0.01	207	No	<0.01	
	30	221	206	No	0.08	209	No	0.03	210	No	<0.01	
	35	221	208	No	0.12	211	No	0.06	212	No	<0.01	
	40	221	210	No	0.19	213	No	0.09	214	No	0.01	
	45	221	212	No	0.24	215	No	0.17	216	No	0.06	
	50	221	214	No	0.33	217	No	0.28	218	No	0.17	
	55	221	216	No	0.44	219	No	0.42	220	No	0.38	
	60	221	218	Yes	0.56	221	Yes	0.58	223	Yes	0.73	
	65	221	221	Yes	0.67	223	Yes	0.72	225	Yes	0.89	
	70	221	223	Yes	0.76	226	Yes	0.88	227	Yes	0.97	
	75	221	225	Yes	0.84	228	Yes	0.94	229	Yes	0.99	
	80	221	228	Yes	0.92	231	Yes	0.98	232	Yes	>0.99	
	85	221	231	Yes	0.96	234	Yes	>0.99	235	Yes	>0.99	
	90	221	235	Yes	0.99	238	Yes	>0.99	239	Yes	>0.99	
	95	221	241	Yes	>0.99	244	Yes	>0.99	245	Yes	>0.99	
8	5	224	190	No	<0.01	193	No	<0.01	194	No	<0.01	
	10	224	196	No	<0.01	199	No	<0.01	200	No	<0.01	
	15	224	200	No	0.01	203	No	<0.01	204	No	<0.01	
	20	224	204	No	0.02	206	No	<0.01	207	No	<0.01	
	25	224	207	No	0.05	209	No	0.01	210	No	<0.01	
	30	224	209	No	0.08	212	No	0.02	213	No	<0.01	
	35	224	211	No	0.11	214	No	0.04	215	No	<0.01	
	40	224	214	No	0.20	216	No	0.09	217	No	0.01	
	45	224	216	No	0.29	218	No	0.17	220	No	0.11	
	50	224	218	No	0.39	221	No	0.35	222	No	0.27	
	55	224	220	No	0.45	223	Yes	0.50	224	Yes	0.50	
	60	224	222	Yes	0.55	225	Yes	0.65	226	Yes	0.73	
	65	224	225	Yes	0.71	227	Yes	0.78	228	Yes	0.89	
	70	224	227	Yes	0.80	229	Yes	0.87	231	Yes	0.99	
	75	224	230	Yes	0.87	232	Yes	0.96	233	Yes	>0.99	
	80	224	232	Yes	0.92	235	Yes	0.99	236	Yes	>0.99	
	85	224	236	Yes	0.97	238	Yes	>0.99	239	Yes	>0.99	
	90	224	240	Yes	0.99	242	Yes	>0.99	243	Yes	>0.99	
	95	224	246	Yes	>0.99	248	Yes	>0.99	249	Yes	>0.99	

Table 3.9. *Level 3* Proficiency Projections based on RIT Scores—Mathematics

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.
2	5	186	154	No	0.01	163	No	<0.01	167	No	<0.01
	10	186	158	No	0.03	167	No	<0.01	172	No	<0.01
	15	186	162	No	0.11	171	No	0.03	175	No	<0.01
	20	186	164	No	0.14	173	No	0.07	178	No	<0.01
	25	186	166	No	0.22	175	No	0.15	180	No	0.02
	30	186	168	No	0.32	177	No	0.26	182	No	0.08
	35	186	170	No	0.44	179	No	0.42	184	No	0.25
	40	186	172	Yes	0.56	181	Yes	0.50	186	Yes	0.50
	45	186	173	Yes	0.62	182	Yes	0.58	188	Yes	0.75
	50	186	175	Yes	0.68	184	Yes	0.74	189	Yes	0.85
	55	186	177	Yes	0.78	186	Yes	0.85	191	Yes	0.96
	60	186	178	Yes	0.82	187	Yes	0.90	193	Yes	0.99
	65	186	180	Yes	0.89	189	Yes	0.95	195	Yes	>0.99
	70	186	182	Yes	0.94	191	Yes	0.98	196	Yes	>0.99
	75	186	184	Yes	0.97	193	Yes	0.99	198	Yes	>0.99
	80	186	186	Yes	0.98	195	Yes	>0.99	201	Yes	>0.99
	85	186	188	Yes	0.99	198	Yes	>0.99	203	Yes	>0.99
	90	186	192	Yes	>0.99	201	Yes	>0.99	207	Yes	>0.99
	95	186	196	Yes	>0.99	205	Yes	>0.99	212	Yes	>0.99
3	5	198	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	198	171	No	0.02	179	No	<0.01	183	No	<0.01
	15	198	175	No	0.05	182	No	0.01	186	No	<0.01
	20	198	177	No	0.10	185	No	0.04	189	No	<0.01
	25	198	179	No	0.17	187	No	0.10	192	No	0.02
	30	198	181	No	0.26	189	No	0.20	194	No	0.08
	35	198	183	No	0.37	191	No	0.33	196	No	0.25
	40	198	185	Yes	0.50	193	Yes	0.50	198	Yes	0.50
	45	198	187	Yes	0.63	195	Yes	0.67	199	Yes	0.63
	50	198	188	Yes	0.69	196	Yes	0.74	201	Yes	0.85
	55	198	190	Yes	0.79	198	Yes	0.86	203	Yes	0.96
	60	198	192	Yes	0.83	200	Yes	0.93	205	Yes	0.99
	65	198	194	Yes	0.90	201	Yes	0.96	207	Yes	>0.99
	70	198	196	Yes	0.95	203	Yes	0.98	208	Yes	>0.99
	75	198	198	Yes	0.97	205	Yes	0.99	211	Yes	>0.99
	80	198	200	Yes	0.99	208	Yes	>0.99	213	Yes	>0.99
	85	198	202	Yes	>0.99	210	Yes	>0.99	216	Yes	>0.99
	90	198	206	Yes	>0.99	214	Yes	>0.99	219	Yes	>0.99
	95	198	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99

Mathematics												
			Fall			Winter			Spring			
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency		
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.	
4	5	212	176	No	<0.01	182	No	<0.01	185	No	<0.01	
	10	212	181	No	<0.01	187	No	<0.01	191	No	<0.01	
	15	212	185	No	0.01	191	No	<0.01	194	No	<0.01	
	20	212	187	No	0.01	194	No	<0.01	197	No	<0.01	
	25	212	190	No	0.04	196	No	0.01	200	No	<0.01	
	30	212	192	No	0.07	198	No	0.02	202	No	<0.01	
	35	212	194	No	0.13	200	No	0.04	205	No	0.01	
	40	212	196	No	0.21	202	No	0.10	207	No	0.04	
	45	212	198	No	0.32	204	No	0.20	209	No	0.15	
	50	212	200	No	0.44	206	No	0.33	211	No	0.37	
	55	212	201	Yes	0.50	208	Yes	0.50	212	Yes	0.50	
	60	212	203	Yes	0.63	210	Yes	0.67	214	Yes	0.75	
	65	212	205	Yes	0.74	212	Yes	0.80	217	Yes	0.96	
	70	212	207	Yes	0.83	214	Yes	0.90	219	Yes	0.99	
	75	212	209	Yes	0.90	216	Yes	0.96	221	Yes	>0.99	
	80	212	212	Yes	0.96	219	Yes	0.99	224	Yes	>0.99	
	85	212	214	Yes	0.98	221	Yes	>0.99	227	Yes	>0.99	
	90	212	218	Yes	>0.99	225	Yes	>0.99	230	Yes	>0.99	
	95	212	223	Yes	>0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	219	184	No	<0.01	189	No	<0.01	191	No	<0.01	
	10	219	190	No	<0.01	194	No	<0.01	197	No	<0.01	
	15	219	193	No	<0.01	198	No	<0.01	201	No	<0.01	
	20	219	196	No	0.02	201	No	<0.01	205	No	<0.01	
	25	219	199	No	0.05	204	No	0.01	207	No	<0.01	
	30	219	201	No	0.11	206	No	0.03	210	No	<0.01	
	35	219	203	No	0.18	209	No	0.10	212	No	0.01	
	40	219	205	No	0.27	211	No	0.20	215	No	0.08	
	45	219	207	No	0.38	213	No	0.34	217	No	0.25	
	50	219	209	Yes	0.50	215	Yes	0.50	219	Yes	0.50	
	55	219	211	Yes	0.62	217	Yes	0.66	221	Yes	0.75	
	60	219	213	Yes	0.73	219	Yes	0.80	223	Yes	0.92	
	65	219	215	Yes	0.82	221	Yes	0.90	225	Yes	0.98	
	70	219	217	Yes	0.89	223	Yes	0.95	228	Yes	>0.99	
	75	219	219	Yes	0.94	225	Yes	0.98	230	Yes	>0.99	
	80	219	222	Yes	0.98	228	Yes	>0.99	233	Yes	>0.99	
	85	219	225	Yes	0.99	231	Yes	>0.99	236	Yes	>0.99	
	90	219	229	Yes	>0.99	235	Yes	>0.99	240	Yes	>0.99	
	95	219	234	Yes	>0.99	241	Yes	>0.99	246	Yes	>0.99	

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.
6	5	222	188	No	<0.01	192	No	<0.01	194	No	<0.01
	10	222	194	No	<0.01	198	No	<0.01	200	No	<0.01
	15	222	198	No	0.01	202	No	<0.01	205	No	<0.01
	20	222	201	No	0.02	205	No	<0.01	208	No	<0.01
	25	222	204	No	0.06	208	No	0.01	211	No	<0.01
	30	222	206	No	0.10	211	No	0.04	214	No	<0.01
	35	222	209	No	0.22	213	No	0.10	216	No	0.02
	40	222	211	No	0.32	215	No	0.20	218	No	0.08
	45	222	213	No	0.44	217	No	0.34	221	No	0.37
	50	222	215	Yes	0.56	220	Yes	0.58	223	Yes	0.63
	55	222	217	Yes	0.68	222	Yes	0.74	225	Yes	0.85
	60	222	219	Yes	0.78	224	Yes	0.86	227	Yes	0.96
	65	222	221	Yes	0.86	226	Yes	0.93	230	Yes	>0.99
	70	222	223	Yes	0.92	228	Yes	0.97	232	Yes	>0.99
	75	222	226	Yes	0.97	231	Yes	0.99	235	Yes	>0.99
	80	222	228	Yes	0.99	234	Yes	>0.99	238	Yes	>0.99
	85	222	231	Yes	>0.99	237	Yes	>0.99	241	Yes	>0.99
	90	222	235	Yes	>0.99	241	Yes	>0.99	245	Yes	>0.99
	95	222	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99
7	5	228	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	228	198	No	<0.01	201	No	<0.01	203	No	<0.01
	15	228	202	No	<0.01	205	No	<0.01	207	No	<0.01
	20	228	206	No	<0.01	209	No	<0.01	211	No	<0.01
	25	228	208	No	0.01	212	No	<0.01	214	No	<0.01
	30	228	211	No	0.04	215	No	0.02	217	No	<0.01
	35	228	213	No	0.07	217	No	0.04	220	No	<0.01
	40	228	216	No	0.17	219	No	0.10	222	No	0.02
	45	228	218	No	0.31	222	No	0.26	224	No	0.08
	50	228	220	No	0.44	224	No	0.42	227	No	0.37
	55	228	222	Yes	0.56	226	Yes	0.58	229	Yes	0.63
	60	228	225	Yes	0.74	229	Yes	0.80	231	Yes	0.85
	65	228	227	Yes	0.83	231	Yes	0.90	234	Yes	0.98
	70	228	229	Yes	0.90	233	Yes	0.96	236	Yes	>0.99
	75	228	232	Yes	0.96	236	Yes	0.99	239	Yes	>0.99
	80	228	235	Yes	0.99	239	Yes	>0.99	242	Yes	>0.99
	85	228	238	Yes	>0.99	243	Yes	>0.99	246	Yes	>0.99
	90	228	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99
	95	228	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		*Level 3*	Prob.		*Level 3*	Prob.
8	5	234	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	234	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	234	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	234	209	No	<0.01	212	No	<0.01	214	No	<0.01
	25	234	212	No	0.01	215	No	<0.01	217	No	<0.01
	30	234	215	No	0.03	218	No	<0.01	220	No	<0.01
	35	234	218	No	0.06	221	No	0.01	223	No	<0.01
	40	234	220	No	0.10	223	No	0.03	225	No	<0.01
	45	234	223	No	0.19	226	No	0.11	228	No	0.02
	50	234	225	No	0.28	228	No	0.20	230	No	0.08
	55	234	227	No	0.39	231	No	0.42	233	No	0.37
	60	234	230	Yes	0.56	233	Yes	0.58	235	Yes	0.63
	65	234	232	Yes	0.67	236	Yes	0.80	238	Yes	0.92
	70	234	235	Yes	0.81	238	Yes	0.89	241	Yes	0.99
	75	234	238	Yes	0.90	241	Yes	0.97	244	Yes	>0.99
	80	234	241	Yes	0.96	244	Yes	0.99	247	Yes	>0.99
	85	234	245	Yes	0.99	248	Yes	>0.99	251	Yes	>0.99
	90	234	249	Yes	>0.99	253	Yes	>0.99	256	Yes	>0.99
	95	234	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99

3.6. College-and-Career Readiness Projections

The North Carolina State Board of Education adopted the college-and-career readiness cut scores for the NC EOG assessments following a standard setting in July 2021 and July 2019 for reading and mathematics, respectively (North Carolina Department of Public Instruction, n.d.). Students are considered college and career ready if they score at a *Level 4* or *Level 5*. To assist partners in supporting students' progress toward meeting the college-and-career readiness standards, Table 3.10 and Table 3.11 present the estimated probability of achieving *Level 4* performance on the spring NC EOG test based on RIT scores from fall, winter, or spring.

Table 3.10. *Level 4* College-and-Career Readiness Projections based on RIT Scores—Reading

Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Probability		Winter RIT	Projected Probability		Spring RIT	Projected Probability	
				Level 4	Prob.		*Level 4*	Prob.		*Level 4*	Prob.
2	5	204	147	No	<0.01	156	No	<0.01	160	No	<0.01
	10	204	153	No	<0.01	162	No	<0.01	166	No	<0.01
	15	204	157	No	<0.01	166	No	<0.01	170	No	<0.01
	20	204	160	No	<0.01	169	No	<0.01	173	No	<0.01
	25	204	162	No	<0.01	171	No	<0.01	175	No	<0.01
	30	204	164	No	<0.01	173	No	<0.01	177	No	<0.01
	35	204	166	No	<0.01	175	No	<0.01	180	No	<0.01
	40	204	168	No	<0.01	177	No	<0.01	182	No	<0.01
	45	204	170	No	<0.01	179	No	<0.01	184	No	<0.01
	50	204	172	No	0.01	181	No	<0.01	186	No	<0.01
	55	204	174	No	0.01	183	No	<0.01	188	No	<0.01
	60	204	176	No	0.02	185	No	<0.01	189	No	<0.01
	65	204	178	No	0.04	187	No	0.01	192	No	<0.01
	70	204	180	No	0.06	189	No	0.02	194	No	<0.01
	75	204	183	No	0.12	191	No	0.05	196	No	0.01
	80	204	185	No	0.18	194	No	0.13	199	No	0.06
	85	204	188	No	0.25	197	No	0.29	202	No	0.27
	90	204	192	No	0.45	200	Yes	0.50	205	Yes	0.62
	95	204	197	Yes	0.65	206	Yes	0.87	211	Yes	0.99
3	5	212	159	No	<0.01	167	No	<0.01	170	No	<0.01
	10	212	165	No	<0.01	173	No	<0.01	176	No	<0.01
	15	212	169	No	<0.01	177	No	<0.01	180	No	<0.01
	20	212	173	No	<0.01	180	No	<0.01	183	No	<0.01
	25	212	175	No	<0.01	183	No	<0.01	186	No	<0.01
	30	212	178	No	<0.01	185	No	<0.01	189	No	<0.01
	35	212	180	No	<0.01	188	No	<0.01	191	No	<0.01
	40	212	182	No	0.01	190	No	<0.01	193	No	<0.01
	45	212	185	No	0.02	192	No	<0.01	195	No	<0.01
	50	212	187	No	0.02	194	No	<0.01	197	No	<0.01
	55	212	189	No	0.04	196	No	0.01	199	No	<0.01
	60	212	191	No	0.07	198	No	0.02	201	No	<0.01
	65	212	193	No	0.11	200	No	0.05	203	No	<0.01
	70	212	195	No	0.14	202	No	0.09	206	No	0.03
	75	212	198	No	0.25	205	No	0.23	208	No	0.11
	80	212	201	No	0.39	207	No	0.35	211	No	0.38
	85	212	204	Yes	0.50	211	Yes	0.57	214	Yes	0.73
	90	212	208	Yes	0.70	215	Yes	0.83	218	Yes	0.97
	95	212	214	Yes	0.89	220	Yes	0.97	224	Yes	>0.99

Reading												
			Fall			Winter			Spring			
				Projected Probability			Projected Probability			Projected Probability		
Grade	Start %ile	Spring Cut	Fall RIT	*Level 4*	Prob.	Winter RIT	*Level 4*	Prob.	Spring RIT	*Level 4*	Prob.	
4	5	215	169	No	<0.01	176	No	<0.01	178	No	<0.01	
	10	215	175	No	<0.01	182	No	<0.01	184	No	<0.01	
	15	215	179	No	<0.01	186	No	<0.01	188	No	<0.01	
	20	215	183	No	<0.01	189	No	<0.01	191	No	<0.01	
	25	215	185	No	<0.01	192	No	<0.01	194	No	<0.01	
	30	215	188	No	0.01	194	No	<0.01	196	No	<0.01	
	35	215	190	No	0.01	196	No	<0.01	199	No	<0.01	
	40	215	192	No	0.03	198	No	<0.01	201	No	<0.01	
	45	215	195	No	0.05	200	No	0.01	203	No	<0.01	
	50	215	197	No	0.08	202	No	0.02	205	No	<0.01	
	55	215	199	No	0.13	205	No	0.06	207	No	0.01	
	60	215	201	No	0.20	207	No	0.13	209	No	0.03	
	65	215	203	No	0.24	209	No	0.22	211	No	0.11	
	70	215	205	No	0.34	211	No	0.35	213	No	0.27	
	75	215	208	Yes	0.50	213	Yes	0.50	216	Yes	0.62	
	80	215	211	Yes	0.61	216	Yes	0.72	219	Yes	0.89	
	85	215	214	Yes	0.76	219	Yes	0.87	222	Yes	0.99	
	90	215	218	Yes	0.87	223	Yes	0.96	226	Yes	>0.99	
	95	215	224	Yes	0.97	229	Yes	>0.99	232	Yes	>0.99	
5	5	221	178	No	<0.01	183	No	<0.01	185	No	<0.01	
	10	221	183	No	<0.01	189	No	<0.01	191	No	<0.01	
	15	221	187	No	<0.01	193	No	<0.01	194	No	<0.01	
	20	221	191	No	<0.01	196	No	<0.01	198	No	<0.01	
	25	221	193	No	<0.01	198	No	<0.01	200	No	<0.01	
	30	221	196	No	0.01	201	No	<0.01	203	No	<0.01	
	35	221	198	No	0.01	203	No	<0.01	205	No	<0.01	
	40	221	200	No	0.03	205	No	<0.01	207	No	<0.01	
	45	221	202	No	0.05	207	No	0.01	209	No	<0.01	
	50	221	204	No	0.08	209	No	0.03	211	No	<0.01	
	55	221	207	No	0.13	211	No	0.06	213	No	0.01	
	60	221	209	No	0.20	213	No	0.13	215	No	0.03	
	65	221	211	No	0.29	215	No	0.22	217	No	0.11	
	70	221	213	No	0.34	217	No	0.28	219	No	0.27	
	75	221	216	Yes	0.50	220	Yes	0.50	222	Yes	0.62	
	80	221	218	Yes	0.61	222	Yes	0.65	224	Yes	0.83	
	85	221	221	Yes	0.71	226	Yes	0.87	228	Yes	0.99	
	90	221	225	Yes	0.87	229	Yes	0.96	231	Yes	>0.99	
	95	221	231	Yes	0.96	235	Yes	>0.99	237	Yes	>0.99	

Reading											
			Fall			Winter			Spring		
				Projected Probability			Projected Probability			Projected Probability	
Grade	Start %ile	Spring Cut	Fall RIT	*Level 4*	Prob.	Winter RIT	*Level 4*	Prob.	Spring RIT	*Level 4*	Prob.
6	5	227	183	No	<0.01	188	No	<0.01	189	No	<0.01
	10	227	189	No	<0.01	193	No	<0.01	195	No	<0.01
	15	227	193	No	<0.01	197	No	<0.01	199	No	<0.01
	20	227	196	No	<0.01	200	No	<0.01	202	No	<0.01
	25	227	199	No	<0.01	203	No	<0.01	205	No	<0.01
	30	227	202	No	<0.01	205	No	<0.01	207	No	<0.01
	35	227	204	No	0.01	208	No	<0.01	209	No	<0.01
	40	227	206	No	0.02	210	No	<0.01	211	No	<0.01
	45	227	208	No	0.02	212	No	0.01	213	No	<0.01
	50	227	210	No	0.04	214	No	0.02	215	No	<0.01
	55	227	212	No	0.08	216	No	0.03	217	No	<0.01
	60	227	214	No	0.13	218	No	0.06	219	No	0.01
	65	227	217	No	0.19	220	No	0.12	222	No	0.06
	70	227	219	No	0.28	222	No	0.22	224	No	0.17
	75	227	221	No	0.39	225	No	0.42	226	No	0.38
	80	227	224	Yes	0.50	227	Yes	0.58	229	Yes	0.73
	85	227	227	Yes	0.67	230	Yes	0.78	232	Yes	0.94
	90	227	231	Yes	0.84	234	Yes	0.94	236	Yes	>0.99
	95	227	237	Yes	0.96	240	Yes	>0.99	242	Yes	>0.99
7	5	229	187	No	<0.01	190	No	<0.01	191	No	<0.01
	10	229	193	No	<0.01	196	No	<0.01	197	No	<0.01
	15	229	197	No	<0.01	200	No	<0.01	201	No	<0.01
	20	229	200	No	<0.01	203	No	<0.01	205	No	<0.01
	25	229	203	No	<0.01	206	No	<0.01	207	No	<0.01
	30	229	206	No	<0.01	209	No	<0.01	210	No	<0.01
	35	229	208	No	0.01	211	No	<0.01	212	No	<0.01
	40	229	210	No	0.02	213	No	<0.01	214	No	<0.01
	45	229	212	No	0.03	215	No	0.01	216	No	<0.01
	50	229	214	No	0.06	217	No	0.02	218	No	<0.01
	55	229	216	No	0.10	219	No	0.04	220	No	<0.01
	60	229	218	No	0.16	221	No	0.09	223	No	0.03
	65	229	221	No	0.24	223	No	0.17	225	No	0.11
	70	229	223	No	0.33	226	No	0.35	227	No	0.27
	75	229	225	No	0.44	228	Yes	0.50	229	Yes	0.50
	80	229	228	Yes	0.61	231	Yes	0.72	232	Yes	0.83
	85	229	231	Yes	0.72	234	Yes	0.88	235	Yes	0.97
	90	229	235	Yes	0.88	238	Yes	0.97	239	Yes	>0.99
	95	229	241	Yes	0.98	244	Yes	>0.99	245	Yes	>0.99

Reading											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Probability		Winter RIT	Projected Probability		Spring RIT	Projected Probability	
				Level 4	Prob.		*Level 4*	Prob.		*Level 4*	Prob.
8	5	233	190	No	<0.01	193	No	<0.01	194	No	<0.01
	10	233	196	No	<0.01	199	No	<0.01	200	No	<0.01
	15	233	200	No	<0.01	203	No	<0.01	204	No	<0.01
	20	233	204	No	<0.01	206	No	<0.01	207	No	<0.01
	25	233	207	No	<0.01	209	No	<0.01	210	No	<0.01
	30	233	209	No	<0.01	212	No	<0.01	213	No	<0.01
	35	233	211	No	0.01	214	No	<0.01	215	No	<0.01
	40	233	214	No	0.02	216	No	<0.01	217	No	<0.01
	45	233	216	No	0.04	218	No	<0.01	220	No	<0.01
	50	233	218	No	0.06	221	No	0.02	222	No	<0.01
	55	233	220	No	0.08	223	No	0.04	224	No	<0.01
	60	233	222	No	0.13	225	No	0.09	226	No	0.01
	65	233	225	No	0.24	227	No	0.17	228	No	0.06
	70	233	227	No	0.34	229	No	0.28	231	No	0.27
	75	233	230	No	0.45	232	Yes	0.50	233	Yes	0.50
	80	233	232	Yes	0.55	235	Yes	0.72	236	Yes	0.83
	85	233	236	Yes	0.76	238	Yes	0.87	239	Yes	0.97
	90	233	240	Yes	0.89	242	Yes	0.97	243	Yes	>0.99
	95	233	246	Yes	0.98	248	Yes	>0.99	249	Yes	>0.99

Table 3.11. *Level 4* College-and-Career Readiness Projections based on RIT Scores—Mathematics

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Probability		Winter RIT	Projected Probability		Spring RIT	Projected Probability	
				Level 4	Prob.		*Level 4*	Prob.		*Level 4*	Prob.
2	5	195	154	No	<0.01	163	No	<0.01	167	No	<0.01
	10	195	158	No	<0.01	167	No	<0.01	172	No	<0.01
	15	195	162	No	<0.01	171	No	<0.01	175	No	<0.01
	20	195	164	No	0.01	173	No	<0.01	178	No	<0.01
	25	195	166	No	0.01	175	No	<0.01	180	No	<0.01
	30	195	168	No	0.03	177	No	0.01	182	No	<0.01
	35	195	170	No	0.06	179	No	0.02	184	No	<0.01
	40	195	172	No	0.11	181	No	0.03	186	No	<0.01
	45	195	173	No	0.14	182	No	0.05	188	No	0.01
	50	195	175	No	0.18	184	No	0.10	189	No	0.02
	55	195	177	No	0.27	186	No	0.20	191	No	0.08
	60	195	178	No	0.32	187	No	0.26	193	No	0.25
	65	195	180	No	0.44	189	No	0.42	195	Yes	0.50
	70	195	182	Yes	0.56	191	Yes	0.58	196	Yes	0.63
	75	195	184	Yes	0.68	193	Yes	0.74	198	Yes	0.85
	80	195	186	Yes	0.73	195	Yes	0.85	201	Yes	0.98
	85	195	188	Yes	0.82	198	Yes	0.95	203	Yes	>0.99
	90	195	192	Yes	0.94	201	Yes	0.99	207	Yes	>0.99
	95	195	196	Yes	0.98	205	Yes	>0.99	212	Yes	>0.99
3	5	206	166	No	<0.01	174	No	<0.01	178	No	<0.01
	10	206	171	No	<0.01	179	No	<0.01	183	No	<0.01
	15	206	175	No	<0.01	182	No	<0.01	186	No	<0.01
	20	206	177	No	<0.01	185	No	<0.01	189	No	<0.01
	25	206	179	No	0.01	187	No	<0.01	192	No	<0.01
	30	206	181	No	0.03	189	No	0.01	194	No	<0.01
	35	206	183	No	0.05	191	No	0.02	196	No	<0.01
	40	206	185	No	0.10	193	No	0.04	198	No	<0.01
	45	206	187	No	0.17	195	No	0.10	199	No	0.01
	50	206	188	No	0.21	196	No	0.14	201	No	0.04
	55	206	190	No	0.31	198	No	0.26	203	No	0.15
	60	206	192	No	0.37	200	No	0.42	205	No	0.37
	65	206	194	Yes	0.50	201	Yes	0.50	207	Yes	0.63
	70	206	196	Yes	0.63	203	Yes	0.67	208	Yes	0.75
	75	206	198	Yes	0.74	205	Yes	0.80	211	Yes	0.96
	80	206	200	Yes	0.83	208	Yes	0.93	213	Yes	0.99
	85	206	202	Yes	0.90	210	Yes	0.97	216	Yes	>0.99
	90	206	206	Yes	0.97	214	Yes	0.99	219	Yes	>0.99
	95	206	211	Yes	>0.99	219	Yes	>0.99	224	Yes	>0.99

Mathematics												
			Fall			Winter			Spring			
	Start	Spring	Fall	Projected Probability		Winter	Projected Probability		Spring	Projected Probability		
Grade	%ile	Cut	RIT	*Level 4*	Prob.	RIT	*Level 4*	Prob.	RIT	*Level 4*	Prob.	
4	5	218	176	No	<0.01	182	No	<0.01	185	No	<0.01	
	10	218	181	No	<0.01	187	No	<0.01	191	No	<0.01	
	15	218	185	No	<0.01	191	No	<0.01	194	No	<0.01	
	20	218	187	No	<0.01	194	No	<0.01	197	No	<0.01	
	25	218	190	No	<0.01	196	No	<0.01	200	No	<0.01	
	30	218	192	No	0.01	198	No	<0.01	202	No	<0.01	
	35	218	194	No	0.02	200	No	<0.01	205	No	<0.01	
	40	218	196	No	0.04	202	No	0.01	207	No	<0.01	
	45	218	198	No	0.07	204	No	0.02	209	No	<0.01	
	50	218	200	No	0.13	206	No	0.04	211	No	0.01	
	55	218	201	No	0.17	208	No	0.10	212	No	0.02	
	60	218	203	No	0.26	210	No	0.20	214	No	0.08	
	65	218	205	No	0.37	212	No	0.33	217	No	0.37	
	70	218	207	Yes	0.50	214	Yes	0.50	219	Yes	0.63	
	75	218	209	Yes	0.63	216	Yes	0.67	221	Yes	0.85	
	80	218	212	Yes	0.79	219	Yes	0.86	224	Yes	0.98	
	85	218	214	Yes	0.87	221	Yes	0.93	227	Yes	>0.99	
	90	218	218	Yes	0.96	225	Yes	0.99	230	Yes	>0.99	
	95	218	223	Yes	0.99	231	Yes	>0.99	236	Yes	>0.99	
5	5	227	184	No	<0.01	189	No	<0.01	191	No	<0.01	
	10	227	190	No	<0.01	194	No	<0.01	197	No	<0.01	
	15	227	193	No	<0.01	198	No	<0.01	201	No	<0.01	
	20	227	196	No	<0.01	201	No	<0.01	205	No	<0.01	
	25	227	199	No	<0.01	204	No	<0.01	207	No	<0.01	
	30	227	201	No	0.01	206	No	<0.01	210	No	<0.01	
	35	227	203	No	0.02	209	No	<0.01	212	No	<0.01	
	40	227	205	No	0.03	211	No	0.01	215	No	<0.01	
	45	227	207	No	0.06	213	No	0.02	217	No	<0.01	
	50	227	209	No	0.11	215	No	0.05	219	No	<0.01	
	55	227	211	No	0.18	217	No	0.10	221	No	0.02	
	60	227	213	No	0.27	219	No	0.20	223	No	0.08	
	65	227	215	No	0.38	221	No	0.34	225	No	0.25	
	70	227	217	Yes	0.50	223	Yes	0.50	228	Yes	0.63	
	75	227	219	Yes	0.62	225	Yes	0.66	230	Yes	0.85	
	80	227	222	Yes	0.78	228	Yes	0.85	233	Yes	0.98	
	85	227	225	Yes	0.89	231	Yes	0.95	236	Yes	>0.99	
	90	227	229	Yes	0.97	235	Yes	0.99	240	Yes	>0.99	
	95	227	234	Yes	>0.99	241	Yes	>0.99	246	Yes	>0.99	

Mathematics												
			Fall			Winter			Spring			
	Start	Spring	Fall	Projected Probability		Winter	Projected Probability		Spring	Projected Probability		
Grade	%ile	Cut	RIT	*Level 4*	Prob.	RIT	*Level 4*	Prob.	RIT	*Level 4*	Prob.	
6	5	230	188	No	<0.01	192	No	<0.01	194	No	<0.01	
	10	230	194	No	<0.01	198	No	<0.01	200	No	<0.01	
	15	230	198	No	<0.01	202	No	<0.01	205	No	<0.01	
	20	230	201	No	<0.01	205	No	<0.01	208	No	<0.01	
	25	230	204	No	<0.01	208	No	<0.01	211	No	<0.01	
	30	230	206	No	0.01	211	No	<0.01	214	No	<0.01	
	35	230	209	No	0.02	213	No	<0.01	216	No	<0.01	
	40	230	211	No	0.04	215	No	0.01	218	No	<0.01	
	45	230	213	No	0.08	217	No	0.02	221	No	<0.01	
	50	230	215	No	0.14	220	No	0.07	223	No	0.01	
	55	230	217	No	0.22	222	No	0.14	225	No	0.04	
	60	230	219	No	0.32	224	No	0.26	227	No	0.15	
	65	230	221	No	0.44	226	No	0.42	230	Yes	0.50	
	70	230	223	Yes	0.56	228	Yes	0.58	232	Yes	0.75	
	75	230	226	Yes	0.73	231	Yes	0.80	235	Yes	0.96	
	80	230	228	Yes	0.83	234	Yes	0.93	238	Yes	>0.99	
	85	230	231	Yes	0.92	237	Yes	0.98	241	Yes	>0.99	
	90	230	235	Yes	0.98	241	Yes	>0.99	245	Yes	>0.99	
	95	230	241	Yes	>0.99	247	Yes	>0.99	252	Yes	>0.99	
7	5	235	192	No	<0.01	194	No	<0.01	196	No	<0.01	
	10	235	198	No	<0.01	201	No	<0.01	203	No	<0.01	
	15	235	202	No	<0.01	205	No	<0.01	207	No	<0.01	
	20	235	206	No	<0.01	209	No	<0.01	211	No	<0.01	
	25	235	208	No	<0.01	212	No	<0.01	214	No	<0.01	
	30	235	211	No	<0.01	215	No	<0.01	217	No	<0.01	
	35	235	213	No	<0.01	217	No	<0.01	220	No	<0.01	
	40	235	216	No	0.02	219	No	<0.01	222	No	<0.01	
	45	235	218	No	0.05	222	No	0.02	224	No	<0.01	
	50	235	220	No	0.10	224	No	0.04	227	No	<0.01	
	55	235	222	No	0.17	226	No	0.10	229	No	0.02	
	60	235	225	No	0.31	229	No	0.26	231	No	0.08	
	65	235	227	No	0.44	231	No	0.42	234	No	0.37	
	70	235	229	Yes	0.56	233	Yes	0.58	236	Yes	0.63	
	75	235	232	Yes	0.74	236	Yes	0.80	239	Yes	0.92	
	80	235	235	Yes	0.87	239	Yes	0.93	242	Yes	0.99	
	85	235	238	Yes	0.95	243	Yes	0.99	246	Yes	>0.99	
	90	235	243	Yes	0.99	247	Yes	>0.99	251	Yes	>0.99	
	95	235	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	

Mathematics											
			Fall			Winter			Spring		
Grade	Start %ile	Spring Cut	Fall RIT	Projected Probability		Winter RIT	Projected Probability		Spring RIT	Projected Probability	
				Level 4	Prob.		*Level 4*	Prob.		*Level 4*	Prob.
8	5	242	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	242	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	242	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	242	209	No	<0.01	212	No	<0.01	214	No	<0.01
	25	242	212	No	<0.01	215	No	<0.01	217	No	<0.01
	30	242	215	No	<0.01	218	No	<0.01	220	No	<0.01
	35	242	218	No	<0.01	221	No	<0.01	223	No	<0.01
	40	242	220	No	0.01	223	No	<0.01	225	No	<0.01
	45	242	223	No	0.02	226	No	<0.01	228	No	<0.01
	50	242	225	No	0.04	228	No	0.01	230	No	<0.01
	55	242	227	No	0.07	231	No	0.03	233	No	<0.01
	60	242	230	No	0.16	233	No	0.07	235	No	0.01
	65	242	232	No	0.24	236	No	0.20	238	No	0.08
	70	242	235	No	0.39	238	No	0.34	241	No	0.37
	75	242	238	Yes	0.56	241	Yes	0.58	244	Yes	0.75
	80	242	241	Yes	0.72	244	Yes	0.80	247	Yes	0.96
	85	242	245	Yes	0.88	248	Yes	0.95	251	Yes	>0.99
	90	242	249	Yes	0.96	253	Yes	>0.99	256	Yes	>0.99
	95	242	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99

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