Predicting Proficiency on the Michigan State Assessment System Based on NWEA MAP Growth Scores

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NWEA Psychometrics and Analytics

Linking Study Updates

Date	Description
2012-04	Initial linking study conducted for Michigan mathematics and reading using Spring 2011 data.
2016-12	Updated linking study using Spring 2016 data for mathematics & ELA in grades 3–8.
2020-12-22	Incorporated the 2020 MAP Growth norms using Spring 2019 data for mathematics & ELA/reading in grades 3–8.
2023-05-24	Updated linking study results for science in grades 5 and 8 using Spring 2022 data to provide MAP Growth cut scores corresponding to the new M-STEP science summative assessment administered for the first operational test in Spring 2022. Removed the "Read by Grade 3 Program" section because the retention law was recently repealed.
2025-07	Updated the linking study based on the 2025 norms.

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Executive Summary

Linking studies allow partners to use MAP® Growth™ Rasch Unit (RIT) scores throughout the year to predict their students' likely performance levels on the state summative assessment. This is accomplished through statistical analyses that produce RIT cut scores that correspond to state summative performance levels. A "cut score" is the minimum score a student must get on a test to be placed in a certain performance level. The linking study for the Michigan state assessment system described in this report provides RIT cut scores for the fall, winter, and spring MAP Growth administrations that correspond to performance levels for the Michigan Student Test of Education Progress (M-STEP) for mathematics and English language arts (ELA)/reading in grades 3–7 and PSAT™ 8/9 in grade 8 and for M-STEP science in grades 5 and 8.

The linking study is based on test scores from students who took both the MAP Growth and the Michigan state assessments in mathematics and ELA/reading in Spring 2019 and science in Spring 2022 for the targeted grades. The linking study sample for mathematics and ELA/reading in 2019 included 44,013 students across 37 districts and 153 schools in Michigan, and the linking study sample for science in 2022 included 4,759 students across 27 districts and 55 schools in Michigan. Scores from the state and MAP Growth tests were used as the basis for linking the two assessments together.

Before the linking analyses began, NWEA confirmed that the MAP Growth and Michigan's state assessments were aligned on the same or similar set of content standards to warrant a connection. The link between the two tests was further investigated by calculating the Pearson correlation coefficients that describe the relationship between the specific MAP Growth and M-STEP or PSAT test scores. NWEA considers a correlation of $r \geq 0.70$ as "high" correlation and acceptable for publishing. This indicates that students who perform well on one assessment also tend to perform well on the other, and vice versa. A perfect positive correlation is 1.00. The correlations between the MAP Growth and Michigan's state test scores from Spring 2019 and Spring 2022, as shown in Figure E.1, are consistent with our expectations that MAP Growth is a good assessment for predicting performance on Michigan's state assessments.

Figure E.1. Correlations Between MAP Growth and Michigan's State Test Scores
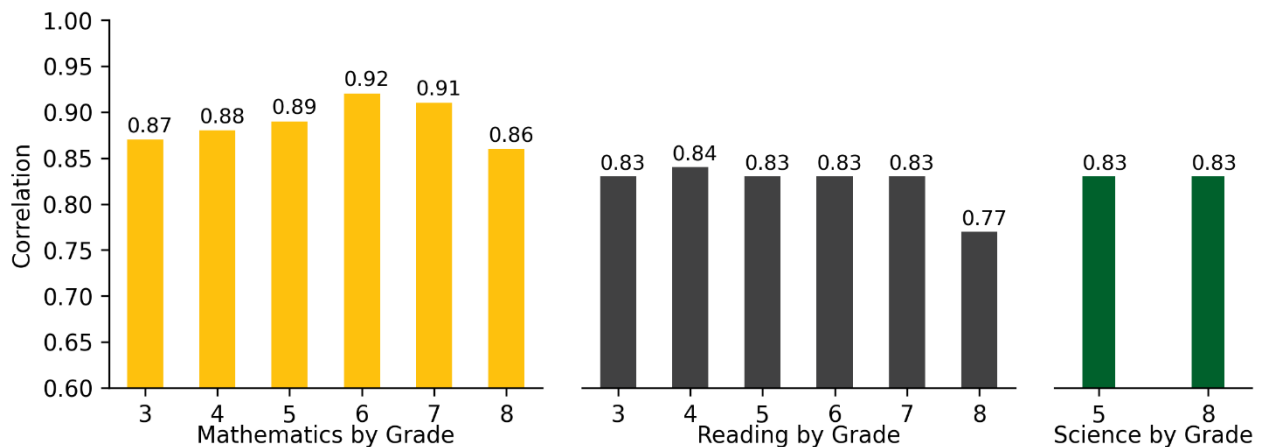
The equipercentile linking method (Kolen & Brennan, 2004) was used to produce the RIT cut scores for the spring administration that correspond to performance levels on the M-STEP or PSAT assessments for every subject and grade. MAP Growth cut scores for grade 2, as well as those for the fall and winter administrations of all grades, are also provided so that educators can track early learners' progress toward proficiency on the M-STEP test by grade 3, alongside all other students, early in the year. These cut scores were derived from the spring cuts[1] and the growth norms for the adjacent grades (i.e., grades 2 to 3), or fall and winter administrations to the spring administration. This linking study has been updated since the previous version to incorporate the most recent 2025 NWEA MAP Growth norms (NWEA, 2025). While RIT cut scores were generated for every performance level on Michigan's state assessment, Table E.1 presents the *Proficient* cut scores that indicate the minimum score a student must get to be considered *Proficient* or higher.

Table E.1. MAP Growth RIT Cut Scores for Michigan's State Assessment Proficiency

Assessment		*Proficient* Cut Scores by Grade						
		2	3	4	5	6	7	8
Mathematics								
M-STEP/PSAT Spring		–	1300	1400	1500	1600	1700	430
MAP Growth Mathematics	Fall	181	191	207	220	221	228	231
	Winter	190	200	215	226	228	233	235
	Spring	195	206	220	230	232	235	238
ELA/Reading								
M-STEP/PSAT Spring		–	1300	1400	1500	1600	1700	390
MAP Growth Reading	Fall	182	195	204	210	218	221	222
	Winter	188	200	207	213	219	222	223
	Spring	192	203	209	214	220	223	224
Science								
M-STEP Spring		–	–	–	1500	–	–	1800
MAP Growth Science	Fall	–	–	–	206	–	–	218
	Winter	–	–	–	209	–	–	219
	Spring	–	–	–	211	–	–	220

Note. Data for grade 8 in mathematics and ELA/reading are from the PSAT 8/9.

Educators can use these cut scores to determine whether students are on track for proficiency (*Proficient* or higher) on the state assessment. For example, the *Proficient* cut score on the grade 3 M-STEP mathematics test is 1300. A grade 3 student with a MAP Growth mathematics RIT score of 191 in the fall is likely to meet proficiency on the M-STEP mathematics test in the

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[1] To enhance content validity, NWEA developed an Enhanced Item-Selection Algorithm (EISA) for the MAP Growth assessment to prioritize grade-level content. A pilot study (Meyer et al., 2023) showed that students taking MAP Growth with EISA demonstrated higher average math scores compared with those taking traditional MAP Growth. To improve score comparability, NWEA (Lewis & Kuhfeld, 2024) developed concordance tables to adjust mathematics scores from traditional assessments to align with scores from MAP Growth with EISA, or vice versa. Given that the data for this study were collected from traditional MAP Growth tests but that the results will be used for MAP Growth with EISA, the spring cuts for mathematics were adjusted using the concordance tables before being used to derive other cut scores. This score adjustment will become unnecessary for future linking studies once the new data from EISA tests are collected.

spring, whereas a grade 3 student with a RIT score lower than 191 in the fall is in jeopardy of not meeting proficiency. MAP Growth cut scores for grade 2 are also provided so that educators can track early learners' progress toward proficiency on the M-STEP assessment by grade 3.

As further evidence that MAP Growth scores can be used to predict students' proficiency (*Proficient* or higher) on the state test, NWEA calculated classification accuracy statistics that show how well the RIT scores can correctly classify, or predict, students as proficient on the state tests.[2] For example, the grade 3 MAP Growth mathematics cut score correctly classified students' proficiency on the M-STEP mathematics test 86% of the time. A high statistic indicates high accuracy. Overall, MAP Growth scores have a high accuracy rate of identifying student proficiency on the M-STEP or PSAT tests, as illustrated in Figure E.2.

Figure E.2. Accuracy of MAP Growth Classifications
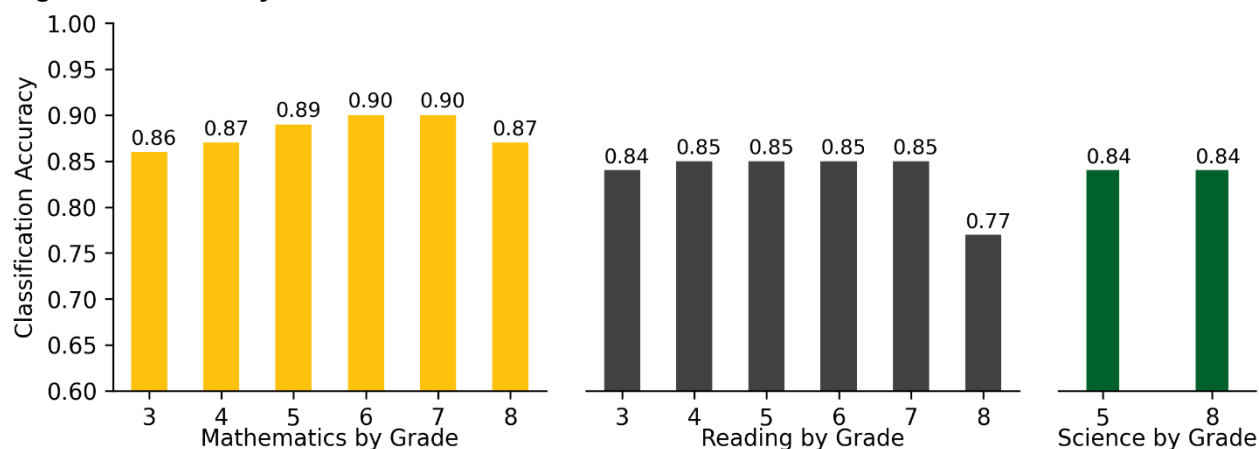
Note. Data for grade 8 in mathematics and ELA/reading are from the PSAT 8/9.

Please note that the purpose of this report is to explain NWEA's linking study methodology. It is not meant as the main reference for determining a student's likely performance on the state summative assessments. The cut scores 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), whereas instructional weeks often vary by district. The cut scores in this report may therefore differ from the results in the NWEA reporting system that reflect the specific instructional weeks set by partners. Partners should therefore reference their MAP Growth score reports instead.

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[2] The classification accuracy calculations for the mathematics spring cuts were based on the concorded cut scores.

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 report presents results from a linking study conducted by NWEA to statistically connect Rasch Unit (RIT) scores from the MAP Growth assessments with scores from the Michigan state assessment system, including the Michigan Student Test of Education Progress (M-STEP) for mathematics and English language arts (ELA)/reading in grades 3–7 and PSAT™ 8/9 in grade 8 taken during the Spring 2019 term and for M-STEP science in grades 5 and 8 taken during the Spring 2022 term. MAP Growth cut scores are also included for grade 2 in mathematics and ELA/reading so that educators can track early learners' progress toward proficiency on the M-STEP 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 on the spring Michigan state assessments
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the Michigan state assessments
5. The probability of achieving grade-level proficiency on the Michigan state assessments based on MAP Growth RIT scores from fall, winter, and spring

The linking study has been updated since the previous version to incorporate the most recent NWEA MAP Growth norms in 2025 (NWEA, 2025).

1.2. Assessment Overview

The M-STEP assessments are administered to students in grades 3–7 for mathematics and ELA/reading and in grades 5 and 8 for science to measure their knowledge of Michigan's academic standards. The PSAT 8/9 measures performance in grade 8 for mathematics and ELA/reading. Based on their test scores, students are placed into one of four performance levels: *Not Proficient*, *Partially Proficient*, *Proficient*, and *Advanced*. The *Proficient* cut score demarks the minimum level of achievement considered to be proficient for accountability purposes.

MAP Growth tests are adaptive interim assessments aligned to state-specific content standards and administered in the fall, winter, and spring. Scores are reported on the RIT vertical scale with a range of 100 to 350. NWEA conducts norming studies of student and school performance on MAP Growth assessments to aid the interpretation of scores. Growth norms provide expected score gains for a test from term to term, such as from fall to spring terms. The most recent norms study was conducted in 2025 (NWEA, 2025).

2. Methods

2.1. Data Collection

This linking study is based on data from the Spring 2019 administrations of the MAP Growth and M-STEP or PSAT mathematics and ELA/reading assessments and Spring 2022 administrations of the MAP Growth and M-STEP science assessments. NWEA requested that Michigan districts recruited to participate in the study share their student and score data for the target term. Districts also permitted NWEA to access students' MAP Growth scores from the NWEA in-house database. Once state score information was available to 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 Michigan's state assessments in Spring 2019 for mathematics and ELA/reading or Spring 2022 for science 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 available in state summative assessment reports. The weighted sample will match the target population as closely as possible for 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 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. Apply the weights to the sample before conducting the linking study analyses.

2.3. Descriptive Statistics

Descriptive statistics are provided to summarize the test scores for both the MAP Growth and Michigan's state assessments, including the test score mean, standard deviation (SD), minimum, and maximum. The mean presents the average test scores across all students in the study sample, and the SD indicates the variability of test scores, revealing how students' scores are distributed around the average score, or mean. Correlation coefficients between the MAP Growth RIT scores and Michigan's state test scores are also provided to answer the question "How well do the test scores from MAP Growth (that reference the RIT scale) correlate to the scores obtained from the Michigan state tests (that reference some other scale) in the same subject?" The correlations were calculated as:

$$r = \frac{\sum (x_i - \overline{x})(y_i - \overline{y})}{\sqrt{\sum (x_i - \overline{x})^2 \sum (y_i - \overline{y})^2}}$$

where r is the correlation coefficient, x_i and y_i are the values of the *x*- and *y*-variables in a sample, and $\bar{x}$ and $\bar{y}$ are the mean of the values of the *x*- and *y*-variables.

2.4. MAP Growth Cut Scores

MAP Growth cut scores that predict student achievement on the Michigan assessments are reported for grades 3–8, as well as for grade 2 so that educators can track early learners' progress toward proficiency on the M-STEP test by grade 3. Percentile ranks based on the most recent NWEA norms are also provided. These are useful for understanding how students' scores compare with peers nationwide and the relative rigor of a state's performance 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 Michigan state summative assessment performance 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., Michigan's state assessment). 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 as:

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

where $e_y(x)$ is the equipercentile equivalent of score x on Michigan's state assessments on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on Michigan's state assessments, 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 3–8. The equation below was used to determine the previous term's MAP Growth score needed to reach the spring cut score, considering the expected growth associated with the previous RIT score:

$$RIT_{PredSpring} = RIT_{previous} + g$$

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

Students do not take the M-STEP assessment in grade 2. Therefore, the MAP Growth conditional growth norms were also used to estimate the fall, winter, and spring cuts in grade 2 that are needed to meet M-STEP proficiency (*Proficient* or higher) in grade 3. To derive the grade 2 spring cut scores, the growth score from spring of one year to the next was used (i.e., the growth score from spring of grade 2 to spring of grade 3). The estimations of fall and winter

cuts for grade 2 followed the same process as for grades 3–8. For example, the projected growth from fall to spring in grade 2 was used to calculate the fall cuts for grade 2.

2.5. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the Michigan state 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 (*Proficient* or higher) or not proficient (lower than *Proficient*) on the state tests. 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 students identified by MAP Growth as not proficient in those observed as proficient on the state test
False Positive (FP) Rate	FP / (FP + TN)	Proportion of students identified by MAP Growth as not proficient in those observed as not proficient on the state test
Sensitivity	TP / (TP + FN)	Proportion of students identified by MAP Growth as proficient in those observed as such on the state test
Specificity	TN / (TN + FP)	Proportion of students identified by MAP Growth as not proficient in those observed as such on the state test
Precision	TP / (TP + FP)	Proportion of students observed as proficient 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.

Note. FP = false positives; FN = false negatives; TP = true positives; TN = true negatives.

2.6. Proficiency Projections

Given that all test scores contain measurement errors, reaching the *Proficient* RIT cut does not guarantee that a student is proficient on the state test. Instead, it can be claimed that a student with the RIT cut score has a 50% chance of reaching proficiency (*Proficient* or higher) on the state test, with their chances increasing the greater their score is from the cut. The proficiency projections indicate these probabilities for various RIT scores throughout the year.

In addition to calculating the MAP Growth fall and winter cut scores (and the projected grade 2 cut scores), the MAP Growth conditional growth norms data were also used to calculate the probability of reaching proficiency on the M-STEP or PSAT tests in the spring based on a student's RIT scores from fall and winter:

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

where:
- Φ is the standard normal cumulative distribution function,
- $RIT_{previous}$ is the student's RIT score in fall or winter,
- g is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT,
- $RIT_{SpringCut}$ is the MAP Growth cut score associated with state proficiency (*Proficient* or higher) in spring, and
- SD is the conditional standard deviation of the expected growth, g.

The equation below was used to estimate the probability of a student achieving proficiency (*Proficient* or higher) performance on the Michigan state tests based on their spring RIT score (RIT_{Spring}):

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

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 the Michigan state assessments in Spring 2019 for mathematics and ELA/reading or Spring 2022 for science were included in the sample. Data for mathematics and ELA/reading in 2019 were collected from 37 districts and 153 schools in Michigan, and data for science in 2022 came from 27 districts and 55 schools. Table 3.1 presents the distributions of student 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 Michigan state tests in Spring 2019 or Spring 2022. Since the original study sample is different from the target Michigan student population, post-stratification weights were applied. Table 3.3 presents the demographic distributions of the final analytic sample after weighting, which are almost identical to the Michigan student population distributions.

Table 3.1. Linking Study Sample Demographics (Unweighted)

Demographic Subgroup			% Students by Grade					
			3	4	5	6	7	8
Mathematics								
		Total N	7,528	7,702	7,633	8,057	6,903	5,483
Race		AI/AN	0.3	0.4	0.4	0.3	0.4	0.4
		Asian	2.8	2.7	2.6	2.7	2.1	2.5
		Black	13.2	13.3	11.6	12.6	14.6	13.8
		Hispanic	5.1	5.3	5.1	5.4	5.7	5.7
		Multi-Race	4.0	3.6	3.9	3.3	3.6	3.6
		NH/PI	0.1	0.2	0.1	0.2	0.2	0.1
		White	74.3	74.4	76.3	75.4	73.4	73.8
Sex		Female	50.2	49.6	50.3	49.9	49.3	49.5
		Male	49.8	50.4	49.7	50.1	50.7	50.5
Performance Level		*Not Proficient*	24.1	22.2	31.8	30.6	34.8	23.3
		Partially Proficient	26.2	34.9	30.4	31.3	30.5	34.6
		Proficient	29.7	26.4	19.9	20.8	19.7	27.5
		Advanced	20.0	16.5	17.8	17.4	15.0	14.6
ELA/Reading								
		Total N	7,503	7,636	7,653	8,031	6,860	5,733
Race		AI/AN	0.3	0.4	0.4	0.3	0.4	0.5
		Asian	2.8	2.7	2.5	2.7	2.1	2.5
		Black	13.3	13.5	11.6	12.7	14.4	14.1
		Hispanic	5.1	5.3	5.1	5.3	5.7	5.6
		Multi-Race	4.0	3.5	4.0	3.3	3.5	3.5
		NH/PI	0.1	0.2	0.1	0.2	0.2	0.1
		White	74.3	74.4	76.3	75.4	73.6	73.8
Sex		Female	50.2	49.6	50.3	49.8	49.0	49.4
		Male	49.8	50.4	49.7	50.2	51.0	50.6

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Performance Level	*Not Proficient*	27.8	31.7	29.8	29.5	31.0	20.5
	Partially Proficient	25.4	20.9	21.3	26.2	27.5	14.3
	Proficient	23.8	23.0	29.9	29.4	30.3	22.8
	Advanced	23.0	24.4	19.0	14.8	11.3	42.4
Science							
	Total N	–	–	1,583	–	–	3,176
Race	AI/AN	–	–	0.6	–	–	1.5
	Asian and NH/PI	–	–	1.5	–	–	1.2
	Black or African American	–	–	16.9	–	–	11.5
	Hispanic	–	–	7.0	–	–	8.7
	Two or More	–	–	5.4	–	–	5.4
	White	–	–	68.6	–	–	71.7
Sex	Female	–	–	48.6	–	–	47.7
	Male	–	–	51.4	–	–	52.3
Performance Level	*Not Proficient*	–	–	33.1	–	–	35.8
	Partially Proficient	–	–	34.1	–	–	33.4
	Proficient	–	–	20.5	–	–	23.8
	Advanced	–	–	12.3	–	–	7.0

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian or Other Pacific Islander. The race categories reflect the Michigan state test performance reports from each testing term. As such, the categories for science based on Spring 2022 data differ slightly from those reported for mathematics and ELA based on Spring 2019 data.

Table 3.2. Michigan Student Population Demographics

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Mathematics (Spring 2019)							
	Total N	101,019	102,602	105,272	109,108	109,072	107,591
Race	AI/AN	0.5	0.6	0.6	0.7	0.6	0.7
	Asian	3.6	3.5	3.4	3.4	3.4	3.5
	Black	18.8	18.5	17.8	17.4	17.3	16.8
	Hispanic	8.4	8.2	8.4	8.4	8.1	8.3
	Multi-Race	4.8	4.6	4.6	4.2	4.2	3.7
	NH/PI	0.1	0.1	0.1	0.1	0.1	0.1
	White	63.8	64.5	65.2	65.9	66.3	67.0
Sex	Female	49.0	49.0	49.0	49.0	49.3	49.2
	Male	51.0	51.0	51.0	51.0	50.7	50.8
Performance Level	*Not Proficient*	27.5	24.7	36.5	34.3	35.9	27.0
	Partially Proficient	25.8	33.5	28.7	30.6	28.3	31.6
	Proficient	27.2	25.2	18.0	19.0	19.3	26.4
	Advanced	19.5	16.6	16.9	16.2	16.4	15.0
ELA/Reading (Spring 2019)							

Demographic Subgroup		% Students by Grade					
		3	**4**	**5**	**6**	**7**	**8**
	Total N	100,793	102,327	105,078	108,948	108,975	107,518
Race	AI/AN	0.5	0.6	0.6	0.7	0.6	0.7
	Asian	3.5	3.4	3.3	3.3	3.4	3.5
	Black	18.8	18.5	17.8	17.4	17.3	16.8
	Hispanic	8.4	8.2	8.3	8.3	8.1	8.3
	Multi-Race	4.9	4.6	4.6	4.2	4.2	3.7
	NH/PI	0.1	0.1	0.1	0.1	0.1	0.1
	White	63.8	64.6	65.3	66.0	66.3	67.0
Sex	Female	49.0	49.1	49.0	49.0	49.3	49.2
	Male	51.0	50.9	51.0	51.0	50.7	50.8
Performance Level	*Not Proficient*	30.4	33.4	32.3	31.7	29.7	22.4
	Partially Proficient	24.5	20.8	21.5	26.6	27.6	15.7
	Proficient	22.4	21.6	28.5	28.2	30.2	22.0
	Advanced	22.7	24.3	17.7	13.5	12.5	39.9
Science (Spring 2022)							
	Total N	–	–	98,246	–	–	101,585
Race	AI/AN	–	–	0.5	–	–	0.6
	Asian and NH/PI	–	–	3.7	–	–	3.6
	Black or African American	–	–	18.0	–	–	16.8
	Hispanic	–	–	8.9	–	–	8.8
	Two or More	–	–	5.1	–	–	4.8
	White	–	–	63.7	–	–	65.5
Sex	Female	–	–	48.9	–	–	49.0
	Male	–	–	51.1	–	–	51.0
Performance Level	*Not Proficient*	–	–	30.8	–	–	32.2
	Partially Proficient	–	–	31.0	–	–	31.5
	Proficient	–	–	21.3	–	–	26.5
	Advanced	–	–	16.9	–	–	9.8

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian or Other Pacific Islander. Asian and NH/PI racial groups were combined for science due to their low counts in the data.

Table 3.3. Linking Study Sample Demographics (Weighted)

Demographic Subgroup			% Students by Grade					
			3	4	5	6	7	8
Mathematics								
		Total N	7,529	7,702	7,633	8,056	6,903	5,483
Race		AI/AN	0.5	0.6	0.6	0.7	0.6	0.7
		Asian	3.6	3.5	3.4	3.4	3.4	3.5
		Black	18.8	18.5	17.8	17.4	17.3	16.8
		Hispanic	8.4	8.2	8.4	8.4	8.1	8.3
		Multi-Race	4.8	4.6	4.6	4.2	4.2	3.7
		NH/PI	0.1	0.1	0.1	0.1	0.1	0.1
		White	63.8	64.5	65.2	65.9	66.3	67.0
Sex		Female	49.0	49.0	49.0	49.0	49.3	49.2
		Male	51.0	51.0	51.0	51.0	50.7	50.8
Performance Level		*Not Proficient*	27.5	24.7	36.5	34.3	35.9	27.0
		Partially Proficient	25.8	33.5	28.7	30.6	28.3	31.6
		Proficient	27.2	25.2	18.0	19.0	19.3	26.4
		Advanced	19.5	16.6	16.8	16.2	16.4	15.0
ELA/Reading								
		Total N	7,503	7,636	7,652	8,030	6,860	5,733
Race		AI/AN	0.5	0.6	0.6	0.7	0.6	0.7
		Asian	3.5	3.4	3.4	3.3	3.4	3.5
		Black	18.8	18.5	17.8	17.4	17.3	16.8
		Hispanic	8.4	8.2	8.3	8.3	8.1	8.3
		Multi-Race	4.9	4.6	4.6	4.2	4.2	3.7
		NH/PI	0.1	0.1	0.1	0.1	0.1	0.1
		White	63.8	64.6	65.3	66.0	66.3	67.0
Sex		Female	49.0	49.1	49.0	49.0	49.3	49.2
		Male	51.0	50.9	51.0	51.0	50.7	50.8
Performance Level		*Not Proficient*	30.4	33.4	32.3	31.7	29.7	22.4
		Partially Proficient	24.5	20.8	21.5	26.6	27.6	15.7
		Proficient	22.4	21.5	28.5	28.2	30.2	22.0
		Advanced	22.7	24.3	17.7	13.5	12.5	39.9
Science								
		Total N	–	–	1,583	–	–	3,176
Race		AI/AN	–	–	0.5	–	–	0.6
		Asian and NH/PI	–	–	3.7	–	–	3.6
		Black or African American	–	–	18.0	–	–	16.8
		Hispanic	–	–	8.9	–	–	8.8
		Two or More	–	–	5.1	–	–	4.8
		White	–	–	63.7	–	–	65.5
Sex		Female	–	–	48.9	–	–	49.0
		Male	–	–	51.1	–	–	51.0
		Not Proficient	–	–	30.8	–	–	32.2

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
Performance Level	*Partially Proficient*	–	–	31.0	–	–	31.5
	Proficient	–	–	21.3	–	–	26.5
	Advanced	–	–	16.9	–	–	9.8

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian or Other Pacific Islander. Asian and NH/PI racial groups were combined for science due to their low counts in the data.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and Michigan's state test scores from Spring 2019 and Spring 2022, including the correlation coefficients (*r*) between them. The correlations between the scores range from 0.86 to 0.92 for mathematics, 0.77 to 0.84 for ELA/reading, and 0.83 for science. These values indicate a high positive correlation among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the Michigan state summative assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	Michigan State Tests				MAP Growth			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
Mathematics										
3	7,529	0.87	1296.8	27.1	1217	1361	201.6	13.7	141	255
4	7,702	0.88	1393.8	24.9	1310	1455	211.1	14.6	139	269
5	7,633	0.89	1487.7	26.0	1409	1550	218.7	16.8	148	288
6	8,056	0.92	1588.0	25.4	1518	1650	221.0	16.7	147	291
7	6,903	0.91	1688.4	25.9	1621	1752	225.9	17.5	159	294
8	5,483	0.86	415.8	85.6	120	720	229.2	18.8	144	291
ELA/Reading										
3	7,503	0.83	1295.3	25.9	1218	1357	198.4	15.0	148	237
4	7,636	0.84	1395.6	25.9	1317	1454	205.4	14.4	148	250
5	7,652	0.83	1496.1	27.0	1409	1560	210.6	14.4	151	251
6	8,030	0.83	1592.9	26.1	1508	1655	215.4	14.1	161	260
7	6,860	0.83	1693.9	26.2	1618	1753	218.4	14.6	159	265
8	5,733	0.77	423.4	82.8	120	710	220.4	15.3	160	267
Science										
5	1,583	0.83	1491.9	25.1	1429	1563	206.2	12.6	163	244
8	3,176	0.83	1790.6	25.1	1727	1868	213.5	14.3	166	263

Note. SD = standard deviation; Min. = minimum; Max. = maximum. Grade 8 mathematics and ELA/reading are from the PSAT 8/9.

3.3. MAP Growth Cut Scores

Table 3.5, Table 3.6, and Table 3.7 present the Michigan summative assessments scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. Bold numbers highlight the cut scores considered to be proficient (*Proficient* or higher) for accountability purposes. These tables can be used to gauge a student's likely performance level on the Michigan spring assessment when MAP Growth is taken in the fall, winter, or spring. For example, a grade 3 student who obtained a MAP Growth mathematics RIT

score of 191 in the fall is likely to achieve *Proficient* performance on the M-STEP mathematics test. The same is true for a grade 3 student who obtained a MAP Growth mathematics RIT score of 200 in the winter. The winter cut score is higher than the fall cut score because of expected growth during the school year as students receive more instruction.

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 report. Partners are therefore encouraged to use the projected performance level in students' score reports since they reflect the specific instructional weeks set by partners.

Table 3.5. MAP Growth Cut Scores—Mathematics

Michigan Mathematics State Test							
Grade	*Not Proficient*		*Partially Proficient*		*Proficient*		*Advanced*
3	1217–1280		1281–1299		**1300**–1320		1321–1361
4	1310–1375		1376–1399		**1400**–1419		1420–1455
5	1409–1477		1478–1499		**1500**–1514		1515–1550
6	1518–1578		1579–1599		**1600**–1613		1614–1650
7	1621–1678		1679–1699		**1700**–1715		1716–1752
8 [a]	120–369		370–429		**430**–509		510–720

MAP Growth Mathematics								
Grade	*Not Proficient*		*Partially Proficient*		*Proficient*		*Advanced*	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–168	1–39	169–180	40–69	**181**–194	70–91	195–350	92–99
3	100–181	1–44	182–190	45–66	**191**–201	67–87	202–350	88–99
4	100–191	1–37	192–206	38–72	**207**–218	73–91	219–350	92–99
5	100–204	1–46	205–219	47–79	**220**–229	80–92	230–350	93–99
6	100–207	1–43	208–220	44–74	**221**–230	75–89	231–350	90–99
7	100–214	1–44	215–227	45–72	**228**–239	73–90	240–350	91–99
8	100–217	1–40	218–230	41–68	**231**–246	69–90	247–350	91–99
Winter								
2	100–176	1–38	177–189	39–70	**190**–202	71–91	203–350	92–99
3	100–189	1–43	190–199	44–66	**200**–211	67–87	212–350	88–99
4	100–198	1–36	199–214	37–72	**215**–226	73–90	227–350	91–99
5	100–210	1–47	211–225	48–78	**226**–235	79–91	236–350	92–99
6	100–213	1–44	214–227	45–75	**228**–237	76–89	238–350	90–99
7	100–218	1–45	219–232	46–73	**233**–244	74–89	245–350	90–99
8	100–221	1–41	222–234	42–67	**235**–251	68–90	252–350	91–99
Spring								
2	100–183	1–40	184–194	41–67	**195**–206	68–88	207–350	89–99
3	100–196	1–44	197–205	45–65	**206**–216	66–84	217–350	85–99
4	100–204	1–38	205–219	39–70	**220**–231	71–88	232–350	89–99
5	103–214	1–47	215–229	48–77	**230**–239	78–89	240–350	90–99
6	102–217	1–44	218–231	45–73	**232**–241	74–87	242–350	88–99
7	105–221	1–45	222–234	46–71	**235**–246	72–87	247–350	88–99
8	105–224	1–41	225–237	42–66	**238**–253	67–88	254–350	89–99

Note. Bold numbers indicate the cut scores considered to be at least proficient for accountability purposes.

[a] Grade 8 mathematics is from the PSAT 8/9.

Table 3.6. MAP Growth Cut Scores—ELA/Reading

	Michigan ELA State Test			
Grade	*Not Proficient*	*Partially Proficient*	*Proficient*	*Advanced*
3	1203–1279	1280–1299	**1300**–1316	1317–1357
4	1301–1382	1383–1399	**1400**–1416	1417–1454
5	1409–1480	1481–1499	**1500**–1523	1524–1560
6	1508–1577	1578–1599	**1600**–1623	1624–1655
7	1618–1678	1679–1699	**1700**–1725	1726–1753
8 [a]	120–359	360–389	**390**–439	440–720

	MAP Growth Reading							
Grade	*Not Proficient*		*Partially Proficient*		*Proficient*		*Advanced*	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall								
2	100–165	1–40	166–181	41–75	**182**–192	76–90	193–350	91–99
3	100–180	1–41	181–194	42–70	**195**–204	71–86	205–350	87–99
4	100–192	1–43	193–203	44–66	**204**–212	67–82	213–350	83–99
5	100–199	1–41	200–209	42–63	**210**–221	64–84	222–350	85–99
6	100–204	1–40	205–217	41–69	**218**–227	70–86	228–350	87–99
7	100–208	1–41	209–220	42–69	**221**–231	70–87	232–350	88–99
8	100–209	1–36	210–221	37–63	**222**–232	64–83	233–350	84–99
Winter								
2	100–171	1–38	172–187	39–74	**188**–199	75–90	200–350	91–99
3	100–186	1–43	187–199	44–70	**200**–208	71–84	209–350	85–99
4	100–196	1–44	197–206	45–65	**207**–215	66–81	216–350	82–99
5	100–201	1–39	202–212	40–64	**213**–222	65–82	223–350	83–99
6	100–206	1–40	207–218	41–68	**219**–228	69–85	229–350	86–99
7	100–209	1–40	210–221	41–68	**222**–232	69–86	233–350	87–99
8	100–210	1–35	211–222	36–63	**223**–233	64–83	234–350	84–99
Spring								
2	100–177	1–41	178–191	42–71	**192**–201	72–87	202–350	88–99
3	100–190	1–43	191–202	44–68	**203**–210	69–82	211–350	83–99
4	100–199	1–44	200–208	45–64	**209**–216	65–79	217–350	80–99
5	100–204	1–41	205–213	42–62	**214**–223	63–81	224–350	82–99
6	100–208	1–42	209–219	43–67	**220**–229	68–85	230–350	86–99
7	100–211	1–42	212–222	43–67	**223**–233	68–86	234–350	87–99
8	100–212	1–38	213–223	39–63	**224**–234	64–83	235–350	84–99

Note. Bold numbers indicate the cut scores considered to be at least proficient for accountability purposes.

[a] Grade 8 ELA/reading is from the PSAT 8/9.

Table 3.7. MAP Growth Cut Scores—Science

Michigan Science State Test							
Grade	*Not Proficient*		*Partially Proficient*		*Proficient*		*Advanced*
5	1427–1476		1477–1499		**1500**–1516		1517–1579
8	1727–1777		1778–1799		**1800**–1824		1825–1877
MAP Growth Science							
Grade	*Not Proficient*		*Partially Proficient*		*Proficient*		*Advanced*	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall								
5	100–191	1–24	192–205	25–64	**206**–214	65–85	215–350	86–99
8	100–202	1–31	203–217	32–71	**218**–229	72–91	230–350	92–99
Winter								
5	100–195	1–26	196–208	27–63	**209**–217	64–84	218–350	85–99
8	100–204	1–32	205–218	33–69	**219**–230	70–90	231–350	91–99
Spring								
5	100–198	1–28	199–210	29–61	**211**–218	62–80	219–350	81–99
8	100–206	1–34	207–219	35–67	**220**–231	68–89	232–350	90–99

Note. Bold 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 rates. These results indicate how well MAP Growth spring RIT scores predict proficiency (*Proficient* or higher) on the Michigan state tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rates range from 0.86 to 0.90 for mathematics, 0.77 to 0.85 for ELA/reading, and 0.84 for science. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the Michigan state assessments.

Although the results show that MAP Growth scores can be used to predict student proficiency (*Proficient* or higher) with relatively high accuracy on the Michigan's state tests, there is a notable limitation to how these results should be used and interpreted. The Michigan state summative assessments 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	Michigan		FP	FN				
Mathematics										
3	7,529	204	1300	0.86	0.15	0.14	0.86	0.85	0.84	0.94
4	7,702	215	1400	0.87	0.12	0.14	0.86	0.88	0.84	0.95
5	7,633	227	1500	0.89	0.08	0.18	0.82	0.92	0.85	0.96
6	8,056	229	1600	0.90	0.07	0.16	0.84	0.93	0.87	0.97
7	6,903	233	1700	0.90	0.08	0.13	0.87	0.92	0.86	0.97
8	5,483	234	430	0.87	0.11	0.17	0.83	0.89	0.85	0.95
ELA/Reading										
3	7,503	203	1300	0.84	0.12	0.19	0.81	0.88	0.84	0.93
4	7,636	209	1400	0.85	0.13	0.16	0.84	0.87	0.84	0.93
5	7,652	214	1500	0.85	0.15	0.16	0.84	0.85	0.83	0.93
6	8,030	220	1600	0.85	0.12	0.18	0.82	0.88	0.83	0.93
7	6,860	223	1700	0.85	0.12	0.19	0.81	0.88	0.84	0.93
8	5,733	224	390	0.77	0.07	0.33	0.67	0.93	0.94	0.90
Science										
5	1,583	211	1500	0.84	0.11	0.22	0.78	0.89	0.81	0.92
8	3,176	220	1800	0.84	0.11	0.24	0.76	0.89	0.80	0.93

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

3.5. Proficiency Projections

Table 3.9, Table 3.10, and Table 3.11 present the estimated probability of achieving proficiency (*Proficient* or higher) performance on the Michigan state tests based on RIT scores from fall, winter, or spring. Due to measurement error in all test scores, the *Proficient* MAP Growth cuts do not guarantee that a student will reach proficiency on Michigan's state assessments. Instead, they indicate a 50% chance that a student will reach a particular performance level. Therefore, these projections further elucidate the *Proficient* cut scores by providing the likelihood of reaching proficiency on the Michigan state tests in the spring at a given percentile throughout the year.

For example, a grade 3 student with a score of 192 in the fall has a 55% chance of achieving proficiency (*Proficient* or higher) in the spring, as shown in Table 3.9. An educator can also use the table to estimate that a grade 3 student who obtained a MAP Growth mathematics score of 210 in the winter has an 89% probability of reaching proficiency on the M-STEP test in the spring.

Table 3.9. Proficiency Projections Based on RIT Scores—Mathematics

Grade	Start Percentile	Spring Cut	Fall RIT	Fall Projected Proficiency Proficient	Fall Prob.	Winter RIT	Winter Projected Proficiency Proficient	Winter Prob.	Spring RIT	Spring Projected Proficiency Proficient	Spring Prob.
	5	195	147	No	<0.01	155	No	<0.01	161	No	<0.01
	10	195	153	No	<0.01	161	No	<0.01	167	No	<0.01
	15	195	157	No	<0.01	165	No	<0.01	171	No	<0.01
	20	195	160	No	0.01	168	No	0.01	174	No	<0.01
	25	195	162	No	0.02	171	No	0.01	177	No	<0.01
	30	195	165	No	0.03	173	No	0.02	179	No	<0.01
	35	195	167	No	0.06	175	No	0.04	181	No	<0.01
	40	195	169	No	0.09	177	No	0.07	183	No	<0.01
	45	195	171	No	0.14	179	No	0.09	185	No	<0.01
2	50	195	173	No	0.2	181	No	0.14	187	No	0.01
	55	195	175	No	0.23	183	No	0.21	189	No	0.04
	60	195	177	No	0.31	185	No	0.3	192	No	0.2
	65	195	179	No	0.4	187	No	0.4	194	No	0.39
	70	195	181	Yes	0.5	189	No	0.45	196	Yes	0.61
	75	195	183	Yes	0.6	192	Yes	0.6	198	Yes	0.8
	80	195	186	Yes	0.69	194	Yes	0.7	201	Yes	0.96
	85	195	189	Yes	0.8	197	Yes	0.82	204	Yes	0.99
	90	195	193	Yes	0.89	201	Yes	0.91	208	Yes	>0.99
	95	195	198	Yes	0.97	207	Yes	0.98	214	Yes	>0.99
	5	206	158	No	<0.01	166	No	<0.01	171	No	<0.01
	10	206	164	No	<0.01	172	No	<0.01	177	No	<0.01
	15	206	168	No	<0.01	176	No	<0.01	181	No	<0.01
3	20	206	171	No	0.01	179	No	<0.01	185	No	<0.01
	25	206	174	No	0.01	182	No	0.01	188	No	<0.01
	30	206	176	No	0.03	184	No	0.02	190	No	<0.01
	35	206	178	No	0.05	186	No	0.04	193	No	<0.01
	40	206	180	No	0.08	189	No	0.08	195	No	<0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
	45	206	182	No	0.13	191	No	0.13	197	No	0.01
	50	206	184	No	0.19	193	No	0.17	199	No	0.02
	55	206	186	No	0.26	195	No	0.24	201	No	0.08
	60	206	188	No	0.35	197	No	0.34	203	No	0.2
	65	206	190	No	0.45	199	No	0.45	206	Yes	0.5
	70	206	192	Yes	0.55	201	Yes	0.55	208	Yes	0.72
	75	206	195	Yes	0.7	204	Yes	0.71	211	Yes	0.92
	80	206	197	Yes	0.78	206	Yes	0.8	213	Yes	0.98
	85	206	200	Yes	0.87	210	Yes	0.89	217	Yes	>0.99
	90	206	204	Yes	0.95	214	Yes	0.96	221	Yes	>0.99
	95	206	210	Yes	0.99	220	Yes	>0.99	227	Yes	>0.99
	5	220	171	No	<0.01	176	No	<0.01	180	No	<0.01
	10	220	177	No	<0.01	183	No	<0.01	187	No	<0.01
	15	220	181	No	<0.01	187	No	<0.01	191	No	<0.01
	20	220	184	No	<0.01	190	No	<0.01	195	No	<0.01
	25	220	186	No	<0.01	193	No	<0.01	198	No	<0.01
	30	220	189	No	0.01	196	No	0.01	201	No	<0.01
	35	220	191	No	0.02	198	No	0.01	203	No	<0.01
	40	220	193	No	0.04	200	No	0.02	206	No	<0.01
4	45	220	195	No	0.07	202	No	0.04	208	No	<0.01
	50	220	197	No	0.11	204	No	0.08	210	No	<0.01
	55	220	199	No	0.16	207	No	0.16	212	No	0.01
	60	220	201	No	0.23	209	No	0.2	215	No	0.08
	65	220	203	No	0.31	211	No	0.28	217	No	0.2
	70	220	205	No	0.4	213	No	0.39	220	Yes	0.5
	75	220	208	Yes	0.55	216	Yes	0.56	222	Yes	0.72
	80	220	210	Yes	0.65	219	Yes	0.72	225	Yes	0.92
	85	220	214	Yes	0.81	222	Yes	0.84	229	Yes	0.99

Grade	Start Percentile	Spring Cut	Fall	Fall Projected Proficiency		Winter	Winter Projected Proficiency		Spring	Spring Projected Proficiency	
			Fall RIT	*Proficient*	Prob.	Winter RIT	*Proficient*	Prob.	Spring RIT	*Proficient*	Prob.
	90	220	217	Yes	0.89	226	Yes	0.94	233	Yes	>0.99
	95	220	223	Yes	0.98	232	Yes	0.99	240	Yes	>0.99
5	5	230	180	No	<0.01	183	No	<0.01	186	No	<0.01
	10	230	185	No	<0.01	189	No	<0.01	192	No	<0.01
	15	230	189	No	<0.01	194	No	<0.01	197	No	<0.01
	20	230	193	No	<0.01	197	No	<0.01	200	No	<0.01
	25	230	195	No	<0.01	200	No	<0.01	204	No	<0.01
	30	230	198	No	<0.01	203	No	<0.01	206	No	<0.01
	35	230	200	No	0.01	205	No	<0.01	209	No	<0.01
	40	230	202	No	0.01	207	No	<0.01	211	No	<0.01
	45	230	204	No	0.02	210	No	0.01	214	No	<0.01
	50	230	206	No	0.04	212	No	0.02	216	No	<0.01
	55	230	208	No	0.06	214	No	0.04	218	No	<0.01
	60	230	210	No	0.1	216	No	0.08	221	No	0.01
	65	230	212	No	0.15	219	No	0.16	223	No	0.02
	70	230	215	No	0.26	221	No	0.24	226	No	0.13
	75	230	217	No	0.35	224	No	0.39	228	No	0.28
	80	230	220	Yes	0.5	226	Yes	0.5	232	Yes	0.72
	85	230	223	Yes	0.65	230	Yes	0.72	235	Yes	0.92
	90	230	227	Yes	0.81	234	Yes	0.87	240	Yes	>0.99
	95	230	233	Yes	0.96	240	Yes	0.98	246	Yes	>0.99
6	5	232	184	No	<0.01	187	No	<0.01	190	No	<0.01
	10	232	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	232	194	No	<0.01	198	No	<0.01	201	No	<0.01
	20	232	197	No	<0.01	201	No	<0.01	205	No	<0.01
	25	232	199	No	<0.01	204	No	<0.01	208	No	<0.01
	30	232	202	No	0.01	207	No	<0.01	211	No	<0.01
	35	232	204	No	0.01	209	No	<0.01	213	No	<0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
	40	232	206	No	0.02	212	No	0.01	216	No	<0.01
	45	232	208	No	0.04	214	No	0.03	218	No	<0.01
	50	232	210	No	0.07	216	No	0.05	220	No	<0.01
	55	232	212	No	0.11	218	No	0.09	223	No	0.01
	60	232	214	No	0.16	220	No	0.14	225	No	0.02
	65	232	216	No	0.23	223	No	0.25	227	No	0.08
	70	232	219	No	0.36	225	No	0.34	230	No	0.28
	75	232	221	Yes	0.5	228	Yes	0.5	233	Yes	0.61
	80	232	224	Yes	0.64	231	Yes	0.66	236	Yes	0.87
	85	232	227	Yes	0.77	234	Yes	0.79	239	Yes	0.98
	90	232	231	Yes	0.89	238	Yes	0.91	244	Yes	>0.99
	95	232	237	Yes	0.98	245	Yes	0.99	251	Yes	>0.99
7	5	235	189	No	<0.01	191	No	<0.01	192	No	<0.01
	10	235	195	No	<0.01	197	No	<0.01	199	No	<0.01
	15	235	199	No	<0.01	202	No	<0.01	204	No	<0.01
	20	235	203	No	<0.01	206	No	<0.01	208	No	<0.01
	25	235	206	No	<0.01	209	No	<0.01	211	No	<0.01
	30	235	208	No	0.01	211	No	<0.01	214	No	<0.01
	35	235	211	No	0.02	214	No	0.01	216	No	<0.01
	40	235	213	No	0.03	216	No	0.02	219	No	<0.01
	45	235	215	No	0.06	219	No	0.04	221	No	<0.01
	50	235	217	No	0.09	221	No	0.07	224	No	<0.01
	55	235	219	No	0.14	223	No	0.12	226	No	0.01
	60	235	222	No	0.23	226	No	0.22	229	No	0.04
	65	235	224	No	0.31	228	No	0.3	231	No	0.13
	70	235	226	No	0.4	231	No	0.4	234	No	0.39
	75	235	229	Yes	0.55	233	Yes	0.5	237	Yes	0.72
	80	235	232	Yes	0.69	236	Yes	0.65	240	Yes	0.92

Grade	Start Percentile	Spring Cut	Fall	Fall		Winter	Winter		Spring	Spring	
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	85	235	235	Yes	0.8	240	Yes	0.82	244	Yes	0.99
	90	235	239	Yes	0.91	245	Yes	0.94	249	Yes	>0.99
	95	235	246	Yes	0.99	251	Yes	0.99	256	Yes	>0.99
8	5	238	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	238	199	No	<0.01	201	No	<0.01	203	No	<0.01
	15	238	203	No	<0.01	206	No	<0.01	208	No	<0.01
	20	238	207	No	<0.01	210	No	<0.01	212	No	<0.01
	25	238	210	No	0.01	213	No	<0.01	215	No	<0.01
	30	238	212	No	0.01	216	No	0.01	218	No	<0.01
	35	238	215	No	0.03	219	No	0.02	221	No	<0.01
	40	238	217	No	0.05	221	No	0.04	224	No	<0.01
	45	238	220	No	0.1	224	No	0.08	226	No	<0.01
	50	238	222	No	0.15	226	No	0.13	229	No	0.01
	55	238	224	No	0.21	228	No	0.19	231	No	0.02
	60	238	227	No	0.32	231	No	0.31	234	No	0.13
	65	238	229	No	0.41	233	No	0.4	237	No	0.39
	70	238	232	Yes	0.55	236	Yes	0.55	239	Yes	0.61
	75	238	234	Yes	0.63	239	Yes	0.65	242	Yes	0.87
	80	238	237	Yes	0.75	242	Yes	0.77	246	Yes	0.99
	85	238	241	Yes	0.87	246	Yes	0.9	250	Yes	>0.99
	90	238	246	Yes	0.96	251	Yes	0.97	255	Yes	>0.99
	95	238	252	Yes	0.99	258	Yes	>0.99	262	Yes	>0.99

Note. Prob. = Probability.

Table 3.10. Proficiency Projections Based on RIT Scores—ELA/Reading

Grade	Start Percentile	Spring Cut	Fall RIT	Fall Projected Proficiency Proficient	Fall Projected Proficiency Prob.	Winter RIT	Winter Projected Proficiency Proficient	Winter Projected Proficiency Prob.	Spring RIT	Spring Projected Proficiency Proficient	Spring Projected Proficiency Prob.
	5	192	142	No	<0.01	149	No	<0.01	153	No	<0.01
	10	192	148	No	<0.01	155	No	<0.01	159	No	<0.01
	15	192	152	No	<0.01	159	No	<0.01	164	No	<0.01
	20	192	156	No	0.01	162	No	<0.01	167	No	<0.01
	25	192	159	No	0.01	165	No	0.01	170	No	<0.01
	30	192	161	No	0.02	168	No	0.02	173	No	<0.01
	35	192	163	No	0.04	170	No	0.03	175	No	<0.01
	40	192	166	No	0.06	172	No	0.05	177	No	<0.01
	45	192	168	No	0.09	175	No	0.07	180	No	<0.01
2	50	192	170	No	0.13	177	No	0.11	182	No	<0.01
	55	192	172	No	0.16	179	No	0.17	184	No	0.01
	60	192	174	No	0.22	181	No	0.2	186	No	0.04
	65	192	177	No	0.33	183	No	0.27	188	No	0.13
	70	192	179	No	0.37	186	No	0.41	191	No	0.39
	75	192	182	Yes	0.5	188	Yes	0.5	193	Yes	0.61
	80	192	184	Yes	0.59	191	Yes	0.59	196	Yes	0.87
	85	192	188	Yes	0.71	194	Yes	0.73	200	Yes	0.99
	90	192	192	Yes	0.84	199	Yes	0.86	204	Yes	>0.99
	95	192	198	Yes	0.94	205	Yes	0.96	210	Yes	>0.99
	5	203	155	No	<0.01	160	No	<0.01	164	No	<0.01
	10	203	161	No	<0.01	167	No	<0.01	171	No	<0.01
	15	203	166	No	<0.01	171	No	<0.01	175	No	<0.01
3	20	203	169	No	<0.01	175	No	<0.01	179	No	<0.01
	25	203	172	No	0.01	178	No	0.01	182	No	<0.01
	30	203	175	No	0.02	180	No	0.02	184	No	<0.01
	35	203	178	No	0.05	183	No	0.04	187	No	<0.01
	40	203	180	No	0.07	185	No	0.05	189	No	<0.01

Grade	Start Percentile	Spring Cut	Fall RIT	Fall Projected Proficiency		Winter RIT	Winter Projected Proficiency		Spring RIT	Spring Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
	45	203	182	No	0.09	188	No	0.09	192	No	<0.01
	50	203	185	No	0.16	190	No	0.14	194	No	0.01
	55	203	187	No	0.22	192	No	0.2	196	No	0.02
	60	203	189	No	0.29	194	No	0.24	198	No	0.08
	65	203	192	No	0.37	197	No	0.36	201	No	0.28
	70	203	194	No	0.46	199	No	0.45	203	Yes	0.5
	75	203	197	Yes	0.54	202	Yes	0.59	206	Yes	0.8
	80	203	200	Yes	0.67	205	Yes	0.68	209	Yes	0.96
	85	203	204	Yes	0.78	209	Yes	0.83	213	Yes	>0.99
	90	203	208	Yes	0.89	213	Yes	0.91	217	Yes	>0.99
	95	203	215	Yes	0.97	220	Yes	0.98	224	Yes	>0.99
	5	209	166	No	<0.01	170	No	<0.01	173	No	<0.01
	10	209	173	No	<0.01	177	No	<0.01	179	No	<0.01
	15	209	177	No	<0.01	181	No	<0.01	184	No	<0.01
	20	209	181	No	0.01	184	No	<0.01	187	No	<0.01
	25	209	184	No	0.02	187	No	0.01	190	No	<0.01
	30	209	186	No	0.03	190	No	0.03	193	No	<0.01
	35	209	189	No	0.06	193	No	0.05	195	No	<0.01
	40	209	191	No	0.1	195	No	0.08	198	No	<0.01
4	45	209	194	No	0.14	197	No	0.13	200	No	0.01
	50	209	196	No	0.2	199	No	0.19	202	No	0.02
	55	209	198	No	0.28	202	No	0.27	204	No	0.08
	60	209	200	No	0.36	204	No	0.35	207	No	0.28
	65	209	203	No	0.45	206	No	0.45	209	Yes	0.5
	70	209	205	Yes	0.55	209	Yes	0.6	211	Yes	0.72
	75	209	208	Yes	0.68	211	Yes	0.65	214	Yes	0.92
	80	209	211	Yes	0.76	214	Yes	0.77	217	Yes	0.99
	85	209	215	Yes	0.88	218	Yes	0.9	220	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall	Fall	Fall	Winter	Winter	Winter	Spring	Spring	Spring
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
	90	209	219	Yes	0.94	222	Yes	0.96	225	Yes	>0.99
	95	209	226	Yes	0.99	229	Yes	>0.99	231	Yes	>0.99
	5	214	175	No	<0.01	178	No	<0.01	180	No	<0.01
	10	214	181	No	<0.01	184	No	<0.01	186	No	<0.01
	15	214	186	No	0.01	189	No	<0.01	191	No	<0.01
	20	214	189	No	0.01	192	No	0.01	194	No	<0.01
	25	214	192	No	0.03	195	No	0.02	197	No	<0.01
	30	214	195	No	0.06	197	No	0.04	199	No	<0.01
	35	214	197	No	0.09	200	No	0.08	202	No	<0.01
	40	214	199	No	0.11	202	No	0.12	204	No	<0.01
	45	214	201	No	0.16	204	No	0.15	206	No	0.01
5	50	214	204	No	0.27	206	No	0.22	208	No	0.04
	55	214	206	No	0.31	209	No	0.35	211	No	0.2
	60	214	208	No	0.4	211	No	0.4	213	No	0.39
	65	214	210	Yes	0.5	213	Yes	0.5	215	Yes	0.61
	70	214	213	Yes	0.6	215	Yes	0.6	217	Yes	0.8
	75	214	215	Yes	0.69	218	Yes	0.74	220	Yes	0.96
	80	214	218	Yes	0.8	221	Yes	0.85	223	Yes	0.99
	85	214	222	Yes	0.89	224	Yes	0.92	226	Yes	>0.99
	90	214	226	Yes	0.96	228	Yes	0.97	230	Yes	>0.99
	95	214	232	Yes	0.99	235	Yes	>0.99	237	Yes	>0.99
	5	220	181	No	<0.01	183	No	<0.01	185	No	<0.01
	10	220	187	No	<0.01	189	No	<0.01	191	No	<0.01
	15	220	191	No	<0.01	193	No	<0.01	195	No	<0.01
6	20	220	195	No	0.01	197	No	0.01	198	No	<0.01
	25	220	198	No	0.02	199	No	0.01	201	No	<0.01
	30	220	200	No	0.03	202	No	0.02	203	No	<0.01
	35	220	202	No	0.04	204	No	0.04	206	No	<0.01

Grade	Start Percentile	Spring Cut	Fall RIT	Fall Projected Proficiency Proficient	Fall Projected Proficiency Prob.	Winter RIT	Winter Projected Proficiency Proficient	Winter Projected Proficiency Prob.	Spring RIT	Spring Projected Proficiency Proficient	Spring Projected Proficiency Prob.
	40	220	205	No	0.09	206	No	0.06	208	No	<0.01
	45	220	207	No	0.11	209	No	0.13	210	No	<0.01
	50	220	209	No	0.16	211	No	0.16	212	No	0.01
	55	220	211	No	0.23	213	No	0.22	214	No	0.04
	60	220	213	No	0.31	215	No	0.31	216	No	0.13
	65	220	215	No	0.36	217	No	0.4	218	No	0.28
	70	220	218	Yes	0.5	219	Yes	0.5	221	Yes	0.61
	75	220	220	Yes	0.6	222	Yes	0.65	223	Yes	0.8
	80	220	223	Yes	0.73	225	Yes	0.78	226	Yes	0.96
	85	220	226	Yes	0.84	228	Yes	0.87	229	Yes	0.99
	90	220	231	Yes	0.94	232	Yes	0.95	233	Yes	>0.99
	95	220	237	Yes	0.99	238	Yes	0.99	239	Yes	>0.99
	5	223	185	No	<0.01	186	No	<0.01	187	No	<0.01
	10	223	191	No	<0.01	192	No	<0.01	193	No	<0.01
	15	223	195	No	<0.01	196	No	<0.01	197	No	<0.01
	20	223	198	No	0.01	200	No	0.01	201	No	<0.01
	25	223	201	No	0.02	202	No	0.01	203	No	<0.01
	30	223	204	No	0.04	205	No	0.03	206	No	<0.01
	35	223	206	No	0.05	207	No	0.04	208	No	<0.01
7	40	223	208	No	0.08	210	No	0.09	211	No	<0.01
	45	223	210	No	0.12	212	No	0.11	213	No	<0.01
	50	223	212	No	0.18	214	No	0.16	215	No	0.01
	55	223	214	No	0.21	216	No	0.23	217	No	0.04
	60	223	217	No	0.32	218	No	0.31	219	No	0.13
	65	223	219	No	0.41	220	No	0.4	221	No	0.28
	70	223	221	Yes	0.5	223	Yes	0.55	224	Yes	0.61
	75	223	224	Yes	0.64	225	Yes	0.64	226	Yes	0.8
	80	223	226	Yes	0.72	228	Yes	0.77	229	Yes	0.96

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
	85	223	230	Yes	0.85	231	Yes	0.86	232	Yes	0.99
	90	223	234	Yes	0.94	235	Yes	0.94	237	Yes	>0.99
	95	223	240	Yes	0.99	241	Yes	0.99	243	Yes	>0.99
8	5	224	188	No	<0.01	189	No	<0.01	190	No	<0.01
	10	224	194	No	<0.01	195	No	<0.01	196	No	<0.01
	15	224	198	No	0.01	199	No	<0.01	200	No	<0.01
	20	224	201	No	0.02	203	No	0.02	203	No	<0.01
	25	224	204	No	0.04	205	No	0.02	206	No	<0.01
	30	224	207	No	0.06	208	No	0.05	209	No	<0.01
	35	224	209	No	0.09	210	No	0.08	211	No	<0.01
	40	224	211	No	0.13	213	No	0.12	213	No	<0.01
	45	224	214	No	0.18	215	No	0.17	216	No	0.01
	50	224	216	No	0.25	217	No	0.24	218	No	0.04
	55	224	218	No	0.33	219	No	0.32	220	No	0.13
	60	224	220	No	0.41	221	No	0.41	222	No	0.28
	65	224	222	Yes	0.5	223	Yes	0.5	224	Yes	0.5
	70	224	225	Yes	0.63	226	Yes	0.64	227	Yes	0.8
	75	224	227	Yes	0.71	228	Yes	0.72	229	Yes	0.92
	80	224	230	Yes	0.82	231	Yes	0.83	232	Yes	0.99
	85	224	233	Yes	0.89	235	Yes	0.92	236	Yes	>0.99
	90	224	238	Yes	0.96	239	Yes	0.97	240	Yes	>0.99
	95	224	244	Yes	0.99	245	Yes	>0.99	246	Yes	>0.99

Note. Prob. = Probability.

Table 3.11. Proficiency Projections Based on RIT Scores—Science

Grade	Start Percentile	Spring Cut	Fall RIT	Fall Projected Proficiency Proficient	Fall Projected Proficiency Prob.	Winter RIT	Winter Projected Proficiency Proficient	Winter Projected Proficiency Prob.	Spring RIT	Spring Projected Proficiency Proficient	Spring Projected Proficiency Prob.
	5	211	179	No	<0.01	182	No	<0.01	184	No	<0.01
	10	211	184	No	<0.01	187	No	<0.01	189	No	<0.01
	15	211	187	No	0.01	190	No	0.01	192	No	<0.01
	20	211	190	No	0.03	193	No	0.02	195	No	<0.01
	25	211	192	No	0.05	195	No	0.03	197	No	<0.01
	30	211	194	No	0.07	197	No	0.05	199	No	<0.01
	35	211	196	No	0.11	199	No	0.09	201	No	<0.01
	40	211	198	No	0.17	201	No	0.15	203	No	0.01
	45	211	199	No	0.21	203	No	0.23	205	No	0.04
5	50	211	201	No	0.29	204	No	0.23	207	No	0.13
	55	211	203	No	0.34	206	No	0.33	208	No	0.2
	60	211	204	No	0.39	208	No	0.44	210	No	0.39
	65	211	206	Yes	0.5	209	Yes	0.5	212	Yes	0.61
	70	211	208	Yes	0.61	211	Yes	0.62	214	Yes	0.8
	75	211	210	Yes	0.71	213	Yes	0.72	216	Yes	0.92
	80	211	212	Yes	0.79	216	Yes	0.81	218	Yes	0.98
	85	211	215	Yes	0.86	218	Yes	0.88	221	Yes	>0.99
	90	211	218	Yes	0.93	221	Yes	0.95	224	Yes	>0.99
	95	211	223	Yes	0.98	226	Yes	0.99	229	Yes	>0.99
	5	220	186	No	<0.01	187	No	<0.01	188	No	<0.01
	10	220	191	No	<0.01	193	No	<0.01	194	No	<0.01
	15	220	195	No	0.01	196	No	<0.01	197	No	<0.01
8	20	220	198	No	0.01	199	No	0.01	200	No	<0.01
	25	220	200	No	0.02	202	No	0.02	203	No	<0.01
	30	220	202	No	0.04	204	No	0.03	205	No	<0.01
	35	220	204	No	0.06	206	No	0.05	207	No	<0.01
	40	220	206	No	0.1	208	No	0.09	209	No	<0.01

Grade	Start Percentile	Spring Cut	Fall	Fall		Winter	Winter		Spring	Spring	
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
	45	220	208	No	0.13	210	No	0.14	211	No	0.01
	50	220	210	No	0.19	211	No	0.14	213	No	0.02
	55	220	211	No	0.22	213	No	0.21	215	No	0.08
	60	220	213	No	0.31	215	No	0.3	217	No	0.2
	65	220	215	No	0.4	217	No	0.39	219	No	0.39
	70	220	217	No	0.45	219	Yes	0.5	221	Yes	0.61
	75	220	219	Yes	0.55	221	Yes	0.61	223	Yes	0.8
	80	220	222	Yes	0.69	224	Yes	0.75	226	Yes	0.96
	85	220	224	Yes	0.78	227	Yes	0.86	228	Yes	0.99
	90	220	228	Yes	0.9	230	Yes	0.93	232	Yes	>0.99
	95	220	233	Yes	0.97	236	Yes	0.99	238	Yes	>0.99

Note. Prob. = Probability.

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