Predicting Performance on the California Smarter Balanced Summative Assessments Based on NWEA MAP Growth Scores

August 2025

NWEA Psychometrics and Analytics

nwea

Linking Study Updates

Date	Description
2021-03	Conducted a linking study for grades 3–8 and 11 in mathematics and ELA/literacy based on the 2020 norms and Spring 2019 data.
2025-08	Updated the linking study based on the 2025 norms.

Acknowledgements: This report was made possible with the contributions of Yan Zhou, Ann Hu, Justin Schreiber, Christopher Wells, and Derek May. We appreciate our colleagues at NWEA and all our partners who provided data for the study.

Table of Contents

List of Tables

List of Figures

Executive Summary

To predict student achievement on the California Smarter Balanced Assessment Consortium (CA SBAC) summative assessments in grades 3–8 and 11 in English language arts/literacy (ELA) and mathematics, NWEA® conducted a linking study using Spring 2019 data to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the CA SBAC achievement levels. With this information, educators can identify students at risk of failing to meet state proficiency standards early in the year and provide tailored educational interventions. The linking study has been updated since the previous version to incorporate the most recent 2025 NWEA MAP Growth norms (NWEA, 2025).

Table E.1 presents the CA SBAC 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 CA SBAC grade 3 ELA test is 2432. A grade 3 student with a MAP Growth reading RIT score of 191 in the fall is likely to meet proficiency on the CA SBAC ELA test in the spring, whereas a grade 3 student with a MAP Growth reading 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 CA SBAC test by grade 3. These cut scores were derived based on the grade 3 cuts and the 2025 NWEA growth norms for the adjacent grade (i.e., grades 2 to 3).

Table E.1. MAP Growth Cut Scores for CA SBAC Proficiency

Assessment		Level 3 Cut Scores by Grade							
		2	3	4	5	6	7	8	11
ELA/Reading									
CA SBAC Spring		–	2432	2473	2502	2531	2552	2567	2583
MAP Growth	Fall	176	191	200	207	213	215	220	223
	Winter	183	196	204	209	215	216	221	224
	Spring	187	199	206	211	216	217	222	225
Mathematics									
CA SBAC Spring		–	2436	2485	2528	2552	2567	2586	2628
MAP Growth	Fall	177	188	205	217	219	226	234	250
	Winter	185	197	213	223	225	230	239	252
	Spring	191	203	218	227	229	233	241	253

Please note that the results in this report may differ from those found in the NWEA reporting system for individual districts. The typical growth scores from fall to spring or winter to spring used in this report are based on the default instructional weeks most encountered for each term (i.e., Weeks 4, 20, and 32 for fall, winter, and spring, respectively). However, instructional weeks often vary by district, so the cut scores in this report may differ slightly from the MAP Growth score reports that reflect the specific instructional weeks set by partners.

E.1. Assessment Overview

The CA SBAC grades 3–8 and 11 ELA and mathematics tests are California's state summative assessments aligned to the Common Core State Standards (CCSS). Based on their test scores, students are placed into one of four achievement levels: Level 1: *Standard Not Met*, Level 2: *Standard Nearly Met*, Level 3: *Standard Met*, and Level 4: *Standard Exceeded*. The Level 3 cut score demarks the minimum level of achievement considered to be proficient for accountability purposes. MAP Growth tests are adaptive interim assessments aligned to state-specific content standards and administered in the fall, winter, and spring. Scores are reported on the RIT vertical scale with a range of 100–350.

E.2. Linking Methods

Based on scores from the Spring 2019 test administration, the equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring CA SBAC achievement level cut scores. MAP Growth spring cut scores for grade 2 were then derived from the spring cuts for grade 3 and the growth norms for the adjacent grade (i.e., grades 2 to 3). Similarly, the MAP Growth cut scores for the fall and winter administrations of all grades were derived from the spring administration cuts and the growth norms for either fall to spring or winter to spring, respectively. The spring cuts[1] for mathematics were adjusted for score alignment before deriving the cuts for grade 2 spring and for all grades' fall and winter administrations.

E.3. Student Sample

Only students who took both the MAP Growth and CA SBAC assessments in Spring 2019 were included in the study sample. Table E.2 presents the weighted numbers of California students from 35 districts and 234 schools who were included in the linking study. The linking study sample is voluntary and can only include student scores from partners who share their data. Also, not all students in a state take MAP Growth. The sample may therefore not represent the general student population as well as it should. To ensure that the linking study sample represents the state student population in terms of race, sex, and achievement level, weighting (i.e., a statistical method that matches the distributions of the variables of interest to those of the target population) was applied to the sample. As a result, the RIT cuts derived from the study sample can be generalized to any student from the target population. All analyses in this study for grades 3–8 and 11 were conducted based on the weighted sample.

[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.

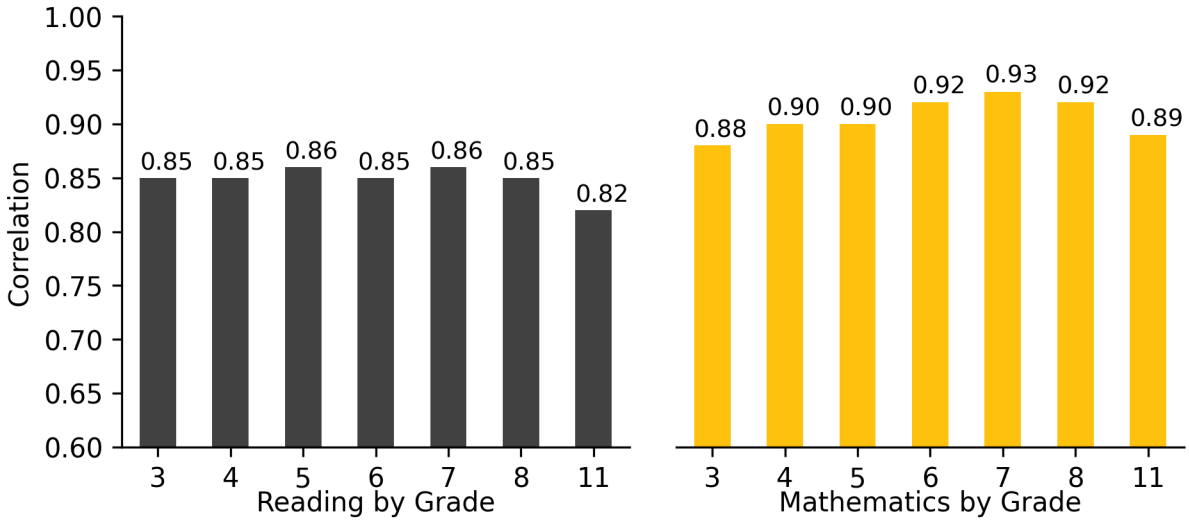
Table E.2. Linking Study Sample

Grade	# Students	
	ELA/Reading	Mathematics
3	7,350	7,024
4	7,025	6,956
5	6,588	6,717
6	5,774	5,203
7	5,628	5,591
8	5,002	4,647
11	1,324	1,530

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and CA SBAC scores range from 0.82 to 0.93 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 CA SBAC summative assessments.

Figure E.1. Correlations Between MAP Growth and CA SBAC Test Scores

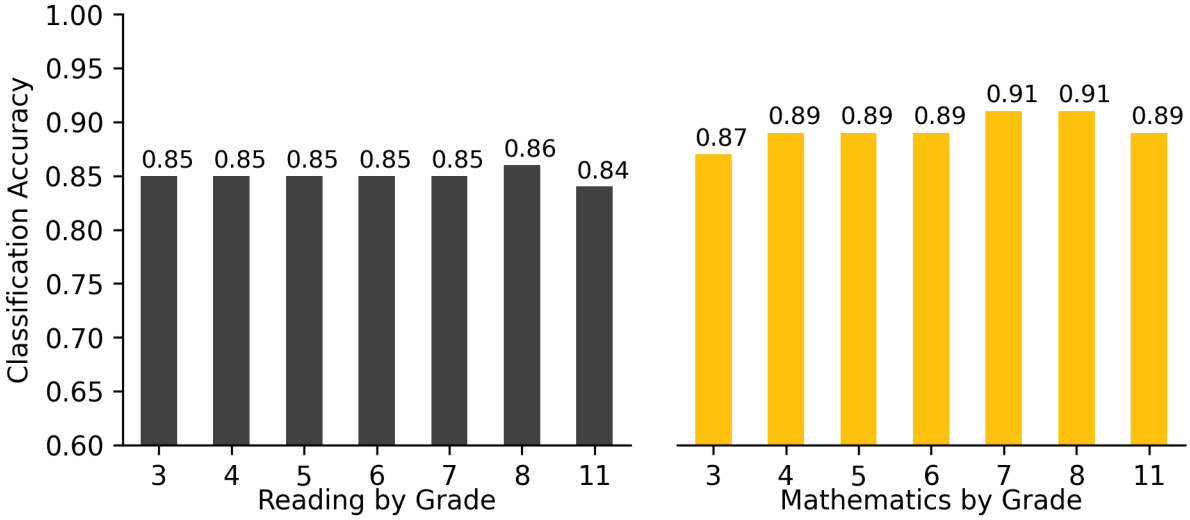


E.5. Accuracy of MAP Growth Classifications

Figure E.2 presents the classification accuracy statistics that show the proportion of students correctly classified by their RIT scores as proficient (Level 3 or higher) or not proficient (lower than Level 3) on the CA SBAC summative tests.[2] For example, the MAP Growth reading grade 3 Level 3 cut score has a 0.85 accuracy rate, meaning it accurately classified student achievement on the state test for 85% of the sample. The results range from 0.84 to 0.91 across content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the CA SBAC summative tests.

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

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 report presents results from a linking study conducted by NWEA in March 2021 to statistically connect the scores of the California Smarter Balanced Assessment Consortium (CA SBAC) summative assessments in grades 3–8 and 11 in English language arts/literacy (ELA) and mathematics with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2019 term. The linking study has been updated since the previous version to incorporate the most recent 2025 NWEA MAP Growth norms (NWEA, 2025). In this updated study, MAP Growth cut scores are also included for grade 2 so that educators can track early learners' progress toward proficiency (Level 3 or higher) on the CA SBAC summative assessment by grade 3. This report presents the following results:

1. Student sample demographics
2. Descriptive statistics of test scores
3. MAP Growth cut scores that correspond to the CA SBAC achievement levels using the equipercentile linking procedure for the spring results and the 2025 norms for the fall and winter results
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the CA SBAC summative tests
5. The probability of achieving grade-level proficiency on the CA SBAC assessment based on MAP Growth RIT scores from fall, winter, and spring using the 2025 norms

1.2. Assessment Overview

The CA SBAC grades 3–8 and 11 ELA and mathematics summative assessments are aligned to the Common Core State Standards (CCSS). Each assessment has three cut scores (i.e., the minimum score a student must get on a test to be placed in a certain achievement level) that distinguish between the following achievement levels: Level 1: *Standard Not Met*, Level 2: *Standard Nearly Met*, Level 3: *Standard Met*, and Level 4: *Standard Exceeded*. The Level 3 cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

MAP Growth interim assessments from NWEA are computer adaptive and aligned to state-specific content standards. Scores are reported on the RIT vertical scale with a range of 100–350. Each content area has its own scale. To aid the interpretation of scores, NWEA periodically conducts norming studies of student and school performance on MAP Growth. Achievement status norms show how well a student performed on the MAP Growth test compared with students in the norming group by associating the student's performance on the MAP Growth test, expressed as a RIT score, with a percentile ranking. Growth norms provide expected score gains across test administrations (e.g., the relative evaluation of a student's growth from fall to spring). The most recent norms study was conducted in 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 CA SBAC assessments. NWEA requested that California districts recruited to participate in the study share their student and score data for the target term. Districts also permitted NWEA to access students' associated 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 by using the student's first and last names, date of birth, student ID, and other available identifying information. Only students who took both the MAP Growth and CA SBAC assessments in Spring 2019 were included in the study sample.

2.2. Post-Stratification Weighting

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

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. Apply the weights to the sample before conducting the linking study analyses.

2.3. MAP Growth Cut Scores

The equipercentile linking method (Kolen & Brennan, 2004) was used to identify the spring MAP Growth RIT scores that correspond to the spring CA SBAC achievement level cut scores. Spring cuts for grade 2 were derived based on the cuts for grade 3 and the 2025 NWEA growth norms. RIT fall and winter cut scores that predict proficiency (Level 3 or higher) on the spring CA SBAC summative test were then projected using the 2025 growth norms. Percentile ranks are also provided that show how a nationally representative sample of students in the same grade scored on MAP Growth for each administration, which is an important interpretation of RIT scores. This is useful for understanding (1) how student scores compare with peers nationwide and (2) the relative rigor of a state's achievement level designations for its summative assessment.

The MAP Growth spring cut scores for grades 3–8 and 11 could be calculated using the equipercentile linking method because that data are directly connected to the CA SBAC spring data used in the study. The equipercentile linking procedure matches scores on the two scales that have the same percentile rank (i.e., the proportion of tests at or below each score). For example, let x represent a score on Test X (e.g., CA SBAC). 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 the CA SBAC tests on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on the CA SBAC tests, and G^{-1} is the inverse of the percentile rank function for MAP Growth that indicates the score on MAP Growth corresponding to a given percentile. Polynomial loglinear pre-smoothing was applied to reduce irregularities of the score distributions and equipercentile linking curve.

The MAP Growth conditional growth norms provide students' expected score gains across terms, such as growth from fall or winter to spring within the same grade or from spring of a lower grade to the spring of the adjacent higher grade. This information can be used to calculate the fall and winter cut scores for grades 3–8 and 11 and the fall, winter, and spring cut scores for grade 2. The equation below 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:

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

where:

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

To derive the spring cut scores for grade 2, the growth score from spring of one year to the next was used (i.e., the growth score from spring grade 2 to spring grade 3). The calculation of fall and winter cuts for grade 2 followed the same process as the other grades. For example, the growth score from fall to spring in grade 2 was used to calculate the fall cuts for grade 2.

2.4. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the CA SBAC tests can be described using classification accuracy statistics based on the MAP Growth spring RIT cut scores that show the proportion of students correctly classified by their RIT scores as proficient (Level 3 or higher) or not proficient (lower than Level 3). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich et al., 2004). The results are based on the Spring 2019 MAP Growth and CA SBAC data for the Level 3 cut score.

Table 2.1. Description of Classification Accuracy Summary Statistics

Statistic	Description	Interpretation
Overall Classification Accuracy Rate	(TP + TN) / (total sample size)	Proportion of the study sample whose proficiency classification on the state test was correctly predicted by MAP Growth cut scores
False Negative (FN) Rate	FN / (FN + TP)	Proportion of 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

Statistic	Description	Interpretation
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.

2.5. Proficiency Projections

Given that all test scores contain measurement errors, reaching the Level 3 RIT cut does not guarantee that a student is proficient on the state test. Instead, it can be claimed that a student meeting the RIT cut score has a 50% chance of reaching proficiency (Level 3 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 CA SBAC summative test based on a student's RIT scores from fall, winter, and spring. The equation below was used to calculate the probability of a student reaching proficiency on the CA SBAC summative test based on their fall or winter RIT score:

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

where:

- Φ is a standardized normal cumulative distribution,
- $RIT_{previous}$ is the student's RIT score in fall or winter,
- g is the expected growth from the previous RIT (e.g., fall or winter) to the spring RIT,
- $RIT_{SpringCut}$ is the MAP Growth Level 3 cut score for 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 (Level 3 or higher) on the CA SBAC summative test 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 CA SBAC assessments in Spring 2019 were included in the study sample. Data used in this study were collected from 35 districts and 234 schools in California. Table 3.1 presents the demographic distributions of race, sex, and achievement level in the original unweighted study sample. Table 3.2 presents the distributions of the student population who took the Spring 2019 CA SBAC summative assessments. Since the unweighted data are different from the general CA SBAC 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 CA SBAC student population distributions. The analyses in this study were therefore conducted based on the weighted sample.

Table 3.1. Linking Study Sample Demographics (Unweighted)

Demographic Subgroup		% Students by Grade						
		3	4	5	6	7	8	11
ELA/Reading								
	Total N	7,350	7,026	6,588	5,774	5,629	5,002	1,324
Race	AI/AN	11.8	12.7	14.8	17.0	19.0	18.2	0.4
	Asian	8.5	9.4	10.3	9.0	8.2	9.7	1.4
	Black	3.8	3.8	3.5	3.3	3.7	3.6	6.7
	Filipino	1.6	1.6	2.2	2.5	2.8	3.4	0.8
	Hispanic	50.1	47.4	40.6	40.1	37.3	35.0	70.4
	Multi-Race	1.2	1.3	1.8	1.7	1.3	1.1	4.2
	NH/PI	0.5	0.5	0.6	0.5	0.7	0.7	0.2
	White	22.5	23.3	26.1	25.9	27.0	28.2	15.9
Sex	Female	49.3	49.2	48.6	48.1	48.8	49.2	53.5
	Male	50.7	50.8	51.4	51.9	51.2	50.8	46.5
Achievement Level	Level 1	34.8	37.2	33.1	31.2	30.6	29.0	36.3
	Level 2	25.8	21.5	20.7	27.8	25.2	27.6	29.9
	Level 3	20.1	21.4	26.2	28.5	30.5	29.5	24.9
	Level 4	19.2	19.8	19.9	12.5	13.6	13.9	8.8
Mathematics								
	Total N	7,024	6,955	6,718	5,203	5,592	4,647	1,530
Race	AI/AN	12.4	12.7	14.7	16.5	17.7	17.0	1.2
	Asian	7.2	9.0	10.1	7.0	10.2	9.8	2.0
	Black	4.0	3.9	3.5	2.2	2.1	2.0	8.0
	Filipino	1.7	1.7	2.1	1.5	2.6	2.2	2.4
	Hispanic	50.1	47.6	41.6	44.4	37.1	41.4	65.3
	Multi-Race	1.1	1.3	1.7	1.7	1.8	1.8	3.7
	NH/PI	0.5	0.5	0.6	0.2	0.4	0.2	0.8
	White	23.1	23.2	25.7	26.4	28.2	25.5	16.7

Demographic Subgroup		% Students by Grade						
		3	4	5	6	7	8	11
Sex	Female	49.4	49.3	48.7	47.8	49.3	49.1	51.9
	Male	50.6	50.7	51.3	52.2	50.7	50.9	48.1
Achievement Level	Level 1	33.1	29.1	38.9	39.9	38.8	46.4	75.1
	Level 2	23.6	32.6	27.1	27.9	24.9	21.4	17.9
	Level 3	25.8	22.3	15.2	16.1	17.8	13.7	5.8
	Level 4	17.4	16.1	18.8	16.2	18.5	18.5	1.2

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian or Other Pacific Islander.

Table 3.2. Spring 2019 CA SBAC Student Population Demographics

Demographic Subgroup		% Students by Grade						
		3	4	5	6	7	8	11
ELA								
	Total N	442,660	435,323	454,564	457,431	471,504	461,481	439,947
Race	AI/AN	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Asian	9.3	9.2	9.3	9.2	9.2	9.5	9.8
	Black	5.3	5.3	5.4	5.3	5.3	5.3	5.3
	Filipino	2.0	2.0	2.0	2.0	2.2	2.4	2.9
	Hispanic	55.5	55.6	55.9	55.8	55.8	55.2	54.3
	Multi-Race	4.5	4.4	4.1	4.0	3.9	3.7	3.2
	NH/PI	0.4	0.4	0.5	0.5	0.5	0.5	0.5
	White	22.6	22.5	22.3	22.6	22.6	22.9	23.5
Sex	Female	49.1	48.8	48.6	48.8	48.9	49.0	49.3
	Male	50.9	51.2	51.4	51.2	51.1	51.0	50.7
Achievement Level	Level 1	28.0	31.2	28.4	25.4	26.4	25.7	21.4
	Level 2	23.4	19.4	19.9	24.6	22.2	24.9	21.4
	Level 3	22.2	22.6	28.0	31.2	33.2	32.4	30.2
	Level 4	26.4	26.9	23.7	18.9	18.2	17.0	27.1
Mathematics								
	Total N	444,866	437,414	456,345	459,016	472,985	462,238	438,107
Race	AI/AN	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Asian	9.4	9.3	9.4	9.3	9.3	9.5	9.8
	Black	5.3	5.3	5.4	5.3	5.2	5.3	5.3
	Filipino	2.0	2.0	2.0	2.0	2.2	2.4	2.9
	Hispanic	55.5	55.7	55.9	55.9	55.9	55.3	54.3
	Multi-Race	4.5	4.4	4.1	4.0	3.8	3.7	3.2
	NH/PI	0.4	0.4	0.5	0.5	0.5	0.5	0.5
	White	22.5	22.5	22.2	22.5	22.5	22.9	23.4
Sex	Female	49.1	48.7	48.6	48.8	48.9	49.0	49.2
	Male	50.9	51.3	51.4	51.2	51.1	51.0	50.8

Demographic Subgroup		% Students by Grade						
		3	4	5	6	7	8	11
Achievement Level	Level 1	26.8	24.8	35.3	34.2	36.5	40.8	45.5
	Level 2	23.0	30.3	26.7	27.3	25.7	22.6	22.3
	Level 3	27.7	24.9	16.8	18.6	18.5	15.8	18.4
	Level 4	22.5	20.0	21.2	19.9	19.4	20.8	13.9

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian or Other Pacific Islander.

Table 3.3. Linking Study Sample Demographics (Weighted)

Demographic Subgroup		% Students by Grade						
		3	4	5	6	7	8	11
ELA/Reading								
	Total N	7,350	7,025	6,588	5,774	5,628	5,002	1,324
Race	AI/AN	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Asian	9.3	9.2	9.3	9.2	9.2	9.5	9.8
	Black	5.3	5.3	5.4	5.3	5.3	5.3	5.3
	Filipino	2.0	2.0	2.0	2.0	2.2	2.4	2.9
	Hispanic	55.5	55.6	55.9	55.8	55.8	55.2	54.3
	Multi-Race	4.5	4.4	4.2	4.0	3.9	3.7	3.2
	NH/PI	0.4	0.4	0.5	0.5	0.5	0.5	0.5
	White	22.6	22.5	22.3	22.6	22.6	22.9	23.5
Sex	Female	49.1	48.8	48.7	48.8	48.9	49.0	49.3
	Male	50.9	51.2	51.3	51.2	51.1	51.0	50.7
Achievement Level	Level 1	28.0	31.2	28.4	25.4	26.4	25.7	21.4
	Level 2	23.4	19.4	19.9	24.6	22.2	24.9	21.4
	Level 3	22.2	22.6	28.0	31.2	33.2	32.4	30.2
	Level 4	26.3	26.9	23.7	18.8	18.2	17.0	27.1
Mathematics								
	Total N	7,024	6,956	6,717	5,203	5,591	4,647	1,530
Race	AI/AN	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Asian	9.4	9.3	9.4	9.3	9.3	9.5	9.8
	Black	5.3	5.3	5.3	5.3	5.2	5.3	5.3
	Filipino	2.0	2.0	2.0	2.0	2.3	2.4	2.9
	Hispanic	55.5	55.7	55.9	55.9	55.9	55.3	54.3
	Multi-Race	4.5	4.4	4.1	4.0	3.8	3.7	3.2
	NH/PI	0.4	0.4	0.5	0.5	0.5	0.5	0.5
	White	22.5	22.5	22.2	22.5	22.5	22.9	23.5
Sex	Female	49.1	48.7	48.6	48.8	48.9	49.0	49.2
	Male	50.9	51.3	51.4	51.2	51.1	51.0	50.8
Achievement Level	Level 1	26.8	24.7	35.3	34.2	36.5	40.8	45.5
	Level 2	23.0	30.3	26.7	27.3	25.7	22.6	22.3
	Level 3	27.7	24.9	16.8	18.6	18.5	15.8	18.4
	Level 4	22.5	20.0	21.2	19.9	19.4	20.8	13.8

Note. AI/AN = American Indian/Alaska Native; NH/PI = Native Hawaiian or Other Pacific Islander.

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and CA SBAC test scores from Spring 2019, including the correlation coefficients (*r*) between them. The coefficients between the scores range from 0.82 to 0.86 for ELA/reading and 0.88 to 0.93 for mathematics, indicating a strong relationship among the scores. This is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the CA SBAC summative assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	CA SBAC				MAP Growth			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
ELA/Reading										
3	7,350	0.85	2424.3	92.4	2114	2623	196.5	16.8	138	251
4	7,025	0.85	2465.6	97.4	2131	2663	203.6	16.4	145	246
5	6,588	0.86	2501.5	99.6	2201	2701	209.3	16.1	145	259
6	5,774	0.85	2523.8	99.8	2210	2724	213.8	16.5	154	267
7	5,628	0.86	2546.2	104.9	2258	2745	215.2	17.4	151	260
8	5,002	0.85	2560.4	103.4	2288	2769	219.2	17.2	153	285
11	1,324	0.82	2593.7	114.8	2299	2795	225.0	16.9	153	258
Mathematics										
3	7,024	0.88	2434.3	84.5	2189	2621	200.1	15.2	133	275
4	6,956	0.90	2472.3	85.9	2204	2659	209.6	16.5	136	273
5	6,717	0.90	2495.1	96.1	2219	2700	217.0	18.5	134	288
6	5,203	0.92	2513.5	111.0	2235	2748	220.6	18.8	157	317
7	5,591	0.93	2525.3	119.6	2250	2778	224.0	21.2	152	302
8	4,647	0.92	2538.7	127.4	2265	2802	228.8	22.1	153	304
11	1,530	0.89	2557.9	130.8	2280	2862	235.1	23.1	153	295

Note. SD = standard deviation; Min. = minimum; Max. = maximum.

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the CA SBAC scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. These tables can be used to predict a student's likely achievement level on the CA SBAC 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 191 in the fall is likely to achieve Level 3 performance on the CA SBAC ELA test. A grade 3 student who obtained a MAP Growth reading RIT score of 196 in the winter is also likely to achieve Level 3 performance on the CA SBAC summative assessment. The winter cut score is higher than the fall cut score because growth is expected between fall and winter as students receive more instruction during the school year.

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

Table 3.5. MAP Growth Cut Scores—ELA/Reading

CA SBAC ELA								
Grade	**Level 1**		**Level 2**		**Level 3**		**Level 4**	
3	2114–2366		2367–2431		**2432**–2489		2490–2623	
4	2131–2415		2416–2472		**2473**–2532		2533–2663	
5	2201–2441		2442–2501		**2502**–2581		2582–2701	
6	2210–2456		2457–2530		**2531**–2617		2618–2724	
7	2258–2478		2479–2551		**2552**–2648		2649–2745	
8	2288–2486		2487–2566		**2567**–2667		2668–2769	
11	2299–2492		2493–2582		**2583**–2681		2682–2795	
MAP Growth Reading								
Grade	**Level 1**		**Level 2**		**Level 3**		**Level 4**	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–160	1–29	161–175	30–63	**176**–188	64–86	189–350	87–99
3	100–177	1–35	178–190	36–62	**191**–200	63–80	201–350	81–99
4	100–189	1–36	190–199	37–58	**200**–209	59–77	210–350	78–99
5	100–195	1–32	196–206	33–57	**207**–217	58–78	218–350	79–99
6	100–199	1–29	200–212	30–59	**213**–225	60–83	226–350	84–99
7	100–201	1–26	202–214	27–55	**215**–228	56–83	229–350	84–99
8	100–204	1–25	205–219	26–59	**220**–232	60–83	233–350	84–99
11	100–210	1–34	211–222	35–59	**223**–234	60–81	235–350	82–99
Winter								
2	100–167	1–30	168–182	31–63	**183**–194	64–85	195–350	86–99
3	100–182	1–34	183–195	35–62	**196**–205	63–80	206–350	81–99
4	100–193	1–37	194–203	38–59	**204**–212	60–77	213–350	78–99
5	100–198	1–32	199–208	33–55	**209**–219	56–78	220–350	79–99
6	100–201	1–29	202–214	30–59	**215**–226	60–83	227–350	84–99
7	100–203	1–27	204–215	28–54	**216**–229	55–82	230–350	83–99
8	100–206	1–27	207–220	28–58	**221**–233	59–83	234–350	84–99
11	100–211	1–36	212–223	37–62	**224**–235	63–83	236–350	84–99
Spring								
2	100–173	1–32	174–186	33–61	**187**–197	62–82	198–350	83–99
3	100–187	1–36	188–198	37–60	**199**–207	61–77	208–350	78–99
4	100–196	1–38	197–205	39–58	**206**–213	59–74	214–350	75–99
5	100–201	1–35	202–210	36–55	**211**–220	56–76	221–350	77–99
6	100–203	1–30	204–215	31–58	**216**–227	59–82	228–350	83–99
7	100–205	1–29	206–216	30–54	**217**–230	55–82	231–350	83–99
8	100–208	1–29	209–221	30–59	**222**–234	60–83	235–350	84–99
11	100–212	1–39	213–224	40–64	**225**–236	65–84	237–350	85–99

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

Table 3.6. MAP Growth Cut Scores—Mathematics

CA SBAC Mathematics								
Grade	**Level 1**		**Level 2**		**Level 3**		**Level 4**	
3	2189–2380		2381–2435		**2436**–2500		2501–2621	
4	2204–2410		2411–2484		**2485**–2548		2549–2659	
5	2219–2454		2455–2527		**2528**–2578		2579–2700	
6	2235–2472		2473–2551		**2552**–2609		2610–2748	
7	2250–2483		2484–2566		**2567**–2634		2635–2778	
8	2265–2503		2504–2585		**2586**–2652		2653–2802	
11	2280–2542		2543–2627		**2628**–2717		2718–2862	
MAP Growth Mathematics								
Grade	**Level 1**		**Level 2**		**Level 3**		**Level 4**	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–163	1–27	164–176	28–60	**177**–190	61–87	191–350	88–99
3	100–177	1–34	178–187	35–59	**188**–198	60–82	199–350	83–99
4	100–189	1–32	190–204	33–68	**205**–215	69–87	216–350	88–99
5	100–202	1–41	203–216	42–74	**217**–224	75–87	225–350	88–99
6	100–206	1–41	207–218	42–70	**219**–228	71–87	229–350	88–99
7	100–212	1–39	213–225	40–69	**226**–237	70–88	238–350	89–99
8	100–220	1–47	221–233	48–73	**234**–243	74–87	244–350	88–99
11	100–233	1–58	234–249	59–84	**250**–268	85–96	269–350	97–99
Winter								
2	100–172	1–29	173–184	30–59	**185**–198	60–86	199–350	87–99
3	100–185	1–33	186–196	34–59	**197**–207	60–82	208–350	83–99
4	100–196	1–32	197–212	33–68	**213**–223	69–86	224–350	87–99
5	100–208	1–43	209–222	44–73	**223**–230	74–85	231–350	86–99
6	100–212	1–42	213–224	43–69	**225**–235	70–87	236–350	88–99
7	100–216	1–40	217–229	41–68	**230**–242	69–87	243–350	88–99
8	100–224	1–47	225–238	48–74	**239**–248	75–87	249–350	88–99
11	100–236	1–59	237–251	60–82	**252**–269	83–95	270–350	96–99
Spring								
2	100–179	1–31	180–190	32–58	**191**–203	59–84	204–350	85–99
3	100–192	1–35	193–202	36–58	**203**–213	59–80	214–350	81–99
4	100–202	1–34	203–217	35–66	**218**–228	67–84	229–350	85–99
5	100–212	1–43	213–226	44–71	**227**–234	72–84	235–350	85–99
6	100–216	1–42	217–228	43–67	**229**–239	68–85	240–350	86–99
7	100–219	1–41	220–232	42–67	**233**–244	68–85	245–350	86–99
8	100–227	1–47	228–240	48–72	**241**–250	73–85	251–350	86–99
11	100–237	1–58	238–252	59–80	**253**–270	81–94	271–350	95–99

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

3.4. Classification Accuracy

Table 3.7 presents the classification accuracy summary statistics, including the overall classification accuracy rates. These results indicate how well MAP Growth spring RIT scores predict proficiency on the CA SBAC summative tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rates range from 0.84 to 0.86 for ELA/reading and 0.87 to 0.91 for mathematics. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the CA SBAC summative assessment.

Although the results show that MAP Growth scores can be used to accurately classify students as likely to be proficient on the CA SBAC summative tests, there is a notable limitation to how these results should be used and interpreted. The CA SBAC 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	CA SBAC		FP	FN				
ELA/Reading										
3	7,350	199	2432	0.85	0.15	0.14	0.86	0.85	0.84	0.93
4	7,025	206	2473	0.85	0.15	0.14	0.86	0.85	0.84	0.93
5	6,588	211	2502	0.85	0.15	0.15	0.85	0.85	0.86	0.93
6	5,774	216	2531	0.85	0.15	0.15	0.85	0.85	0.85	0.93
7	5,628	217	2552	0.85	0.16	0.14	0.86	0.84	0.85	0.93
8	5,002	222	2567	0.86	0.13	0.16	0.84	0.87	0.86	0.94
11	1,324	225	2583	0.84	0.18	0.14	0.86	0.82	0.87	0.92
Mathematics										
3	7,024	201	2436	0.87	0.17	0.10	0.90	0.83	0.84	0.95
4	6,956	213	2485	0.89	0.11	0.12	0.88	0.89	0.87	0.95
5	6,717	224	2528	0.89	0.09	0.15	0.85	0.91	0.86	0.96
6	5,203	226	2552	0.89	0.11	0.11	0.89	0.89	0.84	0.96
7	5,591	231	2567	0.91	0.09	0.10	0.90	0.91	0.86	0.97
8	4,647	237	2586	0.91	0.07	0.11	0.89	0.93	0.88	0.97
11	1,530	247	2628	0.89	0.08	0.17	0.83	0.92	0.83	0.95

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

3.5. Proficiency Projections

Table 3.8 and Table 3.9 present the estimated probability of achieving proficiency on the CA SBAC summative test based on RIT scores from fall, winter, or spring. “Prob.” indicates the probability of obtaining proficient (Level 3 or higher) status on the CA SBAC summative test in the spring. For example, a grade 3 student who obtained a MAP Growth reading score of 200 in the fall has an 82% chance of reaching Level 3 or higher on the CA SBAC summative test.

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

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
2	5	187	142	No	<0.01	149	No	<0.01	153	No	<0.01
	10	187	148	No	<0.01	155	No	<0.01	159	No	<0.01
	15	187	152	No	0.01	159	No	0.01	164	No	<0.01
	20	187	156	No	0.03	162	No	0.02	167	No	<0.01
	25	187	159	No	0.05	165	No	0.03	170	No	<0.01
	30	187	161	No	0.07	168	No	0.06	173	No	<0.01
	35	187	163	No	0.11	170	No	0.09	175	No	<0.01
	40	187	166	No	0.16	172	No	0.14	177	No	<0.01
	45	187	168	No	0.22	175	No	0.2	180	No	0.02
	50	187	170	No	0.29	177	No	0.27	182	No	0.08
	55	187	172	No	0.33	179	No	0.36	184	No	0.2
	60	187	174	No	0.41	181	No	0.41	186	No	0.39
	65	187	177	Yes	0.54	183	Yes	0.5	188	Yes	0.61
	70	187	179	Yes	0.59	186	Yes	0.64	191	Yes	0.87
	75	187	182	Yes	0.71	188	Yes	0.73	193	Yes	0.96
	80	187	184	Yes	0.78	191	Yes	0.8	196	Yes	0.99
	85	187	188	Yes	0.87	194	Yes	0.89	200	Yes	>0.99
	90	187	192	Yes	0.94	199	Yes	0.95	204	Yes	>0.99
	95	187	198	Yes	0.98	205	Yes	0.99	210	Yes	>0.99
3	5	199	155	No	<0.01	160	No	<0.01	164	No	<0.01
	10	199	161	No	<0.01	167	No	<0.01	171	No	<0.01
	15	199	166	No	0.01	171	No	<0.01	175	No	<0.01
	20	199	169	No	0.02	175	No	0.02	179	No	<0.01
	25	199	172	No	0.04	178	No	0.03	182	No	<0.01
	30	199	175	No	0.06	180	No	0.05	184	No	<0.01
	35	199	178	No	0.11	183	No	0.09	187	No	<0.01
	40	199	180	No	0.16	185	No	0.12	189	No	<0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	45	199	182	No	0.18	188	No	0.2	192	No	0.02
	50	199	185	No	0.29	190	No	0.27	194	No	0.08
	55	199	187	No	0.37	192	No	0.36	196	No	0.2
	60	199	189	No	0.46	194	No	0.41	198	No	0.39
	65	199	192	Yes	0.54	197	Yes	0.55	201	Yes	0.72
	70	199	194	Yes	0.63	199	Yes	0.64	203	Yes	0.87
	75	199	197	Yes	0.71	202	Yes	0.76	206	Yes	0.98
	80	199	200	Yes	0.82	205	Yes	0.83	209	Yes	>0.99
	85	199	204	Yes	0.89	209	Yes	0.92	213	Yes	>0.99
	90	199	208	Yes	0.95	213	Yes	0.96	217	Yes	>0.99
	95	199	215	Yes	0.99	220	Yes	>0.99	224	Yes	>0.99
4	5	206	166	No	<0.01	170	No	<0.01	173	No	<0.01
	10	206	173	No	<0.01	177	No	<0.01	179	No	<0.01
	15	206	177	No	0.01	181	No	0.01	184	No	<0.01
	20	206	181	No	0.02	184	No	0.01	187	No	<0.01
	25	206	184	No	0.05	187	No	0.03	190	No	<0.01
	30	206	186	No	0.06	190	No	0.07	193	No	<0.01
	35	206	189	No	0.12	193	No	0.1	195	No	<0.01
	40	206	191	No	0.17	195	No	0.16	198	No	0.01
	45	206	194	No	0.24	197	No	0.23	200	No	0.04
	50	206	196	No	0.32	199	No	0.31	202	No	0.13
	55	206	198	No	0.41	202	No	0.4	204	No	0.28
	60	206	200	Yes	0.5	204	Yes	0.5	207	Yes	0.61
	65	206	203	Yes	0.59	206	Yes	0.6	209	Yes	0.8
	70	206	205	Yes	0.68	209	Yes	0.73	211	Yes	0.92
	75	206	208	Yes	0.8	211	Yes	0.77	214	Yes	0.99
	80	206	211	Yes	0.86	214	Yes	0.87	217	Yes	>0.99
	85	206	215	Yes	0.94	218	Yes	0.95	220	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	90	206	219	Yes	0.97	222	Yes	0.98	225	Yes	>0.99
	95	206	226	Yes	>0.99	229	Yes	>0.99	231	Yes	>0.99
5	5	211	175	No	<0.01	178	No	<0.01	180	No	<0.01
	10	211	181	No	<0.01	184	No	<0.01	186	No	<0.01
	15	211	186	No	0.01	189	No	0.01	191	No	<0.01
	20	211	189	No	0.03	192	No	0.03	194	No	<0.01
	25	211	192	No	0.06	195	No	0.05	197	No	<0.01
	30	211	195	No	0.11	197	No	0.08	199	No	<0.01
	35	211	197	No	0.16	200	No	0.15	202	No	0.01
	40	211	199	No	0.2	202	No	0.22	204	No	0.02
	45	211	201	No	0.27	204	No	0.26	206	No	0.08
	50	211	204	No	0.4	206	No	0.35	208	No	0.2
	55	211	206	No	0.45	209	Yes	0.5	211	Yes	0.5
	60	211	208	Yes	0.55	211	Yes	0.55	213	Yes	0.72
	65	211	210	Yes	0.64	213	Yes	0.65	215	Yes	0.87
	70	211	213	Yes	0.73	215	Yes	0.74	217	Yes	0.96
	75	211	215	Yes	0.8	218	Yes	0.85	220	Yes	0.99
	80	211	218	Yes	0.89	221	Yes	0.92	223	Yes	>0.99
	85	211	222	Yes	0.94	224	Yes	0.96	226	Yes	>0.99
	90	211	226	Yes	0.98	228	Yes	0.99	230	Yes	>0.99
	95	211	232	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99
6	5	216	181	No	<0.01	183	No	<0.01	185	No	<0.01
	10	216	187	No	<0.01	189	No	<0.01	191	No	<0.01
	15	216	191	No	0.01	193	No	0.01	195	No	<0.01
	20	216	195	No	0.03	197	No	0.02	198	No	<0.01
	25	216	198	No	0.06	199	No	0.04	201	No	<0.01
	30	216	200	No	0.07	202	No	0.06	203	No	<0.01
	35	216	202	No	0.11	204	No	0.1	206	No	<0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	40	216	205	No	0.2	206	No	0.16	208	No	0.01
	45	216	207	No	0.23	209	No	0.26	210	No	0.04
	50	216	209	No	0.31	211	No	0.31	212	No	0.13
	55	216	211	No	0.4	213	No	0.4	214	No	0.28
	60	216	213	Yes	0.5	215	Yes	0.5	216	Yes	0.5
	65	216	215	Yes	0.55	217	Yes	0.6	218	Yes	0.72
	70	216	218	Yes	0.69	219	Yes	0.69	221	Yes	0.92
	75	216	220	Yes	0.77	222	Yes	0.81	223	Yes	0.98
	80	216	223	Yes	0.86	225	Yes	0.9	226	Yes	>0.99
	85	216	226	Yes	0.93	228	Yes	0.95	229	Yes	>0.99
	90	216	231	Yes	0.98	232	Yes	0.98	233	Yes	>0.99
	95	216	237	Yes	>0.99	238	Yes	>0.99	239	Yes	>0.99
7	5	217	185	No	<0.01	186	No	<0.01	187	No	<0.01
	10	217	191	No	0.01	192	No	0.01	193	No	<0.01
	15	217	195	No	0.02	196	No	0.01	197	No	<0.01
	20	217	198	No	0.04	200	No	0.04	201	No	<0.01
	25	217	201	No	0.08	202	No	0.06	203	No	<0.01
	30	217	204	No	0.15	205	No	0.11	206	No	<0.01
	35	217	206	No	0.18	207	No	0.16	208	No	0.01
	40	217	208	No	0.24	210	No	0.27	211	No	0.04
	45	217	210	No	0.32	212	No	0.31	213	No	0.13
	50	217	212	No	0.41	214	No	0.4	215	No	0.28
	55	217	214	No	0.45	216	Yes	0.5	217	Yes	0.5
	60	217	217	Yes	0.59	218	Yes	0.6	219	Yes	0.72
	65	217	219	Yes	0.68	220	Yes	0.69	221	Yes	0.87
	70	217	221	Yes	0.76	223	Yes	0.8	224	Yes	0.98
	75	217	224	Yes	0.85	225	Yes	0.86	226	Yes	0.99
	80	217	226	Yes	0.9	228	Yes	0.93	229	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	85	217	230	Yes	0.96	231	Yes	0.97	232	Yes	>0.99
	90	217	234	Yes	0.99	235	Yes	0.99	237	Yes	>0.99
	95	217	240	Yes	>0.99	241	Yes	>0.99	243	Yes	>0.99
8	5	222	188	No	<0.01	189	No	<0.01	190	No	<0.01
	10	222	194	No	<0.01	195	No	<0.01	196	No	<0.01
	15	222	198	No	0.02	199	No	0.01	200	No	<0.01
	20	222	201	No	0.03	203	No	0.03	203	No	<0.01
	25	222	204	No	0.06	205	No	0.04	206	No	<0.01
	30	222	207	No	0.09	208	No	0.08	209	No	<0.01
	35	222	209	No	0.13	210	No	0.12	211	No	<0.01
	40	222	211	No	0.18	213	No	0.17	213	No	0.01
	45	222	214	No	0.25	215	No	0.24	216	No	0.04
	50	222	216	No	0.33	217	No	0.32	218	No	0.13
	55	222	218	No	0.41	219	No	0.41	220	No	0.28
	60	222	220	Yes	0.5	221	Yes	0.5	222	Yes	0.5
	65	222	222	Yes	0.59	223	Yes	0.59	224	Yes	0.72
	70	222	225	Yes	0.71	226	Yes	0.72	227	Yes	0.92
	75	222	227	Yes	0.79	228	Yes	0.8	229	Yes	0.98
	80	222	230	Yes	0.87	231	Yes	0.88	232	Yes	>0.99
	85	222	233	Yes	0.93	235	Yes	0.95	236	Yes	>0.99
	90	222	238	Yes	0.98	239	Yes	0.98	240	Yes	>0.99
	95	222	244	Yes	>0.99	245	Yes	>0.99	246	Yes	>0.99
11	5	225	188	No	<0.01	188	No	<0.01	187	No	<0.01
	10	225	195	No	0.01	194	No	0.01	194	No	<0.01
	15	225	199	No	0.02	199	No	0.02	198	No	<0.01
	20	225	203	No	0.04	203	No	0.03	202	No	<0.01
	25	225	206	No	0.07	206	No	0.06	205	No	<0.01
	30	225	209	No	0.11	208	No	0.07	208	No	<0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	35	225	211	No	0.15	211	No	0.11	211	No	<0.01
	40	225	214	No	0.22	213	No	0.15	213	No	<0.01
	45	225	216	No	0.27	216	No	0.23	215	No	<0.01
	50	225	218	No	0.33	218	No	0.29	218	No	0.02
	55	225	220	No	0.4	220	No	0.36	220	No	0.08
	60	225	223	Yes	0.5	223	No	0.46	223	No	0.28
	65	225	225	Yes	0.57	225	Yes	0.54	225	Yes	0.5
	70	225	228	Yes	0.67	228	Yes	0.64	228	Yes	0.8
	75	225	230	Yes	0.73	230	Yes	0.71	230	Yes	0.92
	80	225	233	Yes	0.81	233	Yes	0.8	234	Yes	0.99
	85	225	237	Yes	0.89	237	Yes	0.89	237	Yes	>0.99
	90	225	241	Yes	0.94	242	Yes	0.95	242	Yes	>0.99
	95	225	248	Yes	0.99	248	Yes	0.99	249	Yes	>0.99

Table 3.9. Proficiency Projection Based on RIT Scores—Mathematics

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
2	5	191	147	No	<0.01	155	No	<0.01	161	No	<0.01
	10	191	153	No	0.01	161	No	<0.01	167	No	<0.01
	15	191	157	No	0.01	165	No	0.01	171	No	<0.01
	20	191	160	No	0.03	168	No	0.02	174	No	<0.01
	25	191	162	No	0.06	171	No	0.04	177	No	<0.01
	30	191	165	No	0.09	173	No	0.07	179	No	<0.01
	35	191	167	No	0.14	175	No	0.12	181	No	<0.01
	40	191	169	No	0.2	177	No	0.18	183	No	0.01
	45	191	171	No	0.27	179	No	0.21	185	No	0.04
	50	191	173	No	0.36	181	No	0.3	187	No	0.13
	55	191	175	No	0.4	183	No	0.4	189	No	0.28
	60	191	177	Yes	0.5	185	Yes	0.5	192	Yes	0.61
	65	191	179	Yes	0.6	187	Yes	0.6	194	Yes	0.8
	70	191	181	Yes	0.69	189	Yes	0.65	196	Yes	0.92
	75	191	183	Yes	0.77	192	Yes	0.79	198	Yes	0.98
	80	191	186	Yes	0.84	194	Yes	0.86	201	Yes	>0.99
	85	191	189	Yes	0.91	197	Yes	0.93	204	Yes	>0.99
	90	191	193	Yes	0.96	201	Yes	0.97	208	Yes	>0.99
	95	191	198	Yes	0.99	207	Yes	>0.99	214	Yes	>0.99
3	5	203	158	No	<0.01	166	No	<0.01	171	No	<0.01
	10	203	164	No	<0.01	172	No	<0.01	177	No	<0.01
	15	203	168	No	0.01	176	No	<0.01	181	No	<0.01
	20	203	171	No	0.01	179	No	0.01	185	No	<0.01
	25	203	174	No	0.04	182	No	0.03	188	No	<0.01
	30	203	176	No	0.06	184	No	0.05	190	No	<0.01
	35	203	178	No	0.1	186	No	0.08	193	No	<0.01
	40	203	180	No	0.15	189	No	0.17	195	No	0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	45	203	182	No	0.22	191	No	0.24	197	No	0.04
	50	203	184	No	0.3	193	No	0.29	199	No	0.13
	55	203	186	No	0.4	195	No	0.39	201	No	0.28
	60	203	188	Yes	0.5	197	Yes	0.5	203	Yes	0.5
	65	203	190	Yes	0.6	199	Yes	0.61	206	Yes	0.8
	70	203	192	Yes	0.7	201	Yes	0.71	208	Yes	0.92
	75	203	195	Yes	0.81	204	Yes	0.83	211	Yes	0.99
	80	203	197	Yes	0.87	206	Yes	0.89	213	Yes	>0.99
	85	203	200	Yes	0.94	210	Yes	0.95	217	Yes	>0.99
	90	203	204	Yes	0.98	214	Yes	0.99	221	Yes	>0.99
	95	203	210	Yes	>0.99	220	Yes	>0.99	227	Yes	>0.99
4	5	218	171	No	<0.01	176	No	<0.01	180	No	<0.01
	10	218	177	No	<0.01	183	No	<0.01	187	No	<0.01
	15	218	181	No	<0.01	187	No	<0.01	191	No	<0.01
	20	218	184	No	<0.01	190	No	<0.01	195	No	<0.01
	25	218	186	No	0.01	193	No	<0.01	198	No	<0.01
	30	218	189	No	0.02	196	No	0.01	201	No	<0.01
	35	218	191	No	0.04	198	No	0.02	203	No	<0.01
	40	218	193	No	0.07	200	No	0.04	206	No	<0.01
	45	218	195	No	0.11	202	No	0.08	208	No	<0.01
	50	218	197	No	0.16	204	No	0.13	210	No	0.01
	55	218	199	No	0.23	207	No	0.24	212	No	0.04
	60	218	201	No	0.31	209	No	0.28	215	No	0.2
	65	218	203	No	0.4	211	No	0.39	217	No	0.39
	70	218	205	Yes	0.5	213	Yes	0.5	220	Yes	0.72
	75	218	208	Yes	0.65	216	Yes	0.67	222	Yes	0.87
	80	218	210	Yes	0.73	219	Yes	0.8	225	Yes	0.98
	85	218	214	Yes	0.87	222	Yes	0.9	229	Yes	>0.99

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	90	218	217	Yes	0.93	226	Yes	0.97	233	Yes	>0.99
	95	218	223	Yes	0.99	232	Yes	>0.99	240	Yes	>0.99
5	5	227	180	No	<0.01	183	No	<0.01	186	No	<0.01
	10	227	185	No	<0.01	189	No	<0.01	192	No	<0.01
	15	227	189	No	<0.01	194	No	<0.01	197	No	<0.01
	20	227	193	No	<0.01	197	No	<0.01	200	No	<0.01
	25	227	195	No	<0.01	200	No	<0.01	204	No	<0.01
	30	227	198	No	0.01	203	No	<0.01	206	No	<0.01
	35	227	200	No	0.01	205	No	0.01	209	No	<0.01
	40	227	202	No	0.03	207	No	0.01	211	No	<0.01
	45	227	204	No	0.05	210	No	0.03	214	No	<0.01
	50	227	206	No	0.08	212	No	0.06	216	No	<0.01
	55	227	208	No	0.12	214	No	0.1	218	No	0.01
	60	227	210	No	0.19	216	No	0.16	221	No	0.04
	65	227	212	No	0.26	219	No	0.28	223	No	0.13
	70	227	215	No	0.4	221	No	0.39	226	No	0.39
	75	227	217	Yes	0.5	224	Yes	0.56	228	Yes	0.61
	80	227	220	Yes	0.65	226	Yes	0.67	232	Yes	0.92
	85	227	223	Yes	0.78	230	Yes	0.84	235	Yes	0.99
	90	227	227	Yes	0.9	234	Yes	0.94	240	Yes	>0.99
	95	227	233	Yes	0.99	240	Yes	0.99	246	Yes	>0.99
6	5	229	184	No	<0.01	187	No	<0.01	190	No	<0.01
	10	229	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	229	194	No	<0.01	198	No	<0.01	201	No	<0.01
	20	229	197	No	<0.01	201	No	<0.01	205	No	<0.01
	25	229	199	No	0.01	204	No	<0.01	208	No	<0.01
	30	229	202	No	0.02	207	No	0.01	211	No	<0.01
	35	229	204	No	0.03	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	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	40	229	206	No	0.05	212	No	0.04	216	No	<0.01
	45	229	208	No	0.09	214	No	0.07	218	No	<0.01
	50	229	210	No	0.13	216	No	0.11	220	No	0.01
	55	229	212	No	0.19	218	No	0.17	223	No	0.04
	60	229	214	No	0.27	220	No	0.25	225	No	0.13
	65	229	216	No	0.36	223	No	0.39	227	No	0.28
	70	229	219	Yes	0.5	225	Yes	0.5	230	Yes	0.61
	75	229	221	Yes	0.64	228	Yes	0.66	233	Yes	0.87
	80	229	224	Yes	0.77	231	Yes	0.79	236	Yes	0.98
	85	229	227	Yes	0.87	234	Yes	0.89	239	Yes	>0.99
	90	229	231	Yes	0.95	238	Yes	0.96	244	Yes	>0.99
	95	229	237	Yes	0.99	245	Yes	>0.99	251	Yes	>0.99
7	5	233	189	No	<0.01	191	No	<0.01	192	No	<0.01
	10	233	195	No	<0.01	197	No	<0.01	199	No	<0.01
	15	233	199	No	<0.01	202	No	<0.01	204	No	<0.01
	20	233	203	No	<0.01	206	No	<0.01	208	No	<0.01
	25	233	206	No	0.01	209	No	<0.01	211	No	<0.01
	30	233	208	No	0.01	211	No	0.01	214	No	<0.01
	35	233	211	No	0.03	214	No	0.02	216	No	<0.01
	40	233	213	No	0.06	216	No	0.03	219	No	<0.01
	45	233	215	No	0.09	219	No	0.07	221	No	<0.01
	50	233	217	No	0.14	221	No	0.12	224	No	0.01
	55	233	219	No	0.2	223	No	0.18	226	No	0.02
	60	233	222	No	0.31	226	No	0.3	229	No	0.13
	65	233	224	No	0.4	228	No	0.4	231	No	0.28
	70	233	226	Yes	0.5	231	Yes	0.5	234	Yes	0.61
	75	233	229	Yes	0.64	233	Yes	0.6	237	Yes	0.87
	80	233	232	Yes	0.77	236	Yes	0.74	240	Yes	0.98

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	85	233	235	Yes	0.86	240	Yes	0.88	244	Yes	>0.99
	90	233	239	Yes	0.94	245	Yes	0.97	249	Yes	>0.99
	95	233	246	Yes	0.99	251	Yes	>0.99	256	Yes	>0.99
8	5	241	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	241	199	No	<0.01	201	No	<0.01	203	No	<0.01
	15	241	203	No	<0.01	206	No	<0.01	208	No	<0.01
	20	241	207	No	<0.01	210	No	<0.01	212	No	<0.01
	25	241	210	No	<0.01	213	No	<0.01	215	No	<0.01
	30	241	212	No	0.01	216	No	<0.01	218	No	<0.01
	35	241	215	No	0.01	219	No	0.01	221	No	<0.01
	40	241	217	No	0.03	221	No	0.02	224	No	<0.01
	45	241	220	No	0.05	224	No	0.04	226	No	<0.01
	50	241	222	No	0.08	226	No	0.07	229	No	<0.01
	55	241	224	No	0.13	228	No	0.1	231	No	<0.01
	60	241	227	No	0.21	231	No	0.19	234	No	0.02
	65	241	229	No	0.28	233	No	0.26	237	No	0.13
	70	241	232	No	0.41	236	No	0.4	239	No	0.28
	75	241	234	Yes	0.5	239	Yes	0.5	242	Yes	0.61
	80	241	237	Yes	0.63	242	Yes	0.65	246	Yes	0.92
	85	241	241	Yes	0.79	246	Yes	0.81	250	Yes	0.99
	90	241	246	Yes	0.92	251	Yes	0.93	255	Yes	>0.99
	95	241	252	Yes	0.98	258	Yes	0.99	262	Yes	>0.99
11	5	253	195	No	<0.01	195	No	<0.01	195	No	<0.01
	10	253	203	No	<0.01	203	No	<0.01	203	No	<0.01
	15	253	208	No	<0.01	209	No	<0.01	209	No	<0.01
	20	253	212	No	<0.01	213	No	<0.01	214	No	<0.01
	25	253	215	No	<0.01	217	No	<0.01	217	No	<0.01
	30	253	218	No	0.01	220	No	<0.01	221	No	<0.01

Grade	Start Percentile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Level 3	Prob.		Level 3	Prob.		Level 3	Prob.
	35	253	221	No	0.01	223	No	0.01	224	No	<0.01
	40	253	224	No	0.02	226	No	0.01	227	No	<0.01
	45	253	227	No	0.04	229	No	0.02	230	No	<0.01
	50	253	229	No	0.05	231	No	0.04	233	No	<0.01
	55	253	232	No	0.08	234	No	0.05	236	No	<0.01
	60	253	234	No	0.11	237	No	0.09	239	No	<0.01
	65	253	237	No	0.15	240	No	0.14	242	No	<0.01
	70	253	240	No	0.21	243	No	0.21	245	No	0.01
	75	253	243	No	0.29	246	No	0.29	249	No	0.13
	80	253	246	No	0.37	250	No	0.43	252	No	0.39
	85	253	250	Yes	0.5	254	Yes	0.57	257	Yes	0.87
	90	253	255	Yes	0.66	259	Yes	0.74	263	Yes	>0.99
	95	253	263	Yes	0.83	267	Yes	0.91	271	Yes	>0.99

References

Kolen, M. J., & Brennan, R. L. (2004). *Test equating, scaling, and linking: Methods and practices* (2nd ed.). Springer. https://doi.org/10.1007/978-1-4939-0317-7

Lewis, K., & Kuhfeld, M. (2024). *MAP Growth with enhanced item-selection algorithm: Updates on score comparability*. NWEA Research Report. NWEA. https://www.nwea.org/uploads/Research-MAP-Growth-with-enhanced-item-selection-algorithm-updates-on-score-compatibility_NWEA_Research_Guide.pdf

Lumley, T. (2019). *Survey: Analysis of complex survey samples*. (R package version 3.36) [Computer software]. Available from https://CRAN.R-project.org/package=survey.

Meyer, J. P., Hu, A. H., & Li, S. (2023). *Content Proximity Spring 2022 Pilot Study Research Brief.* NWEA Research Report. NWEA. https://www.nwea.org/uploads/Content-Proximity-Project-and-Pilot-Study-Spring-2022-Research-Report.pdf

NWEA. (2025). *MAP Growth achievement status and growth norms for students and schools*. [Tech Rep.]. NWEA.

Pommerich, M., Hanson, B., Harris, D., & Sconing, J. (2004). Issues in conducting linkage between distinct tests. *Applied Psychological Measurement*, *28*(4), 247–273. https://doi.org/10.1177/0146621604265033