Predicting Performance on the Pennsylvania System of School Assessment (PSSA) Based on NWEA MAP Growth Scores

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NWEA Psychometrics and Analytics

nwea

Linking Study Updates

Date	Description
2016-02	Initial linking study conducted for Pennsylvania in ELA and mathematics grades 3–8 using Spring 2015 data.
2017-02	Updated the report to reflect the new NWEA branding.
2018-01-24	Corrected the PSSA mathematics cut scores.
2021-06-04	Incorporated the new 2020 MAP Growth norms using Spring 2019 data for ELA and mathematics grades 3–8. Not enough data available to include science.
2025-08	Updated the linking study based on the 2025 norms.

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Executive Summary

To predict student achievement on the Pennsylvania System of School Assessment (PSSA) in grades 3–8 English language arts (ELA) and mathematics, NWEA® conducted a linking study using Spring 2019 data to derive Rasch Unit (RIT) cut scores on the MAP® Growth™ assessments that correspond to the PSSA performance levels. Educators can use this information to identify students at risk of not meeting state proficiency standards early in the year and provide tailored educational interventions. 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 PSSA *Proficient* performance level cut scores and the corresponding MAP Growth RIT cut scores that allow teachers to identify students who are on track for proficiency (*Proficient* or higher) on the state summative test and those who are not. For example, the *Proficient* cut score on the PSSA grade 3 ELA test is 1000. A grade 3 student with a MAP Growth reading RIT score of 185 in the fall is likely to meet proficiency on the PSSA ELA test in the spring, whereas a grade 3 student with a MAP Growth reading RIT score lower than 185 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 PSSA 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 PSSA Proficiency

Assessment		*Proficient* Cut Scores by Grade						
		2	3	4	5	6	7	8
ELA/Reading								
PSSA Spring		–	1000	1000	1000	1000	1000	1000
MAP Growth	Fall	169	185	195	203	209	215	219
	Winter	176	190	198	206	211	216	220
	Spring	181	194	201	208	212	217	221
Mathematics								
PSSA Spring		–	1000	1000	1000	1000	1000	1000
MAP Growth	Fall	177	188	208	217	223	233	243
	Winter	185	197	216	223	230	238	248
	Spring	191	203	221	227	234	240	250

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 PSSA grades 3–8 ELA and mathematics tests are Pennsylvania's state summative assessments aligned to the Pennsylvania Core Standards. Based on their test scores, students are placed into one of four performance levels: *Below Basic*, *Basic*, *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 100–350.

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 PSSA performance 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 PSSA assessments in Spring 2019 were included in the study sample. Table E.2 presents the weighted numbers of Pennsylvania students from 13 districts and 60 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 performance level distributions, weighting (i.e., a statistical method that matches the distributions of the variables of interest to those of the target population) was applied to the sample. As a result, the RIT cuts derived from the study sample can be generalized to any student from the target population. All analyses in this study for grades 3–8 were conducted based on the weighted sample.

[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.

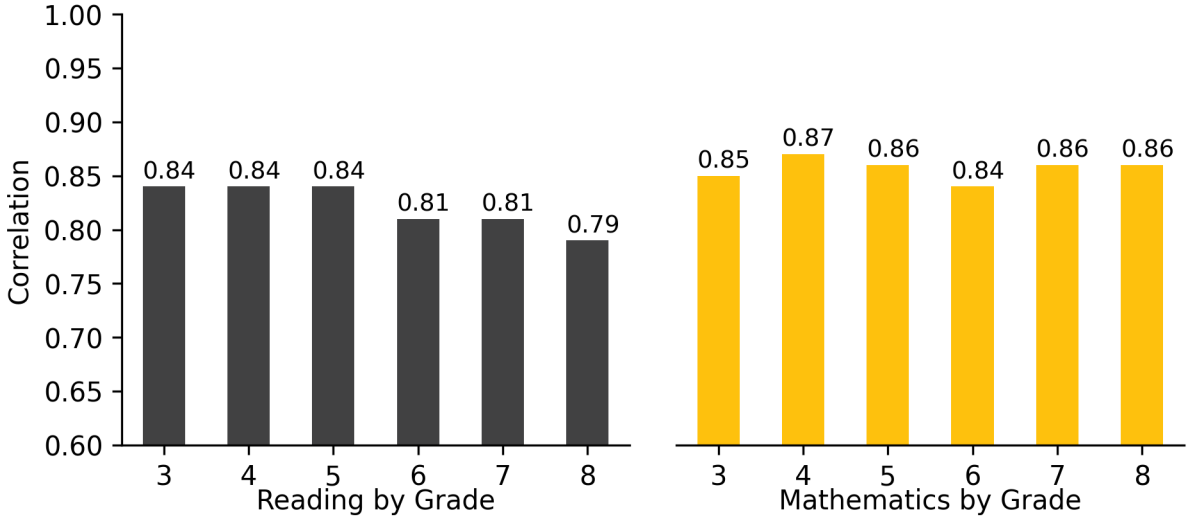
Table E.2. Linking Study Sample

Grade	# Students	
	ELA/Reading	Mathematics
3	2,982	2,690
4	3,262	3,033
5	3,300	2,924
6	2,913	2,719
7	2,712	2,723
8	2,618	2,671

E.4. Test Score Relationships

Correlations between MAP Growth RIT scores and PSSA scores range from 0.79 to 0.87 across content areas, as shown in Figure E.1. These values indicate a strong relationship among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the PSSA assessments.

Figure E.1. Correlations Between MAP Growth and PSSA Test Scores

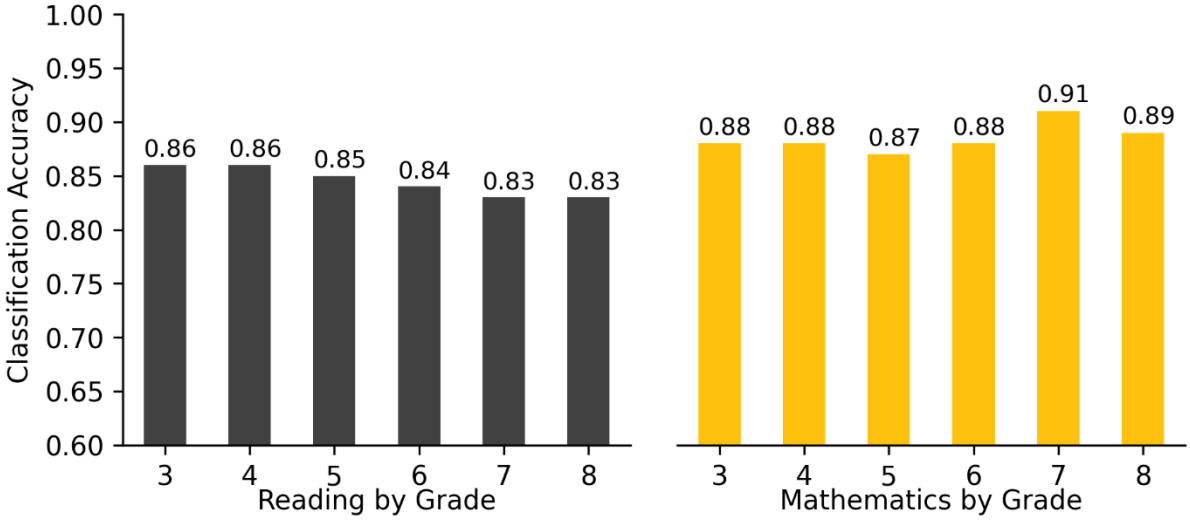


E.5. Accuracy of MAP Growth Classifications

Figure E.2 presents the classification accuracy statistics that show the proportion of students correctly classified by their RIT scores as proficient (*Proficient* or higher) or not proficient (lower than *Proficient*) on the PSSA tests.[2] For example, the MAP Growth reading grade 3 *Proficient* cut score has a 0.86 accuracy rate, meaning it accurately classified student achievement on the state test for 86% of the sample. The results range from 0.83 to 0.91 across content areas, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the PSSA 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 to statistically connect the scores of the Pennsylvania System of School Assessment (PSSA) grades 3–8 English language arts (ELA) and mathematics assessments with Rasch Unit (RIT) scores from the MAP Growth assessments taken during the Spring 2019 term. The linking study has been updated since the previous version to incorporate the most recent 2025 NWEA MAP Growth norms (NWEA, 2025). MAP Growth cut scores are also included for grade 2 so that educators can track early learners' progress toward proficiency on the PSSA test by grade 3. This report presents the following results:

1. Student sample demographics
2. Descriptive statistics of test scores
3. MAP Growth cut scores that correspond to the PSSA performance 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 PSSA tests
5. The probability of achieving grade-level proficiency on the PSSA assessment based on MAP Growth RIT scores from fall, winter, and spring using the 2025 norms

1.2. Assessment Overview

The PSSA grades 3–8 ELA and mathematics summative assessments are aligned to the Pennsylvania Core Standards. Each assessment has three cut scores (i.e., the minimum score a student must get on a test to be placed in a certain performance level) that distinguish between the following performance levels: *Below Basic*, *Basic*, *Proficient*, and *Advanced*. The *Proficient* cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

MAP Growth interim assessments from NWEA are computer adaptive and aligned to state-specific content standards. Scores are reported on the RIT vertical scale with a range of 100–350. 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 PSSA assessments. NWEA requested that Pennsylvania 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 PSSA 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 performance 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 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. 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 PSSA performance 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 on the spring PSSA 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 performance level designations for its summative assessment.

The MAP Growth spring cut scores for grades 3–8 could be calculated using the equipercentile linking method because that data are directly connected to the PSSA 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., PSSA). 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 PSSA tests on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on the PSSA 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 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 PSSA tests can be described using classification accuracy statistics based on the MAP Growth spring RIT cut scores that show the proportion of students correctly classified by their RIT scores as proficient (*Proficient* or higher) or not proficient (lower than *Proficient*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich et al., 2004). The results are based on the Spring 2019 MAP Growth and PSSA data for the *Proficient* 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 *Proficient* 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 (*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 PSSA 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 achieving proficiency performance on the PSSA 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 *Proficient* 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 performance on the PSSA 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 PSSA assessments in Spring 2019 were included in the study sample. Data used in this study were collected from 13 districts and 60 schools in Pennsylvania. Table 3.1 presents the demographic distributions of race, sex, and performance level in the original unweighted study sample. Table 3.2 presents the distributions of the student population who took the Spring 2019 PSSA tests. Since the unweighted data are different from the general PSSA 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 PSSA 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
ELA/Reading							
	Total N	2,982	3,262	3,300	2,913	2,712	2,618
Race	AI/AN	0.4	0.3	0.2	0.2	0.3	0.1
	Asian/NH/PI	7.7	7.5	8.0	7.3	7.1	6.0
	Black	38.3	38.7	41.7	43.0	48.8	49.9
	Hispanic	7.7	8.7	7.0	6.8	7.2	5.8
	Multi-Race	4.4	3.7	3.5	3.0	2.7	3.1
	White	41.6	41.0	39.7	39.8	33.8	35.1
Sex	Female	48.6	47.2	47.9	49.2	50.0	49.6
	Male	51.4	52.8	52.1	50.8	50.0	50.4
Performance Level	*Below Basic*	14.3	13.2	12.4	7.6	2.8	13.4
	Basic	32.1	31.2	36.3	37.2	45.8	38.0
	Proficient	42.3	33.5	39.1	39.5	42.5	37.9
	Advanced	11.3	22.0	12.2	15.7	9.0	10.7
Mathematics							
	Total N	2,690	3,033	2,924	2,719	2,723	2,671
Race	AI/AN	0.3	0.3	0.2	0.2	0.3	0.1
	Asian/NH/PI	6.4	6.7	7.3	6.8	7.4	6.2
	Black	41.3	41.8	45.3	45.6	49.6	50.5
	Hispanic	7.6	8.3	7.1	6.3	7.3	5.8
	Multi-Race	3.8	3.6	3.3	2.5	2.4	2.9
	White	40.5	39.2	36.8	38.7	32.9	34.5
Sex	Female	48.5	47.7	48.2	49.3	49.9	50.0
	Male	51.5	52.3	51.8	50.7	50.1	50.0
Performance Level	*Below Basic*	31.8	35.3	32.2	36.8	49.5	49.6
	Basic	24.1	27.3	35.8	37.7	26.3	28.8
	Proficient	25.2	23.5	22.9	16.4	17.3	16.2
	Advanced	18.9	13.9	9.0	9.2	6.9	5.4

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

Table 3.2. Spring 2019 PSSA Student Population Demographics

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
ELA							
	Total N	120,564	123,172	127,550	127,560	125,998	123,503
Race	AI/AN	0.1	0.1	0.2	0.2	0.1	0.1
	Asian/NH/PI	4.2	4.2	4.0	4.1	4.1	4.1
	Black	14.8	15.0	14.9	14.6	14.2	14.1
	Hispanic	12.6	12.7	12.3	12.3	11.9	11.7
	Multi-Race	5.1	4.7	4.6	4.4	4.0	3.7
	White	63.1	63.3	63.9	64.4	65.6	66.2
Sex	Female	48.9	49.1	48.9	48.9	48.8	48.6
	Male	51.1	50.9	51.1	51.1	51.2	51.4
Performance Level	*Below Basic*	11.5	10.3	9.6	5.7	2.6	11.9
	Basic	26.6	26.1	31.8	31.3	36.9	30.2
	Proficient	45.4	36.3	42.7	42.3	45.6	41.9
	Advanced	16.5	27.3	15.8	20.8	14.9	16.0
Mathematics							
	Total N	120,604	123,286	127,592	127,496	125,808	123,186
Race	AI/AN	0.1	0.1	0.2	0.2	0.1	0.1
	Asian/NH/PI	4.2	4.2	4.0	4.2	4.1	4.1
	Black	14.8	15.0	14.9	14.6	14.2	14.1
	Hispanic	12.6	12.7	12.3	12.3	11.9	11.7
	Multi-Race	5.1	4.7	4.6	4.4	4.0	3.6
	White	63.0	63.3	63.9	64.4	65.6	66.2
Sex	Female	48.9	49.1	48.8	48.8	48.8	48.6
	Male	51.1	50.9	51.2	51.2	51.2	51.4
Performance Level	*Below Basic*	22.4	26.1	23.3	25.9	35.8	39.6
	Basic	21.6	27.7	33.7	35.1	26.0	28.2
	Proficient	29.3	27.2	27.2	23.2	24.3	22.3
	Advanced	26.7	19.0	15.8	15.8	14.0	9.9

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

Table 3.3. Linking Study Sample Demographics (Weighted)

Demographic Subgroup		% Students by Grade					
		3	4	5	6	7	8
ELA/Reading							
	Total N	2,982	3,262	3,300	2,913	2,712	2,618
Race	AI/AN	0.1	0.1	0.2	0.2	0.1	0.2
	Asian/NH/PI	4.2	4.2	4.0	4.1	4.1	4.1
	Black	14.8	15.0	14.9	14.6	14.2	14.1
	Hispanic	12.6	12.7	12.3	12.3	11.9	11.7
	Multi-Race	5.1	4.7	4.6	4.4	4.0	3.7
	White	63.1	63.3	64.0	64.4	65.6	66.2
Sex	Female	48.9	49.1	48.8	48.9	48.8	48.6
	Male	51.1	50.9	51.2	51.1	51.2	51.4
Performance Level	*Below Basic*	11.5	10.3	9.6	5.7	2.6	11.9
	Basic	26.6	26.1	31.8	31.3	36.9	30.2
	Proficient	45.4	36.3	42.7	42.3	45.6	41.9
	Advanced	16.5	27.3	15.8	20.8	14.9	16.0
Mathematics							
	Total N	2,690	3,033	2,924	2,719	2,723	2,671
Race	AI/AN	0.1	0.1	0.2	0.2	0.1	0.1
	Asian/NH/PI	4.2	4.2	4.0	4.2	4.1	4.1
	Black	14.8	15.0	14.9	14.6	14.2	14.1
	Hispanic	12.6	12.7	12.3	12.3	11.9	11.7
	Multi-Race	5.1	4.7	4.6	4.4	4.0	3.6
	White	63.1	63.3	63.9	64.4	65.6	66.2
Sex	Female	48.9	49.1	48.8	48.9	48.8	48.6
	Male	51.1	50.9	51.2	51.1	51.2	51.4
Performance Level	*Below Basic*	22.4	26.1	23.3	25.9	35.8	39.6
	Basic	21.6	27.7	33.7	35.1	26.0	28.2
	Proficient	29.3	27.2	27.2	23.2	24.3	22.3
	Advanced	26.7	19.0	15.8	15.8	13.9	9.9

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

3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and PSSA test scores from Spring 2019, including the correlation coefficients (*r*) between them. The coefficients between the scores range from 0.79 to 0.84 for ELA/reading and 0.84 to 0.87 for mathematics. These values indicate a strong relationship among the scores, which is important validity evidence for the claim that MAP Growth scores are good predictors of performance on the PSSA assessments.

Table 3.4. Descriptive Statistics of Test Scores

Grade	N	*r*	PSSA				MAP Growth			
			Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
ELA/Reading										
3	2,982	0.84	1038.3	107.4	720	1544	197.5	17.1	142	237
4	3,262	0.84	1035.8	112.4	693	1511	204.4	17.2	137	253
5	3,300	0.84	1027.7	103.6	687	1445	210.3	17.0	142	250
6	2,913	0.81	1036.2	107.4	673	1562	215.1	16.2	151	259
7	2,712	0.81	1026.4	94.4	728	1386	219.3	16.3	149	260
8	2,618	0.79	1024.9	113.3	698	1565	222.2	16.6	149	262
Mathematics										
3	2,690	0.85	1025.0	123.2	648	1530	202.5	15.3	133	255
4	3,033	0.87	993.0	122.8	600	1532	212.5	17.3	146	261
5	2,924	0.86	988.6	112.6	698	1462	219.6	18.2	146	276
6	2,719	0.84	978.8	115.1	669	1500	224.1	19.1	149	276
7	2,723	0.86	964.6	116.5	663	1345	229.7	20.4	151	280
8	2,671	0.86	949.5	113.3	606	1470	234.3	21.6	147	300

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

3.3. MAP Growth Cut Scores

Table 3.5 and Table 3.6 present the PSSA scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. These tables can be used to predict a student's likely performance level on the PSSA 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 185 in the fall is likely to achieve *Proficient* performance on the PSSA ELA test. A grade 3 student who obtained a MAP Growth reading RIT score of 190 in the winter is also likely to achieve *Proficient* performance on the PSSA 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 performance level could be different from the generic projection presented in this document. 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—ELA/Reading

PSSA ELA								
Grade	***Below Basic***		***Basic***		***Proficient***		***Advanced***	
3	600–904		905–999		**1000**–1142		≥1143	
4	600–886		887–999		**1000**–1106		≥1107	
5	600–892		893–999		**1000**–1138		≥1139	
6	600–874		875–999		**1000**–1114		≥1115	
7	600–844		845–999		**1000**–1129		≥1130	
8	600–885		886–999		**1000**–1129		≥1130	
MAP Growth Reading								
Grade	***Below Basic***		***Basic***		***Proficient***		***Advanced***	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–144	1–6	145–168	7–47	**169**–197	48–94	198–350	95–99
3	100–163	1–12	164–184	13–50	**185**–207	51–89	208–350	90–99
4	100–171	1–8	172–194	9–47	**195**–211	48–80	212–350	81–99
5	100–179	1–8	180–202	9–47	**203**–224	48–88	225–350	89–99
6	100–181	1–4	182–208	5–49	**209**–225	50–83	226–350	84–99
7	100–183	1–4	184–214	5–55	**215**–233	56–89	234–350	90–99
8	100–196	1–13	197–218	14–57	**219**–234	58–86	235–350	87–99
Winter								
2	100–151	1–6	152–175	7–47	**176**–203	48–93	204–350	94–99
3	100–169	1–13	170–189	14–49	**190**–212	50–89	213–350	90–99
4	100–175	1–8	176–197	9–46	**198**–214	47–80	215–350	81–99
5	100–182	1–8	183–205	9–48	**206**–225	49–86	226–350	87–99
6	100–183	1–4	184–210	5–50	**211**–226	51–83	227–350	84–99
7	100–185	1–4	186–215	5–54	**216**–234	55–89	235–350	90–99
8	100–198	1–14	199–219	15–56	**220**–235	57–86	236–350	87–99
Spring								
2	100–159	1–10	160–180	11–47	**181**–205	48–91	206–350	92–99
3	100–175	1–15	176–193	16–49	**194**–213	50–86	214–350	87–99
4	100–180	1–11	181–200	12–47	**201**–215	48–77	216–350	78–99
5	100–187	1–11	188–207	12–48	**208**–226	49–85	227–350	86–99
6	100–188	1–7	189–211	8–49	**212**–227	50–82	228–350	83–99
7	100–189	1–6	190–216	7–54	**217**–235	55–88	236–350	89–99
8	100–201	1–17	202–220	18–56	**221**–236	57–86	237–350	87–99

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

PSSA Mathematics				
Grade	***Below Basic***	***Basic***	***Proficient***	***Advanced***
3	600–922	923–999	**1000**–1109	≥1110
4	600–907	908–999	**1000**–1106	≥1107
5	600–900	901–999	**1000**–1112	≥1113
6	600–896	897–999	**1000**–1104	≥1105
7	600–903	904–999	**1000**–1108	≥1109
8	600–905	906–999	**1000**–1107	≥1108

MAP Growth Mathematics								
Grade	***Below Basic***		***Basic***		***Proficient***		***Advanced***	
	RIT	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**	**RIT**	**Percentile**
Fall								
2	100–161	1–23	162–176	24–60	**177**–194	61–91	195–350	92–99
3	100–176	1–32	177–187	33–59	**188**–201	60–87	202–350	88–99
4	100–192	1–39	193–207	40–74	**208**–221	75–93	222–350	94–99
5	100–198	1–32	199–216	33–74	**217**–231	75–93	232–350	94–99
6	100–204	1–36	205–222	37–78	**223**–237	79–95	238–350	96–99
7	100–216	1–49	217–232	50–81	**233**–248	82–96	249–350	97–99
8	100–224	1–55	225–242	56–86	**243**–258	87–97	259–350	98–99
Winter								
2	100–170	1–25	171–184	26–59	**185**–202	60–91	203–350	92–99
3	100–184	1–31	185–196	32–59	**197**–211	60–87	212–350	88–99
4	100–199	1–39	200–215	40–74	**216**–229	75–92	230–350	93–99
5	100–204	1–34	205–222	35–73	**223**–238	74–93	239–350	94–99
6	100–210	1–38	211–229	39–78	**230**–244	79–94	245–350	95–99
7	100–220	1–49	221–237	50–81	**238**–253	82–95	254–350	96–99
8	100–228	1–55	229–247	56–86	**248**–264	87–97	265–350	98–99
Spring								
2	100–177	1–27	178–190	28–58	**191**–206	59–88	207–350	89–99
3	100–191	1–33	192–202	34–58	**203**–216	59–84	217–350	85–99
4	100–205	1–40	206–220	41–72	**221**–234	73–91	235–350	92–99
5	100–208	1–34	209–226	35–71	**227**–242	72–92	243–350	93–99
6	100–214	1–38	215–233	39–76	**234**–248	77–93	249–350	94–99
7	100–223	1–49	224–239	50–79	**240**–255	80–94	256–350	95–99
8	100–231	1–55	232–249	56–84	**250**–265	85–96	266–350	97–99

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 PSSA tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rates range from 0.83 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 (*Proficient* or higher) or not proficient (lower than *Proficient*) on the PSSA assessment.

Although the results show that MAP Growth scores can be used to accurately classify students as likely to be proficient on the PSSA tests, there is a notable limitation to how these results should be used and interpreted. The PSSA 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	PSSA		FP	FN				
ELA/Reading										
3	2,982	194	1000	0.86	0.22	0.09	0.91	0.78	0.87	0.94
4	3,262	201	1000	0.86	0.21	0.10	0.90	0.79	0.88	0.94
5	3,300	208	1000	0.85	0.22	0.09	0.91	0.78	0.85	0.94
6	2,913	212	1000	0.84	0.24	0.11	0.89	0.76	0.87	0.91
7	2,712	217	1000	0.83	0.24	0.11	0.89	0.76	0.85	0.91
8	2,618	221	1000	0.83	0.23	0.13	0.87	0.77	0.84	0.91
Mathematics										
3	2,690	201	1000	0.88	0.18	0.08	0.92	0.82	0.87	0.95
4	3,033	216	1000	0.88	0.12	0.12	0.88	0.88	0.86	0.96
5	2,924	224	1000	0.87	0.13	0.12	0.88	0.87	0.84	0.96
6	2,719	231	1000	0.88	0.10	0.15	0.85	0.90	0.85	0.95
7	2,723	238	1000	0.91	0.07	0.12	0.88	0.93	0.88	0.97
8	2,671	246	1000	0.89	0.08	0.17	0.83	0.92	0.83	0.96

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 (*Proficient* or higher) performance on the PSSA test based on RIT scores from fall, winter, or spring. “Prob.” indicates the probability of obtaining proficiency status on the PSSA test in the spring. For example, a grade 3 student who obtained a MAP Growth reading score of 200 in the fall has a 93% chance of reaching proficiency on the PSSA 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	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	Prob.
2	5	181	142	No	<0.01	149	No	<0.01	153	No	<0.01
	10	181	148	No	0.02	155	No	0.01	159	No	<0.01
	15	181	152	No	0.05	159	No	0.04	164	No	<0.01
	20	181	156	No	0.11	162	No	0.07	167	No	<0.01
	25	181	159	No	0.16	165	No	0.11	170	No	<0.01
	30	181	161	No	0.22	168	No	0.2	173	No	0.01
	35	181	163	No	0.29	170	No	0.27	175	No	0.04
	40	181	166	No	0.37	172	No	0.36	177	No	0.13
	45	181	168	No	0.46	175	No	0.45	180	No	0.39
	50	181	170	Yes	0.54	177	Yes	0.55	182	Yes	0.61
	55	181	172	Yes	0.59	179	Yes	0.64	184	Yes	0.8
	60	181	174	Yes	0.67	181	Yes	0.68	186	Yes	0.92
	65	181	177	Yes	0.78	183	Yes	0.76	188	Yes	0.98
	70	181	179	Yes	0.81	186	Yes	0.86	191	Yes	>0.99
	75	181	182	Yes	0.89	188	Yes	0.91	193	Yes	>0.99
	80	181	184	Yes	0.93	191	Yes	0.94	196	Yes	>0.99
	85	181	188	Yes	0.96	194	Yes	0.97	200	Yes	>0.99
	90	181	192	Yes	0.99	199	Yes	0.99	204	Yes	>0.99
	95	181	198	Yes	>0.99	205	Yes	>0.99	210	Yes	>0.99
3	5	194	155	No	<0.01	160	No	<0.01	164	No	<0.01
	10	194	161	No	0.01	167	No	0.01	171	No	<0.01
	15	194	166	No	0.04	171	No	0.02	175	No	<0.01
	20	194	169	No	0.06	175	No	0.06	179	No	<0.01
	25	194	172	No	0.11	178	No	0.09	182	No	<0.01
	30	194	175	No	0.16	180	No	0.14	184	No	<0.01
	35	194	178	No	0.25	183	No	0.24	187	No	0.02
	40	194	180	No	0.33	185	No	0.27	189	No	0.08

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	194	182	No	0.37	188	No	0.41	192	No	0.28
	50	194	185	Yes	0.5	190	Yes	0.5	194	Yes	0.5
	55	194	187	Yes	0.59	192	Yes	0.59	196	Yes	0.72
	60	194	189	Yes	0.67	194	Yes	0.64	198	Yes	0.87
	65	194	192	Yes	0.75	197	Yes	0.76	201	Yes	0.98
	70	194	194	Yes	0.82	199	Yes	0.83	203	Yes	0.99
	75	194	197	Yes	0.87	202	Yes	0.91	206	Yes	>0.99
	80	194	200	Yes	0.93	205	Yes	0.94	209	Yes	>0.99
	85	194	204	Yes	0.96	209	Yes	0.98	213	Yes	>0.99
	90	194	208	Yes	0.99	213	Yes	0.99	217	Yes	>0.99
	95	194	215	Yes	>0.99	220	Yes	>0.99	224	Yes	>0.99
4	5	201	166	No	<0.01	170	No	<0.01	173	No	<0.01
	10	201	173	No	0.01	177	No	0.01	179	No	<0.01
	15	201	177	No	0.04	181	No	0.03	184	No	<0.01
	20	201	181	No	0.08	184	No	0.05	187	No	<0.01
	25	201	184	No	0.14	187	No	0.1	190	No	<0.01
	30	201	186	No	0.17	190	No	0.19	193	No	0.01
	35	201	189	No	0.28	193	No	0.27	195	No	0.04
	40	201	191	No	0.36	195	No	0.35	198	No	0.2
	45	201	194	No	0.45	197	No	0.45	200	No	0.39
	50	201	196	Yes	0.55	199	Yes	0.55	202	Yes	0.61
	55	201	198	Yes	0.64	202	Yes	0.65	204	Yes	0.8
	60	201	200	Yes	0.72	204	Yes	0.73	207	Yes	0.96
	65	201	203	Yes	0.8	206	Yes	0.81	209	Yes	0.99
	70	201	205	Yes	0.86	209	Yes	0.9	211	Yes	>0.99
	75	201	208	Yes	0.92	211	Yes	0.92	214	Yes	>0.99
	80	201	211	Yes	0.95	214	Yes	0.96	217	Yes	>0.99
	85	201	215	Yes	0.98	218	Yes	0.99	220	Yes	>0.99

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.
	90	201	219	Yes	0.99	222	Yes	>0.99	225	Yes	>0.99
	95	201	226	Yes	>0.99	229	Yes	>0.99	231	Yes	>0.99
5	5	208	175	No	<0.01	178	No	<0.01	180	No	<0.01
	10	208	181	No	0.01	184	No	0.01	186	No	<0.01
	15	208	186	No	0.03	189	No	0.03	191	No	<0.01
	20	208	189	No	0.07	192	No	0.06	194	No	<0.01
	25	208	192	No	0.11	195	No	0.1	197	No	<0.01
	30	208	195	No	0.2	197	No	0.15	199	No	0.01
	35	208	197	No	0.27	200	No	0.26	202	No	0.04
	40	208	199	No	0.31	202	No	0.35	204	No	0.13
	45	208	201	No	0.4	204	No	0.4	206	No	0.28
	50	208	204	Yes	0.55	206	Yes	0.5	208	Yes	0.5
	55	208	206	Yes	0.6	209	Yes	0.65	211	Yes	0.8
	60	208	208	Yes	0.69	211	Yes	0.7	213	Yes	0.92
	65	208	210	Yes	0.77	213	Yes	0.78	215	Yes	0.98
	70	208	213	Yes	0.84	215	Yes	0.85	217	Yes	0.99
	75	208	215	Yes	0.89	218	Yes	0.92	220	Yes	>0.99
	80	208	218	Yes	0.94	221	Yes	0.96	223	Yes	>0.99
	85	208	222	Yes	0.97	224	Yes	0.99	226	Yes	>0.99
	90	208	226	Yes	0.99	228	Yes	>0.99	230	Yes	>0.99
	95	208	232	Yes	>0.99	235	Yes	>0.99	237	Yes	>0.99
6	5	212	181	No	<0.01	183	No	<0.01	185	No	<0.01
	10	212	187	No	0.01	189	No	0.01	191	No	<0.01
	15	212	191	No	0.03	193	No	0.02	195	No	<0.01
	20	212	195	No	0.07	197	No	0.06	198	No	<0.01
	25	212	198	No	0.14	199	No	0.1	201	No	<0.01
	30	212	200	No	0.16	202	No	0.16	203	No	0.01
	35	212	202	No	0.23	204	No	0.22	206	No	0.04

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	212	205	No	0.36	206	No	0.31	208	No	0.13
	45	212	207	No	0.4	209	No	0.45	210	No	0.28
	50	212	209	Yes	0.5	211	Yes	0.5	212	Yes	0.5
	55	212	211	Yes	0.6	213	Yes	0.6	214	Yes	0.72
	60	212	213	Yes	0.69	215	Yes	0.69	216	Yes	0.87
	65	212	215	Yes	0.73	217	Yes	0.78	218	Yes	0.96
	70	212	218	Yes	0.84	219	Yes	0.84	221	Yes	0.99
	75	212	220	Yes	0.89	222	Yes	0.92	223	Yes	>0.99
	80	212	223	Yes	0.94	225	Yes	0.96	226	Yes	>0.99
	85	212	226	Yes	0.97	228	Yes	0.98	229	Yes	>0.99
	90	212	231	Yes	0.99	232	Yes	>0.99	233	Yes	>0.99
	95	212	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	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	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	221	188	No	<0.01	189	No	<0.01	190	No	<0.01
	10	221	194	No	0.01	195	No	<0.01	196	No	<0.01
	15	221	198	No	0.02	199	No	0.01	200	No	<0.01
	20	221	201	No	0.04	203	No	0.04	203	No	<0.01
	25	221	204	No	0.07	205	No	0.05	206	No	<0.01
	30	221	207	No	0.11	208	No	0.1	209	No	<0.01
	35	221	209	No	0.15	210	No	0.14	211	No	<0.01
	40	221	211	No	0.21	213	No	0.2	213	No	0.01
	45	221	214	No	0.29	215	No	0.28	216	No	0.08
	50	221	216	No	0.37	217	No	0.36	218	No	0.2
	55	221	218	No	0.45	219	No	0.45	220	No	0.39
	60	221	220	Yes	0.55	221	Yes	0.55	222	Yes	0.61
	65	221	222	Yes	0.63	223	Yes	0.64	224	Yes	0.8
	70	221	225	Yes	0.75	226	Yes	0.76	227	Yes	0.96
	75	221	227	Yes	0.82	228	Yes	0.83	229	Yes	0.99
	80	221	230	Yes	0.89	231	Yes	0.9	232	Yes	>0.99
	85	221	233	Yes	0.94	235	Yes	0.96	236	Yes	>0.99
	90	221	238	Yes	0.98	239	Yes	0.99	240	Yes	>0.99
	95	221	244	Yes	>0.99	245	Yes	>0.99	246	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	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	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	
				Proficient	Prob.		*Proficient*	Prob.		*Proficient*	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	221	171	No	<0.01	176	No	<0.01	180	No	<0.01
	10	221	177	No	<0.01	183	No	<0.01	187	No	<0.01
	15	221	181	No	<0.01	187	No	<0.01	191	No	<0.01
	20	221	184	No	<0.01	190	No	<0.01	195	No	<0.01
	25	221	186	No	<0.01	193	No	<0.01	198	No	<0.01
	30	221	189	No	0.01	196	No	<0.01	201	No	<0.01
	35	221	191	No	0.02	198	No	0.01	203	No	<0.01
	40	221	193	No	0.03	200	No	0.02	206	No	<0.01
	45	221	195	No	0.05	202	No	0.03	208	No	<0.01
	50	221	197	No	0.09	204	No	0.06	210	No	<0.01
	55	221	199	No	0.13	207	No	0.13	212	No	0.01
	60	221	201	No	0.19	209	No	0.16	215	No	0.04
	65	221	203	No	0.27	211	No	0.24	217	No	0.13
	70	221	205	No	0.35	213	No	0.33	220	No	0.39
	75	221	208	Yes	0.5	216	Yes	0.5	222	Yes	0.61
	80	221	210	Yes	0.6	219	Yes	0.67	225	Yes	0.87
	85	221	214	Yes	0.77	222	Yes	0.8	229	Yes	0.99

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.
	90	221	217	Yes	0.87	226	Yes	0.92	233	Yes	>0.99
	95	221	223	Yes	0.97	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	234	184	No	<0.01	187	No	<0.01	190	No	<0.01
	10	234	190	No	<0.01	194	No	<0.01	197	No	<0.01
	15	234	194	No	<0.01	198	No	<0.01	201	No	<0.01
	20	234	197	No	<0.01	201	No	<0.01	205	No	<0.01
	25	234	199	No	<0.01	204	No	<0.01	208	No	<0.01
	30	234	202	No	<0.01	207	No	<0.01	211	No	<0.01
	35	234	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	234	206	No	0.01	212	No	0.01	216	No	<0.01
	45	234	208	No	0.02	214	No	0.01	218	No	<0.01
	50	234	210	No	0.04	216	No	0.03	220	No	<0.01
	55	234	212	No	0.07	218	No	0.05	223	No	<0.01
	60	234	214	No	0.11	220	No	0.09	225	No	0.01
	65	234	216	No	0.16	223	No	0.17	227	No	0.02
	70	234	219	No	0.27	225	No	0.25	230	No	0.13
	75	234	221	No	0.4	228	No	0.39	233	No	0.39
	80	234	224	Yes	0.55	231	Yes	0.55	236	Yes	0.72
	85	234	227	Yes	0.69	234	Yes	0.71	239	Yes	0.92
	90	234	231	Yes	0.84	238	Yes	0.86	244	Yes	>0.99
	95	234	237	Yes	0.96	245	Yes	0.98	251	Yes	>0.99
7	5	240	189	No	<0.01	191	No	<0.01	192	No	<0.01
	10	240	195	No	<0.01	197	No	<0.01	199	No	<0.01
	15	240	199	No	<0.01	202	No	<0.01	204	No	<0.01
	20	240	203	No	<0.01	206	No	<0.01	208	No	<0.01
	25	240	206	No	<0.01	209	No	<0.01	211	No	<0.01
	30	240	208	No	<0.01	211	No	<0.01	214	No	<0.01
	35	240	211	No	<0.01	214	No	<0.01	216	No	<0.01
	40	240	213	No	0.01	216	No	<0.01	219	No	<0.01
	45	240	215	No	0.01	219	No	0.01	221	No	<0.01
	50	240	217	No	0.03	221	No	0.02	224	No	<0.01
	55	240	219	No	0.04	223	No	0.03	226	No	<0.01
	60	240	222	No	0.09	226	No	0.07	229	No	<0.01
	65	240	224	No	0.14	228	No	0.12	231	No	0.01
	70	240	226	No	0.2	231	No	0.18	234	No	0.04
	75	240	229	No	0.31	233	No	0.26	237	No	0.2
	80	240	232	No	0.45	236	No	0.4	240	Yes	0.5

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	240	235	Yes	0.6	240	Yes	0.6	244	Yes	0.87
	90	240	239	Yes	0.77	245	Yes	0.82	249	Yes	0.99
	95	240	246	Yes	0.94	251	Yes	0.96	256	Yes	>0.99
8	5	250	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	250	199	No	<0.01	201	No	<0.01	203	No	<0.01
	15	250	203	No	<0.01	206	No	<0.01	208	No	<0.01
	20	250	207	No	<0.01	210	No	<0.01	212	No	<0.01
	25	250	210	No	<0.01	213	No	<0.01	215	No	<0.01
	30	250	212	No	<0.01	216	No	<0.01	218	No	<0.01
	35	250	215	No	<0.01	219	No	<0.01	221	No	<0.01
	40	250	217	No	<0.01	221	No	<0.01	224	No	<0.01
	45	250	220	No	<0.01	224	No	<0.01	226	No	<0.01
	50	250	222	No	0.01	226	No	<0.01	229	No	<0.01
	55	250	224	No	0.01	228	No	0.01	231	No	<0.01
	60	250	227	No	0.03	231	No	0.02	234	No	<0.01
	65	250	229	No	0.05	233	No	0.04	237	No	<0.01
	70	250	232	No	0.1	236	No	0.08	239	No	<0.01
	75	250	234	No	0.15	239	No	0.13	242	No	0.01
	80	250	237	No	0.25	242	No	0.23	246	No	0.13
	85	250	241	No	0.41	246	No	0.4	250	Yes	0.5
	90	250	246	Yes	0.63	251	Yes	0.65	255	Yes	0.92
	95	250	252	Yes	0.85	258	Yes	0.9	262	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