

2018 Linking Study: Predicting Performance on the Performance Evaluation for Alaska's Schools (PEAKS) based on MAP Growth Scores

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Executive Summary

This study produced a set of cut scores on MAP® Growth™ Reading and Mathematics for Grades K–8 that correspond to the achievement levels by grade for the Performance Evaluation for Alaska’s Schools (PEAKS) for English Language Arts (ELA) and Mathematics, as shown in Table 3.3 and Table 3.4 in Section 3.3. Equipercentile Linking Cut Scores. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes. This study also used the 2015 NWEA norming study results to project a student’s probability to meet proficiency based on that student’s prior MAP Growth scores in fall and winter.

By using matched score data from a sample of Alaska students, the study demonstrates that MAP Growth scores can predict whether a student will reach proficiency on the Alaska assessments based on his or her MAP Growth scores, as shown by the classification accuracy results. The overall classification accuracy rate ranges from 0.84 to 0.86 for ELA/Reading and 0.85 to 0.90 for Mathematics across all grades, suggesting that the MAP Growth cuts for each content area and grade are good predictors of students’ proficiency status on either the PEAKS ELA or Mathematics assessments. For Grades K–2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students’ proficiency status on the PEAKS ELA and Mathematics assessments in Grade 3. Consequently, the further back from Grade 3 that the cut scores were extrapolated, the lower the expected classification accuracy rate.

The results of this study can help educators predict student performance on the Alaska summative assessments as early as possible and identify students at risk of failing to meet required standards so they can receive the necessary resources and assistance to meet their goals. However, some caution should be taken when using this information:

1. The tables provide information about scores on different tests that measure slightly different constructs. Therefore, the scores cannot be assumed to be interchangeable.
2. The sample data used in this study were collected from 211 schools and 12 school districts in Alaska. Caution should be exercised when generalizing the results to students who differ significantly in characteristics from this sample.
3. Caution should be exercised if the linked scores are used for a subpopulation with sample sizes less than 1,000 within a grade and content area.

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 the MAP® Growth™ test scores. An important use of MAP Growth results is to predict a student's performance on the state summative assessment at different times throughout the year. This allows educators and parents to determine if a student is on track in their learning to meet state standards by the end of the year or, given a student's learning profile, is on track to obtain rigorous, realistic growth in their content knowledge and skills.

This document presents results from a linking study conducted by NWEA in June 2018 to statistically connect the scales of the Performance Evaluation for Alaska's Schools (PEAKS) English Language Arts (ELA) and Mathematics assessments with those of the MAP Growth assessments taken during the Spring 2017 term. Specifically, this report presents the following:

- Cut scores on the MAP Growth Reading and Mathematics scales for Grades 3–8 that correspond to the benchmarks on the PEAKS ELA and Mathematics tests.
- Cut scores on the MAP Growth Reading and Mathematics scales for Grades K–2 that are extrapolated from the current Grade 3 cohort using the 2015 MAP Growth norms.
- Classification accuracy summary statistics based on the estimated MAP Growth cut scores.
- The probability of meeting or exceeding grade-level proficiency on the PEAKS assessments based on the observed MAP Growth scores taken during different terms in the same school year.

1.2. Assessment Overview

1.2.1. Performance Evaluation for Alaska's Schools (PEAKS)

PEAKS assessments are aligned to Alaska's ELA and Mathematics Standards adopted in 2012 and are administered to students in Grades 3–10 in ELA and Mathematics. In 2017, the PEAKS tests were offered in both online and paper-pencil forms. For each grade and content area, there are three cut scores that distinguish between the following achievement levels. The Level 3 cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

- Level 1: Far Below Proficient (FBP)
- Level 2: Below Proficient (BP)
- Level 3: Proficient (P)
- Level 4: Advanced (A)

1.2.2. MAP Growth

MAP Growth Reading and Mathematics are computer adaptive interim assessments aligned to the Alaska content standards. The MAP Growth Reading assessments are comparable to the Alaska's standards in ELA. MAP Growth scores are reported on a vertical scale with a range of 100–350 in Rasch Unit (RIT). Each content area has its own scale. To aid interpretation of MAP Growth scores, NWEA periodically conducts norming studies of student and school performance on MAP Growth. The most recent MAP Growth norming study by Thum & Hauser (2015) employed multi-level growth models on nearly 500,000 longitudinal test scores from over 100,000 students that were weighted to create large, nationally representative norms.

2. Methods

2.1. Data Collection

This linking study was based on data from the PEAKS and MAP Growth assessments taken during Spring 2017. Alaska school districts were recruited by NWEA's Research Data Services team to participate in the study by sharing their student and score data for the target term. Districts also gave NWEA permission to access students' associated MAP Growth scores from NWEA's in-house database. NWEA made every effort to maximize district participation so that results could be robust and representative of all students taking the PEAKS assessment.

Once Alaska state score information was received by participating districts, each student's state testing record was matched to their MAP Growth score. Matching was performed using the student's first and last names, date of birth, student ID, and other available identifying information. The final study sample included students for whom both PEAKS and MAP Growth scores were available, and the sample size was at least 1,000 by grade and content area. As a result, the linking study was conducted based on matched samples from Grades 3–8 ELA/Reading and Mathematics.

2.2. Equipercentile Linking Procedure

The equipercentile procedure (e.g., Kolen & Brennan, 2004) was used to link PEAKS and MAP Growth scores. This procedure matches scores on the two scales that have the same percentile rank (i.e., the proportion of tests at or below each score).

Consider the linked scores between two tests. Let x represent a score on Test X (e.g., PEAKS). Its equipercentile equivalent score on Test Y (e.g., MAP Growth), $e_y(x)$, can be obtained through a cumulative-distribution-based linking function defined in Equation 1:

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

where $e_y(x)$ is the equipercentile equivalent of score x on PEAKS on the scale of MAP Growth, $P(x)$ is the percentile rank of a given score on Test X , and G^{-1} is the inverse of the percentile rank function for Test Y that indicates the score on Test Y corresponding to a given percentile. Polynomial loglinear pre-smoothing was applied to reduce irregularities of the score distributions and equipercentile linking curve.

Spring cuts for Grades K–2 were extrapolated from the current Grade 3 student cohort. Using NWEA's 2015 MAP Growth norms data, the previous grade's spring scores were determined by obtaining the score that corresponds to the same percentile rank as the current Grade 3 cuts.

2.3. Classification Accuracy Summary Statistics

The degree to which MAP Growth tests accurately predict student proficiency status on PEAKS can be described using classification accuracy statistics, which are important indicators for evaluating reliability and validity of classification results. Table 2.1 describes the classification accuracy statistics for MAP Growth as it relates to the PEAKS assessments.

Table 2.1. Classification Accuracy Data Associated with MAP Growth and PEAKS

Classification Accuracy Statistic	Description*	Interpretation
Overall Classification Accuracy Rate	$(TP + TN) / (\text{total sample size})$	The proportion of students in the study sample whose proficiency classification on the state test was correctly predicted by MAP Growth cut scores (Pommerich, Hanson, Harris, & Scoring, 2004).
Sensitivity	$TP / (TP + FN)$	The proportion of proficient students who were correctly identified on the MAP Growth test as such.
Specificity	$TN / (TN + FP)$	The proportion of below-proficient students who were correctly identified on the MAP Growth test as such.
False Negative Rate	$FN / (FN + TP)$	The proportion of proficient students who were incorrectly predicted by MAP Growth test to be below proficiency.
False Positive Rate	$FP / (FP + TN)$	The proportion of below-proficient students who were incorrectly predicted by MAP Growth test to be proficient.
Area Under the Curve (AUC)	Area under the 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.

*TN = true negatives. FP = false positives. FN = false negatives. TP = true positives. ROC = receiver operating characteristics.

2.4. Proficiency Projection

MAP Growth conditional growth norms provide students’ expected score gains across testing seasons (Thum & Hauser, 2015). This information was used to estimate the previous fall and winter terms’ MAP Growth scores that would meet the spring cut, considering the growth that is expected of the previous term’s RIT value. Additionally, the growth norms data were used to calculate the probability of reaching proficiency on the PEAKS test based on the student’s MAP Growth scores from prior terms.

Equation 2 was used to determine the fall or winter MAP Growth score needed to reach the spring cut score, considering the expected growth associated with the previous RIT score:

$$RIT_{SpringCut} = RIT_{previous} + g \quad (2)$$

where:

- $RIT_{SpringCut}$ is the MAP Growth spring cut.
- $RIT_{previous}$ is the unknown fall or winter RIT score.
- g is the expected growth from fall or winter to spring corresponding to $RIT_{previous}$.

Equation 3 was used to calculate the probability of a student achieving Level 3 (i.e., the proficient benchmark) on the PEAKS test based on his or her fall or winter MAP Growth score:

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

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 fall or winter to spring corresponding to that previous RIT.
- $RIT_{SpringCut}$ is the MAP Growth Level 3 cut score for spring.
- SD is the conditional standard deviation of growth from fall or winter to spring.

Equation 4 was used to estimate the probability of a student achieving Level 3 on the PEAKS test based on his or her spring score RIT_{Spring} :

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

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

3. Results and Discussion

3.1. Study Sample

A total of 211 schools across 12 districts in Alaska participated in this linking study. Table 3.1 provides the demographics of the study sample. Across both content areas, between 25.4% and 61.2% of students had “not specified” information. The percentage of White students ranged from 9.6% to 34.5%, from 9.3% to 18.2% for American Indian/Alaska Native (AI/AN), followed by Other/Multi-Racial (Other/MR), Hispanic, Asian/Pacific Islander (PI), and Black/African-American. Males made up slightly more of the study sample than females. The high percentage of the “Not Specified” ethnicity is likely because ethnicity information is not required for schools to provide. To better evaluate the study sample in the future, students’ demographic information needs to be provided or collected. Caution should be exercised when generalizing the results to students from non-participating schools.

Table 3.1. Demographics of the Study Sample

Content Area	Grade	N	Race/Ethnicity*							Gender	
			White	Black	Hispanic	Asian/PI	AI/AN	Other/MR	Not Spec.	Female	Male
ELA/ Reading	3	3,342	10.1%	0.5%	4.5%	1.2%	16.3%	6.3%	61.1%	49.6%	50.3%
	4	3,418	9.6%	1.0%	4.3%	1.1%	18.0%	6.0%	60.0%	47.7%	52.2%
	5	6,411	24.7%	2.8%	7.5%	9.1%	13.0%	10.8%	32.1%	49.1%	50.9%
	6	6,028	26.4%	3.1%	7.4%	9.8%	13.5%	10.4%	29.2%	49.2%	50.7%
	7	5,803	27.4%	3.5%	6.6%	10.1%	9.3%	10.6%	32.7%	48.9%	51.0%
	8	5,512	34.5%	3.2%	7.4%	10.6%	9.6%	9.3%	25.4%	48.9%	51.1%
Mathematics	3	3,358	10.2%	0.5%	4.6%	1.2%	16.1%	6.3%	61.2%	49.6%	50.4%
	4	3,415	9.6%	1.0%	4.4%	1.1%	18.2%	6.1%	59.7%	47.6%	52.3%
	5	6,399	24.7%	2.8%	7.5%	9.1%	12.9%	10.8%	32.3%	49.0%	51.0%
	6	6,038	26.3%	3.1%	7.5%	9.8%	13.5%	10.4%	29.4%	49.2%	50.7%
	7	5,790	27.2%	3.4%	6.6%	10.0%	9.3%	10.5%	32.9%	48.8%	51.1%
	8	5,488	34.5%	3.2%	7.4%	10.5%	9.4%	9.3%	25.8%	49.1%	50.8%

*Asian/PI = Asian/Pacific Islander. AI/AN = American Indian/Alaska Native. Other/MR = Other/Multi-Race. Not Spec. = Not Specified.

3.2. Descriptive Statistics

Table 3.2 provides descriptive statistics of the PEAKS and MAP Growth scores for Spring 2017, including the correlation coefficient (r) between the two scales. As shown in the table, the correlation coefficients between MAP Growth and PEAKS scores range from 0.81 to 0.83 for ELA/Reading and 0.82 to 0.87 for Mathematics. In general, these correlations can be considered criterion-related validity evidence between the MAP Growth and the PEAKS assessments by content area. These results indicate that the relationship between MAP Growth and the PEAKS scores is strong.

Table 3.2. Descriptive Statistics of PEAKS and MAP Growth Scores from the Study Sample

Content Area	Grade	N	r	PEAKS*				MAP Growth*			
				Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
ELA/ Reading	3	3,342	0.82	484.0	35.7	400	600	193.3	18.3	121	240
	4	3,418	0.83	490.2	35.7	400	600	201.1	18.3	141	255
	5	6,411	0.83	492.6	34.4	400	600	209.1	16.8	143	257
	6	6,028	0.82	497.6	34.9	400	600	213.8	16.6	144	258
	7	5,803	0.81	496.4	34.7	400	600	217.1	16.8	145	270
	8	5,512	0.81	491.2	35.2	400	600	220.4	17.2	146	262
Mathematics	3	3,358	0.84	495.1	35.7	400	600	197.9	15.0	142	261
	4	3,415	0.83	494.4	35.9	403	600	207.6	16.5	125	265
	5	6,399	0.83	494.6	36.1	400	600	217.2	17.0	146	272
	6	6,038	0.87	490.9	34.8	400	600	220.8	17.6	146	284
	7	5,790	0.83	483.2	35.5	400	600	225.7	18.2	147	286
	8	5,488	0.82	478.4	35.4	400	600	230.4	19.5	162	297

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

3.3. Equipercentile Linking Cut Scores

Table 3.3 – Table 3.4 present the PEAKS scale scores for each achievement level and the corresponding MAP Growth scores (obtained from equipercentile linking) and percentile ranges for ELA/Reading and Mathematics. These tables can be used to predict a student's likely achievement level on the PEAKS assessments when MAP Growth is taken in the spring. For example, a Grade 6 student who obtained a MAP Growth Reading score of 222 in the spring is likely to be at Level 3 (Proficient) on the PEAKS test taken during that same testing season (see Table 3.3).

Table 3.3. MAP Growth Cut Scores Corresponding to PEAKS Scores when MAP Growth is taken in Spring—ELA/Reading

PEAKS ELA								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
3	400–463		464–499		500 –541		542–600	
4	400–467		468–499		500 –537		538–600	
5	400–463		464–499		500 –547		548–600	
6	400–472		473–499		500 –550		551–600	
7	400–470		471–499		500 –545		546–600	
8	400–468		469–499		500 –540		541–600	

MAP Growth Reading								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–145	1–16	146–161	17–60	162 –175	61–91	176–350	92–99
1**	100–163	1–16	164–181	17–60	182 –197	61–91	198–350	92–99
2**	100–174	1–17	175–192	18–59	193 –209	60–91	210–350	92–99
3	100–184	1–17	185–202	18–60	203 –219	61–91	220–350	92–99
4	100–191	1–16	192–207	17–54	208 –222	55–86	223–350	87–99
5	100–196	1–14	197–213	15–54	214 –231	55–91	232–350	92–99
6	100–203	1–20	204–216	21–52	217 –234	53–89	235–350	90–99
7	100–206	1–22	207–220	23–56	221 –237	57–89	238–350	90–99
8	100–211	1–29	212–226	30–65	227 –241	66–91	242–350	92–99

*Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Spring cut scores were extrapolated from the Grade 3 cohort using the 2015 MAP Growth norms.

Table 3.4. MAP Growth Cut Scores Corresponding to PEAKS Scores when MAP Growth is taken in Spring—Mathematics

PEAKS Mathematics								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
3	400–457		458–499		500–553		554–600	
4	400–459		460–499		500–558		559–600	
5	400–461		462–499		500–567		568–600	
6	400–453		454–499		500–553		554–600	
7	400–450		451–499		500–558		559–600	
8	400–447		448–499		500–561		562–600	

MAP Growth Mathematics								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–138	1–6	139–156	7–42	157–174	43–86	175–350	87–99
1**	100–160	1–6	161–178	7–43	179–195	44–85	196–350	86–99
2**	100–171	1–6	172–189	7–42	190–206	43–85	207–350	86–99
3	100–182	1–6	183–201	7–44	202–218	45–86	219–350	87–99
4	100–191	1–7	192–212	8–47	213–231	48–88	232–350	89–99
5	100–201	1–10	202–222	11–52	223–243	53–91	244–350	92–99
6	100–202	1–8	203–227	9–55	228–246	56–89	247–350	90–99
7	100–209	1–14	210–236	15–67	237–256	68–93	257–350	94–99
8	100–213	1–18	214–243	19–74	244–265	75–95	266–350	96–99

*Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Spring cut scores were extrapolated from the Grade 3 cohort using the 2015 MAP Growth norms.

3.4. Classification Accuracy Summary Statistics

Table 3.5 presents the overall classification accuracy rate, sensitivity, specificity, false positive rate, false negative rate, and area under the ROC curve (AUC). These summary statistics provide insight into the predictive validity of MAP Growth tests on the PEAKS test. The overall classification accuracy rate of Grades 3 through 8 ranges from 0.84 to 0.86 for ELA/Reading and 0.85 to 0.90 for Mathematics. These values suggest that the MAP Growth cut scores for each content area and grade are good predictors of the students' proficiency status on the PEAKS test. For Grades K–2, the classification accuracy rate refers to how well the MAP Growth cuts shown can predict students' proficiency status on the PEAKS test in Grade 3. Consequently, the further back from Grade 3 that the cut scores were extrapolated, the lower the expected classification accuracy rate.

Table 3.5. Classification Accuracy Summary Statistics for MAP Growth and PEAKS Level 3 (Proficient) Proficiency for Grades K–8 Students

ELA/Reading									
Grade	Sample Size	Cut Score		Class. Accuracy*	Rate		Sensitivity	Specificity	AUC*
		MAP Growth	PEAKS		FP*	FN*			
K**	536	162	500	0.81	0.13	0.37	0.63	0.87	0.87
1**	749	182	500	0.81	0.12	0.36	0.64	0.88	0.88
2**	1,434	193	500	0.79	0.17	0.26	0.74	0.83	0.87
3	3,342	203	500	0.86	0.10	0.22	0.78	0.90	0.93
4	3,418	208	500	0.85	0.13	0.19	0.81	0.87	0.92
5	6,411	214	500	0.86	0.14	0.16	0.84	0.86	0.93
6	6,028	217	500	0.84	0.16	0.16	0.84	0.84	0.93
7	5,803	221	500	0.84	0.16	0.15	0.85	0.84	0.93
8	5,512	227	500	0.86	0.12	0.17	0.83	0.88	0.93
Mathematics									
Grade	Sample Size	Cut Score		Class. Accuracy*	Rate		Sensitivity	Specificity	AUC*
		MAP Growth	PEAKS		FP*	FN*			
K**	541	157	500	0.73	0.31	0.18	0.82	0.69	0.85
1**	755	179	500	0.78	0.26	0.15	0.85	0.74	0.87
2**	1,434	190	500	0.78	0.29	0.15	0.85	0.71	0.87
3	3,358	202	500	0.86	0.12	0.17	0.83	0.88	0.94
4	3,415	213	500	0.87	0.11	0.15	0.85	0.89	0.95
5	6,399	223	500	0.85	0.12	0.20	0.80	0.88	0.93
6	6,038	228	500	0.88	0.09	0.16	0.84	0.91	0.95
7	5,790	237	500	0.88	0.07	0.25	0.75	0.94	0.95
8	5,488	244	500	0.90	0.07	0.20	0.80	0.93	0.96

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

**Spring cut scores were extrapolated from the Grade 3 cohort using 2015 MAP Growth norms.

3.5. Proficiency Projections

Table 3.6 – Table 3.7 present the PEAKS scale scores for each achievement level and the corresponding MAP Growth scores and percentile ranges applied to MAP Growth tests taken in fall or winter prior to the testing season. These tables can be used to predict a student’s likely achievement level on the PEAKS assessment when MAP Growth is taken in fall or winter. For example, a Grade 3 student who obtained a MAP Growth Reading score of 200 in the fall is likely to be at Level 3 (Proficient) on the PEAKS test taken in the spring (see Table 3.6).

Table 3.6. Projection of Achievement Level Score Ranges between PEAKS and MAP Growth when MAP Growth is taken in Fall or Winter—ELA/Reading

PEAKS ELA								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
3	400–463		464–499		500–541		542–600	
4	400–467		468–499		500–537		538–600	
5	400–463		464–499		500–547		548–600	
6	400–472		473–499		500–550		551–600	
7	400–470		471–499		500–545		546–600	
8	400–468		469–499		500–540		541–600	

MAP Growth Reading (Fall)								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–124	1–11	125–145	12–62	146–163	63–94	164–350	95–99
1**	100–145	1–12	146–164	13–61	165–182	62–94	183–350	95–99
2**	100–157	1–13	158–179	14–62	180–199	63–94	200–350	95–99
3	100–171	1–14	172–192	15–60	193–213	61–94	214–350	95–99
4	100–181	1–14	182–199	15–53	200–217	54–89	218–350	90–99
5	100–187	1–11	188–207	12–54	208–228	55–93	229–350	94–99
6	100–196	1–16	197–211	17–51	212–232	52–92	233–350	93–99
7	100–201	1–19	202–217	20–57	218–235	58–91	236–350	92–99
8	100–207	1–26	208–224	27–67	225–239	68–92	240–350	93–99

MAP Growth Reading (Winter)								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–137	1–13	138–154	14–59	155–170	60–93	171–350	94–99
1**	100–157	1–15	158–175	16–61	176–191	62–92	192–350	93–99
2**	100–169	1–16	170–188	17–61	189–206	62–93	207–350	94–99
3	100–180	1–15	181–199	16–60	200–217	61–92	218–350	93–99
4	100–188	1–15	189–205	16–55	206–221	56–88	222–350	89–99
5	100–193	1–13	194–211	14–54	212–230	55–92	231–350	93–99
6	100–201	1–19	202–215	20–53	216–233	54–90	234–350	91–99
7	100–204	1–20	205–219	21–56	220–236	57–90	237–350	91–99
8	100–210	1–28	211–225	29–66	226–240	67–91	241–350	92–99

*Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Spring cut scores were extrapolated from the Grade 3 cohort using 2015 MAP Growth norms.

Table 3.7. Projection of Achievement Level Score Ranges between PEAKS and MAP Growth when MAP Growth is taken in Fall or Winter—Mathematics

PEAKS Mathematics								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
3	400–457		458–499		500–553		554–600	
4	400–459		460–499		500–558		559–600	
5	400–461		462–499		500–567		568–600	
6	400–453		454–499		500–553		554–600	
7	400–450		451–499		500–558		559–600	
8	400–447		448–499		500–561		562–600	

MAP Growth Mathematics (Fall)								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–115	1–4	116–136	5–40	137–159	41–90	160–350	91–99
1**	100–139	1–3	140–159	4–41	160–178	42–89	179–350	90–99
2**	100–153	1–3	154–173	4–39	174–193	40–89	194–350	90–99
3	100–168	1–4	169–188	5–44	189–206	45–89	207–350	90–99
4	100–179	1–4	180–200	5–45	201–220	46–91	221–350	92–99
5	100–191	1–8	192–212	9–52	213–233	53–93	234–350	94–99
6	100–194	1–6	195–219	7–54	220–239	55–91	240–350	92–99
7	100–203	1–12	204–230	13–68	231–250	69–94	251–350	95–99
8	100–208	1–15	209–239	16–77	240–261	78–96	262–350	97–99

MAP Growth Mathematics (Winter)								
Grade	Level 1: Far Below Proficient		Level 2: Below Proficient		Level 3: Proficient*		Level 4: Advanced	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–128	1–4	129–148	5–41	149–168	42–88	169–350	89–99
1**	100–153	1–5	154–171	6–42	172–188	43–87	189–350	88–99
2**	100–165	1–5	166–183	6–41	184–201	42–87	202–350	88–99
3	100–176	1–4	177–196	5–44	197–213	45–87	214–350	88–99
4	100–186	1–5	187–207	6–46	208–226	47–89	227–350	90–99
5	100–197	1–9	198–218	10–53	219–239	54–92	240–350	93–99
6	100–199	1–7	200–224	8–56	225–243	57–90	244–350	91–99
7	100–207	1–13	208–234	14–68	235–254	69–94	255–350	95–99
8	100–211	1–16	212–241	17–75	242–263	76–96	264–350	97–99

*Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Spring cut scores were extrapolated from the Grade 3 cohort using 2015 MAP Growth norms.

Table 3.8 presents the estimated probability of meeting the Level 3 benchmark (i.e., being classified as proficient on PEAKS) based on students' observed MAP Growth score when MAP Growth is taken in the spring. Table 3.9 and Table 3.10 present the estimated probability of meeting the Level 3 benchmark when MAP Growth is taken in the fall or winter prior to taking PEAKS. The conditional growth norms provided in the 2015 MAP Growth norms report were used to calculate this information (Thum & Hauser, 2015). For example, a Grade 3 student who obtained a MAP Growth Mathematics score of 190 in the fall has an 56% chance of reaching Level 3 (Proficient) or higher on the PEAKS test taken in the spring (see Table 3.10).

Table 3.8. Proficiency Projection and Probability of Reaching Level 3 on PEAKS when MAP Growth is taken in Spring

Grade	Start Percentile	ELA/Reading				Mathematics			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
2	5	164	193	No	<0.01	170	190	No	<0.01
	10	169	193	No	<0.01	175	190	No	<0.01
	15	173	193	No	<0.01	178	190	No	<0.01
	20	176	193	No	<0.01	181	190	No	<0.01
	25	178	193	No	<0.01	183	190	No	0.01
	30	181	193	No	<0.01	185	190	No	0.04
	35	183	193	No	<0.01	187	190	No	0.15
	40	185	193	No	0.01	189	190	No	0.37
	45	187	193	No	0.03	190	190	Yes	0.50
	50	189	193	No	0.11	192	190	Yes	0.76
	55	191	193	No	0.27	194	190	Yes	0.92
	60	193	193	Yes	0.50	196	190	Yes	0.98
	65	195	193	Yes	0.73	197	190	Yes	0.99
	70	197	193	Yes	0.89	199	190	Yes	>0.99
	75	199	193	Yes	0.97	201	190	Yes	>0.99
	80	201	193	Yes	0.99	204	190	Yes	>0.99
	85	204	193	Yes	>0.99	206	190	Yes	>0.99
90	208	193	Yes	>0.99	209	190	Yes	>0.99	
95	214	193	Yes	>0.99	214	190	Yes	>0.99	

Grade	Start Percentile	ELA/Reading				Mathematics			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
3	5	174	203	No	<0.01	181	202	No	<0.01
	10	179	203	No	<0.01	186	202	No	<0.01
	15	183	203	No	<0.01	189	202	No	<0.01
	20	186	203	No	<0.01	192	202	No	<0.01
	25	188	203	No	<0.01	194	202	No	<0.01
	30	191	203	No	<0.01	196	202	No	0.02
	35	193	203	No	<0.01	198	202	No	0.08
	40	195	203	No	0.01	200	202	No	0.25
	45	197	203	No	0.03	202	202	Yes	0.50
	50	199	203	No	0.11	203	202	Yes	0.64
	55	201	203	No	0.27	205	202	Yes	0.85
	60	202	203	No	0.38	207	202	Yes	0.96
	65	204	203	Yes	0.62	209	202	Yes	0.99
	70	207	203	Yes	0.89	211	202	Yes	>0.99
	75	209	203	Yes	0.97	213	202	Yes	>0.99
	80	211	203	Yes	0.99	215	202	Yes	>0.99
	85	214	203	Yes	>0.99	218	202	Yes	>0.99
90	218	203	Yes	>0.99	221	202	Yes	>0.99	
95	223	203	Yes	>0.99	226	202	Yes	>0.99	
4	5	181	208	No	<0.01	189	213	No	<0.01
	10	187	208	No	<0.01	194	213	No	<0.01
	15	190	208	No	<0.01	198	213	No	<0.01
	20	193	208	No	<0.01	201	213	No	<0.01
	25	196	208	No	<0.01	203	213	No	<0.01
	30	198	208	No	<0.01	206	213	No	0.01
	35	200	208	No	0.01	208	213	No	0.04
	40	202	208	No	0.03	210	213	No	0.15
	45	204	208	No	0.11	212	213	No	0.37
	50	206	208	No	0.27	213	213	Yes	0.50
	55	208	208	Yes	0.50	215	213	Yes	0.76
	60	210	208	Yes	0.73	217	213	Yes	0.92
	65	212	208	Yes	0.89	219	213	Yes	0.98
	70	214	208	Yes	0.97	221	213	Yes	>0.99
	75	216	208	Yes	0.99	224	213	Yes	>0.99
	80	218	208	Yes	>0.99	226	213	Yes	>0.99
	85	221	208	Yes	>0.99	229	213	Yes	>0.99
90	225	208	Yes	>0.99	233	213	Yes	>0.99	
95	230	208	Yes	>0.99	238	213	Yes	>0.99	

Grade	Start Percentile	ELA/Reading				Mathematics			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
5	5	188	214	No	<0.01	195	223	No	<0.01
	10	193	214	No	<0.01	201	223	No	<0.01
	15	197	214	No	<0.01	205	223	No	<0.01
	20	199	214	No	<0.01	208	223	No	<0.01
	25	202	214	No	<0.01	210	223	No	<0.01
	30	204	214	No	<0.01	213	223	No	<0.01
	35	206	214	No	0.01	215	223	No	<0.01
	40	208	214	No	0.03	217	223	No	0.02
	45	210	214	No	0.11	219	223	No	0.08
	50	212	214	No	0.27	221	223	No	0.25
	55	214	214	Yes	0.05	223	223	Yes	0.50
	60	216	214	Yes	0.73	225	223	Yes	0.76
	65	217	214	Yes	0.83	228	223	Yes	0.96
	70	220	214	Yes	0.97	230	223	Yes	0.99
	75	222	214	Yes	0.99	232	223	Yes	>0.99
	80	224	214	Yes	>0.99	235	223	Yes	>0.99
	85	227	214	Yes	>0.99	238	223	Yes	>0.99
90	231	214	Yes	>0.99	242	223	Yes	>0.99	
95	236	214	Yes	>0.99	248	223	Yes	>0.99	
6	5	192	217	No	<0.01	198	228	No	<0.01
	10	197	217	No	<0.01	204	228	No	<0.01
	15	201	217	No	<0.01	208	228	No	<0.01
	20	203	217	No	<0.01	211	228	No	<0.01
	25	206	217	No	<0.01	214	228	No	<0.01
	30	208	217	No	<0.01	217	228	No	<0.01
	35	210	217	No	0.01	219	228	No	<0.01
	40	212	217	No	0.06	221	228	No	0.01
	45	214	217	No	0.17	223	228	No	0.04
	50	216	217	No	0.38	225	228	No	0.15
	55	218	217	Yes	0.62	227	228	No	0.37
	60	219	217	Yes	0.73	230	228	Yes	0.76
	65	221	217	Yes	0.89	232	228	Yes	0.92
	70	223	217	Yes	0.97	234	228	Yes	0.98
	75	226	217	Yes	>0.99	237	228	Yes	>0.99
	80	228	217	Yes	>0.99	239	228	Yes	>0.99
	85	231	217	Yes	>0.99	243	228	Yes	>0.99
90	235	217	Yes	>0.99	247	228	Yes	>0.99	
95	240	217	Yes	>0.99	253	228	Yes	>0.99	

Grade	Start Percentile	ELA/Reading				Mathematics			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
7	5	193	221	No	<0.01	199	237	No	<0.01
	10	199	221	No	<0.01	206	237	No	<0.01
	15	202	221	No	<0.01	210	237	No	<0.01
	20	205	221	No	<0.01	214	237	No	<0.01
	25	208	221	No	<0.01	217	237	No	<0.01
	30	210	221	No	<0.01	219	237	No	<0.01
	35	212	221	No	<0.01	222	237	No	<0.01
	40	214	221	No	0.01	224	237	No	<0.01
	45	216	221	No	0.06	226	237	No	<0.01
	50	218	221	No	0.17	229	237	No	<0.01
	55	220	221	No	0.38	231	237	No	0.02
	60	222	221	Yes	0.62	233	237	No	0.08
	65	224	221	Yes	0.83	235	237	No	0.25
	70	226	221	Yes	0.94	238	237	Yes	0.64
	75	228	221	Yes	0.99	241	237	Yes	0.92
	80	231	221	Yes	>0.99	244	237	Yes	0.99
	85	234	221	Yes	>0.99	247	237	Yes	>0.99
90	238	221	Yes	>0.99	251	237	Yes	>0.99	
95	243	221	Yes	>0.99	258	237	Yes	>0.99	
8	5	194	227	No	<0.01	199	244	No	<0.01
	10	200	227	No	<0.01	206	244	No	<0.01
	15	204	227	No	<0.01	211	244	No	<0.01
	20	207	227	No	<0.01	215	244	No	<0.01
	25	209	227	No	<0.01	218	244	No	<0.01
	30	212	227	No	<0.01	221	244	No	<0.01
	35	214	227	No	<0.01	224	244	No	<0.01
	40	216	227	No	<0.01	226	244	No	<0.01
	45	218	227	No	<0.01	229	244	No	<0.01
	50	220	227	No	0.01	231	244	No	<0.01
	55	222	227	No	0.06	233	244	No	<0.01
	60	224	227	No	0.17	236	244	No	<0.01
	65	226	227	No	0.38	238	244	No	0.02
	70	228	227	Yes	0.62	241	244	No	0.15
	75	231	227	Yes	0.89	244	244	Yes	0.50
	80	233	227	Yes	0.97	247	244	Yes	0.85
	85	236	227	Yes	>0.99	251	244	Yes	0.99
90	240	227	Yes	>0.99	255	244	Yes	>0.99	
95	246	227	Yes	>0.99	262	244	Yes	>0.99	

*Prob. = Probability of obtaining proficient status on the PEAKS test in the spring.

Table 3.9. Proficiency Projection and Probability of Reaching Level 3 on PEAKS in Spring when MAP Growth is taken in the Fall or Winter—ELA/Reading

Grade	Start Percentile	ELA/Reading (Fall)				ELA/Reading (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
2	5	149	193	No	<0.01	160	193	No	<0.01
	10	155	193	No	<0.01	165	193	No	<0.01
	15	159	193	No	0.01	169	193	No	<0.01
	20	162	193	No	0.03	172	193	No	<0.01
	25	164	193	No	0.05	174	193	No	0.01
	30	167	193	No	0.08	176	193	No	0.01
	35	169	193	No	0.12	178	193	No	0.03
	40	171	193	No	0.19	180	193	No	0.07
	45	173	193	No	0.22	182	193	No	0.13
	50	175	193	No	0.30	184	193	No	0.23
	55	177	193	No	0.40	186	193	No	0.29
	60	179	193	No	0.45	188	193	No	0.43
	65	181	193	Yes	0.55	190	193	Yes	0.57
	70	183	193	Yes	0.65	192	193	Yes	0.71
	75	185	193	Yes	0.70	194	193	Yes	0.82
	80	188	193	Yes	0.81	197	193	Yes	0.93
	85	191	193	Yes	0.88	200	193	Yes	0.98
90	195	193	Yes	0.95	203	193	Yes	0.99	
95	200	193	Yes	0.99	209	193	Yes	>0.99	
3	5	162	203	No	<0.01	171	203	No	<0.01
	10	168	203	No	<0.01	176	203	No	<0.01
	15	172	203	No	0.01	180	203	No	<0.01
	20	175	203	No	0.01	183	203	No	<0.01
	25	178	203	No	0.03	185	203	No	<0.01
	30	180	203	No	0.06	188	203	No	0.02
	35	182	203	No	0.08	190	203	No	0.03
	40	184	203	No	0.13	192	203	No	0.06
	45	186	203	No	0.20	194	203	No	0.13
	50	188	203	No	0.24	196	203	No	0.22
	55	190	203	No	0.34	198	203	No	0.35
	60	192	203	No	0.44	199	203	No	0.42
	65	194	203	Yes	0.50	201	203	Yes	0.58
	70	197	203	Yes	0.66	204	203	Yes	0.72
	75	199	203	Yes	0.76	206	203	Yes	0.83
	80	202	203	Yes	0.84	208	203	Yes	0.91
	85	205	203	Yes	0.92	211	203	Yes	0.97
90	209	203	Yes	0.97	215	203	Yes	>0.99	
95	214	203	Yes	0.99	221	203	Yes	>0.99	

Grade	Start Percentile	ELA/Reading (Fall)				ELA/Reading (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
4	5	173	208	No	<0.01	179	208	No	<0.01
	10	178	208	No	<0.01	184	208	No	<0.01
	15	182	208	No	0.01	188	208	No	<0.01
	20	185	208	No	0.03	191	208	No	<0.01
	25	188	208	No	0.05	194	208	No	0.02
	30	190	208	No	0.09	196	208	No	0.04
	35	192	208	No	0.15	198	208	No	0.08
	40	194	208	No	0.19	200	208	No	0.16
	45	196	208	No	0.28	202	208	No	0.22
	50	198	208	No	0.38	204	208	No	0.35
	55	200	208	Yes	0.50	205	208	No	0.42
	60	202	208	Yes	0.56	207	208	Yes	0.58
	65	204	208	Yes	0.67	209	208	Yes	0.72
	70	206	208	Yes	0.77	211	208	Yes	0.84
	75	209	208	Yes	0.85	214	208	Yes	0.94
	80	211	208	Yes	0.91	216	208	Yes	0.98
	85	214	208	Yes	0.96	219	208	Yes	0.99
90	218	208	Yes	0.99	223	208	Yes	>0.99	
95	224	208	Yes	>0.99	228	208	Yes	>0.99	
5	5	181	214	No	<0.01	186	214	No	<0.01
	10	186	214	No	<0.01	191	214	No	<0.01
	15	190	214	No	0.01	195	214	No	<0.01
	20	193	214	No	0.03	197	214	No	<0.01
	25	195	214	No	0.05	200	214	No	0.02
	30	198	214	No	0.09	202	214	No	0.03
	35	200	214	No	0.15	204	214	No	0.06
	40	202	214	No	0.23	206	214	No	0.12
	45	204	214	No	0.28	208	214	No	0.22
	50	206	214	No	0.38	210	214	No	0.35
	55	208	214	Yes	0.50	212	214	Yes	0.50
	60	210	214	Yes	0.62	214	214	Yes	0.65
	65	212	214	Yes	0.67	215	214	Yes	0.72
	70	214	214	Yes	0.77	218	214	Yes	0.83
	75	216	214	Yes	0.85	220	214	Yes	0.91
	80	218	214	Yes	0.88	222	214	Yes	0.96
	85	221	214	Yes	0.95	225	214	Yes	0.99
90	225	214	Yes	0.98	229	214	Yes	>0.99	
95	231	214	Yes	>0.99	234	214	Yes	>0.99	

Grade	Start Percentile	ELA/Reading (Fall)				ELA/Reading (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
6	5	186	217	No	<0.01	190	217	No	<0.01
	10	192	217	No	<0.01	196	217	No	<0.01
	15	196	217	No	0.02	199	217	No	<0.01
	20	198	217	No	0.04	202	217	No	0.01
	25	201	217	No	0.07	204	217	No	0.02
	30	203	217	No	0.12	207	217	No	0.06
	35	205	217	No	0.19	209	217	No	0.12
	40	207	217	No	0.23	211	217	No	0.22
	45	209	217	No	0.33	212	217	No	0.28
	50	211	217	No	0.44	214	217	No	0.42
	55	213	217	Yes	0.50	216	217	Yes	0.50
	60	215	217	Yes	0.61	218	217	Yes	0.65
	65	217	217	Yes	0.72	220	217	Yes	0.78
	70	219	217	Yes	0.81	222	217	Yes	0.88
	75	221	217	Yes	0.84	224	217	Yes	0.94
	80	224	217	Yes	0.93	226	217	Yes	0.97
	85	226	217	Yes	0.96	229	217	Yes	0.99
90	230	217	Yes	0.99	233	217	Yes	>0.99	
95	236	217	Yes	>0.99	238	217	Yes	>0.99	
7	5	189	221	No	<0.01	192	221	No	<0.01
	10	195	221	No	<0.01	198	221	No	<0.01
	15	199	221	No	0.01	201	221	No	<0.01
	20	202	221	No	0.02	204	221	No	<0.01
	25	204	221	No	0.04	207	221	No	0.01
	30	206	221	No	0.07	209	221	No	0.03
	35	209	221	No	0.12	211	221	No	0.06
	40	211	221	No	0.19	213	221	No	0.09
	45	213	221	No	0.28	215	221	No	0.17
	50	214	221	No	0.33	217	221	No	0.28
	55	216	221	No	0.44	219	221	No	0.42
	60	218	221	Yes	0.50	221	221	Yes	0.58
	65	220	221	Yes	0.61	223	221	Yes	0.72
	70	222	221	Yes	0.72	225	221	Yes	0.83
	75	225	221	Yes	0.81	227	221	Yes	0.91
	80	227	221	Yes	0.88	230	221	Yes	0.97
	85	230	221	Yes	0.95	232	221	Yes	0.99
90	234	221	Yes	0.99	236	221	Yes	>0.99	
95	240	221	Yes	>0.99	242	221	Yes	>0.99	

Grade	Start Percentile	ELA/Reading (Fall)				ELA/Reading (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
8	5	191	227	No	<0.01	194	227	No	<0.01
	10	197	227	No	<0.01	199	227	No	<0.01
	15	201	227	No	<0.01	203	227	No	<0.01
	20	204	227	No	0.01	206	227	No	<0.01
	25	207	227	No	0.02	209	227	No	<0.01
	30	209	227	No	0.04	211	227	No	<0.01
	35	211	227	No	0.06	213	227	No	0.01
	40	213	227	No	0.08	215	227	No	0.02
	45	215	227	No	0.13	217	227	No	0.05
	50	217	227	No	0.19	219	227	No	0.10
	55	219	227	No	0.26	221	227	No	0.18
	60	221	227	No	0.31	223	227	No	0.29
	65	223	227	No	0.40	225	227	No	0.43
	70	225	227	Yes	0.50	227	227	Yes	0.57
	75	228	227	Yes	0.65	229	227	Yes	0.71
	80	230	227	Yes	0.74	232	227	Yes	0.86
	85	234	227	Yes	0.87	235	227	Yes	0.95
90	237	227	Yes	0.94	239	227	Yes	0.99	
95	243	227	Yes	0.99	244	227	Yes	>0.99	

*Prob. = Probability of obtaining proficient status on the PEAKS test in the spring.

Table 3.10. Proficiency Projection and Probability of Reaching Level 3 on PEAKS in Spring when MAP Growth is taken in the Fall or Winter—Mathematics

Grade	Start Percentile	Mathematics (Fall)				Mathematics (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
2	5	155	190	No	0.01	165	190	No	<0.01
	10	160	190	No	0.03	170	190	No	<0.01
	15	163	190	No	0.07	173	190	No	0.01
	20	166	190	No	0.16	175	190	No	0.03
	25	168	190	No	0.19	178	190	No	0.11
	30	170	190	No	0.28	180	190	No	0.21
	35	172	190	No	0.39	181	190	No	0.27
	40	174	190	Yes	0.50	183	190	No	0.42
	45	175	190	Yes	0.50	185	190	Yes	0.58
	50	177	190	Yes	0.61	186	190	Yes	0.66
	55	179	190	Yes	0.72	188	190	Yes	0.79
	60	180	190	Yes	0.76	190	190	Yes	0.89
	65	182	190	Yes	0.84	191	190	Yes	0.92
	70	184	190	Yes	0.88	193	190	Yes	0.95
	75	186	190	Yes	0.93	195	190	Yes	0.98
	80	188	190	Yes	0.96	197	190	Yes	0.99
	85	191	190	Yes	0.98	200	190	Yes	>0.99
90	194	190	Yes	0.99	203	190	Yes	>0.99	
95	199	190	Yes	>0.99	208	190	Yes	>0.99	
3	5	169	202	No	<0.01	176	202	No	<0.01
	10	174	202	No	0.01	181	202	No	<0.01
	15	177	202	No	0.04	184	202	No	0.01
	20	179	202	No	0.08	187	202	No	0.02
	25	182	202	No	0.17	189	202	No	0.05
	30	184	202	No	0.22	191	202	No	0.10
	35	185	202	No	0.27	193	202	No	0.20
	40	187	202	No	0.38	195	202	No	0.34
	45	189	202	Yes	0.50	197	202	Yes	0.50
	50	190	202	Yes	0.56	198	202	Yes	0.58
	55	192	202	Yes	0.68	200	202	Yes	0.74
	60	194	202	Yes	0.78	202	202	Yes	0.86
	65	195	202	Yes	0.83	203	202	Yes	0.90
	70	197	202	Yes	0.89	205	202	Yes	0.95
	75	199	202	Yes	0.92	207	202	Yes	0.98
	80	201	202	Yes	0.96	209	202	Yes	0.99
	85	204	202	Yes	0.99	212	202	Yes	>0.99
90	207	202	Yes	>0.99	215	202	Yes	>0.99	
95	212	202	Yes	>0.99	220	202	Yes	>0.99	

Grade	Start Percentile	Mathematics (Fall)				Mathematics (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
4	5	179	213	No	<0.01	185	213	No	<0.01
	10	184	213	No	<0.01	190	213	No	<0.01
	15	188	213	No	0.02	194	213	No	<0.01
	20	190	213	No	0.04	197	213	No	0.01
	25	193	213	No	0.11	199	213	No	0.03
	30	195	213	No	0.17	201	213	No	0.07
	35	197	213	No	0.27	203	213	No	0.14
	40	198	213	No	0.32	205	213	No	0.26
	45	200	213	No	0.44	207	213	No	0.42
	50	202	213	Yes	0.56	209	213	Yes	0.58
	55	204	213	Yes	0.68	211	213	Yes	0.74
	60	205	213	Yes	0.68	212	213	Yes	0.80
	65	207	213	Yes	0.78	214	213	Yes	0.90
	70	209	213	Yes	0.86	216	213	Yes	0.96
	75	211	213	Yes	0.92	218	213	Yes	0.98
	80	214	213	Yes	0.97	221	213	Yes	>0.99
	85	216	213	Yes	0.99	223	213	Yes	>0.99
90	220	213	Yes	>0.99	227	213	Yes	>0.99	
95	225	213	Yes	>0.99	232	213	Yes	>0.99	
5	5	187	223	No	<0.01	192	223	No	<0.01
	10	193	223	No	<0.01	198	223	No	<0.01
	15	196	223	No	0.01	201	223	No	<0.01
	20	199	223	No	0.02	204	223	No	<0.01
	25	202	223	No	0.05	207	223	No	0.01
	30	204	223	No	0.09	209	223	No	0.02
	35	206	223	No	0.15	211	223	No	0.05
	40	208	223	No	0.23	213	223	No	0.11
	45	210	223	No	0.33	215	223	No	0.20
	50	211	223	No	0.38	217	223	No	0.34
	55	213	223	Yes	0.50	219	223	Yes	0.50
	60	215	223	Yes	0.62	221	223	Yes	0.66
	65	217	223	Yes	0.72	223	223	Yes	0.80
	70	219	223	Yes	0.81	225	223	Yes	0.89
	75	221	223	Yes	0.88	228	223	Yes	0.97
	80	224	223	Yes	0.95	230	223	Yes	0.99
	85	227	223	Yes	0.98	233	223	Yes	>0.99
90	230	223	Yes	0.99	237	223	Yes	>0.99	
95	236	223	Yes	>0.99	242	223	Yes	>0.99	

Grade	Start Percentile	Mathematics (Fall)				Mathematics (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
6	5	192	228	No	<0.01	196	228	No	<0.01
	10	198	228	No	<0.01	202	228	No	<0.01
	15	202	228	No	<0.01	205	228	No	<0.01
	20	205	228	No	0.01	209	228	No	<0.01
	25	207	228	No	0.03	211	228	No	<0.01
	30	209	228	No	0.05	214	228	No	0.01
	35	212	228	No	0.12	216	228	No	0.03
	40	214	228	No	0.19	218	228	No	0.07
	45	216	228	No	0.28	220	228	No	0.15
	50	218	228	No	0.38	222	228	No	0.27
	55	220	228	Yes	0.50	224	228	No	0.42
	60	222	228	Yes	0.62	226	228	Yes	0.58
	65	224	228	Yes	0.72	228	228	Yes	0.73
	70	226	228	Yes	0.81	230	228	Yes	0.85
	75	228	228	Yes	0.88	233	228	Yes	0.95
	80	231	228	Yes	0.93	236	228	Yes	0.99
	85	234	228	Yes	0.97	239	228	Yes	>0.99
90	238	228	Yes	0.99	243	228	Yes	>0.99	
95	243	228	Yes	>0.99	248	228	Yes	>0.99	
7	5	195	237	No	<0.01	198	237	No	<0.01
	10	201	237	No	<0.01	204	237	No	<0.01
	15	205	237	No	<0.01	208	237	No	<0.01
	20	209	237	No	<0.01	212	237	No	<0.01
	25	211	237	No	<0.01	215	237	No	<0.01
	30	214	237	No	<0.01	217	237	No	<0.01
	35	216	237	No	0.01	220	237	No	<0.01
	40	218	237	No	0.02	222	237	No	<0.01
	45	221	237	No	0.06	224	237	No	0.01
	50	223	237	No	0.11	226	237	No	0.03
	55	225	237	No	0.18	228	237	No	0.07
	60	227	237	No	0.27	230	237	No	0.15
	65	229	237	No	0.38	233	237	No	0.34
	70	231	237	Yes	0.50	235	237	Yes	0.50
	75	234	237	Yes	0.68	238	237	Yes	0.74
	80	237	237	Yes	0.82	240	237	Yes	0.85
	85	240	237	Yes	0.92	244	237	Yes	0.97
90	244	237	Yes	0.98	248	237	Yes	>0.99	
95	250	237	Yes	>0.99	254	237	Yes	>0.99	

Grade	Start Percentile	Mathematics (Fall)				Mathematics (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
8	5	197	244	No	<0.01	199	244	No	<0.01
	10	203	244	No	<0.01	206	244	No	<0.01
	15	208	244	No	<0.01	210	244	No	<0.01
	20	211	244	No	<0.01	214	244	No	<0.01
	25	214	244	No	<0.01	217	244	No	<0.01
	30	217	244	No	<0.01	220	244	No	<0.01
	35	219	244	No	<0.01	222	244	No	<0.01
	40	222	244	No	0.01	225	244	No	<0.01
	45	224	244	No	0.02	227	244	No	<0.01
	50	226	244	No	0.04	229	244	No	<0.01
	55	229	244	No	0.10	231	244	No	0.01
	60	231	244	No	0.15	234	244	No	0.06
	65	233	244	No	0.18	236	244	No	0.12
	70	236	244	No	0.30	239	244	No	0.28
	75	238	244	No	0.40	241	244	No	0.42
	80	241	244	Yes	0.55	245	244	Yes	0.72
	85	245	244	Yes	0.74	248	244	Yes	0.88
90	249	244	Yes	0.88	253	244	Yes	0.99	
95	256	244	Yes	0.98	259	244	Yes	>0.99	

*Prob. = Probability of obtaining proficient status on the PEAKS test in the spring.

4. References

- Kolen, M. J., & Brennan, R. L. (2004). *Test equating, scaling, and linking*. New York: Springer.
- Pommerich, M., Hanson, B., Harris, D., & Sconing, J. (2004). Issues in conducting linkage between distinct tests. *Applied Psychological Measurement, 28*(4), 247–273.
- Thum, Y. M., & Hauser, C. H. (2015). *NWEA 2015 MAP norms for student and school achievement status and growth*. NWEA Research Report. Portland, OR: NWEA.