

# **Linking Study Report: Predicting Performance on Ohio's State Tests (OST) End-of-Course (EOC) Assessments based on NWEA MAP Growth Scores**

July 2020

NWEA Psychometric Solutions



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## Executive Summary

To predict student achievement on Ohio’s State Tests (OST) End-of-Course (EOC) assessments in 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 OST performance levels. With this information, educators can identify students at risk of failing to meet state proficiency standards early in the year and provide tailored educational interventions. The linking study has been created using the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020).

Table E.1 presents the OST EOC *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 on the EOC test and those who are not. For example, the *Proficient* cut score on the OST Geometry test is 700. A student with a MAP Growth Geometry RIT score of 236 in the fall is likely to meet proficiency on the OST Geometry test, whereas a student with a RIT score lower than 236 in the fall is in jeopardy of not meeting proficiency.

**Table E.1. MAP Growth Cut Scores for OST EOC Proficiency**

Assessment		Proficient Cut Scores					
		7	8	9	10	11	12
<b>OST ELA 1</b>		<b>700</b>					
MAP Growth Reading 6+	Fall	–	–	216	217	–	–
	Winter	–	–	218	218	–	–
	Spring	–	–	219	219	–	–
<b>OST ELA 2</b>		<b>700</b>					
MAP Growth Reading 6+	Fall	–	–	220	220	220	220
	Winter	–	–	221	221	221	221
	Spring	–	–	222	222	222	222
<b>OST Algebra 1</b>		<b>700</b>					
MAP Growth Math 6+	Fall	225	227	228	229	–	–
	Winter	229	230	231	231	–	–
	Spring	232	232	232	232	–	–
MAP Growth Algebra 1	Fall				230		
	Spring				238		
<b>OST Geometry</b>		<b>700</b>					
MAP Growth Geometry	Fall				236		
	Spring				245		

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 commonly 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 spring instructional weeks set by partners.

### **E.1. Assessment Overview**

The OST EOC tests are part of Ohio’s state summative assessment system aligned to Ohio’s Learning Standards. Beginning in 2018, the EOC tests are part of Ohio’s high school graduation requirements. Based on their test scores, students are placed into one of five performance levels: *Limited*, *Basic*, *Proficient*, *Accelerated*, and *Advanced*. The *Proficient* cut score demarks the minimum level of achievement considered to be proficient. 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 RIT scores that correspond to the OST EOC performance level cut scores. MAP Growth fall and winter cut scores that predict proficiency on the OST EOC tests were then projected using the 2020 NWEA growth norms that provide expected score gains across test administrations. It is common for students in Ohio to take different EOC tests in different grades, so the RIT cuts for the typical grades for each EOC test are provided in this report. The grade-specific growth norms for Grades 7–12 were used to estimate the fall and winter RIT cuts on the MAP Growth Mathematics 6+ or Reading 6+ tests. Growth norms for MAP Growth Algebra 1 and Geometry are only available for fall-to-spring projections for all eligible grades combined, so only the fall RIT cuts were estimated regardless of grade level.

### **E.3. Student Sample**

Only students who took both the MAP Growth and OST EOC assessments in Spring 2019 based on the following pairings were included in the study sample (e.g., students who took both the MAP Growth Reading 6+ and OST ELA 1 assessments):

- MAP Growth Reading 6+ to OST ELA 1
- MAP Growth Reading 6+ to OST ELA 2
- MAP Growth Mathematics 6+ to OST Algebra 1
- MAP Growth Algebra 1 to OST Algebra 1
- MAP Growth Geometry to OST Geometry

Table E.2 presents the weighted number of Ohio students from 39 districts and 147 schools across all samples who participated in this 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, 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 were conducted based on the weighted sample.

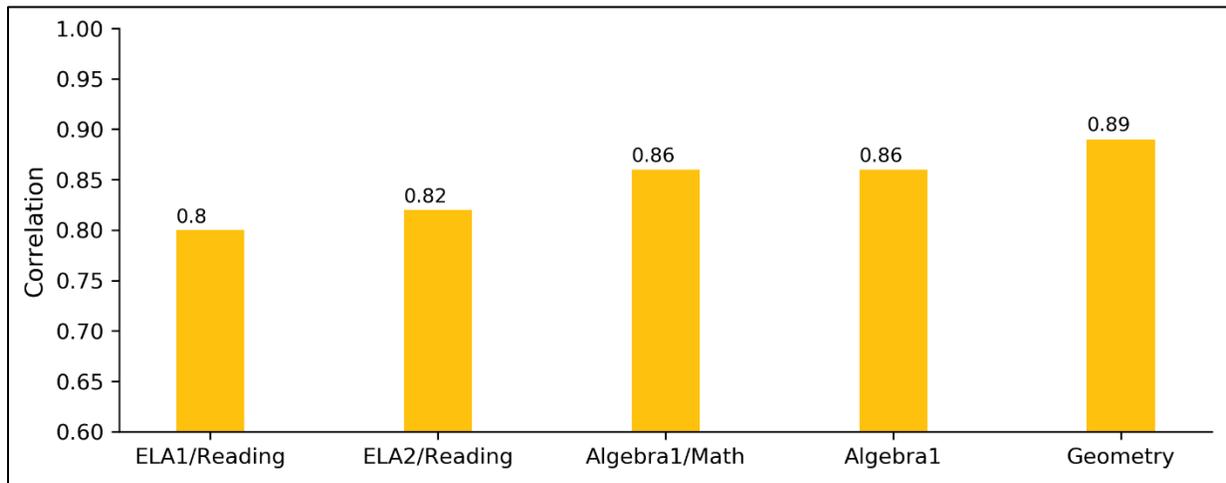
**Table E.2. Linking Study Samples**

Sample	#Students
OST ELA 1 MAP Growth Reading 6+	10,784
OST ELA 2 MAP Growth Reading 6+	7,240
OST Algebra 1 MAP Growth Math 6+	6,929
OST Algebra 1 MAP Growth Algebra 1	2,308
OST Geometry MAP Growth Geometry	2,054

#### **E.4. Test Score Relationships**

Correlations between OST EOC scores and MAP Growth RIT scores range from 0.80 to 0.89, 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 OST EOC assessments.

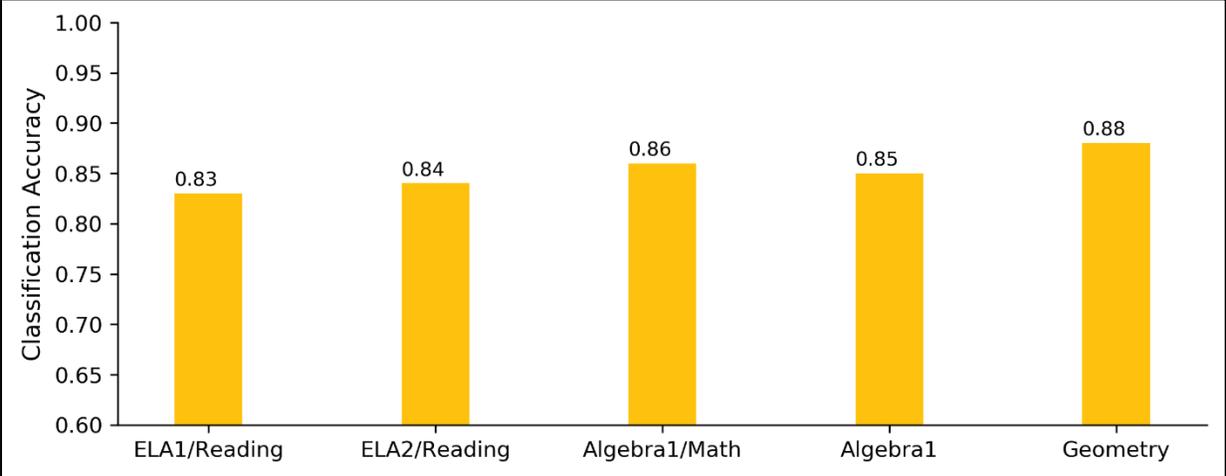
**Figure E.1. Correlations between MAP Growth and OST EOC**



#### **E.5. Accuracy of MAP Growth Classifications**

Figure E.2 presents the overall classification accuracy statistics that show the proportion of students correctly classified by their RIT scores as proficient or not proficient on the OST EOC tests. For example, the MAP Growth Geometry *Proficient* cut score has a 0.88 accuracy rate, meaning it accurately classified student achievement on the OST Geometry test for 88% of the sample. The results range from 0.83 to 0.88, indicating that RIT scores have a high accuracy rate of identifying student proficiency on the OST EOC tests.

**Figure E.2. Accuracy of MAP Growth Classifications**



## 1. Introduction

### 1.1. Purpose of the Study

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

This document presents results from a linking study conducted by NWEA in July 2020 to statistically connect the scores of the OST End-of-Course (EOC) 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 created using the new 2020 NWEA MAP Growth norms (Thum & Kuhfeld, 2020). 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 OST EOC performance levels using the equipercentile linking procedure for the spring results and the 2020 norms for the fall and/or winter results
4. Classification accuracy statistics to determine the degree to which MAP Growth accurately predicts student proficiency status on the OST EOC tests
5. The probability of achieving grade-level proficiency on the OST EOC assessments based on MAP Growth RIT scores from fall, winter, and spring using the 2020 norms

### 1.2. Assessment Overview

The OST EOC assessments are part of Ohio's state summative assessment system aligned to Ohio's Learning Standards. The assessment has four 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: *Limited*, *Basic*, *Proficient*, *Accelerated*, 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 to 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 2020 (Thum & Kuhfeld, 2020).

## 2. Methods

### 2.1. Data Collection

This linking study is based on data from the Spring 2019 administrations of the MAP Growth assessments and the OST EOC assessments based on the following pairings:

- MAP Growth Reading 6+ to OST ELA 1
- MAP Growth Reading 6+ to OST ELA 2
- MAP Growth Mathematics 6+ to OST Algebra 1
- MAP Growth Algebra 1 to OST Algebra 1
- MAP Growth Geometry to OST Geometry

NWEA recruited Ohio districts to participate in the study by sharing their student and score data from the OST EOC tests taken in Spring 2019. Districts also gave NWEA permission to access students' associated MAP Growth scores from the NWEA in-house database. Once Ohio state score information was received by NWEA, each student's state testing record was matched to the 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 MAP Growth and the OST EOC 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 on 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:

- Calculate marginal distributions of race, sex, and performance level for the sample and population.
- Calculate post-stratification weights with the rake function from the survey package in R (Lumley, 2019).
- Trim the weight if it is not in the range of 0.3 to 3.0.
- Apply the weights to the sample before conducting the linking study analyses.

### 2.3. MAP Growth Cut Scores

The equipercntile linking method (Kolen & Brennan, 2004) was used to identify the spring RIT scores that correspond to the OST EOC cut scores. Since the state EOC tests are not grade-dependent (i.e., any student can take the assessment once they finish the course), the spring RIT cuts were established based on all the students in the study sample regardless of their grades. Fall and winter RIT cut scores were then projected using the 2020 growth norms and the spring RIT cuts. The RIT cuts for Grades 7–12 were reported because it is common for students in this grade range to take the EOC tests. The same spring RIT cuts on the MAP Growth Mathematics 6+ and Reading 6+ tests were reported for each grade because the corresponding national percentile ranks are different for each grade. The growth norms from fall

or winter to spring are grade-specific for the MAP Growth 6+ tests, so the corresponding RIT cut scores were reported for each grade. In contrast, the growth norms for the MAP Growth Algebra 1 and Geometry tests are available for fall-to-spring projections for all eligible grades combined. Therefore, only the fall RIT cut was reported independent of grade level.

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 MAP Growth test scores. This is useful for understanding (1) how student scores compare to peers nationwide and (2) the relative rigor of a state's performance level designations for its summative assessment.

The MAP Growth spring cut scores could be calculated using the equipercentile linking method because that data are directly connected to the OST EOC 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., OST EOC). 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 OST EOC on the scale of MAP Growth,  $P(x)$  is the percentile rank of a given score on OST EOC, 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 RIT cut scores. Equation 2 was used to determine the previous term's MAP Growth score needed to reach the spring cut score, considering the expected growth associated with the previous RIT score:

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

where:

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

#### 2.4. Classification Accuracy

The degree to which MAP Growth predicts student proficiency status on the OST EOC assessments can be described using classification accuracy statistics based on the MAP Growth spring cut scores that show the proportion of students correctly classified by their RIT scores as proficient (*Proficient, Accelerated, or Advanced*) or not proficient (*Limited or Basic*). Table 2.1 describes the classification accuracy statistics provided in this report (Pommerich, Hanson, Harris, & Sconing, 2004). The results are based on the Spring 2019 MAP Growth and OST EOC data for the *Proficient* cut score.

**Table 2.1. Description of Classification Accuracy Summary Statistics**

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

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

## 2.5. Proficiency Projection

In addition to calculating the MAP Growth fall and winter cut scores, the MAP Growth conditional growth norms data were also used to calculate the probability of reaching proficiency on the OST EOC tests based on a student’s RIT scores from fall, winter, and spring. Equation 3 was used to calculate the probability of a student achieving *Proficient* on the OST EOC tests based on their fall or winter RIT score:

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

where:

- $\Phi$  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.
- $SD$  is the conditional standard deviation of the expected growth,  $g$ .

Equation 4 was used to estimate the probability of a student achieving *Proficient* on the OST EOC tests based on their spring RIT score ( $RIT_{Spring}$ ):

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

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

### 3. Results

#### 3.1. Study Sample

Only students who took both the MAP Growth and OST EOC assessments in Spring 2019 were included in the study sample. Data used in this study were collected from 39 districts and 147 schools in Ohio across all samples. 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 that took the Spring 2019 OST EOC assessments (ODE, 2019). Since the unweighted data are different from the general OST EOC 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 OST EOC student population distributions. The analyses in this study were therefore conducted based on the weighted sample.

**Table 3.1. Linking Study Sample Demographics (Unweighted)**

Linking Study Sample (Unweighted)						
Demographic Subgroup		%Students by Sample				
OST EOC MAP Growth		ELA 1 Reading 6+	ELA 2 Reading 6+	Algebra 1 Math 6+	Algebra 1 Algebra 1	Geometry Geometry
Total N		10,784	7,313	6,860	2,285	2,054
Race	Asian	2.3	1.9	1.4	1.3	1.8
	Black	41.8	38.2	42.8	20.0	25.4
	Hispanic	7.7	6.0	6.2	5.0	4.6
	Other	6.2	6.1	6.6	6.1	6.5
	White	42.0	47.7	43.0	67.5	61.8
Sex	Female	49.5	50.7	48.2	50.3	52.1
	Male	50.5	49.3	51.8	49.7	47.9
Performance Level	<i>Limited</i>	30.4	25.8	43.0	28.8	39.3
	<i>Basic</i>	24.7	25.4	19.9	18.3	20.2
	<i>Proficient</i>	30.7	29.8	18.5	25.0	19.4
	<i>Accelerated</i>	8.8	12.8	12.9	17.5	13.5
	<i>Advanced</i>	5.4	6.2	5.7	10.4	7.5

**Table 3.2. Spring 2019 OST EOC Student Population Demographics**

Spring 2019 OST EOC Population					
Demographic Subgroup		%Students by EOC Test			
OST EOC		ELA 1	ELA 2	Algebra 1	Geometry
Total N		147,510	139,351	143,506	128,205
Race	Asian	2.4	2.5	2.3	2.4
	Black	18.8	17.5	17.7	16.4
	Hispanic	4.3	4.1	4.3	3.9
	Other	7.0	6.5	6.8	6.3
	White	67.6	69.5	68.9	71.0
Sex	Female	48.2	48.7	48.7	49.3
	Male	51.8	51.3	51.3	50.7
Performance Level	<i>Limited</i>	20.0	19.0	29.0	36.0
	<i>Basic</i>	19.0	20.0	18.0	19.0
	<i>Proficient</i>	35.0	30.0	24.0	21.0
	<i>Accelerated</i>	15.0	18.0	20.0	15.0
	<i>Advanced</i>	11.0	12.0	10.0	9.0

**Table 3.3. Linking Study Sample Demographics (Weighted)**

Linking Study Sample (Weighted)						
Demographic Subgroup		%Students by Sample				
OST EOC MAP Growth		ELA 1 Reading 6+	ELA 2 Reading 6+	Algebra 1 Math 6+	Algebra 1 Algebra 1	Geometry Geometry
Total N		10,784	7,240	6,929	2,308	2,054
Race	Asian	2.4	2.5	2.3	2.3	2.4
	Black	18.8	17.5	17.7	17.7	16.4
	Hispanic	4.3	4.1	4.3	4.3	3.9
	Other	7.0	6.5	6.8	6.8	6.3
	White	67.5	69.4	68.9	68.9	71.0
Sex	Female	48.2	48.7	48.7	48.7	49.3
	Male	51.8	51.3	51.3	51.3	50.7
Performance Level	<i>Limited</i>	20.0	19.2	28.7	28.7	36.0
	<i>Basic</i>	19.0	20.2	17.8	17.8	19.0
	<i>Proficient</i>	35.0	30.3	23.8	23.8	21.0
	<i>Accelerated</i>	15.0	18.2	19.8	19.8	15.0
	<i>Advanced</i>	11.0	12.1	9.9	9.9	9.0

### 3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and OST EOC test scores from Spring 2019, including the correlation coefficient ( $r$ ) between them. The correlation coefficients range from 0.80 to 0.89. 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 OST EOC assessments.

**Table 3.4. Descriptive Statistics of Test Scores**

Sample	N	$r$	Mean	SD	Min.	Max.
OST ELA 1 MAP Growth Reading 6+	10,784	0.80	705.9 221.1	26.8 17.8	606 156	796 263
OST ELA 2 MAP Growth Reading 6+	7,240	0.82	705.3 223.4	31.3 18.2	597 157	808 276
OST Algebra 1 MAP Growth Math 6+	6,929	0.86	704.1 232.1	36.0 20.9	618 151	814 284
OST Algebra 1 MAP Growth Algebra 1	2,308	0.86	704.7 238.4	35.3 19.4	618 179	814 292
OST Geometry MAP Growth Geometry	2,054	0.89	697.2 241.8	38.4 20.2	604 188	810 303

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

### 3.3. MAP Growth Cut Scores

Table 3.5 – Table 3.9 present the OST EOC scale score ranges and the corresponding MAP Growth RIT cut scores and percentile ranges. These tables can be used to predict a student's likely performance level on the OST EOC assessments when MAP Growth is taken in the fall, winter, or spring. For example, a Grade 9 student who obtained a MAP Growth Reading RIT score of 216 in the fall is likely to reach *Proficient* on the OST ELA 1 test. A Grade 9 student who obtained a RIT score of 219 in the spring is also likely to reach *Proficient*. The spring cut score is higher than the fall cut score because growth is expected between fall and spring as students receive more instruction during the school year.

Within this report, the cut scores for fall and winter are derived from the spring cuts and the typical growth scores from fall-to-spring or winter-to-spring. The typical growth scores are based on the default instructional weeks most commonly 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' profile, classroom, and grade reports in the NWEA reporting system since they reflect the specific instructional weeks set by partners.

**Table 3.5. MAP Growth Cut Scores—Reading 6+, OST ELA 1**

OST ELA 1										
EOC Test	Limited		Basic		Proficient		Accelerated		Advanced	
ELA 1	606–682		683–699		<b>700–724</b>		725–738		739–800	
MAP Growth Reading 6+*										
Grade	Limited		Basic		Proficient		Accelerated		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
<b>Fall</b>										
9	100–203	1–21	204–215	22–43	<b>216–231</b>	44–74	232–238	75–84	239–350	85–99
10	100–204	1–17	205–216	18–39	<b>217–231</b>	40–71	232–238	72–83	239–350	84–99
<b>Winter</b>										
9	100–206	1–23	207–217	24–44	<b>218–232</b>	45–74	233–239	75–84	240–350	85–99
10	100–206	1–18	207–217	19–38	<b>218–232</b>	39–70	233–239	71–82	240–350	83–99
<b>Spring</b>										
9	100–207	1–23	208–218	24–44	<b>219–233</b>	45–74	234–240	75–84	241–350	85–99
10	100–207	1–19	208–218	20–39	<b>219–233</b>	40–71	234–240	72–82	241–350	83–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Table 3.6. MAP Growth Cut Scores—Reading 6+, OST ELA 2**

OST ELA 2										
EOC Test	Limited		Basic		Proficient		Accelerated		Advanced	
ELA 2	597–678		679–699		<b>700–724</b>		725–741		742–808	
MAP Growth Reading 6+*										
Grade	Limited		Basic		Proficient		Accelerated		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
<b>Fall</b>										
9	100–205	1–24	206–219	25–51	<b>220–232</b>	52–76	233–240	77–87	241–350	88–99
10	100–206	1–20	207–219	21–46	<b>220–232</b>	47–73	233–240	74–85	241–350	86–99
11	100–207	1–18	208–219	19–41	<b>220–232</b>	42–69	233–240	70–83	241–350	84–99
12	100–207	1–20	208–219	21–41	<b>220–232</b>	42–67	233–240	68–80	241–350	81–99
<b>Winter</b>										
9	100–208	1–26	209–220	27–50	<b>221–233</b>	51–75	234–241	76–86	242–350	87–99
10	100–208	1–21	209–220	22–45	<b>221–233</b>	46–72	234–241	73–85	242–350	86–99
11	100–208	1–18	209–220	19–41	<b>221–233</b>	42–69	234–241	70–83	242–350	84–99
12	100–208	1–23	209–220	24–44	<b>221–233</b>	45–67	234–241	68–79	242–350	80–99
<b>Spring</b>										
9	100–209	1–26	210–221	27–50	<b>222–234</b>	51–75	235–242	76–86	243–350	87–99
10	100–209	1–22	210–221	23–46	<b>222–234</b>	47–73	235–242	74–85	243–350	86–99
11	100–209	1–20	210–221	21–43	<b>222–234</b>	44–70	235–242	71–83	243–350	84–99
12	100–209	1–26	210–221	27–45	<b>222–234</b>	46–67	235–242	68–78	243–350	79–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Table 3.7. MAP Growth Cut Scores—Mathematics 6+, Algebra 1**

OST Algebra 1										
EOC Test	Limited		Basic		Proficient		Accelerated		Advanced	
Algebra 1	618–681		682–699		700–724		725–753		754–814	
MAP Growth Mathematics 6+*										
Grade	Limited		Basic		Proficient		Accelerated		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall										
7	100–214	1–37	215–224	38–60	<b>225–238</b>	61–85	239–251	86–96	252–350	97–99
8	100–214	1–29	215–226	30–53	<b>227–240</b>	54–79	241–253	80–93	254–350	94–99
9	100–216	1–31	217–227	32–52	<b>228–242</b>	53–79	243–255	80–92	256–350	93–99
10	100–216	1–27	217–228	28–49	<b>229–242</b>	50–74	243–255	75–90	256–350	91–99
Winter										
7	100–217	13150	218–228	37–60	<b>229–242</b>	61–84	243–255	85–95	256–350	96–99
8	100–218	43861	219–229	32–53	<b>230–243</b>	54–78	244–256	79–92	257–350	93–99
9	100–219	11689	220–230	33–54	<b>231–244</b>	55–78	245–257	79–92	258–350	93–99
10	100–219	43858	220–230	29–49	<b>231–244</b>	50–74	245–257	75–89	258–350	90–99
Spring										
7	100–220	1–37	221–231	38–60	<b>232–245</b>	61–84	246–258	85–95	259–350	96–99
8	100–220	1–31	221–231	32–52	<b>232–245</b>	53–77	246–258	78–91	259–350	92–99
9	100–220	1–32	221–231	33–53	<b>232–245</b>	54–77	246–258	78–91	259–350	92–99
10	100–220	1–29	221–231	30–48	<b>232–245</b>	49–73	246–258	74–88	259–350	89–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Table 3.8. MAP Growth Cut Scores—Algebra 1, Algebra 1**

OST Algebra 1										
EOC Test	Limited		Basic		Proficient		Accelerated		Advanced	
Algebra 1	618–681		682–699		700–724		725–753		754–814	
MAP Growth Algebra 1*										
Grade	Limited		Basic		Proficient		Accelerated		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall	100–219	1–24	220–229	25–47	<b>230–241</b>	48–75	242–254	76–92	255–350	93–99
Spring	100–226	1–26	227–237	27–47	<b>238–250</b>	48–73	251–263	74–90	264–350	91–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

**Table 3.9. MAP Growth Cut Scores—Geometry, Geometry**

OST Geometry										
EOC Test	Limited		Basic		Proficient		Accelerated		Advanced	
Geometry	604–677		678–699		700–724		725–755		756–810	
MAP Growth Geometry*										
Grade	Limited		Basic		Proficient		Accelerated		Advanced	
	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile	RIT	Percentile
Fall	100–224	1–26	225–235	27–52	<b>236–246</b>	53–78	247–259	79–94	260–350	95–99
Spring	100–231	1–27	232–244	28–53	<b>245–256</b>	54–76	257–270	77–92	271–350	93–99

\*Cut scores for fall and winter are derived from the spring cuts and growth norms based on the typical instructional weeks. Bolded numbers indicate the cut scores considered to be at least proficient for accountability purposes.

### 3.4. Classification Accuracy

Table 3.10 presents the classification accuracy summary statistics, including the overall classification accuracy rate. These results indicate how well MAP Growth spring RIT scores predict proficiency on the OST EOC tests, providing insight into the predictive validity of MAP Growth. The overall classification accuracy rate ranges from 0.83 to 0.88. These values suggest that the RIT cut scores are good at classifying students as proficient or not proficient on the OST EOC assessments.

Although the results show that MAP Growth scores can be used to accurately classify students as likely to be proficient on the OST EOC tests, there is a notable limitation to how these results should be used and interpreted. OST 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 3.10. Classification Accuracy Results**

Sample	N	Cut Score		Class. Accuracy*	Rate*		Sensitivity	Specificity	Precision	AUC*
		MAP Growth	OST EOC		FP	FN				
OST ELA 1 MAP Growth Reading 6+	10,784	219	700	0.83	0.23	0.14	0.86	0.77	0.86	0.91
OST ELA 2 MAP Growth Reading 6+	7,240	222	700	0.84	0.19	0.14	0.86	0.81	0.87	0.92
OST Algebra 1 MAP Growth Math 6+	6,929	232	700	0.86	0.13	0.14	0.86	0.87	0.88	0.94
OST Algebra 1 MAP Growth Algebra 1	2,308	238	700	0.85	0.16	0.14	0.86	0.84	0.86	0.93
OST Geometry MAP Growth Geometry	2,054	245	700	0.88	0.07	0.17	0.83	0.93	0.90	0.96

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

### 3.5. Proficiency Projection

Table 3.11 – Table 3.15 present the estimated probability of achieving *Proficient* performance on the OST EOC tests based on RIT scores from fall, winter, or spring. “Prob.” indicates the probability of obtaining proficient status on the EOC test in the spring. For example, a Grade 9 student who obtained a MAP Growth Reading 6+ score of 224 in the fall has an 81% chance of reaching *Proficient* performance or higher on the OST ELA 1 test.

**Table 3.11. Proficiency Projection based on RIT Scores—Reading 6+, ELA 1**

MAP Growth Reading 6+ to OST ELA 1											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
9	5	219	188	No	<0.01	190	No	<0.01	190	No	<0.01
	10	219	195	No	0.01	197	No	<0.01	197	No	<0.01
	15	219	199	No	0.02	201	No	<0.01	202	No	<0.01
	20	219	203	No	0.07	205	No	0.01	205	No	<0.01
	25	219	206	No	0.13	208	No	0.03	209	No	<0.01
	30	219	209	No	0.19	211	No	0.10	211	No	0.01
	35	219	212	No	0.31	213	No	0.18	214	No	0.06
	40	219	214	No	0.40	216	No	0.36	217	No	0.27
	45	219	217	Yes	0.55	218	Yes	0.50	219	Yes	0.50
	50	219	219	Yes	0.60	221	Yes	0.71	221	Yes	0.73
	55	219	221	Yes	0.69	223	Yes	0.82	224	Yes	0.94
	60	219	224	Yes	0.81	225	Yes	0.90	226	Yes	0.99
	65	219	226	Yes	0.87	228	Yes	0.97	229	Yes	>0.99
	70	219	229	Yes	0.93	230	Yes	0.99	231	Yes	>0.99
	75	219	232	Yes	0.97	233	Yes	>0.99	234	Yes	>0.99
	80	219	235	Yes	0.99	236	Yes	>0.99	237	Yes	>0.99
	85	219	239	Yes	>0.99	240	Yes	>0.99	241	Yes	>0.99
90	219	243	Yes	>0.99	245	Yes	>0.99	246	Yes	>0.99	
95	219	250	Yes	>0.99	251	Yes	>0.99	253	Yes	>0.99	
10	5	219	192	No	<0.01	194	No	<0.01	194	No	<0.01
	10	219	199	No	0.02	200	No	<0.01	200	No	<0.01
	15	219	203	No	0.06	204	No	<0.01	205	No	<0.01
	20	219	206	No	0.10	208	No	0.03	208	No	<0.01
	25	219	209	No	0.18	211	No	0.10	211	No	0.01
	30	219	212	No	0.30	214	No	0.23	214	No	0.06
	35	219	215	No	0.45	216	No	0.35	217	No	0.27
	40	219	217	Yes	0.50	218	Yes	0.50	219	Yes	0.50
	45	219	219	Yes	0.60	221	Yes	0.71	221	Yes	0.73
	50	219	221	Yes	0.70	223	Yes	0.82	224	Yes	0.94
	55	219	224	Yes	0.82	225	Yes	0.90	226	Yes	0.99
	60	219	226	Yes	0.88	227	Yes	0.95	228	Yes	>0.99
	65	219	228	Yes	0.92	230	Yes	0.99	231	Yes	>0.99
	70	219	231	Yes	0.97	232	Yes	>0.99	233	Yes	>0.99
	75	219	234	Yes	0.99	235	Yes	>0.99	236	Yes	>0.99
	80	219	237	Yes	>0.99	238	Yes	>0.99	239	Yes	>0.99
	85	219	240	Yes	>0.99	241	Yes	>0.99	242	Yes	>0.99
90	219	244	Yes	>0.99	246	Yes	>0.99	247	Yes	>0.99	
95	219	251	Yes	>0.99	252	Yes	>0.99	253	Yes	>0.99	

**Table 3.12. Proficiency Projection based on RIT Scores—Reading 6+, ELA 2**

MAP Growth Reading 6+ to OST ELA 2											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
9	5	222	188	No	<0.01	190	No	<0.01	190	No	<0.01
	10	222	195	No	<0.01	197	No	<0.01	197	No	<0.01
	15	222	199	No	0.01	201	No	<0.01	202	No	<0.01
	20	222	203	No	0.03	205	No	<0.01	205	No	<0.01
	25	222	206	No	0.07	208	No	0.01	209	No	<0.01
	30	222	209	No	0.11	211	No	0.03	211	No	<0.01
	35	222	212	No	0.19	213	No	0.07	214	No	0.01
	40	222	214	No	0.27	216	No	0.18	217	No	0.06
	45	222	217	No	0.40	218	No	0.29	219	No	0.17
	50	222	219	No	0.45	221	Yes	0.50	221	No	0.38
	55	222	221	Yes	0.55	223	Yes	0.64	224	Yes	0.73
	60	222	224	Yes	0.69	225	Yes	0.77	226	Yes	0.89
	65	222	226	Yes	0.77	228	Yes	0.90	229	Yes	0.99
	70	222	229	Yes	0.87	230	Yes	0.95	231	Yes	>0.99
	75	222	232	Yes	0.93	233	Yes	0.99	234	Yes	>0.99
	80	222	235	Yes	0.97	236	Yes	>0.99	237	Yes	>0.99
	85	222	239	Yes	0.99	240	Yes	>0.99	241	Yes	>0.99
90	222	243	Yes	>0.99	245	Yes	>0.99	246	Yes	>0.99	
95	222	250	Yes	>0.99	251	Yes	>0.99	253	Yes	>0.99	
10	5	222	192	No	<0.01	194	No	<0.01	194	No	<0.01
	10	222	199	No	0.01	200	No	<0.01	200	No	<0.01
	15	222	203	No	0.03	204	No	<0.01	205	No	<0.01
	20	222	206	No	0.05	208	No	0.01	208	No	<0.01
	25	222	209	No	0.10	211	No	0.03	211	No	<0.01
	30	222	212	No	0.18	214	No	0.10	214	No	0.01
	35	222	215	No	0.30	216	No	0.18	217	No	0.06
	40	222	217	No	0.35	218	No	0.29	219	No	0.17
	45	222	219	No	0.45	221	Yes	0.50	221	No	0.38
	50	222	221	Yes	0.55	223	Yes	0.65	224	Yes	0.73
	55	222	224	Yes	0.70	225	Yes	0.77	226	Yes	0.89
	60	222	226	Yes	0.78	227	Yes	0.87	228	Yes	0.97
	65	222	228	Yes	0.85	230	Yes	0.95	231	Yes	>0.99
	70	222	231	Yes	0.92	232	Yes	0.98	233	Yes	>0.99
	75	222	234	Yes	0.97	235	Yes	>0.99	236	Yes	>0.99
	80	222	237	Yes	0.99	238	Yes	>0.99	239	Yes	>0.99
	85	222	240	Yes	>0.99	241	Yes	>0.99	242	Yes	>0.99
90	222	244	Yes	>0.99	246	Yes	>0.99	247	Yes	>0.99	
95	222	251	Yes	>0.99	252	Yes	>0.99	253	Yes	>0.99	

MAP Growth Reading 6+ to OST ELA 2

Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
11	5	222	194	No	<0.01	195	No	<0.01	194	No	<0.01
	10	222	201	No	0.02	202	No	<0.01	201	No	<0.01
	15	222	205	No	0.05	206	No	<0.01	206	No	<0.01
	20	222	209	No	0.1	210	No	0.03	209	No	<0.01
	25	222	212	No	0.18	213	No	0.08	212	No	<0.01
	30	222	214	No	0.24	215	No	0.14	215	No	0.01
	35	222	217	No	0.36	218	No	0.30	218	No	0.11
	40	222	219	No	0.45	220	No	0.43	220	No	0.27
	45	222	221	Yes	0.55	222	Yes	0.57	222	Yes	0.50
	50	222	224	Yes	0.68	225	Yes	0.76	225	Yes	0.83
	55	222	226	Yes	0.76	227	Yes	0.86	227	Yes	0.94
	60	222	228	Yes	0.82	229	Yes	0.92	229	Yes	0.99
	65	222	230	Yes	0.88	231	Yes	0.96	232	Yes	>0.99
	70	222	233	Yes	0.94	234	Yes	0.99	234	Yes	>0.99
	75	222	235	Yes	0.96	237	Yes	>0.99	237	Yes	>0.99
	80	222	238	Yes	0.98	240	Yes	>0.99	240	Yes	>0.99
	85	222	242	Yes	0.99	243	Yes	>0.99	244	Yes	>0.99
90	222	246	Yes	>0.99	247	Yes	>0.99	248	Yes	>0.99	
95	222	253	Yes	>0.99	254	Yes	>0.99	255	Yes	>0.99	
12	5	222	192	No	<0.01	189	No	<0.01	186	No	<0.01
	10	222	199	No	0.01	197	No	<0.01	195	No	<0.01
	15	222	204	No	0.03	202	No	<0.01	200	No	<0.01
	20	222	208	No	0.08	206	No	<0.01	205	No	<0.01
	25	222	211	No	0.15	210	No	0.02	209	No	<0.01
	30	222	214	No	0.24	213	No	0.08	212	No	<0.01
	35	222	216	No	0.32	216	No	0.18	215	No	0.01
	40	222	219	No	0.45	218	No	0.30	218	No	0.11
	45	222	221	Yes	0.55	221	Yes	0.50	221	No	0.38
	50	222	224	Yes	0.68	224	Yes	0.70	224	Yes	0.73
	55	222	226	Yes	0.76	227	Yes	0.86	227	Yes	0.94
	60	222	229	Yes	0.85	229	Yes	0.92	230	Yes	0.99
	65	222	231	Yes	0.90	232	Yes	0.98	233	Yes	>0.99
	70	222	234	Yes	0.95	235	Yes	0.99	236	Yes	>0.99
	75	222	237	Yes	0.97	238	Yes	>0.99	240	Yes	>0.99
	80	222	240	Yes	0.99	242	Yes	>0.99	244	Yes	>0.99
	85	222	244	Yes	>0.99	246	Yes	>0.99	248	Yes	>0.99
90	222	249	Yes	>0.99	251	Yes	>0.99	254	Yes	>0.99	
95	222	256	Yes	>0.99	259	Yes	>0.99	262	Yes	>0.99	

**Table 3.13. Proficiency Projection based on RIT Scores—Mathematics 6+, Algebra 1**

MAP Growth Mathematics 6+ to OST Algebra 1											
Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
7	5	232	192	No	<0.01	194	No	<0.01	196	No	<0.01
	10	232	198	No	<0.01	201	No	<0.01	203	No	<0.01
	15	232	202	No	<0.01	205	No	<0.01	207	No	<0.01
	20	232	206	No	<0.01	209	No	<0.01	211	No	<0.01
	25	232	208	No	<0.01	212	No	<0.01	214	No	<0.01
	30	232	211	No	0.01	215	No	<0.01	217	No	<0.01
	35	232	213	No	0.02	217	No	<0.01	220	No	<0.01
	40	232	216	No	0.05	219	No	0.02	222	No	<0.01
	45	232	218	No	0.13	222	No	0.07	224	No	<0.01
	50	232	220	No	0.21	224	No	0.14	227	No	0.04
	55	232	222	No	0.31	226	No	0.26	229	No	0.15
	60	232	225	Yes	0.50	229	Yes	0.50	231	No	0.37
	65	232	227	Yes	0.63	231	Yes	0.67	234	Yes	0.75
	70	232	229	Yes	0.74	233	Yes	0.80	236	Yes	0.92
	75	232	232	Yes	0.87	236	Yes	0.93	239	Yes	0.99
	80	232	235	Yes	0.95	239	Yes	0.98	242	Yes	>0.99
	85	232	238	Yes	0.98	243	Yes	>0.99	246	Yes	>0.99
90	232	243	Yes	>0.99	247	Yes	>0.99	251	Yes	>0.99	
95	232	249	Yes	>0.99	254	Yes	>0.99	257	Yes	>0.99	
8	5	232	194	No	<0.01	196	No	<0.01	197	No	<0.01
	10	232	201	No	<0.01	203	No	<0.01	205	No	<0.01
	15	232	205	No	<0.01	208	No	<0.01	210	No	<0.01
	20	232	209	No	0.01	212	No	<0.01	214	No	<0.01
	25	232	212	No	0.02	215	No	<0.01	217	No	<0.01
	30	232	215	No	0.06	218	No	0.01	220	No	<0.01
	35	232	218	No	0.10	221	No	0.03	223	No	<0.01
	40	232	220	No	0.16	223	No	0.07	225	No	0.01
	45	232	223	No	0.28	226	No	0.20	228	No	0.08
	50	232	225	No	0.39	228	No	0.34	230	No	0.25
	55	232	227	Yes	0.50	231	Yes	0.58	233	Yes	0.63
	60	232	230	Yes	0.67	233	Yes	0.73	235	Yes	0.85
	65	232	232	Yes	0.76	236	Yes	0.89	238	Yes	0.98
	70	232	235	Yes	0.88	238	Yes	0.95	241	Yes	>0.99
	75	232	238	Yes	0.94	241	Yes	0.99	244	Yes	>0.99
	80	232	241	Yes	0.98	244	Yes	>0.99	247	Yes	>0.99
	85	232	245	Yes	>0.99	248	Yes	>0.99	251	Yes	>0.99
90	232	249	Yes	>0.99	253	Yes	>0.99	256	Yes	>0.99	
95	232	256	Yes	>0.99	260	Yes	>0.99	263	Yes	>0.99	

MAP Growth Mathematics 6+ to OST Algebra 1

Grade	Start %ile	Spring Cut	Fall			Winter			Spring		
			Fall RIT	Projected Proficiency		Winter RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
				Proficient	Prob.		Proficient	Prob.		Proficient	Prob.
9	5	232	194	No	<0.01	196	No	<0.01	196	No	<0.01
	10	232	201	No	<0.01	203	No	<0.01	204	No	<0.01
	15	232	206	No	<0.01	208	No	<0.01	209	No	<0.01
	20	232	210	No	0.01	212	No	<0.01	213	No	<0.01
	25	232	213	No	0.02	215	No	<0.01	216	No	<0.01
	30	232	216	No	0.05	218	No	<0.01	219	No	<0.01
	35	232	219	No	0.11	221	No	0.02	222	No	<0.01
	40	232	221	No	0.17	224	No	0.08	225	No	0.01
	45	232	224	No	0.29	226	No	0.16	227	No	0.04
	50	232	226	No	0.39	229	No	0.34	230	No	0.25
	55	232	229	Yes	0.55	231	Yes	0.50	233	Yes	0.63
	60	232	231	Yes	0.61	234	Yes	0.73	235	Yes	0.85
	65	232	234	Yes	0.75	236	Yes	0.84	238	Yes	0.98
	70	232	237	Yes	0.86	239	Yes	0.95	241	Yes	>0.99
	75	232	240	Yes	0.93	242	Yes	0.99	244	Yes	>0.99
	80	232	243	Yes	0.97	246	Yes	>0.99	247	Yes	>0.99
	85	232	247	Yes	0.99	249	Yes	>0.99	251	Yes	>0.99
90	232	252	Yes	>0.99	254	Yes	>0.99	256	Yes	>0.99	
95	232	259	Yes	>0.99	262	Yes	>0.99	264	Yes	>0.99	
10	5	232	196	No	<0.01	197	No	<0.01	197	No	<0.01
	10	232	203	No	<0.01	205	No	<0.01	205	No	<0.01
	15	232	208	No	<0.01	210	No	<0.01	210	No	<0.01
	20	232	212	No	0.01	214	No	<0.01	215	No	<0.01
	25	232	215	No	0.04	217	No	<0.01	218	No	<0.01
	30	232	218	No	0.09	220	No	0.01	221	No	<0.01
	35	232	221	No	0.14	223	No	0.05	224	No	<0.01
	40	232	224	No	0.25	226	No	0.16	227	No	0.04
	45	232	227	No	0.39	229	No	0.34	230	No	0.25
	50	232	229	Yes	0.50	231	Yes	0.50	232	Yes	0.50
	55	232	232	Yes	0.66	234	Yes	0.73	235	Yes	0.85
	60	232	234	Yes	0.75	236	Yes	0.84	238	Yes	0.98
	65	232	237	Yes	0.86	239	Yes	0.95	241	Yes	>0.99
	70	232	240	Yes	0.93	242	Yes	0.99	244	Yes	>0.99
	75	232	243	Yes	0.97	245	Yes	>0.99	247	Yes	>0.99
	80	232	246	Yes	0.99	249	Yes	>0.99	250	Yes	>0.99
	85	232	250	Yes	>0.99	253	Yes	>0.99	254	Yes	>0.99
90	232	255	Yes	>0.99	258	Yes	>0.99	260	Yes	>0.99	
95	232	262	Yes	>0.99	265	Yes	>0.99	267	Yes	>0.99	

**Table 3.14. Proficiency Projection based on RIT Scores—Algebra 1, Algebra 1**

MAP Growth Algebra 1 to OST Algebra 1							
Start %ile	Spring Cut	Fall			Spring		
		Fall RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
			Proficient	Prob.		Proficient	Prob.
5	238	205	No	<0.01	207	No	<0.01
10	238	210	No	0.01	214	No	<0.01
15	238	214	No	0.03	219	No	<0.01
20	238	217	No	0.06	223	No	<0.01
25	238	220	No	0.11	226	No	<0.01
30	238	223	No	0.19	229	No	<0.01
35	238	225	No	0.29	231	No	0.02
40	238	227	No	0.37	234	No	0.11
45	238	229	No	0.46	236	No	0.27
50	238	231	Yes	0.54	239	Yes	0.62
55	238	233	Yes	0.63	241	Yes	0.82
60	238	235	Yes	0.71	244	Yes	0.97
65	238	237	Yes	0.78	246	Yes	0.99
70	238	239	Yes	0.84	249	Yes	>0.99
75	238	242	Yes	0.91	252	Yes	>0.99
80	238	244	Yes	0.95	255	Yes	>0.99
85	238	248	Yes	0.98	259	Yes	>0.99
90	238	251	Yes	0.99	263	Yes	>0.99
95	238	257	Yes	>0.99	270	Yes	>0.99

**Table 3.15. Proficiency Projection based on RIT Scores—Geometry, Geometry**

MAP Growth Geometry to OST Geometry							
Start %ile	Spring Cut	Fall			Spring		
		Fall RIT	Projected Proficiency		Spring RIT	Projected Proficiency	
			Proficient	Prob.		Proficient	Prob.
5	245	209	No	<0.01	212	No	<0.01
10	245	215	No	<0.01	219	No	<0.01
15	245	219	No	0.01	224	No	<0.01
20	245	222	No	0.02	227	No	<0.01
25	245	224	No	0.04	230	No	<0.01
30	245	227	No	0.11	233	No	<0.01
35	245	229	No	0.16	236	No	<0.01
40	245	231	No	0.23	238	No	0.02
45	245	233	No	0.31	241	No	0.11
50	245	235	No	0.45	243	No	0.27
55	245	237	Yes	0.55	246	Yes	0.62
60	245	239	Yes	0.65	248	Yes	0.82
65	245	241	Yes	0.73	251	Yes	0.97
70	245	243	Yes	0.81	253	Yes	0.99
75	245	245	Yes	0.89	256	Yes	>0.99
80	245	248	Yes	0.95	259	Yes	>0.99
85	245	251	Yes	0.98	263	Yes	>0.99
90	245	255	Yes	>0.99	268	Yes	>0.99
95	245	260	Yes	>0.99	274	Yes	>0.99

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