

2018 Linking Study: Predicting Performance on the TNReady Assessments based on MAP Growth Scores

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NWEA Psychometric Solutions

Table of Contents

Executive Summary	3
1. Introduction	4
1.1. Purpose of the Study	4
1.2. Assessment Overview	4
1.2.1. TNReady	4
1.2.2. MAP Growth	4
2. Methods	5
2.1. Data Collection	5
2.2. Equipercentile Linking Procedure	5
2.3. Classification Accuracy Summary Statistics	5
2.4. Proficiency Projection	6
3. Results and Discussion	7
3.1. Study Sample	7
3.2. Descriptive Statistics	8
3.3. Equipercentile Linking Cut Scores	8
3.4. Classification Accuracy Summary Statistics	10
3.5. Proficiency Projections	12
4. References	31

List of Tables

Table 2.1. Classification Accuracy Data Associated with MAP Growth and TNReady	6
Table 3.1. Demographics of the Study Sample	7
Table 3.2. Descriptive Statistics of TNReady and MAP Growth Scores from the Study Sample	8
Table 3.3. MAP Growth Cut Scores Corresponding to TNReady Scores when MAP Growth is taken in Spring—ELA/Reading	9
Table 3.4. MAP Growth Cut Scores Corresponding to TNReady Scores when MAP Growth is taken in Spring—Mathematics	10
Table 3.5. MAP Growth Cut Scores Corresponding to TNReady Scores when MAP Growth is taken in Spring—Science	10
Table 3.6. Classification Accuracy Summary Statistics for MAP Growth and TNReady Level 3 (On Track) Proficiency for Grades K–8 Students	11
Table 3.7. Projection of Performance Level Score Ranges between TNReady and MAP Growth when MAP Growth is taken in Fall or Winter—ELA/Reading	12
Table 3.8. Projection of Performance Level Score Ranges between TNReady and MAP Growth when MAP Growth is taken in Fall or Winter—Mathematics	13
Table 3.9. Projection of Performance Level Score Ranges between TNReady and MAP Growth when MAP Growth is taken in Fall or Winter—Science	14
Table 3.10. Proficiency Projection and Probability of Reaching Level 3 on TNReady when MAP Growth is taken in Spring	15
Table 3.11. Proficiency Projection and Probability of Reaching Level 3 on TNReady in Spring when MAP Growth is taken in the Fall or Winter—ELA/Reading	19

Table 3.12. Proficiency Projection and Probability of Reaching Level 3 on TNReady in Spring when MAP Growth is taken in the Fall or Winter—Mathematics 24

Table 3.13. Proficiency Projection and Probability of Reaching Level 3 on TNReady in Spring when MAP Growth is taken in the Fall or Winter—Science..... 29

Executive Summary

This study produced a set of cut scores on MAP® Growth™ Reading and Mathematics for Grades K–8 and Science for Grades 5–8 that correspond to Tennessee’s TNReady English Language Arts (ELA), Mathematics, and Science performance levels for each grade, as shown in Table 3.3, Table 3.5, and Table 3.6 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 Tennessee students, the study demonstrates that MAP Growth scores can predict whether a student will reach proficiency on the TNReady assessments based on his or her MAP Growth scores, as shown by the classification accuracy results. The overall classification accuracy rate ranges from 0.74 to 0.88 for ELA/Reading, 0.70 to 0.93 for Mathematics, and 0.80 to 0.82 for Science across all grades, suggesting that the MAP Growth cuts for each content area and grade are good predictors of students’ proficiency status on the TNReady tests. For Grades K–2, the classification accuracy rate refers to how well the MAP Growth cuts can predict students’ proficiency status on the TNReady tests 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 TNReady tests 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 248 schools in Tennessee. 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 May 2018 to statistically connect the scales of the TNReady 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, Mathematics, and Science scales for Grades 3–8 that correspond to the benchmarks on the TNReady ELA, Mathematics, and Science 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 TNReady assessments based on the observed MAP Growth scores taken during different terms in the same school year.

1.2. Assessment Overview

1.2.1. TNReady

TNReady assessments, which are part of the Tennessee Comprehensive Assessment Program (TCAP), are aligned to the Tennessee Academic Standards and administered to students in Grades 3–8 in ELA and Mathematics and Grades 3–8 in Science. For each grade and content area, with the exception of Grades 3–5 in Science, there are three cut scores that distinguish between the following performance levels. The Level 3 cut score demarks the minimum level of performance considered to be proficient for accountability purposes.

- Level 1: Below
- Level 2: Approaching
- Level 3: On Track
- Level 4: Mastered

1.2.2. MAP Growth

MAP Growth Reading, Mathematics, and Science are computer adaptive interim assessments aligned to the Tennessee Academic Standards. The MAP Growth Reading assessments are comparable to the Tennessee Academic 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 TNReady and MAP Growth assessments taken during Spring 2017. Tennessee 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 TNReady assessments.

Once Tennessee 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 TNReady and MAP Growth scores were available.

2.2. Equipercentile Linking Procedure

The equipercentile procedure (e.g., Kolen & Brennan, 2004) was used to link TNReady scores 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., TNReady). 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 TNReady 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 TNReady tests 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 TNReady tests.

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

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 TNReady 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 TNReady 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 TNReady 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 248 schools across 7 districts in Tennessee participated in this linking study. Table 3.1 provides the demographics of the study sample. For all content areas, more than half of students were Black/African-American, followed by Hispanic, White, and Asian/Pacific Islander (PI). Males made up slightly more of the study sample than females. The sample demographics are reasonably representative of the state.

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	14,072	19.5%	54.5%	19.8%	2.8%	0.2%	2.7%	0.4%	49.6%	50.4%
	4	13,922	18.2%	55.3%	18.7%	2.5%	0.1%	2.4%	2.7%	49.8%	50.2%
	5	11,375	17.4%	60.6%	16.3%	2.8%	0.1%	2.6%	0.2%	49.0%	51.0%
	6	9,450	17.4%	60.1%	17.1%	2.7%	0.1%	2.5%	0.2%	50.2%	49.8%
	7	9,374	17.0%	62.0%	15.5%	3.2%	0.1%	2.0%	0.1%	50.5%	49.5%
	8	9,441	8.3%	55.6%	9.6%	2.2%	0.0%	1.8%	22.4%	50.0%	50.0%
Mathematics	3	10,400	15.0%	60.6%	18.7%	2.4%	0.2%	3.0%	0.3%	49.8%	50.2%
	4	9,913	13.5%	63.2%	17.4%	1.9%	0.1%	2.7%	1.2%	49.6%	50.4%
	5	7,878	12.1%	68.7%	14.1%	1.9%	0.1%	2.9%	0.1%	49.8%	50.2%
	6	6,298	10.8%	69.0%	15.1%	2.0%	0.0%	3.0%	0.1%	50.3%	49.7%
	7	6,214	10.3%	72.0%	13.4%	1.7%	0.1%	2.4%	0.1%	50.9%	49.1%
	8	5,562	7.2%	74.8%	12.1%	1.3%	0.1%	2.3%	2.2%	48.5%	51.5%
Science	5	3,285	9.9%	75.2%	11.0%	1.2%	0.1%	2.7%	0.1%	49.7%	50.2%
	6	2,594	9.5%	69.0%	16.7%	1.2%	0.1%	3.4%	0.1%	50.2%	49.8%
	7	2,340	9.5%	70.6%	16.1%	1.0%	0.1%	2.5%	0.2%	49.5%	50.5%
	8	2,376	6.4%	74.3%	15.2%	1.4%	0.0%	2.7%	0.0%	48.5%	51.5%

*Asian/PI = Asian/Pacific Islander. AI/AN = American Indian/Alaska Native. Other/MR = Other/Multi-Race (a combination of "Native Hawaiian or other Pacific Islander" and "Multi-Ethnic"). Not Spec. = Not Specified.

3.2. Descriptive Statistics

Table 3.2 provides descriptive statistics of the TNReady 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 TNReady scores range from 0.75 to 0.81 for ELA/Reading, 0.74 to 0.83 for Mathematics, and 0.77 to 0.79 for Science. In general, these correlations can be considered criterion-related validity evidence between MAP Growth and TNReady assessments by content area. These results indicate that the relationship between MAP Growth and TNReady scores is strong.

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

Content Area	Grade	N	r	TNReady*				MAP Growth*			
				Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
ELA/ Reading	3	14,072	0.75	328.0	43.5	200	449	193.1	18.0	134	250
	4	13,922	0.79	315.8	38.1	200	449	199.5	17.7	137	253
	5	11,375	0.77	305.0	35.3	200	450	205.2	17.9	140	254
	6	9,450	0.81	317.4	34.6	200	449	207.2	18.7	141	260
	7	9,374	0.78	318.4	32.1	200	450	210.8	19.1	142	261
	8	9,441	0.79	318.4	35.6	200	449	214.9	18.8	140	266
Mathematics	3	10,400	0.81	319.5	39.9	200	450	196.4	14.8	133	259
	4	9,913	0.83	302.6	41.4	200	450	204.2	16.1	138	263
	5	7,878	0.82	304.9	45.1	200	450	213.0	17.7	141	279
	6	6,298	0.82	310.5	38.9	200	449	213.1	18.3	142	282
	7	6,214	0.81	298.5	38.6	200	444	217.5	19.2	138	269
	8	5,562	0.74	285.3	35.2	200	398	218.4	18.1	140	268
Science	5	3,285	0.79	741.5	40.4	600	900	202.4	12.5	154	240
	6	2,594	0.79	740.5	42.2	600	900	203.3	13.8	154	239
	7	2,340	0.78	741.1	43.1	600	900	205.5	14.7	146	244
	8	2,376	0.77	734.7	37.8	600	866	207.3	13.3	151	243

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

3.3. Equipercentile Linking Cut Scores

Table 3.3 – Table 3.5 present the TNReady scale scores for each performance level and the corresponding MAP Growth scores (obtained from equipercentile linking) and percentile ranges for ELA/Reading, Mathematics, and Science. These tables can be used to predict a student's likely performance level on the TNReady 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 (On Track) on the TNReady assessment taken during that same testing season (see Table 3.3).

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

TNReady ELA								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
3	200–321		322–358		359–390		391–450	
4	200–298		299–342		343–378		379–450	
5	200–295		296–332		333–370		371–450	
6	200–302		303–341		342–376		377–450	
7	200–304		305–340		341–373		374–450	
8	200–297		298–345		346–383		384–450	

MAP Growth Reading								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–148	1–22	149–163	23–66	164–178	67–94	179–350	95–99
1**	100–166	1–22	167–183	23–65	184–200	66–94	201–350	95–99
2**	100–177	1–23	178–195	24–67	196–213	68–94	214–350	95–99
3	100–187	1–23	188–205	24–67	206–223	68–94	224–350	95–99
4	100–191	1–16	192–211	17–64	212–228	65–93	229–350	94–99
5	100–202	1–26	203–218	27–67	219–233	68–92	234–350	93–99
6	100–203	1–20	204–220	21–62	221–235	63–91	236–350	92–99
7	100–203	1–16	204–223	17–63	224–240	64–92	241–350	93–99
8	100–205	1–17	206–228	18–70	229–244	71–93	245–350	94–99

*Bolted 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 TNReady Scores when MAP Growth is taken in Spring—Mathematics

TNReady Mathematics								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
3	200–304		305–340		341–370		371–450	
4	200–294		295–329		330–372		373–450	
5	200–299		300–338		339–373		374–450	
6	200–306		307–339		340–381		382–450	
7	200–294		295–338		339–378		379–450	
8	200–295		296–329		330–366		367–450	

MAP Growth Mathematics								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–147	1–19	148–160	20–53	161–169	54–77	170–350	78–99
1**	100–168	1–18	169–181	19–52	182–191	53–78	192–350	79–99
2**	100–180	1–19	181–192	20–51	193–202	52–77	203–350	78–99
3	100–191	1–19	192–204	20–53	205–214	54–78	215–350	79–99
4	100–200	1–19	201–213	20–50	214–230	51–87	231–350	88–99
5	100–209	1–23	210–225	24–60	226–241	61–89	242–350	90–99
6	100–210	1–18	211–226	19–52	227–246	53–89	247–350	90–99
7	100–215	1–22	216–236	23–67	237–255	68–93	256–350	94–99
8	100–222	1–32	223–241	33–70	242–262	71–94	263–350	95–99

*Bolted 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 3.5. MAP Growth Cut Scores Corresponding to TNReady Scores when MAP Growth is taken in Spring—Science

TNReady Science								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
5	600–722		723–750		751–798		799–900	
6	600–727		728–752		753–800		801–900	
7	600–720		721–751		752–791		792–900	
8	600–715		716–747		748–788		789–900	

MAP Growth Science								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
5	100–196	1–20	197–205	21–49	206–219	50–89	220–350	90–99
6	100–198	1–19	199–206	20–42	207–222	43–88	223–350	89–99
7	100–199	1–17	200–208	18–42	209–223	43–84	224–350	85–99
8	100–199	1–13	200–211	14–43	212–227	44–86	228–350	87–99

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

3.4. Classification Accuracy Summary Statistics

Table 3.6 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 TNReady test. The overall classification accuracy rate ranges from 0.74 to 0.88 for ELA/Reading, 0.70 to 0.93 for Mathematics, and 0.80 to 0.82 for Science. 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 TNReady tests. For Grades K–2, the classification accuracy rate refers to how well the MAP Growth cuts shown can predict students' proficiency status on the TNReady tests in Grade 3. Consequently, the further back from Grade 3 that the cut scores were extrapolated, the lower the expected classification accuracy rate.

Table 3.6. Classification Accuracy Summary Statistics for MAP Growth and TNReady Level 3 (On Track) Proficiency for Grades K–8 Students

ELA/Reading									
Grade	Sample Size	Cut Score		Class. Accuracy*	Rate		Sensitivity	Specificity	AUC*
		MAP Growth	TNReady		FP*	FN*			
K**	170	164	359	0.74	0.21	0.48	0.52	0.79	0.69
1**	283	184	359	0.81	0.15	0.39	0.61	0.85	0.80
2**	6,870	196	359	0.84	0.10	0.37	0.63	0.90	0.88
3	14,072	206	359	0.85	0.11	0.28	0.72	0.89	0.90
4	13,922	212	343	0.85	0.10	0.29	0.71	0.90	0.91
5	11,375	219	333	0.86	0.11	0.28	0.72	0.89	0.91
6	9,450	221	342	0.88	0.09	0.24	0.76	0.91	0.93
7	9,374	224	341	0.86	0.11	0.25	0.75	0.89	0.91
8	9,441	229	346	0.87	0.10	0.25	0.75	0.90	0.92
Mathematics									
Grade	Sample Size	Cut Score		Class. Accuracy*	Rate		Sensitivity	Specificity	AUC*
		MAP Growth	TNReady		FP*	FN*			
K**	149	161	341	0.70	0.35	0.16	0.84	0.65	0.82
1**	225	182	341	0.75	0.26	0.21	0.79	0.74	0.87
2**	6,923	193	341	0.81	0.10	0.38	0.62	0.90	0.87
3	10,400	205	341	0.86	0.10	0.25	0.75	0.90	0.92
4	9,913	214	330	0.87	0.10	0.19	0.81	0.90	0.94
5	7,878	226	339	0.88	0.08	0.25	0.75	0.92	0.93
6	6,298	227	340	0.89	0.08	0.23	0.78	0.92	0.94
7	6,214	237	339	0.91	0.06	0.24	0.76	0.94	0.95
8	5,562	242	330	0.93	0.03	0.43	0.57	0.97	0.94
Science									
Grade	Sample Size	Cut Score		Class. Accuracy*	Rate		Sensitivity	Specificity	AUC*
		MAP Growth	TNReady		FP*	FN*			
5	3,285	206	751	0.82	0.15	0.21	0.79	0.85	0.90
6	2,594	207	753	0.81	0.19	0.18	0.82	0.81	0.90
7	2,340	209	752	0.82	0.18	0.19	0.81	0.82	0.89
8	2,376	212	748	0.80	0.17	0.24	0.76	0.83	0.88

*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 3.7 – Table 3.9 present the TNReady scale scores for each performance 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 performance level on the TNReady assessments 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 (On Track) on the TNReady ELA test taken in the spring (see Table 3.7).

Table 3.7. Projection of Performance Level Score Ranges between TNReady and MAP Growth when MAP Growth is taken in Fall or Winter—ELA/Reading

TNReady ELA								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
3	200–321		322–358		359–390		391–450	
4	200–298		299–342		343–378		379–450	
5	200–295		296–332		333–370		371–450	
6	200–302		303–341		342–376		377–450	
7	200–304		305–340		341–373		374–450	
8	200–297		298–345		346–383		384–450	
MAP Growth Reading (Fall)								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–128	1–17	129–147	18–68	148–167	69–96	168–350	97–99
1**	100–148	1–17	149–167	18–69	168–185	70–96	186–350	97–99
2**	100–161	1–19	162–182	20–69	183–204	70–96	205–350	97–99
3	100–175	1–20	176–196	21–69	197–217	70–96	218–350	97–99
4	100–181	1–14	182–204	15–65	205–224	66–95	225–350	96–99
5	100–194	1–23	195–213	24–69	214–230	70–94	231–350	95–99
6	100–196	1–16	197–216	17–64	217–233	65–93	234–350	94–99
7	100–197	1–13	198–220	14–65	221–238	66–93	239–350	94–99
8	100–200	1–14	201–226	15–72	227–242	73–94	243–350	95–99
MAP Growth Reading (Winter)								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–140	1–19	141–157	20–68	158–173	69–95	174–350	96–99
1**	100–160	1–20	161–177	21–67	178–194	68–95	195–350	96–99
2**	100–172	1–21	173–191	22–68	192–210	69–95	211–350	96–99
3	100–183	1–21	184–202	22–67	203–222	68–95	223–350	96–99
4	100–188	1–15	189–209	16–65	210–227	66–94	228–350	95–99
5	100–199	1–24	200–216	25–67	217–232	68–93	233–350	94–99
6	100–201	1–19	202–219	20–64	220–234	65–91	235–350	92–99
7	100–201	1–15	202–222	16–64	223–239	65–93	240–350	94–99
8	100–203	1–15	204–227	16–70	228–243	71–94	244–350	95–99

*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. Projection of Performance Level Score Ranges between TNReady and MAP Growth when MAP Growth is taken in Fall or Winter—Mathematics

TNReady Mathematics								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
3	200–304		305–340		341–370		371–450	
4	200–294		295–329		330–372		373–450	
5	200–299		300–338		339–373		374–450	
6	200–306		307–339		340–381		382–450	
7	200–294		295–338		339–378		379–450	
8	200–295		296–329		330–366		367–450	
MAP Growth Mathematics (Fall)								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–125	1–16	126–141	17–53	142–153	54–81	154–350	82–99
1**	100–148	1–13	149–163	14–53	164–174	54–82	175–350	83–99
2**	100–163	1–15	164–177	16–51	178–188	52–80	189–350	81–99
3	100–177	1–16	178–191	17–53	192–202	54–82	203–350	83–99
4	100–188	1–16	189–201	17–48	202–219	49–89	220–350	90–99
5	100–199	1–20	200–215	21–60	216–231	61–91	232–350	92–99
6	100–202	1–16	203–218	17–52	219–239	53–91	240–350	92–99
7	100–209	1–21	210–230	22–68	231–249	69–94	250–350	95–99
8	100–217	1–31	218–237	32–73	238–258	74–95	259–350	96–99
MAP Growth Mathematics (Winter)								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
K**	100–138	1–17	139–152	18–52	153–162	53–78	163–350	79–99
1**	100–161	1–17	162–174	18–52	175–184	53–79	185–350	80–99
2**	100–174	1–18	175–186	19–50	187–197	51–80	198–350	81–99
3	100–186	1–18	187–199	19–53	200–209	54–80	210–350	81–99
4	100–195	1–17	196–208	18–49	209–225	50–88	226–350	89–99
5	100–205	1–22	206–221	23–60	222–237	61–90	238–350	91–99
6	100–207	1–18	208–223	19–53	224–243	54–90	244–350	91–99
7	100–213	1–22	214–234	23–68	235–253	69–94	254–350	95–99
8	100–220	1–31	221–239	32–71	240–260	72–95	261–350	96–99

*Bolted 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 3.9. Projection of Performance Level Score Ranges between TNReady and MAP Growth when MAP Growth is taken in Fall or Winter—Science

TNReady Science								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
5	600–722		723–750		751–798		799–900	
6	600–727		728–752		753–800		801–900	
7	600–720		721–751		752–791		792–900	
8	600–715		716–747		748–788		789–900	

MAP Growth Science (Fall)								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
5	100–188	1–14	189–199	15–47	200–217	48–94	218–350	95–99
6	100–192	1–15	193–201	16–40	202–221	41–93	222–350	94–99
7	100–193	1–12	194–204	13–41	205–222	42–90	223–350	91–99
8	100–193	1–8	194–207	9–41	208–226	42–90	227–350	91–99

MAP Growth Science (Winter)								
Grade	Level 1: Below		Level 2: Approaching		Level 3: On Track*		Level 4: Mastered	
	RIT	Percentile	RIT	Percentile	RIT*	Percentile	RIT	Percentile
5	100–193	1–17	194–203	18–49	204–219	50–92	220–350	93–99
6	100–195	1–15	196–204	16–41	205–222	42–91	223–350	92–99
7	100–197	1–15	198–206	16–40	207–223	41–88	224–350	89–99
8	100–197	1–11	198–210	12–44	211–227	45–89	228–350	90–99

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

Table 3.10 presents the estimated probability of meeting the Level 3 benchmark (i.e., being classified as proficient on TNReady) based on students' observed MAP Growth score when MAP Growth is taken in the spring. Table 3.11, Table 3.12, and Table 3.13 present the estimated probability of meeting the Level 3 benchmark when MAP Growth is taken in the fall or winter prior to taking TNReady. 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 199 in the fall has an 83% chance of reaching Level 3 (On Track) or higher on TNReady in the spring (see Table 3.12).

Table 3.10. Proficiency Projection and Probability of Reaching Level 3 on TNReady when MAP Growth is taken in Spring

Grade	Start Percentile	ELA/Reading				Mathematics				Science			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
2	5	164	196	No	<0.01	170	193	No	<0.01	--	--	--	--
	10	169	196	No	<0.01	175	193	No	<0.01	--	--	--	--
	15	173	196	No	<0.01	178	193	No	<0.01	--	--	--	--
	20	176	196	No	<0.01	181	193	No	<0.01	--	--	--	--
	25	178	196	No	<0.01	183	193	No	<0.01	--	--	--	--
	30	181	196	No	<0.01	185	193	No	<0.01	--	--	--	--
	35	183	196	No	<0.01	187	193	No	0.02	--	--	--	--
	40	185	196	No	<0.01	189	193	No	0.08	--	--	--	--
	45	187	196	No	<0.01	190	193	No	0.15	--	--	--	--
	50	189	196	No	0.01	192	193	No	0.37	--	--	--	--
	55	191	196	No	0.06	194	193	Yes	0.64	--	--	--	--
	60	193	196	No	0.17	196	193	Yes	0.85	--	--	--	--
	65	195	196	No	0.38	197	193	Yes	0.92	--	--	--	--
	70	197	196	Yes	0.62	199	193	Yes	0.98	--	--	--	--
	75	199	196	Yes	0.83	201	193	Yes	>0.99	--	--	--	--
	80	201	196	Yes	0.94	204	193	Yes	>0.99	--	--	--	--
85	204	196	Yes	0.99	206	193	Yes	>0.99	--	--	--	--	
90	208	196	Yes	>0.99	209	193	Yes	>0.99	--	--	--	--	
95	214	196	Yes	>0.99	214	193	Yes	>0.99	--	--	--	--	
3	5	174	206	No	<0.01	181	205	No	<0.01	--	--	--	--
	10	179	206	No	<0.01	186	205	No	<0.01	--	--	--	--
	15	183	206	No	<0.01	189	205	No	<0.01	--	--	--	--
	20	186	206	No	<0.01	192	205	No	<0.01	--	--	--	--
	25	188	206	No	<0.01	194	205	No	<0.01	--	--	--	--
	30	191	206	No	<0.01	196	205	No	<0.01	--	--	--	--
	35	193	206	No	<0.01	198	205	No	0.01	--	--	--	--
	40	195	206	No	<0.01	200	205	No	0.04	--	--	--	--
	45	197	206	No	<0.01	202	205	No	0.15	--	--	--	--
	50	199	206	No	0.01	203	205	No	0.25	--	--	--	--
	55	201	206	No	0.06	205	205	Yes	0.50	--	--	--	--
	60	202	206	No	0.11	207	205	Yes	0.76	--	--	--	--
	65	204	206	No	0.27	209	205	Yes	0.92	--	--	--	--
	70	207	206	Yes	0.62	211	205	Yes	0.98	--	--	--	--
	75	209	206	Yes	0.83	213	205	Yes	>0.99	--	--	--	--
	80	211	206	Yes	0.94	215	205	Yes	>0.99	--	--	--	--
85	214	206	Yes	0.99	218	205	Yes	>0.99	--	--	--	--	
90	218	206	Yes	>0.99	221	205	Yes	>0.99	--	--	--	--	
95	223	206	Yes	>0.99	226	205	Yes	>0.99	--	--	--	--	

Grade	Start Percentile	ELA/Reading				Mathematics				Science			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
4	5	181	212	No	<0.01	189	214	No	<0.01	--	--	--	--
	10	187	212	No	<0.01	194	214	No	<0.01	--	--	--	--
	15	190	212	No	<0.01	198	214	No	<0.01	--	--	--	--
	20	193	212	No	<0.01	201	214	No	<0.01	--	--	--	--
	25	196	212	No	<0.01	203	214	No	<0.01	--	--	--	--
	30	198	212	No	<0.01	206	214	No	<0.01	--	--	--	--
	35	200	212	No	<0.01	208	214	No	0.02	--	--	--	--
	40	202	212	No	<0.01	210	214	No	0.08	--	--	--	--
	45	204	212	No	0.01	212	214	No	0.25	--	--	--	--
	50	206	212	No	0.03	213	214	No	0.37	--	--	--	--
	55	208	212	No	0.11	215	214	Yes	0.64	--	--	--	--
	60	210	212	No	0.27	217	214	Yes	0.85	--	--	--	--
	65	212	212	Yes	0.50	219	214	Yes	0.96	--	--	--	--
	70	214	212	Yes	0.73	221	214	Yes	0.99	--	--	--	--
	75	216	212	Yes	0.89	224	214	Yes	>0.99	--	--	--	--
	80	218	212	Yes	0.97	226	214	Yes	>0.99	--	--	--	--
85	221	212	Yes	>0.99	229	214	Yes	>0.99	--	--	--	--	
90	225	212	Yes	>0.99	233	214	Yes	>0.99	--	--	--	--	
95	230	212	Yes	>0.99	238	214	Yes	>0.99	--	--	--	--	
5	5	188	219	No	<0.01	195	226	No	<0.01	188	206	No	<0.01
	10	193	219	No	<0.01	201	226	No	<0.01	192	206	No	<0.01
	15	197	219	No	<0.01	205	226	No	<0.01	194	206	No	<0.01
	20	199	219	No	<0.01	208	226	No	<0.01	196	206	No	<0.01
	25	202	219	No	<0.01	210	226	No	<0.01	198	206	No	0.01
	30	204	219	No	<0.01	213	226	No	<0.01	200	206	No	0.04
	35	206	219	No	<0.01	215	226	No	<0.01	201	206	No	0.07
	40	208	219	No	<0.01	217	226	No	<0.01	203	206	No	0.19
	45	210	219	No	<0.01	219	226	No	0.01	204	206	No	0.28
	50	212	219	No	0.01	221	226	No	0.04	206	206	Yes	0.5
	55	214	219	No	0.06	223	226	No	0.15	207	206	Yes	0.62
	60	216	219	No	0.17	225	226	No	0.37	209	206	Yes	0.81
	65	217	219	No	0.27	228	226	Yes	0.76	210	206	Yes	0.88
	70	220	219	Yes	0.62	230	226	Yes	0.92	212	206	Yes	0.96
	75	222	219	Yes	0.83	232	226	Yes	0.98	213	206	Yes	0.98
	80	224	219	Yes	0.94	235	226	Yes	>0.99	215	206	Yes	>0.99
85	227	219	Yes	0.99	238	226	Yes	>0.99	217	206	Yes	>0.99	
90	231	219	Yes	>0.99	242	226	Yes	>0.99	220	206	Yes	>0.99	
95	236	219	Yes	>0.99	248	226	Yes	>0.99	224	206	Yes	>0.99	

Grade	Start Percentile	ELA/Reading				Mathematics				Science			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
6	5	192	221	No	<0.01	198	227	No	<0.01	189	207	No	<0.01
	10	197	221	No	<0.01	204	227	No	<0.01	194	207	No	<0.01
	15	201	221	No	<0.01	208	227	No	<0.01	196	207	No	<0.01
	20	203	221	No	<0.01	211	227	No	<0.01	199	207	No	0.01
	25	206	221	No	<0.01	214	227	No	<0.01	201	207	No	0.04
	30	208	221	No	<0.01	217	227	No	<0.01	202	207	No	0.07
	35	210	221	No	<0.01	219	227	No	<0.01	204	207	No	0.19
	40	212	221	No	<0.01	221	227	No	0.02	206	207	No	0.38
	45	214	221	No	0.01	223	227	No	0.08	207	207	Yes	0.50
	50	216	221	No	0.06	225	227	No	0.25	209	207	Yes	0.72
	55	218	221	No	0.17	227	227	Yes	0.50	210	207	Yes	0.81
	60	219	221	No	0.27	230	227	Yes	0.85	212	207	Yes	0.93
	65	221	221	Yes	0.50	232	227	Yes	0.96	213	207	Yes	0.96
	70	223	221	Yes	0.73	234	227	Yes	0.99	215	207	Yes	0.99
	75	226	221	Yes	0.94	237	227	Yes	>0.99	217	207	Yes	>0.99
	80	228	221	Yes	0.99	239	227	Yes	>0.99	219	207	Yes	>0.99
85	231	221	Yes	>0.99	243	227	Yes	>0.99	221	207	Yes	>0.99	
90	235	221	Yes	>0.99	247	227	Yes	>0.99	224	207	Yes	>0.99	
95	240	221	Yes	>0.99	253	227	Yes	>0.99	228	207	Yes	>0.99	
7	5	193	224	No	<0.01	199	237	No	<0.01	191	209	No	<0.01
	10	199	224	No	<0.01	206	237	No	<0.01	195	209	No	<0.01
	15	202	224	No	<0.01	210	237	No	<0.01	198	209	No	<0.01
	20	205	224	No	<0.01	214	237	No	<0.01	201	209	No	0.01
	25	208	224	No	<0.01	217	237	No	<0.01	203	209	No	0.04
	30	210	224	No	<0.01	219	237	No	<0.01	204	209	No	0.07
	35	212	224	No	<0.01	222	237	No	<0.01	206	209	No	0.19
	40	214	224	No	<0.01	224	237	No	<0.01	208	209	No	0.38
	45	216	224	No	0.01	226	237	No	<0.01	209	209	Yes	0.50
	50	218	224	No	0.03	229	237	No	<0.01	211	209	Yes	0.72
	55	220	224	No	0.11	231	237	No	0.02	212	209	Yes	0.81
	60	222	224	No	0.27	233	237	No	0.08	214	209	Yes	0.93
	65	224	224	Yes	0.50	235	237	No	0.25	216	209	Yes	0.98
	70	226	224	Yes	0.73	238	237	Yes	0.64	217	209	Yes	0.99
	75	228	224	Yes	0.89	241	237	Yes	0.92	219	209	Yes	>0.99
	80	231	224	Yes	0.99	244	237	Yes	0.99	221	209	Yes	>0.99
85	234	224	Yes	>0.99	247	237	Yes	>0.99	224	209	Yes	>0.99	
90	238	224	Yes	>0.99	251	237	Yes	>0.99	227	209	Yes	>0.99	
95	243	224	Yes	>0.99	258	237	Yes	>0.99	231	209	Yes	>0.99	

Grade	Start Percentile	ELA/Reading				Mathematics				Science			
		Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency			Spring RIT	Projected Proficiency		
			Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*		Cut Score	Level 3	Prob.*
8	5	194	229	No	<0.01	199	242	No	<0.01	193	212	No	<0.01
	10	200	229	No	<0.01	206	242	No	<0.01	197	212	No	<0.01
	15	204	229	No	<0.01	211	242	No	<0.01	200	212	No	<0.01
	20	207	229	No	<0.01	215	242	No	<0.01	203	212	No	<0.01
	25	209	229	No	<0.01	218	242	No	<0.01	205	212	No	0.02
	30	212	229	No	<0.01	221	242	No	<0.01	207	212	No	0.07
	35	214	229	No	<0.01	224	242	No	<0.01	209	212	No	0.19
	40	216	229	No	<0.01	226	242	No	<0.01	210	212	No	0.28
	45	218	229	No	<0.01	229	242	No	<0.01	212	212	Yes	0.50
	50	220	229	No	<0.01	231	242	No	<0.01	214	212	Yes	0.72
	55	222	229	No	0.01	233	242	No	<0.01	215	212	Yes	0.81
	60	224	229	No	0.06	236	242	No	0.02	217	212	Yes	0.93
	65	226	229	No	0.17	238	242	No	0.08	218	212	Yes	0.96
	70	228	229	No	0.38	241	242	No	0.37	220	212	Yes	0.99
	75	231	229	Yes	0.73	244	242	Yes	0.76	222	212	Yes	>0.99
	80	233	229	Yes	0.89	247	242	Yes	0.96	224	212	Yes	>0.99
	85	236	229	Yes	0.99	251	242	Yes	>0.99	227	212	Yes	>0.99
90	240	229	Yes	>0.99	255	242	Yes	>0.99	230	212	Yes	>0.99	
95	246	229	Yes	>0.99	262	242	Yes	>0.99	234	212	Yes	>0.99	

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

Table 3.11. Proficiency Projection and Probability of Reaching Level 3 on TNReady 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.*
K	5	119	164	No	<0.01	130	164	No	<0.01
	10	124	164	No	0.01	135	164	No	<0.01
	15	127	164	No	0.01	138	164	No	<0.01
	20	130	164	No	0.03	141	164	No	<0.01
	25	132	164	No	0.04	143	164	No	0.01
	30	134	164	No	0.07	145	164	No	0.01
	35	136	164	No	0.09	146	164	No	0.02
	40	138	164	No	0.14	148	164	No	0.05
	45	139	164	No	0.18	150	164	No	0.10
	50	141	164	No	0.21	151	164	No	0.13
	55	143	164	No	0.30	153	164	No	0.23
	60	144	164	No	0.30	155	164	No	0.35
	65	146	164	No	0.39	156	164	No	0.35
	70	148	164	Yes	0.50	158	164	Yes	0.50
	75	150	164	Yes	0.55	160	164	Yes	0.65
	80	152	164	Yes	0.66	162	164	Yes	0.77
	85	155	164	Yes	0.75	165	164	Yes	0.90
90	158	164	Yes	0.82	168	164	Yes	0.95	
95	163	164	Yes	0.93	172	164	Yes	0.99	
1	5	139	184	No	<0.01	149	184	No	<0.01
	10	144	184	No	<0.01	154	184	No	<0.01
	15	147	184	No	0.01	157	184	No	<0.01
	20	150	184	No	0.02	160	184	No	<0.01
	25	152	184	No	0.03	162	184	No	<0.01
	30	154	184	No	0.05	164	184	No	0.01
	35	156	184	No	0.09	166	184	No	0.01
	40	157	184	No	0.11	168	184	No	0.03
	45	159	184	No	0.16	170	184	No	0.07
	50	161	184	No	0.23	172	184	No	0.14
	55	162	184	No	0.27	173	184	No	0.18
	60	164	184	No	0.35	175	184	No	0.29
	65	166	184	No	0.40	177	184	No	0.43
	70	168	184	Yes	0.50	179	184	Yes	0.57
	75	170	184	Yes	0.60	181	184	Yes	0.71
	80	172	184	Yes	0.69	183	184	Yes	0.82
	85	174	184	Yes	0.77	186	184	Yes	0.93
90	177	184	Yes	0.87	189	184	Yes	0.98	
95	182	184	Yes	0.95	194	184	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.*
2	5	149	196	No	<0.01	160	196	No	<0.01
	10	155	196	No	<0.01	165	196	No	<0.01
	15	159	196	No	<0.01	169	196	No	<0.01
	20	162	196	No	0.01	172	196	No	<0.01
	25	164	196	No	0.02	174	196	No	<0.01
	30	167	196	No	0.04	176	196	No	<0.01
	35	169	196	No	0.06	178	196	No	0.01
	40	171	196	No	0.10	180	196	No	0.02
	45	173	196	No	0.12	182	196	No	0.05
	50	175	196	No	0.19	184	196	No	0.10
	55	177	196	No	0.26	186	196	No	0.13
	60	179	196	No	0.30	188	196	No	0.23
	65	181	196	No	0.40	190	196	No	0.36
	70	183	196	Yes	0.50	192	196	Yes	0.50
	75	185	196	Yes	0.55	194	196	Yes	0.64
	80	188	196	Yes	0.70	197	196	Yes	0.82
	85	191	196	Yes	0.78	200	196	Yes	0.93
90	195	196	Yes	0.90	203	196	Yes	0.98	
95	200	196	Yes	0.96	209	196	Yes	>0.99	
3	5	162	206	No	<0.01	171	206	No	<0.01
	10	168	206	No	<0.01	176	206	No	<0.01
	15	172	206	No	<0.01	180	206	No	<0.01
	20	175	206	No	<0.01	183	206	No	<0.01
	25	178	206	No	0.01	185	206	No	<0.01
	30	180	206	No	0.03	188	206	No	<0.01
	35	182	206	No	0.03	190	206	No	0.01
	40	184	206	No	0.06	192	206	No	0.02
	45	186	206	No	0.10	194	206	No	0.04
	50	188	206	No	0.13	196	206	No	0.09
	55	190	206	No	0.20	198	206	No	0.17
	60	192	206	No	0.29	199	206	No	0.22
	65	194	206	No	0.34	201	206	No	0.35
	70	197	206	Yes	0.50	204	206	Yes	0.50
	75	199	206	Yes	0.61	206	206	Yes	0.65
	80	202	206	Yes	0.71	208	206	Yes	0.78
	85	205	206	Yes	0.84	211	206	Yes	0.91
90	209	206	Yes	0.92	215	206	Yes	0.98	
95	214	206	Yes	0.97	221	206	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	212	No	<0.01	179	212	No	<0.01
	10	178	212	No	<0.01	184	212	No	<0.01
	15	182	212	No	<0.01	188	212	No	<0.01
	20	185	212	No	0.01	191	212	No	<0.01
	25	188	212	No	0.01	194	212	No	<0.01
	30	190	212	No	0.03	196	212	No	0.01
	35	192	212	No	0.05	198	212	No	0.02
	40	194	212	No	0.07	200	212	No	0.04
	45	196	212	No	0.12	202	212	No	0.06
	50	198	212	No	0.19	204	212	No	0.12
	55	200	212	No	0.28	205	212	No	0.16
	60	202	212	No	0.33	207	212	No	0.28
	65	204	212	No	0.44	209	212	No	0.42
	70	206	212	Yes	0.56	211	212	Yes	0.58
	75	209	212	Yes	0.67	214	212	Yes	0.78
	80	211	212	Yes	0.77	216	212	Yes	0.88
	85	214	212	Yes	0.88	219	212	Yes	0.94
90	218	212	Yes	0.95	223	212	Yes	0.99	
95	224	212	Yes	0.99	228	212	Yes	>0.99	
5	5	181	219	No	<0.01	186	219	No	<0.01
	10	186	219	No	<0.01	191	219	No	<0.01
	15	190	219	No	<0.01	195	219	No	<0.01
	20	193	219	No	<0.01	197	219	No	<0.01
	25	195	219	No	0.01	200	219	No	<0.01
	30	198	219	No	0.02	202	219	No	<0.01
	35	200	219	No	0.04	204	219	No	0.01
	40	202	219	No	0.07	206	219	No	0.02
	45	204	219	No	0.09	208	219	No	0.04
	50	206	219	No	0.15	210	219	No	0.09
	55	208	219	No	0.23	212	219	No	0.17
	60	210	219	No	0.33	214	219	No	0.28
	65	212	219	No	0.38	215	219	No	0.35
	70	214	219	Yes	0.50	218	219	Yes	0.50
	75	216	219	Yes	0.62	220	219	Yes	0.65
	80	218	219	Yes	0.67	222	219	Yes	0.78
	85	221	219	Yes	0.81	225	219	Yes	0.91
90	225	219	Yes	0.91	229	219	Yes	0.98	
95	231	219	Yes	0.99	234	219	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	221	No	<0.01	190	221	No	<0.01
	10	192	221	No	<0.01	196	221	No	<0.01
	15	196	221	No	<0.01	199	221	No	<0.01
	20	198	221	No	0.01	202	221	No	<0.01
	25	201	221	No	0.02	204	221	No	<0.01
	30	203	221	No	0.04	207	221	No	0.01
	35	205	221	No	0.07	209	221	No	0.03
	40	207	221	No	0.10	211	221	No	0.06
	45	209	221	No	0.16	212	221	No	0.09
	50	211	221	No	0.23	214	221	No	0.17
	55	213	221	No	0.28	216	221	No	0.22
	60	215	221	No	0.39	218	221	No	0.35
	65	217	221	Yes	0.50	220	221	Yes	0.50
	70	219	221	Yes	0.61	222	221	Yes	0.65
	75	221	221	Yes	0.67	224	221	Yes	0.78
	80	224	221	Yes	0.81	226	221	Yes	0.88
	85	226	221	Yes	0.88	229	221	Yes	0.96
90	230	221	Yes	0.94	233	221	Yes	0.99	
95	236	221	Yes	0.99	238	221	Yes	>0.99	
7	5	189	224	No	<0.01	192	224	No	<0.01
	10	195	224	No	<0.01	198	224	No	<0.01
	15	199	224	No	<0.01	201	224	No	<0.01
	20	202	224	No	0.01	204	224	No	<0.01
	25	204	224	No	0.01	207	224	No	<0.01
	30	206	224	No	0.03	209	224	No	0.01
	35	209	224	No	0.05	211	224	No	0.02
	40	211	224	No	0.10	213	224	No	0.03
	45	213	224	No	0.15	215	224	No	0.06
	50	214	224	No	0.19	217	224	No	0.12
	55	216	224	No	0.28	219	224	No	0.22
	60	218	224	No	0.33	221	224	No	0.35
	65	220	224	No	0.44	223	224	Yes	0.50
	70	222	224	Yes	0.56	225	224	Yes	0.65
	75	225	224	Yes	0.67	227	224	Yes	0.78
	80	227	224	Yes	0.77	230	224	Yes	0.91
	85	230	224	Yes	0.88	232	224	Yes	0.96
90	234	224	Yes	0.96	236	224	Yes	0.99	
95	240	224	Yes	>0.99	242	224	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	229	No	<0.01	194	229	No	<0.01
	10	197	229	No	<0.01	199	229	No	<0.01
	15	201	229	No	<0.01	203	229	No	<0.01
	20	204	229	No	0.01	206	229	No	<0.01
	25	207	229	No	0.01	209	229	No	<0.01
	30	209	229	No	0.02	211	229	No	<0.01
	35	211	229	No	0.04	213	229	No	<0.01
	40	213	229	No	0.05	215	229	No	0.01
	45	215	229	No	0.08	217	229	No	0.02
	50	217	229	No	0.13	219	229	No	0.05
	55	219	229	No	0.19	221	229	No	0.10
	60	221	229	No	0.22	223	229	No	0.18
	65	223	229	No	0.31	225	229	No	0.29
	70	225	229	No	0.40	227	229	No	0.43
	75	228	229	Yes	0.55	229	229	Yes	0.57
	80	230	229	Yes	0.65	232	229	Yes	0.77
	85	234	229	Yes	0.81	235	229	Yes	0.9
90	237	229	Yes	0.90	239	229	Yes	0.98	
95	243	229	Yes	0.98	244	229	Yes	>0.99	

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

Table 3.12. Proficiency Projection and Probability of Reaching Level 3 on TNReady 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.*
K	5	115	161	No	<0.01	129	161	No	<0.01
	10	121	161	No	0.01	134	161	No	<0.01
	15	124	161	No	0.02	137	161	No	<0.01
	20	127	161	No	0.04	140	161	No	0.01
	25	130	161	No	0.07	142	161	No	0.01
	30	132	161	No	0.12	144	161	No	0.03
	35	134	161	No	0.15	146	161	No	0.08
	40	136	161	No	0.23	148	161	No	0.15
	45	138	161	No	0.33	150	161	No	0.27
	50	140	161	No	0.39	151	161	No	0.34
	55	142	161	Yes	0.50	153	161	Yes	0.50
	60	144	161	Yes	0.56	155	161	Yes	0.58
	65	146	161	Yes	0.67	157	161	Yes	0.73
	70	148	161	Yes	0.72	159	161	Yes	0.85
	75	150	161	Yes	0.81	161	161	Yes	0.92
	80	153	161	Yes	0.88	163	161	Yes	0.97
	85	156	161	Yes	0.95	166	161	Yes	0.99
90	159	161	Yes	0.97	169	161	Yes	>0.99	
95	165	161	Yes	>0.99	174	161	Yes	>0.99	
1	5	141	182	No	<0.01	153	182	No	<0.01
	10	146	182	No	0.01	157	182	No	<0.01
	15	149	182	No	0.04	160	182	No	<0.01
	20	152	182	No	0.09	163	182	No	0.01
	25	154	182	No	0.11	165	182	No	0.02
	30	156	182	No	0.17	167	182	No	0.05
	35	157	182	No	0.21	169	182	No	0.11
	40	159	182	No	0.29	171	182	No	0.21
	45	161	182	No	0.39	172	182	No	0.27
	50	162	182	No	0.39	174	182	No	0.42
	55	164	182	Yes	0.50	175	182	Yes	0.50
	60	166	182	Yes	0.61	177	182	Yes	0.66
	65	167	182	Yes	0.66	179	182	Yes	0.79
	70	169	182	Yes	0.75	181	182	Yes	0.89
	75	171	182	Yes	0.79	183	182	Yes	0.95
	80	173	182	Yes	0.86	185	182	Yes	0.98
	85	176	182	Yes	0.93	187	182	Yes	0.99
90	179	182	Yes	0.97	190	182	Yes	>0.99	
95	184	182	Yes	0.99	195	182	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.*
2	5	155	193	No	<0.01	165	193	No	<0.01
	10	160	193	No	0.01	170	193	No	<0.01
	15	163	193	No	0.03	173	193	No	<0.01
	20	166	193	No	0.07	175	193	No	0.01
	25	168	193	No	0.10	178	193	No	0.03
	30	170	193	No	0.16	180	193	No	0.08
	35	172	193	No	0.24	181	193	No	0.11
	40	174	193	No	0.33	183	193	No	0.21
	45	175	193	No	0.33	185	193	No	0.34
	50	177	193	No	0.44	186	193	No	0.42
	55	179	193	Yes	0.56	188	193	Yes	0.58
	60	180	193	Yes	0.61	190	193	Yes	0.73
	65	182	193	Yes	0.72	191	193	Yes	0.79
	70	184	193	Yes	0.76	193	193	Yes	0.85
	75	186	193	Yes	0.84	195	193	Yes	0.92
	80	188	193	Yes	0.90	197	193	Yes	0.97
	85	191	193	Yes	0.96	200	193	Yes	0.99
90	194	193	Yes	0.98	203	193	Yes	>0.99	
95	199	193	Yes	>0.99	208	193	Yes	>0.99	
3	5	169	205	No	<0.01	176	205	No	<0.01
	10	174	205	No	<0.01	181	205	No	<0.01
	15	177	205	No	0.01	184	205	No	<0.01
	20	179	205	No	0.03	187	205	No	<0.01
	25	182	205	No	0.08	189	205	No	0.01
	30	184	205	No	0.11	191	205	No	0.03
	35	185	205	No	0.14	193	205	No	0.07
	40	187	205	No	0.22	195	205	No	0.14
	45	189	205	No	0.32	197	205	No	0.26
	50	190	205	No	0.38	198	205	No	0.34
	55	192	205	Yes	0.50	200	205	Yes	0.50
	60	194	205	Yes	0.62	202	205	Yes	0.66
	65	195	205	Yes	0.68	203	205	Yes	0.74
	70	197	205	Yes	0.78	205	205	Yes	0.86
	75	199	205	Yes	0.83	207	205	Yes	0.93
	80	201	205	Yes	0.89	209	205	Yes	0.97
	85	204	205	Yes	0.96	212	205	Yes	0.99
90	207	205	Yes	0.99	215	205	Yes	>0.99	
95	212	205	Yes	>0.99	220	205	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	214	No	<0.01	185	214	No	<0.01
	10	184	214	No	<0.01	190	214	No	<0.01
	15	188	214	No	0.01	194	214	No	<0.01
	20	190	214	No	0.03	197	214	No	0.01
	25	193	214	No	0.08	199	214	No	0.02
	30	195	214	No	0.14	201	214	No	0.04
	35	197	214	No	0.22	203	214	No	0.10
	40	198	214	No	0.27	205	214	No	0.20
	45	200	214	No	0.38	207	214	No	0.34
	50	202	214	Yes	0.50	209	214	Yes	0.50
	55	204	214	Yes	0.62	211	214	Yes	0.66
	60	205	214	Yes	0.62	212	214	Yes	0.74
	65	207	214	Yes	0.73	214	214	Yes	0.86
	70	209	214	Yes	0.83	216	214	Yes	0.93
	75	211	214	Yes	0.89	218	214	Yes	0.97
	80	214	214	Yes	0.96	221	214	Yes	0.99
	85	216	214	Yes	0.98	223	214	Yes	>0.99
90	220	214	Yes	>0.99	227	214	Yes	>0.99	
95	225	214	Yes	>0.99	232	214	Yes	>0.99	
5	5	187	226	No	<0.01	192	226	No	<0.01
	10	193	226	No	<0.01	198	226	No	<0.01
	15	196	226	No	<0.01	201	226	No	<0.01
	20	199	226	No	0.01	204	226	No	<0.01
	25	202	226	No	0.02	207	226	No	<0.01
	30	204	226	No	0.04	209	226	No	<0.01
	35	206	226	No	0.07	211	226	No	0.01
	40	208	226	No	0.12	213	226	No	0.03
	45	210	226	No	0.19	215	226	No	0.07
	50	211	226	No	0.23	217	226	No	0.15
	55	213	226	No	0.33	219	226	No	0.27
	60	215	226	No	0.44	221	226	No	0.42
	65	217	226	Yes	0.56	223	226	Yes	0.58
	70	219	226	Yes	0.67	225	226	Yes	0.73
	75	221	226	Yes	0.77	228	226	Yes	0.89
	80	224	226	Yes	0.88	230	226	Yes	0.95
	85	227	226	Yes	0.95	233	226	Yes	0.99
90	230	226	Yes	0.98	237	226	Yes	>0.99	
95	236	226	Yes	>0.99	242	226	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	227	No	<0.01	196	227	No	<0.01
	10	198	227	No	<0.01	202	227	No	<0.01
	15	202	227	No	0.01	205	227	No	<0.01
	20	205	227	No	0.02	209	227	No	<0.01
	25	207	227	No	0.04	211	227	No	<0.01
	30	209	227	No	0.07	214	227	No	0.02
	35	212	227	No	0.15	216	227	No	0.05
	40	214	227	No	0.23	218	227	No	0.11
	45	216	227	No	0.33	220	227	No	0.20
	50	218	227	No	0.44	222	227	No	0.34
	55	220	227	Yes	0.56	224	227	Yes	0.50
	60	222	227	Yes	0.67	226	227	Yes	0.66
	65	224	227	Yes	0.77	228	227	Yes	0.80
	70	226	227	Yes	0.85	230	227	Yes	0.89
	75	228	227	Yes	0.91	233	227	Yes	0.97
	80	231	227	Yes	0.95	236	227	Yes	0.99
	85	234	227	Yes	0.98	239	227	Yes	>0.99
90	238	227	Yes	>0.99	243	227	Yes	>0.99	
95	243	227	Yes	>0.99	248	227	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	242	No	<0.01	199	242	No	<0.01
	10	203	242	No	<0.01	206	242	No	<0.01
	15	208	242	No	<0.01	210	242	No	<0.01
	20	211	242	No	<0.01	214	242	No	<0.01
	25	214	242	No	<0.01	217	242	No	<0.01
	30	217	242	No	<0.01	220	242	No	<0.01
	35	219	242	No	0.01	222	242	No	<0.01
	40	222	242	No	0.02	225	242	No	<0.01
	45	224	242	No	0.04	227	242	No	<0.01
	50	226	242	No	0.08	229	242	No	0.01
	55	229	242	No	0.15	231	242	No	0.04
	60	231	242	No	0.22	234	242	No	0.12
	65	233	242	No	0.26	236	242	No	0.21
	70	236	242	No	0.40	239	242	No	0.42
	75	238	242	Yes	0.50	241	242	Yes	0.58
	80	241	242	Yes	0.65	245	242	Yes	0.84
	85	245	242	Yes	0.82	248	242	Yes	0.94
90	249	242	Yes	0.92	253	242	Yes	>0.99	
95	256	242	Yes	0.99	259	242	Yes	>0.99	

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

Table 3.13. Proficiency Projection and Probability of Reaching Level 3 on TNReady in Spring when MAP Growth is taken in the Fall or Winter—Science

Grade	Start Percentile	Science (Fall)				Science (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
5	5	182	206	No	0.01	186	206	No	<0.01
	10	186	206	No	0.04	190	206	No	0.01
	15	189	206	No	0.09	192	206	No	0.02
	20	191	206	No	0.12	195	206	No	0.07
	25	193	206	No	0.19	196	206	No	0.10
	30	194	206	No	0.23	198	206	No	0.18
	35	196	206	No	0.28	200	206	No	0.23
	40	197	206	No	0.33	201	206	No	0.29
	45	199	206	No	0.44	202	206	No	0.36
	50	200	206	Yes	0.50	204	206	Yes	0.50
	55	202	206	Yes	0.56	205	206	Yes	0.57
	60	203	206	Yes	0.62	206	206	Yes	0.64
	65	204	206	Yes	0.67	208	206	Yes	0.77
	70	206	206	Yes	0.72	209	206	Yes	0.77
	75	208	206	Yes	0.81	211	206	Yes	0.86
	80	210	206	Yes	0.85	213	206	Yes	0.93
	85	212	206	Yes	0.91	215	206	Yes	0.97
90	214	206	Yes	0.95	218	206	Yes	0.99	
95	218	206	Yes	0.98	221	206	Yes	>0.99	
6	5	185	207	No	0.02	188	207	No	<0.01
	10	190	207	No	0.07	192	207	No	0.02
	15	192	207	No	0.09	195	207	No	0.05
	20	195	207	No	0.19	197	207	No	0.10
	25	197	207	No	0.28	199	207	No	0.14
	30	198	207	No	0.28	201	207	No	0.23
	35	200	207	No	0.39	203	207	No	0.36
	40	201	207	No	0.44	204	207	No	0.43
	45	203	207	Yes	0.56	206	207	Yes	0.57
	50	204	207	Yes	0.56	207	207	Yes	0.64
	55	206	207	Yes	0.67	208	207	Yes	0.71
	60	207	207	Yes	0.72	210	207	Yes	0.77
	65	209	207	Yes	0.81	211	207	Yes	0.82
	70	210	207	Yes	0.81	213	207	Yes	0.90
	75	212	207	Yes	0.88	215	207	Yes	0.95
	80	214	207	Yes	0.93	217	207	Yes	0.98
	85	216	207	Yes	0.95	219	207	Yes	0.98
90	219	207	Yes	0.98	222	207	Yes	>0.99	
95	223	207	Yes	0.99	226	207	Yes	>0.99	

Grade	Start Percentile	Science (Fall)				Science (Winter)			
		Fall RIT	Projected Proficiency			Winter RIT	Projected Proficiency		
			Spring Cut	Level 3	Prob.*		Spring Cut	Level 3	Prob.*
7	5	188	209	No	0.02	190	209	No	<0.01
	10	192	209	No	0.05	194	209	No	0.02
	15	195	209	No	0.12	197	209	No	0.04
	20	197	209	No	0.15	199	209	No	0.07
	25	199	209	No	0.23	201	209	No	0.14
	30	201	209	No	0.33	203	209	No	0.24
	35	203	209	No	0.39	205	209	No	0.36
	40	204	209	No	0.44	206	209	No	0.43
	45	206	209	Yes	0.56	208	209	Yes	0.57
	50	207	209	Yes	0.61	209	209	Yes	0.57
	55	209	209	Yes	0.67	211	209	Yes	0.71
	60	210	209	Yes	0.72	212	209	Yes	0.76
	65	212	209	Yes	0.81	214	209	Yes	0.86
	70	213	209	Yes	0.85	216	209	Yes	0.93
	75	215	209	Yes	0.88	217	209	Yes	0.95
	80	217	209	Yes	0.93	219	209	Yes	0.98
	85	220	209	Yes	0.97	222	209	Yes	0.99
90	222	209	Yes	0.98	225	209	Yes	>0.99	
95	227	209	Yes	>0.99	229	209	Yes	>0.99	
8	5	190	212	No	0.01	192	212	No	<0.01
	10	195	212	No	0.07	197	212	No	0.01
	15	198	212	No	0.11	200	212	No	0.04
	20	200	212	No	0.17	202	212	No	0.08
	25	202	212	No	0.25	204	212	No	0.14
	30	204	212	No	0.29	206	212	No	0.24
	35	206	212	No	0.39	208	212	No	0.36
	40	207	212	No	0.45	209	212	No	0.36
	45	209	212	Yes	0.50	211	212	Yes	0.50
	50	210	212	Yes	0.55	212	212	Yes	0.57
	55	212	212	Yes	0.66	214	212	Yes	0.70
	60	213	212	Yes	0.71	215	212	Yes	0.76
	65	215	212	Yes	0.75	217	212	Yes	0.86
	70	217	212	Yes	0.83	219	212	Yes	0.92
	75	219	212	Yes	0.89	221	212	Yes	0.96
	80	221	212	Yes	0.93	223	212	Yes	0.97
	85	223	212	Yes	0.95	225	212	Yes	0.99
90	226	212	Yes	0.98	228	212	Yes	>0.99	
95	230	212	Yes	0.99	232	212	Yes	>0.99	

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

4. References

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