

# **Predicting Performance on the ACT Aspire Summative Assessment based on MAP<sup>®</sup> Growth<sup>™</sup> Scores**

July 2019

NWEA Psychometric Solutions

© 2019 NWEA.

NWEA and MAP Growth are registered trademarks of NWEA in the U.S. and in other countries. All rights reserved. No part of this document may be modified or further distributed without written permission from NWEA.

Suggested citation: NWEA. (2019). *Predicting performance on the ACT Aspire summative assessment based on MAP<sup>®</sup> Growth<sup>™</sup> scores*. Portland, OR: Author.

## Table of Contents

|   |    |
|---|----|
| Executive Summary .....                     | 1  |
| 1. Introduction .....                       | 3  |
| 1.1. Purpose of the Study .....             | 3  |
| 1.2. Assessment Overview .....              | 3  |
| 1.2.1. ACT Aspire .....                     | 3  |
| 1.2.2. MAP Growth .....                     | 4  |
| 2. Methods .....                            | 4  |
| 2.1. Data Collection .....                  | 4  |
| 2.2. Post-Stratification Weighting.....     | 4  |
| 2.3. Equipercentile Linking Procedure ..... | 4  |
| 2.4. Classification Accuracy.....           | 5  |
| 2.5. Proficiency Projection .....           | 6  |
| 3. Results .....                            | 7  |
| 3.1. Study Sample .....                     | 7  |
| 3.2. Descriptive Statistics.....            | 9  |
| 3.3. MAP Growth Cut Score Predictions.....  | 10 |
| 3.4. Classification Accuracy.....           | 12 |
| 3.5. Proficiency Projection .....           | 13 |
| 4. References.....                          | 26 |

## List of Tables

|  |    |
|--|----|
| Table 2.1. Descriptions of Classification Accuracy Summary Statistics.....                                       | 5  |
| Table 3.1. Linking Study Sample Demographics (Unweighted).....   | 7  |
| Table 3.2. Spring 2018 Arkansas Population Demographics .....  | 8  |
| Table 3.3. Linking Study Sample Demographics (Weighted) .....  | 9  |
| Table 3.4. Descriptive Statistics of MAP Growth and ACT Aspire Test Scores .....                                 | 10 |
| Table 3.5. MAP Growth Cut Score Predictions—Reading.....   | 11 |
| Table 3.6. MAP Growth Cut Score Predictions—Mathematics.....   | 12 |
| Table 3.7. Classification Accuracy for Proficiency on the State Test.....  | 13 |
| Table 3.8. ACT Aspire Proficiency Projection based on MAP Growth Fall and Winter RIT<br>Scores—Reading .....     | 14 |
| Table 3.9. ACT Aspire Proficiency Projection based on MAP Growth Fall and Winter RIT<br>Scores—Mathematics ..... | 18 |
| Table 3.10. ACT Aspire Proficiency Projection based on MAP Growth Spring RIT Scores.....                         | 22 |

## Executive Summary

To predict student achievement on Arkansas’ ACT Aspire tests based on MAP® Growth™ scores, NWEA® conducted a linking study to derive cut scores on the MAP Growth assessments that correspond to the ACT Aspire 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.

Table E.1 presents the Ready performance level cut scores for the ACT Aspire tests and the corresponding MAP Growth Rasch Unit (RIT) cut scores that allow teachers to identify students who are on track for proficiency on the state summative test and those who are not. For example, the Ready cut score on the ACT Aspire Grade 3 Reading test is 415. A Grade 3 student with a MAP Growth Reading RIT score of 195 in the fall is likely to meet proficiency on the ACT Aspire Reading test in the spring, whereas a Grade 3 student with a Reading RIT score lower than 195 in the fall is in jeopardy of not meeting proficiency.

**Table E.1. MAP Growth Cut Score Predictions for Ready Proficiency on ACT Aspire**

| Assessment         |        | Ready Cut Scores by Grade |     |     |     |     |     |     |     |
|--------------------|--------|---------------------------|-----|-----|-----|-----|-----|-----|-----|
|                    |        | 3                         | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| <b>Reading</b>     |        |                           |     |     |     |     |     |     |     |
| ACT Aspire         |        | 415                       | 417 | 420 | 421 | 423 | 424 | 425 | 428 |
| MAP Growth         | Fall   | 195                       | 202 | 212 | 216 | 222 | 224 | 227 | 232 |
|                    | Winter | 201                       | 207 | 215 | 219 | 224 | 225 | 228 | 233 |
|                    | Spring | 204                       | 209 | 217 | 220 | 225 | 226 | 229 | 234 |
| <b>Mathematics</b> |        |                           |     |     |     |     |     |     |     |
| ACT Aspire         |        | 413                       | 416 | 418 | 420 | 422 | 425 | 428 | 432 |
| MAP Growth         | Fall   | 187                       | 199 | 210 | 215 | 223 | 231 | 241 | 249 |
|                    | Winter | 195                       | 206 | 216 | 220 | 227 | 234 | 243 | 250 |
|                    | Spring | 200                       | 211 | 220 | 223 | 229 | 236 | 244 | 251 |

### E.1. Assessment Overviews

MAP Growth tests are adaptive interim assessments aligned to the ACT College and Career Readiness Standards (CCRS) and administered in the fall, winter, and spring. RIT scores are reported on the RIT vertical scale with a range of 100–350. The ACT Aspire tests are Arkansas’ state summative tests aligned to the ACT CCRS and administered to students in Grades 3–10 in Reading and Mathematics. Based on their state test scores, students are placed into one of four performance levels: In Need of Support, Close, Ready, and Exceeding. The Ready cut score demarks the minimum level of achievement considered to be proficient.

### E.2. Linking Methods

Based on scores from the Spring 2018 test administration, the equipercentile linking method was used to identify the spring MAP Growth scores that correspond to the spring ACT Aspire performance level cut scores by grade and content area. MAP Growth fall and winter cut scores that predict proficiency on the spring ACT Aspire test were then projected using the 2015 NWEA growth norms that provide expected score gains across test administrations (i.e., fall/winter RIT score = spring RIT score – expected growth).

### E.3. Student Sample

Table E.2 presents the weighted number of Arkansas students from seven districts and 75 schools with both MAP Growth and ACT Aspire test scores in Spring 2018 who were included in the linking study sample. Student scores were weighted to ensure that the sample was representative of the state population on gender, race, and performance level.

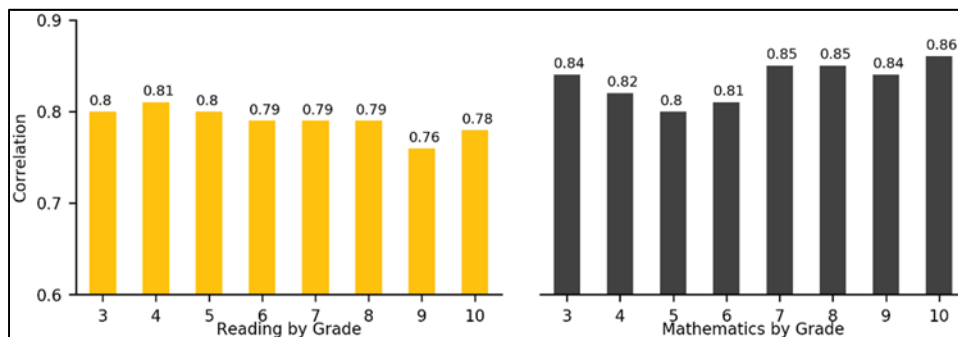
**Table E.2. Number of Students in the Linking Study Sample**

| Content Area | Number of Students by Grade |       |       |       |       |       |       |       |
|--------------|-----------------------------|-------|-------|-------|-------|-------|-------|-------|
|              | 3                           | 4     | 5     | 6     | 7     | 8     | 9     | 10    |
| Reading      | 4,085                       | 3,985 | 4,074 | 3,485 | 3,472 | 2,257 | 2,287 | 1,998 |
| Mathematics  | 4,086                       | 3,888 | 4,093 | 3,833 | 3,442 | 2,250 | 2,205 | 2,025 |

### E.4. Test Score Relationships

Correlations between MAP Growth scores and ACT Aspire scores range from 0.76 to 0.86, as shown in Figure E.1. These values indicate a strong relationship among the scores, which provides evidence that the two tests measure similar constructs.

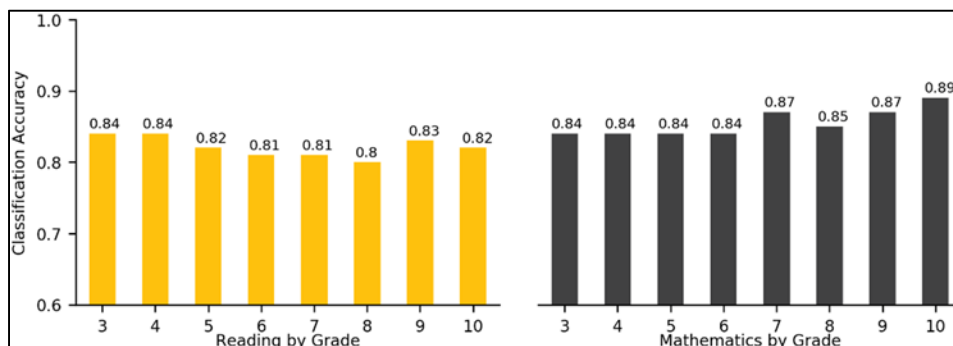
**Figure E.1. Correlations between MAP Growth and Arkansas' ACT Aspire Tests**



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

Figure E.2 presents the classification accuracy statistics that show the proportion of students correctly classified by their MAP Growth scores as Ready or above (i.e., Ready or Exceeding) or not Ready (i.e., In Need of Support or Close) on the ACT Aspire tests. For example, the MAP Growth Reading Grade 3 Ready cut score has a .84 accuracy rate, meaning it accurately classified student achievement on the state test for 84% of the sample. The results range from 0.80 to 0.89, indicating that MAP Growth scores have a high accuracy rate of identifying student proficiency on the ACT Aspire 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 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 March 2019 to statistically connect the scores of the ACT Aspire Reading and Mathematics Grades 3–10 assessments<sup>1</sup> with scores from MAP Growth assessments taken during the Spring 2018 term. Specifically, this report presents the following:

- MAP Growth Reading and Mathematics Rasch Unit (RIT) cut scores that correspond to the cut scores on the ACT Aspire Reading and Mathematics tests using the equipercenile linking procedure for the MAP Growth spring results and the 2015 norms for the MAP Growth fall and winter results.
- Classification accuracy statistics based on the MAP Growth cut score predictions to determine the degree to which MAP Growth tests accurately predict student proficiency status on the ACT Aspire tests.
- The probability of meeting or exceeding grade-level proficiency (i.e., achieving the Ready or above performance level) on the ACT Aspire spring assessment based on the observed MAP Growth scores taken during the fall, winter, and spring using the 2015 norms (Thum & Houser, 2015).

## 1.2. Assessment Overview

### 1.2.1. ACT Aspire

The ACT Aspire summative assessments are aligned to the ACT College Career Readiness Standards (CCRS) and are administered to students in Grades 3–10 in Reading and Mathematics. Each grade and content area, there are three cut scores that distinguish between the following performance levels:

- In Need of Support
- Close
- Ready
- Exceeding

A cut score is the minimum score a student must get on a test to be placed in a certain performance level. The Ready cut score that distinguishes between Close and Ready performance demarks the minimum level of performance considered to be proficient for accountability purposes.

---

<sup>1</sup> In March 2018, NWEA conducted a linking study to generate cut scores on the MAP Growth K–2 tests that predict whether students are on track for proficiency on the Arkansas ACT Aspire Grade 3 assessment. The detailed results can be found in the document *2018 Linking Study: Predicting Grades K–2 Performance on Arkansas ACT Aspire from NWEA MAP Growth* (Im, Li, & Agrimson, 2018).

### 1.2.2. MAP Growth

MAP Growth Reading and Mathematics are computer adaptive interim assessments aligned to the ACT CCRS. MAP Growth scores are reported on a vertical scale with the RIT range of 100–350. 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 is based on data from the Spring 2018 MAP Growth and ACT Aspire assessments. NWEA recruited Arkansas school districts 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. Once Arkansas state score information was received by participating districts, each student's state testing record was matched to their MAP Growth score by using the student's first and last names, date of birth, student ID, and other available identifying information. Only students who took both the MAP Growth and ACT Aspire assessments in Spring 2018 were included in the study sample.

### 2.2. Post-Stratification Weighting

Post-stratification weights were applied to the calculations to ensure that the sample represented the state population in terms of ethnicity, gender, and performance level. These variables were selected because they were correlated with a student's academic achievement within this study, and these data are often provided for the state population. When weighted, the 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 ethnicity, gender, and performance level for the sample and population.
- Calculate post-stratification weights with the rake function from the survey package in R.
- 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. Equipercentile Linking Procedure

The equipercentile procedure (Kolen & Brennan, 2004) was used to link the spring ACT Aspire scores and the spring MAP Growth RIT scores, and the 2015 MAP Growth norms (Thum & Hauser, 2015) were used to predict performance on the spring ACT Aspire test based on MAP Growth RIT scores in the fall and winter. The MAP Growth spring cut scores could be calculated using the equipercentile linking method because that data is directly connected to the ACT Aspire 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). Consider the linked scores between two tests. Let  $x$  represent a score on Test  $X$  (e.g., ACT Aspire). 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 ACT Aspire on the scale of MAP Growth,  $P(x)$  is the percentile rank of a given score on ACT Aspire, 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.

## 2.4. Classification Accuracy

The degree to which MAP Growth tests predict student proficiency status on the ACT Aspire tests can be described using classification accuracy statistics that show the proportion of students correctly classified by their MAP Growth scores as Ready or above (i.e., Ready or Exceeding) or not Ready (i.e., In Need of Support or Close) on the ACT Aspire tests. Table 2.1 describes the classification accuracy statistics provided in this report. The results are based on the Spring 2018 MAP Growth and ACT Aspire data for Ready proficiency (i.e., the cut score between Close and Ready).

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

| 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, & Sconing, 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.



## 2.5. 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 MAP Growth scores that would meet the MAP Growth spring cut. 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:

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

where:

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

The MAP Growth conditional growth norms data were used to calculate the probability of reaching proficiency on the ACT Aspire test based on the student's MAP Growth scores from fall, winter, and spring. Equation 3 was used to calculate the probability of a student achieving Ready proficiency on the ACT Aspire test based on their fall or winter MAP Growth score:

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

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 fall or winter to spring corresponding to that previous RIT;
- $RIT_{SpringCut}$  is the MAP Growth Level Ready cut score for spring; and
- $SD$  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 Ready proficiency on the ACT Aspire test based on their spring score ( $RIT_{Spring}$ ):

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

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

### 3. Results

#### 3.1. Study Sample

Only students who took both the ACT Aspire and MAP Growth assessments in Spring 2018 were included in the study sample. Table 3.1 presents the unweighted ethnicity, gender, and performance level distributions for the 75 schools across seven districts in Arkansas that participated in this linking study. Table 3.2 presents student demographic information of the Arkansas ACT Aspire student population, which includes all students who took the Spring 2018 ACT Aspire tests (ACT, 2018).

Since the unweighted data were quite different from the ACT Aspire population, post-stratification weights were applied to the linking study sample to improve its representativeness. Table 3.3 presents the sample percentages after weighting, which are almost identical to the ACT Aspire student population distributions. The differences are no more than 0.1%. The analyses in this study (i.e., descriptive statistics, MAP Growth cut score predictions, classification accuracy statistics, and proficiency projections) were therefore conducted based on the weighted sample.

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

| Demographic Subgroup |                    | Percentage of Students in Each Subgroup by Grade |              |              |              |              |              |              |              |
|----------------------|--------------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                      |                    | 3  | 4            | 5            | 6            | 7            | 8            | 9            | 10           |
| <b>Reading</b>       |                    |  |              |              |              |              |              |              |              |
| <b>Total N</b>       |                    | <b>4,081</b>                                     | <b>3,985</b> | <b>4,078</b> | <b>3,482</b> | <b>3,475</b> | <b>2,268</b> | <b>2,287</b> | <b>1,996</b> |
| Ethnicity*           | White              | 58.7   | 58.6         | 58.8         | 61.9         | 65.2         | 76.3         | 73.9         | 75.2         |
|                      | Black              | 5.5  | 5.3          | 4.9          | 4.8          | 4.9          | 5.5          | 6.0          | 6.3          |
|                      | Hispanic           | 24.4   | 24.8         | 25.2         | 22.6         | 19.7         | 10.8         | 12.1         | 10.8         |
|                      | Asian/PI           | 3.5  | 2.7          | 3.2          | 2.4          | 2.7          | 3.3          | 3.3          | 2.9          |
|                      | AI/AN              | 0.6  | 1.1          | 1.0          | 1.2          | 0.9          | 1.0          | 0.9          | 1.2          |
|                      | Other              | 7.3  | 7.5          | 6.9          | 7.1          | 6.6          | 3.1          | 3.8          | 3.6          |
| Gender               | Female             | 48.2   | 50.5         | 48.0         | 48.4         | 48.6         | 49.2         | 47.4         | 49.8         |
|                      | Male               | 51.8   | 49.5         | 52.0         | 51.6         | 51.4         | 50.8         | 52.6         | 50.2         |
| Performance Level    | In Need of Support | 35.7   | 22.6         | 30.8         | 23.8         | 21.5         | 15.4         | 25.0         | 28.5         |
|                      | Close              | 22.7   | 25.9         | 25.2         | 22.6         | 29.3         | 21.4         | 23.6         | 26.4         |
|                      | Ready              | 21.7   | 30.2         | 23.7         | 25.2         | 34.5         | 34.8         | 26.3         | 29.5         |
|                      | Exceeding          | 19.9   | 21.2         | 20.3         | 28.4         | 14.7         | 28.4         | 25.1         | 15.6         |
| <b>Mathematics</b>   |                    |  |              |              |              |              |              |              |              |
| <b>Total N</b>       |                    | <b>4,090</b>                                     | <b>3,888</b> | <b>4,093</b> | <b>3,829</b> | <b>3,439</b> | <b>2,250</b> | <b>2,205</b> | <b>2,023</b> |
| Ethnicity*           | White              | 58.8   | 59.4         | 58.9         | 59.8         | 65.0         | 78.0         | 77.1         | 79.6         |
|                      | Black              | 5.5  | 5.3          | 4.9          | 4.7          | 4.9          | 4.9          | 6.2          | 6.4          |
|                      | Hispanic           | 24.3   | 24.0         | 25.1         | 24.7         | 19.7         | 8.7          | 9.0          | 7.8          |
|                      | Asian/PI           | 3.5  | 2.7          | 3.2          | 2.4          | 2.7          | 3.6          | 3.2          | 2.1          |
|                      | AI/AN              | 0.7  | 1.1          | 1.0          | 1.2          | 0.9          | 1.1          | 1.0          | 1.1          |
|                      | Other              | 7.2  | 7.5          | 6.9          | 7.2          | 6.8          | 3.6          | 3.4          | 3.0          |
| Gender               | Female             | 48.2   | 50.6         | 48.1         | 48.4         | 48.3         | 49.2         | 48.2         | 49.8         |
|                      | Male               | 51.8   | 49.4         | 51.9         | 51.6         | 51.7         | 50.8         | 51.8         | 50.2         |

| Demographic Subgroup |                    | Percentage of Students in Each Subgroup by Grade |      |      |      |      |      |      |      |
|----------------------|--------------------|--|------|------|------|------|------|------|------|
|                      |                    | 3  | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
| Performance Level    | In Need of Support | 11.0   | 5.9  | 5.3  | 5.0  | 14.7 | 15.8 | 28.1 | 35.0 |
|                      | Close              | 22.8   | 29.2 | 33.6 | 26.1 | 24.0 | 21.6 | 23.6 | 23.7 |
|                      | Ready              | 38.1   | 43.3 | 41.8 | 42.4 | 28.1 | 25.7 | 23.9 | 21.4 |
|                      | Exceeding          | 28.1   | 21.5 | 19.3 | 26.4 | 33.2 | 36.8 | 24.5 | 20.0 |

\*Asian/PI = Asian/Pacific Islander. AI/AN = American Indian/Alaska Native.

**Table 3.2. Spring 2018 Arkansas Population Demographics**

| Demographic Subgroup |                    | Percentage of Students in Each Subgroup by Grade |               |               |               |               |               |               |               |
|----------------------|--------------------|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                      |                    | 3  | 4             | 5             | 6             | 7             | 8             | 9             | 10            |
| <b>Reading</b>       |                    |  |               |               |               |               |               |               |               |
| <b>Total N</b>       |                    | <b>37,072</b>                                    | <b>38,014</b> | <b>38,004</b> | <b>35,514</b> | <b>35,727</b> | <b>35,706</b> | <b>36,065</b> | <b>35,200</b> |
| Ethnicity*           | White              | 63.2   | 63.1          | 63.7          | 64.5          | 65.0          | 64.8          | 64.6          | 65.0          |
|                      | Black              | 18.5   | 19.2          | 18.4          | 17.7          | 18.0          | 17.7          | 17.9          | 17.7          |
|                      | Hispanic           | 11.9   | 11.6          | 11.8          | 11.7          | 10.9          | 11.2          | 11.2          | 11.2          |
|                      | Asian              | 1.9  | 1.8           | 1.7           | 1.7           | 1.8           | 1.9           | 1.7           | 1.8           |
|                      | AI/AN              | 1.8  | 1.8           | 2.0           | 1.9           | 1.7           | 1.9           | 2.0           | 1.9           |
|                      | Other              | 2.9  | 2.6           | 2.5           | 2.4           | 2.5           | 2.4           | 2.6           | 2.4           |
| Gender               | Female             | 48.5   | 49.1          | 49.2          | 48.9          | 48.8          | 49.3          | 48.3          | 49.4          |
|                      | Male               | 51.5   | 50.9          | 50.8          | 51.1          | 51.2          | 50.7          | 51.7          | 50.6          |
| Performance Level    | In Need of Support | 39.6   | 28.7          | 35.8          | 32.8          | 31.0          | 25.4          | 37.0          | 40.6          |
|                      | Close              | 22.7   | 27.2          | 26.1          | 22.2          | 29.1          | 23.5          | 24.9          | 25.5          |
|                      | Ready              | 20.5   | 26.0          | 21.9          | 23.1          | 30.1          | 31.6          | 20.5          | 23.8          |
|                      | Exceeding          | 17.3   | 18.1          | 16.1          | 22.0          | 9.7           | 19.0          | 17.6          | 10.2          |
| <b>Mathematics</b>   |                    |  |               |               |               |               |               |               |               |
| <b>Total N</b>       |                    | <b>37,071</b>                                    | <b>38,010</b> | <b>38,005</b> | <b>35,509</b> | <b>35,727</b> | <b>35,704</b> | <b>36,061</b> | <b>35,206</b> |
| Ethnicity*           | White              | 63.2   | 63.1          | 63.7          | 64.5          | 65.0          | 64.8          | 64.6          | 65.0          |
|                      | Black              | 18.5   | 19.2          | 18.4          | 17.7          | 18.0          | 17.7          | 17.9          | 17.8          |
|                      | Hispanic           | 11.9   | 11.6          | 11.8          | 11.7          | 10.9          | 11.2          | 11.2          | 11.2          |
|                      | Asian              | 1.9  | 1.8           | 1.7           | 1.7           | 1.8           | 1.9           | 1.7           | 1.8           |
|                      | AI/AN              | 1.8  | 1.8           | 2.0           | 1.9           | 1.7           | 1.9           | 2.0           | 1.9           |
|                      | Other              | 2.9  | 2.6           | 2.5           | 2.4           | 2.5           | 2.4           | 2.6           | 2.4           |
| Gender               | Female             | 48.5   | 49.1          | 49.2          | 48.9          | 48.8          | 49.3          | 48.3          | 49.4          |
|                      | Male               | 51.5   | 50.9          | 50.8          | 51.1          | 51.2          | 50.7          | 51.7          | 50.6          |
| Performance Level    | In Need of Support | 14.1   | 9.5           | 10.0          | 10.0          | 21.5          | 27.1          | 43.4          | 49.1          |
|                      | Close              | 26.5   | 38.0          | 40.0          | 33.6          | 31.2          | 26.5          | 22.9          | 22.3          |
|                      | Ready              | 36.9   | 37.9          | 37.9          | 37.6          | 25.1          | 22.4          | 18.1          | 16.5          |
|                      | Exceeding          | 22.4   | 14.6          | 12.1          | 18.9          | 22.3          | 24.0          | 15.6          | 12.2          |

\*AI/AN = American Indian/Alaska Native.

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

| Demographic Subgroup |                    | Percentage of Students in Each Subgroup by Grade |              |              |              |              |              |              |              |
|----------------------|--------------------|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                      |                    | 3  | 4            | 5            | 6            | 7            | 8            | 9            | 10           |
| <b>Reading</b>       |                    |  |              |              |              |              |              |              |              |
| <b>Total N</b>       |                    | <b>4,085</b>                                     | <b>3,985</b> | <b>4,074</b> | <b>3,485</b> | <b>3,472</b> | <b>2,257</b> | <b>2,287</b> | <b>1,998</b> |
| Ethnicity*           | White              | 63.1   | 63.0         | 63.6         | 64.6         | 65.1         | 64.8         | 64.6         | 64.9         |
|                      | Black              | 18.5   | 19.2         | 18.4         | 17.7         | 18.0         | 17.7         | 17.9         | 17.8         |
|                      | Hispanic           | 11.9   | 11.6         | 11.8         | 11.7         | 10.9         | 11.2         | 11.2         | 11.2         |
|                      | Asian/PI           | 1.9  | 1.8          | 1.7          | 1.7          | 1.8          | 1.9          | 1.7          | 1.8          |
|                      | AI/AN              | 1.8  | 1.8          | 2.0          | 1.9          | 1.7          | 2.0          | 2.0          | 1.9          |
|                      | Other              | 2.9  | 2.6          | 2.5          | 2.4          | 2.5          | 2.4          | 2.6          | 2.4          |
| Gender               | Female             | 48.5   | 49.1         | 49.2         | 48.9         | 48.8         | 49.3         | 48.3         | 49.4         |
|                      | Male               | 51.5   | 50.9         | 50.8         | 51.1         | 51.2         | 50.7         | 51.7         | 50.6         |
| Performance Level    | In Need of Support | 39.6   | 28.7         | 35.8         | 32.8         | 31.0         | 25.5         | 37.0         | 40.6         |
|                      | Close              | 22.7   | 27.2         | 26.1         | 22.2         | 29.1         | 23.6         | 24.9         | 25.5         |
|                      | Ready              | 20.5   | 26.0         | 21.9         | 23.1         | 30.1         | 31.8         | 20.5         | 23.8         |
|                      | Exceeding          | 17.3   | 18.1         | 16.1         | 22.0         | 9.7          | 19.1         | 17.6         | 10.2         |
| <b>Mathematics</b>   |                    |  |              |              |              |              |              |              |              |
| <b>Total N</b>       |                    | <b>4,086</b>                                     | <b>3,888</b> | <b>4,093</b> | <b>3,833</b> | <b>3,442</b> | <b>2,250</b> | <b>2,205</b> | <b>2,025</b> |
| Ethnicity*           | White              | 63.1   | 63.0         | 63.6         | 64.5         | 65.1         | 64.8         | 64.6         | 64.9         |
|                      | Black              | 18.5   | 19.2         | 18.4         | 17.7         | 18.0         | 17.7         | 17.9         | 17.8         |
|                      | Hispanic           | 11.9   | 11.6         | 11.8         | 11.7         | 10.9         | 11.2         | 11.2         | 11.2         |
|                      | Asian/PI           | 1.9  | 1.8          | 1.7          | 1.7          | 1.8          | 1.9          | 1.7          | 1.8          |
|                      | AI/AN              | 1.8  | 1.8          | 2.0          | 2.0          | 1.7          | 2.0          | 2.0          | 1.9          |
|                      | Other              | 2.9  | 2.6          | 2.5          | 2.4          | 2.5          | 2.4          | 2.6          | 2.4          |
| Gender               | Female             | 48.5   | 49.1         | 49.2         | 48.9         | 48.8         | 49.2         | 48.3         | 49.4         |
|                      | Male               | 51.5   | 50.9         | 50.8         | 51.1         | 51.2         | 50.8         | 51.7         | 50.6         |
| Performance Level    | In Need of Support | 14.1   | 9.5          | 10.0         | 10.0         | 21.5         | 27.1         | 43.4         | 49.1         |
|                      | Close              | 26.5   | 38.0         | 40.0         | 33.6         | 31.2         | 26.5         | 22.9         | 22.3         |
|                      | Ready              | 36.9   | 37.9         | 37.9         | 37.6         | 25.1         | 22.4         | 18.1         | 16.5         |
|                      | Exceeding          | 22.4   | 14.6         | 12.1         | 18.9         | 22.3         | 24.0         | 15.6         | 12.2         |

\*Asian/PI = Asian/Pacific Islander. AI/AN = American Indian/Alaska Native.

### 3.2. Descriptive Statistics

Table 3.4 presents descriptive statistics of the MAP Growth and ACT Aspire assessment test scores for Spring 2018, including the correlation coefficient ( $r$ ) between the two scales. As shown in the table, the correlation coefficients between the MAP Growth and ACT Aspire test scores range from 0.76 to 0.81 for Reading and 0.80 to 0.86 for Mathematics. These values indicate a strong relationship among the scores, which provides evidence that the two tests measure similar constructs.

**Table 3.4. Descriptive Statistics of MAP Growth and ACT Aspire Test Scores**

| Grade              | N     | <i>r</i> | ACT Aspire* |     |      |      | MAP Growth* |      |      |      |
|--------------------|-------|----------|-------------|-----|------|------|-------------|------|------|------|
|                    |       |          | Mean        | SD  | Min. | Max. | Mean        | SD   | Min. | Max. |
| <b>Reading</b>     |       |          |             |     |      |      |             |      |      |      |
| 3                  | 4,085 | 0.80     | 412.9       | 5.5 | 400  | 429  | 195.5       | 17.0 | 129  | 241  |
| 4                  | 3,985 | 0.81     | 415.5       | 6.2 | 400  | 431  | 202.7       | 16.9 | 144  | 246  |
| 5                  | 4,074 | 0.80     | 417.4       | 6.5 | 400  | 434  | 209.9       | 16.2 | 146  | 255  |
| 6                  | 3,485 | 0.79     | 419.4       | 6.7 | 401  | 436  | 214.5       | 16.1 | 145  | 260  |
| 7                  | 3,472 | 0.79     | 420.2       | 6.6 | 404  | 438  | 218.2       | 16.2 | 150  | 261  |
| 8                  | 2,257 | 0.79     | 422.8       | 7.3 | 400  | 440  | 220.7       | 16.1 | 151  | 262  |
| 9                  | 2,287 | 0.76     | 421.9       | 7.9 | 405  | 442  | 221.5       | 17.5 | 152  | 265  |
| 10                 | 1,998 | 0.78     | 423.5       | 7.9 | 402  | 442  | 223.8       | 18.0 | 150  | 269  |
| <b>Mathematics</b> |       |          |             |     |      |      |             |      |      |      |
| 3                  | 4,086 | 0.84     | 413.3       | 4.3 | 400  | 429  | 199.9       | 14.3 | 139  | 242  |
| 4                  | 3,888 | 0.82     | 416.1       | 4.4 | 402  | 440  | 209.7       | 15.5 | 137  | 266  |
| 5                  | 4,093 | 0.80     | 418.0       | 5.4 | 403  | 446  | 217.3       | 17.3 | 143  | 275  |
| 6                  | 3,833 | 0.81     | 420.7       | 5.7 | 402  | 448  | 222.4       | 16.8 | 149  | 277  |
| 7                  | 3,442 | 0.85     | 421.9       | 7.5 | 401  | 445  | 226.8       | 17.8 | 148  | 291  |
| 8                  | 2,250 | 0.85     | 424.6       | 8.2 | 406  | 456  | 232.0       | 19.2 | 150  | 303  |
| 9                  | 2,205 | 0.84     | 424.6       | 8.4 | 407  | 458  | 234.0       | 20.0 | 155  | 299  |
| 10                 | 2,025 | 0.86     | 426.5       | 8.6 | 406  | 454  | 237.4       | 19.9 | 156  | 295  |

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

### 3.3. MAP Growth Cut Score Predictions

Table 3.5 and Table 3.6 present the ACT Aspire scale score ranges for each performance level and the corresponding MAP Growth RIT cut scores and percentile ranges by content area and grade. These tables can be used to predict a student’s likely performance level on the ACT Aspire spring assessment when MAP Growth is taken in the fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Reading RIT score of 195 in the fall is likely to reach Ready proficiency on the ACT Aspire test in the spring. A Grade 3 student who obtained a MAP Growth Reading RIT score of 204 in the spring is also likely to reach Ready proficiency on the ACT Aspire spring test. 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.

**Table 3.5. MAP Growth Cut Score Predictions—Reading**

| ACT Aspire Reading |                    |            |         |            |                 |            |           |            |  |
|--------------------|--------------------|------------|---------|------------|-----------------|------------|-----------|------------|--|
| Grade              | In Need of Support |            | Close   |            | Ready*          |            | Exceeding |            |  |
| 3                  | 400–410            |            | 411–414 |            | <b>415</b> –418 |            | 419–429   |            |  |
| 4                  | 400–411            |            | 412–416 |            | <b>417</b> –421 |            | 422–431   |            |  |
| 5                  | 400–414            |            | 415–419 |            | <b>420</b> –424 |            | 425–434   |            |  |
| 6                  | 400–415            |            | 416–420 |            | <b>421</b> –425 |            | 426–436   |            |  |
| 7                  | 400–416            |            | 417–422 |            | <b>423</b> –428 |            | 429–438   |            |  |
| 8                  | 400–417            |            | 418–423 |            | <b>424</b> –429 |            | 430–440   |            |  |
| 9                  | 400–418            |            | 419–424 |            | <b>425</b> –430 |            | 431–442   |            |  |
| 10                 | 400–421            |            | 422–427 |            | <b>428</b> –433 |            | 434–442   |            |  |
| MAP Growth Reading |                    |            |         |            |                 |            |           |            |  |
| Grade              | In Need of Support |            | Close   |            | Ready           |            | Exceeding |            |  |
|                    | RIT                | Percentile | RIT     | Percentile | RIT*            | Percentile | RIT       | Percentile |  |
| <b>Fall</b>        |                    |            |         |            |                 |            |           |            |  |
| 3                  | 100–180            | 1–31       | 181–194 | 32–65      | <b>195</b> –204 | 66–84      | 205–350   | 85–99      |  |
| 4                  | 100–186            | 1–22       | 187–201 | 23–58      | <b>202</b> –212 | 59–82      | 213–350   | 83–99      |  |
| 5                  | 100–199            | 1–34       | 200–211 | 35–64      | <b>212</b> –221 | 65–85      | 222–350   | 86–99      |  |
| 6                  | 100–202            | 1–28       | 203–215 | 29–61      | <b>216</b> –225 | 62–83      | 226–350   | 84–99      |  |
| 7                  | 100–208            | 1–34       | 209–221 | 35–67      | <b>222</b> –234 | 68–90      | 235–350   | 91–99      |  |
| 8                  | 100–209            | 1–31       | 210–223 | 32–65      | <b>224</b> –235 | 66–87      | 236–350   | 88–99      |  |
| 9                  | 100–215            | 1–38       | 216–226 | 39–65      | <b>227</b> –236 | 66–85      | 237–350   | 86–99      |  |
| 10                 | 100–220            | 1–50       | 221–231 | 51–74      | <b>232</b> –242 | 75–90      | 243–350   | 91–99      |  |
| <b>Winter</b>      |                    |            |         |            |                 |            |           |            |  |
| 3                  | 100–189            | 1–34       | 190–200 | 35–62      | <b>201</b> –210 | 63–83      | 211–350   | 84–99      |  |
| 4                  | 100–192            | 1–22       | 193–206 | 23–57      | <b>207</b> –217 | 58–82      | 218–350   | 83–99      |  |
| 5                  | 100–204            | 1–35       | 205–214 | 36–62      | <b>215</b> –224 | 63–84      | 225–350   | 85–99      |  |
| 6                  | 100–206            | 1–29       | 207–218 | 30–61      | <b>219</b> –227 | 62–81      | 228–350   | 82–99      |  |
| 7                  | 100–210            | 1–33       | 211–223 | 34–66      | <b>224</b> –235 | 67–89      | 236–350   | 90–99      |  |
| 8                  | 100–212            | 1–33       | 213–224 | 34–63      | <b>225</b> –236 | 64–87      | 237–350   | 88–99      |  |
| 9                  | 100–216            | 1–37       | 217–227 | 38–65      | <b>228</b> –237 | 66–85      | 238–350   | 86–99      |  |
| 10                 | 100–221            | 1–51       | 222–232 | 52–75      | <b>233</b> –243 | 76–91      | 244–350   | 92–99      |  |
| <b>Spring</b>      |                    |            |         |            |                 |            |           |            |  |
| 3                  | 100–192            | 1–34       | 193–203 | 35–62      | <b>204</b> –212 | 63–82      | 213–350   | 83–99      |  |
| 4                  | 100–195            | 1–24       | 196–208 | 25–56      | <b>209</b> –218 | 57–80      | 219–350   | 81–99      |  |
| 5                  | 100–206            | 1–35       | 207–216 | 36–62      | <b>217</b> –225 | 63–82      | 226–350   | 83–99      |  |
| 6                  | 100–208            | 1–31       | 209–219 | 32–60      | <b>220</b> –228 | 61–80      | 229–350   | 81–99      |  |
| 7                  | 100–212            | 1–35       | 213–224 | 36–66      | <b>225</b> –236 | 67–88      | 237–350   | 89–99      |  |
| 8                  | 100–213            | 1–33       | 214–225 | 34–63      | <b>226</b> –237 | 64–86      | 238–350   | 87–99      |  |
| 9                  | 100–217            | 1–39       | 218–228 | 40–65      | <b>229</b> –238 | 66–84      | 239–350   | 85–99      |  |
| 10                 | 100–222            | 1–53       | 223–233 | 54–75      | <b>234</b> –244 | 76–90      | 245–350   | 91–99      |  |

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

**Table 3.6. MAP Growth Cut Score Predictions—Mathematics**

| ACT Aspire Mathematics |                    |            |         |            |                 |            |           |            |
|------------------------|--------------------|------------|---------|------------|-----------------|------------|-----------|------------|
| Grade                  | In Need of Support |            | Close   |            | Ready*          |            | Exceeding |            |
| 3                      | 400–408            |            | 409–412 |            | <b>413</b> –416 |            | 417–434   |            |
| 4                      | 400–410            |            | 411–415 |            | <b>416</b> –420 |            | 421–440   |            |
| 5                      | 400–411            |            | 412–417 |            | <b>418</b> –423 |            | 424–446   |            |
| 6                      | 400–413            |            | 414–419 |            | <b>420</b> –425 |            | 426–451   |            |
| 7                      | 400–415            |            | 416–421 |            | <b>422</b> –427 |            | 428–453   |            |
| 8                      | 400–418            |            | 419–424 |            | <b>425</b> –430 |            | 431–456   |            |
| 9                      | 400–421            |            | 422–427 |            | <b>428</b> –433 |            | 434–460   |            |
| 10                     | 400–425            |            | 426–431 |            | <b>432</b> –437 |            | 438–460   |            |
| MAP Growth Mathematics |                    |            |         |            |                 |            |           |            |
| Grade                  | In Need of Support |            | Close   |            | Ready           |            | Exceeding |            |
|                        | RIT                | Percentile | RIT     | Percentile | RIT*            | Percentile | RIT       | Percentile |
| Fall                   |                    |            |         |            |                 |            |           |            |
| 3                      | 100–172            | 1–8        | 173–186 | 9–38       | <b>187</b> –199 | 39–75      | 200–350   | 76–99      |
| 4                      | 100–179            | 1–4        | 180–198 | 5–40       | <b>199</b> –214 | 41–81      | 215–350   | 82–99      |
| 5                      | 100–186            | 1–4        | 187–209 | 5–44       | <b>210</b> –225 | 45–83      | 226–350   | 84–99      |
| 6                      | 100–193            | 1–5        | 194–214 | 6–42       | <b>215</b> –229 | 43–77      | 230–350   | 78–99      |
| 7                      | 100–207            | 1–18       | 208–222 | 19–49      | <b>223</b> –235 | 50–78      | 236–350   | 79–99      |
| 8                      | 100–215            | 1–27       | 216–230 | 28–59      | <b>231</b> –243 | 60–83      | 244–350   | 84–99      |
| 9                      | 100–227            | 1–43       | 228–240 | 44–71      | <b>241</b> –252 | 72–88      | 253–350   | 89–99      |
| 10                     | 100–235            | 1–60       | 236–248 | 61–82      | <b>249</b> –259 | 83–92      | 260–350   | 93–99      |
| Winter                 |                    |            |         |            |                 |            |           |            |
| 3                      | 100–180            | 1–9        | 181–194 | 10–39      | <b>195</b> –206 | 40–73      | 207–350   | 74–99      |
| 4                      | 100–186            | 1–5        | 187–205 | 6–41       | <b>206</b> –220 | 42–79      | 221–350   | 80–99      |
| 5                      | 100–192            | 1–5        | 193–215 | 6–45       | <b>216</b> –231 | 46–82      | 232–350   | 83–99      |
| 6                      | 100–198            | 1–6        | 199–219 | 7–43       | <b>220</b> –234 | 44–78      | 235–350   | 79–99      |
| 7                      | 100–211            | 1–19       | 212–226 | 20–50      | <b>227</b> –239 | 51–78      | 240–350   | 79–99      |
| 8                      | 100–218            | 1–28       | 219–233 | 29–59      | <b>234</b> –245 | 60–81      | 246–350   | 82–99      |
| 9                      | 100–229            | 1–44       | 230–242 | 45–70      | <b>243</b> –254 | 71–88      | 255–350   | 89–99      |
| 10                     | 100–236            | 1–59       | 237–249 | 60–81      | <b>250</b> –260 | 82–92      | 261–350   | 93–99      |
| Spring                 |                    |            |         |            |                 |            |           |            |
| 3                      | 100–186            | 1–11       | 187–199 | 12–38      | <b>200</b> –211 | 39–72      | 212–350   | 73–99      |
| 4                      | 100–191            | 1–7        | 192–210 | 8–42       | <b>211</b> –225 | 43–78      | 226–350   | 79–99      |
| 5                      | 100–196            | 1–6        | 197–219 | 7–45       | <b>220</b> –235 | 46–80      | 236–350   | 81–99      |
| 6                      | 100–201            | 1–7        | 202–222 | 8–43       | <b>223</b> –237 | 44–76      | 238–350   | 77–99      |
| 7                      | 100–213            | 1–19       | 214–228 | 20–49      | <b>229</b> –241 | 50–76      | 242–350   | 77–99      |
| 8                      | 100–220            | 1–29       | 221–235 | 30–59      | <b>236</b> –247 | 60–80      | 248–350   | 81–99      |
| 9                      | 100–230            | 1–44       | 231–243 | 45–69      | <b>244</b> –255 | 70–87      | 256–350   | 88–99      |
| 10                     | 100–237            | 1–59       | 238–250 | 60–80      | <b>251</b> –261 | 81–91      | 262–350   | 92–99      |

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

### 3.4. Classification Accuracy

Table 3.7 presents the classification accuracy summary statistics, including the overall classification accuracy rate. These results indicate how well MAP Growth spring scores predict Ready proficiency on the ACT Aspire tests, providing insight into the predictive validity of MAP

Growth tests. The overall classification accuracy rate ranges from 0.80 to 0.84 for Reading and 0.84 to 0.89 for Mathematics. These values suggest that the MAP Growth cut scores for each content area and grade are good at classifying students as Ready on the ACT Aspire spring assessment.

Although the results show that MAP Growth scores can be used to accurately classify students as Ready on the ACT Aspire tests, there is a notable limitation to how these results should be used and interpreted. ACT Aspire tests and MAP Growth are designed for different purposes and measure slightly different constructs even within the same content area. Therefore, scores on the two tests cannot be assumed to be interchangeable. MAP Growth may not be used as a substitute for the state tests and vice versa.

**Table 3.7. Classification Accuracy for Proficiency on the State Test**

| Grade              | N     | Cut Score  |            | Class. Accuracy* | Rate |      | Sensitivity | Specificity | AUC* |
|--------------------|-------|------------|------------|------------------|------|------|-------------|-------------|------|
|                    |       | MAP Growth | ACT Aspire |                  | FP*  | FN*  |             |             |      |
| <b>Reading</b>     |       |            |            |                  |      |      |             |             |      |
| 3                  | 4,085 | 204        | 415        | 0.84             | 0.11 | 0.26 | 0.74        | 0.89        | 0.92 |
| 4                  | 3,985 | 209        | 417        | 0.84             | 0.12 | 0.21 | 0.79        | 0.88        | 0.93 |
| 5                  | 4,074 | 217        | 420        | 0.82             | 0.13 | 0.25 | 0.75        | 0.87        | 0.90 |
| 6                  | 3,485 | 220        | 421        | 0.81             | 0.14 | 0.24 | 0.76        | 0.86        | 0.90 |
| 7                  | 3,472 | 225        | 423        | 0.81             | 0.14 | 0.26 | 0.74        | 0.86        | 0.90 |
| 8                  | 2,257 | 226        | 424        | 0.80             | 0.13 | 0.28 | 0.72        | 0.87        | 0.89 |
| 9                  | 2,287 | 229        | 425        | 0.83             | 0.13 | 0.24 | 0.76        | 0.87        | 0.91 |
| 10                 | 1,998 | 234        | 428        | 0.82             | 0.12 | 0.29 | 0.71        | 0.88        | 0.91 |
| <b>Mathematics</b> |       |            |            |                  |      |      |             |             |      |
| 3                  | 4,086 | 200        | 413        | 0.84             | 0.15 | 0.16 | 0.84        | 0.85        | 0.93 |
| 4                  | 3,888 | 211        | 416        | 0.84             | 0.17 | 0.14 | 0.86        | 0.83        | 0.92 |
| 5                  | 4,093 | 220        | 418        | 0.84             | 0.13 | 0.19 | 0.81        | 0.87        | 0.92 |
| 6                  | 3,833 | 223        | 420        | 0.84             | 0.16 | 0.16 | 0.84        | 0.84        | 0.91 |
| 7                  | 3,442 | 229        | 422        | 0.87             | 0.15 | 0.12 | 0.88        | 0.85        | 0.94 |
| 8                  | 2,250 | 236        | 425        | 0.85             | 0.13 | 0.17 | 0.83        | 0.87        | 0.93 |
| 9                  | 2,205 | 244        | 428        | 0.87             | 0.08 | 0.22 | 0.78        | 0.92        | 0.94 |
| 10                 | 2,025 | 251        | 432        | 0.89             | 0.05 | 0.26 | 0.74        | 0.95        | 0.95 |

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

### 3.5. Proficiency Projection

Table 3.8, Table 3.9, and Table 3.10 present the estimated probability of achieving the Ready performance level on the ACT Aspire spring assessment based on students' observed MAP Growth score when MAP Growth is taken in the fall, winter, or spring. For example, a Grade 3 student who obtained a MAP Growth Reading score of 202 in the fall has a 0.80 or 80% chance of reaching Ready proficiency or higher on the ACT Aspire spring test.



**Table 3.8. ACT Aspire Proficiency Projection based on MAP Growth Fall and Winter RIT Scores—Reading**

| Grade | Start Percentile | Reading (Fall) |                       |       |        | Reading (Winter) |                       |       |        |
|-------|------------------|----------------|-----------------------|-------|--------|------------------|-----------------------|-------|--------|
|       |                  | Fall RIT       | Projected Proficiency |       |        | Winter RIT       | Projected Proficiency |       |        |
|       |                  |                | Spring Cut            | Ready | Prob.* |                  | Spring Cut            | Ready | Prob.* |
| 3     | 5                | 162            | 204                   | No    | <0.01  | 171              | 204                   | No    | <0.01  |
|       | 10               | 168            | 204                   | No    | <0.01  | 176              | 204                   | No    | <0.01  |
|       | 15               | 172            | 204                   | No    | <0.01  | 180              | 204                   | No    | <0.01  |
|       | 20               | 175            | 204                   | No    | 0.01   | 183              | 204                   | No    | <0.01  |
|       | 25               | 178            | 204                   | No    | 0.03   | 185              | 204                   | No    | <0.01  |
|       | 30               | 180            | 204                   | No    | 0.05   | 188              | 204                   | No    | 0.01   |
|       | 35               | 182            | 204                   | No    | 0.06   | 190              | 204                   | No    | 0.02   |
|       | 40               | 184            | 204                   | No    | 0.10   | 192              | 204                   | No    | 0.04   |
|       | 45               | 186            | 204                   | No    | 0.16   | 194              | 204                   | No    | 0.09   |
|       | 50               | 188            | 204                   | No    | 0.20   | 196              | 204                   | No    | 0.17   |
|       | 55               | 190            | 204                   | No    | 0.29   | 198              | 204                   | No    | 0.28   |
|       | 60               | 192            | 204                   | No    | 0.39   | 199              | 204                   | No    | 0.35   |
|       | 65               | 194            | 204                   | No    | 0.44   | 201              | 204                   | Yes   | 0.50   |
|       | 70               | 197            | 204                   | Yes   | 0.61   | 204              | 204                   | Yes   | 0.65   |
|       | 75               | 199            | 204                   | Yes   | 0.71   | 206              | 204                   | Yes   | 0.78   |
|       | 80               | 202            | 204                   | Yes   | 0.80   | 208              | 204                   | Yes   | 0.87   |
|       | 85               | 205            | 204                   | Yes   | 0.90   | 211              | 204                   | Yes   | 0.96   |
| 90    | 209              | 204            | Yes                   | 0.95  | 215    | 204              | Yes                   | 0.99  |        |
| 95    | 214              | 204            | Yes                   | 0.99  | 221    | 204              | Yes                   | >0.99 |        |
| 4     | 5                | 173            | 209                   | No    | <0.01  | 179              | 209                   | No    | <0.01  |
|       | 10               | 178            | 209                   | No    | <0.01  | 184              | 209                   | No    | <0.01  |
|       | 15               | 182            | 209                   | No    | 0.01   | 188              | 209                   | No    | <0.01  |
|       | 20               | 185            | 209                   | No    | 0.02   | 191              | 209                   | No    | <0.01  |
|       | 25               | 188            | 209                   | No    | 0.04   | 194              | 209                   | No    | 0.01   |
|       | 30               | 190            | 209                   | No    | 0.07   | 196              | 209                   | No    | 0.02   |
|       | 35               | 192            | 209                   | No    | 0.12   | 198              | 209                   | No    | 0.06   |
|       | 40               | 194            | 209                   | No    | 0.15   | 200              | 209                   | No    | 0.12   |
|       | 45               | 196            | 209                   | No    | 0.23   | 202              | 209                   | No    | 0.16   |
|       | 50               | 198            | 209                   | No    | 0.33   | 204              | 209                   | No    | 0.28   |
|       | 55               | 200            | 209                   | No    | 0.44   | 205              | 209                   | No    | 0.35   |
|       | 60               | 202            | 209                   | Yes   | 0.50   | 207              | 209                   | Yes   | 0.50   |
|       | 65               | 204            | 209                   | Yes   | 0.62   | 209              | 209                   | Yes   | 0.65   |
|       | 70               | 206            | 209                   | Yes   | 0.72   | 211              | 209                   | Yes   | 0.78   |
|       | 75               | 209            | 209                   | Yes   | 0.81   | 214              | 209                   | Yes   | 0.92   |
|       | 80               | 211            | 209                   | Yes   | 0.88   | 216              | 209                   | Yes   | 0.96   |
|       | 85               | 214            | 209                   | Yes   | 0.95   | 219              | 209                   | Yes   | 0.98   |
| 90    | 218              | 209            | Yes                   | 0.98  | 223    | 209              | Yes                   | >0.99 |        |
| 95    | 224              | 209            | Yes                   | >0.99 | 228    | 209              | Yes                   | >0.99 |        |

| Grade | Start Percentile | Reading (Fall) |                       |       |        | Reading (Winter) |                       |       |        |
|-------|------------------|----------------|-----------------------|-------|--------|------------------|-----------------------|-------|--------|
|       |                  | Fall RIT       | Projected Proficiency |       |        | Winter RIT       | Projected Proficiency |       |        |
|       |                  |                | Spring Cut            | Ready | Prob.* |                  | Spring Cut            | Ready | Prob.* |
| 5     | 5                | 181            | 217                   | No    | <0.01  | 186              | 217                   | No    | <0.01  |
|       | 10               | 186            | 217                   | No    | <0.01  | 191              | 217                   | No    | <0.01  |
|       | 15               | 190            | 217                   | No    | <0.01  | 195              | 217                   | No    | <0.01  |
|       | 20               | 193            | 217                   | No    | 0.01   | 197              | 217                   | No    | <0.01  |
|       | 25               | 195            | 217                   | No    | 0.02   | 200              | 217                   | No    | <0.01  |
|       | 30               | 198            | 217                   | No    | 0.04   | 202              | 217                   | No    | 0.01   |
|       | 35               | 200            | 217                   | No    | 0.07   | 204              | 217                   | No    | 0.02   |
|       | 40               | 202            | 217                   | No    | 0.12   | 206              | 217                   | No    | 0.04   |
|       | 45               | 204            | 217                   | No    | 0.15   | 208              | 217                   | No    | 0.09   |
|       | 50               | 206            | 217                   | No    | 0.23   | 210              | 217                   | No    | 0.17   |
|       | 55               | 208            | 217                   | No    | 0.33   | 212              | 217                   | No    | 0.28   |
|       | 60               | 210            | 217                   | No    | 0.44   | 214              | 217                   | No    | 0.42   |
|       | 65               | 212            | 217                   | Yes   | 0.50   | 215              | 217                   | Yes   | 0.50   |
|       | 70               | 214            | 217                   | Yes   | 0.62   | 218              | 217                   | Yes   | 0.65   |
|       | 75               | 216            | 217                   | Yes   | 0.72   | 220              | 217                   | Yes   | 0.78   |
|       | 80               | 218            | 217                   | Yes   | 0.77   | 222              | 217                   | Yes   | 0.88   |
|       | 85               | 221            | 217                   | Yes   | 0.88   | 225              | 217                   | Yes   | 0.96   |
| 90    | 225              | 217            | Yes                   | 0.95  | 229    | 217              | Yes                   | 0.99  |        |
| 95    | 231              | 217            | Yes                   | 0.99  | 234    | 217              | Yes                   | >0.99 |        |
| 6     | 5                | 186            | 220                   | No    | <0.01  | 190              | 220                   | No    | <0.01  |
|       | 10               | 192            | 220                   | No    | <0.01  | 196              | 220                   | No    | <0.01  |
|       | 15               | 196            | 220                   | No    | 0.01   | 199              | 220                   | No    | <0.01  |
|       | 20               | 198            | 220                   | No    | 0.01   | 202              | 220                   | No    | <0.01  |
|       | 25               | 201            | 220                   | No    | 0.03   | 204              | 220                   | No    | <0.01  |
|       | 30               | 203            | 220                   | No    | 0.06   | 207              | 220                   | No    | 0.02   |
|       | 35               | 205            | 220                   | No    | 0.10   | 209              | 220                   | No    | 0.04   |
|       | 40               | 207            | 220                   | No    | 0.12   | 211              | 220                   | No    | 0.09   |
|       | 45               | 209            | 220                   | No    | 0.19   | 212              | 220                   | No    | 0.12   |
|       | 50               | 211            | 220                   | No    | 0.28   | 214              | 220                   | No    | 0.22   |
|       | 55               | 213            | 220                   | No    | 0.33   | 216              | 220                   | No    | 0.28   |
|       | 60               | 215            | 220                   | No    | 0.44   | 218              | 220                   | No    | 0.42   |
|       | 65               | 217            | 220                   | Yes   | 0.56   | 220              | 220                   | Yes   | 0.58   |
|       | 70               | 219            | 220                   | Yes   | 0.67   | 222              | 220                   | Yes   | 0.72   |
|       | 75               | 221            | 220                   | Yes   | 0.72   | 224              | 220                   | Yes   | 0.83   |
|       | 80               | 224            | 220                   | Yes   | 0.84   | 226              | 220                   | Yes   | 0.91   |
|       | 85               | 226            | 220                   | Yes   | 0.90   | 229              | 220                   | Yes   | 0.97   |
| 90    | 230              | 220            | Yes                   | 0.96  | 233    | 220              | Yes                   | >0.99 |        |
| 95    | 236              | 220            | Yes                   | >0.99 | 238    | 220              | Yes                   | >0.99 |        |

| Grade | Start Percentile | Reading (Fall) |                       |       |        | Reading (Winter) |                       |       |        |
|-------|------------------|----------------|-----------------------|-------|--------|------------------|-----------------------|-------|--------|
|       |                  | Fall RIT       | Projected Proficiency |       |        | Winter RIT       | Projected Proficiency |       |        |
|       |                  |                | Spring Cut            | Ready | Prob.* |                  | Spring Cut            | Ready | Prob.* |
| 7     | 5                | 189            | 225                   | No    | <0.01  | 192              | 225                   | No    | <0.01  |
|       | 10               | 195            | 225                   | No    | <0.01  | 198              | 225                   | No    | <0.01  |
|       | 15               | 199            | 225                   | No    | <0.01  | 201              | 225                   | No    | <0.01  |
|       | 20               | 202            | 225                   | No    | <0.01  | 204              | 225                   | No    | <0.01  |
|       | 25               | 204            | 225                   | No    | 0.01   | 207              | 225                   | No    | <0.01  |
|       | 30               | 206            | 225                   | No    | 0.02   | 209              | 225                   | No    | <0.01  |
|       | 35               | 209            | 225                   | No    | 0.04   | 211              | 225                   | No    | 0.01   |
|       | 40               | 211            | 225                   | No    | 0.07   | 213              | 225                   | No    | 0.02   |
|       | 45               | 213            | 225                   | No    | 0.12   | 215              | 225                   | No    | 0.04   |
|       | 50               | 214            | 225                   | No    | 0.15   | 217              | 225                   | No    | 0.09   |
|       | 55               | 216            | 225                   | No    | 0.23   | 219              | 225                   | No    | 0.17   |
|       | 60               | 218            | 225                   | No    | 0.28   | 221              | 225                   | No    | 0.28   |
|       | 65               | 220            | 225                   | No    | 0.39   | 223              | 225                   | No    | 0.42   |
|       | 70               | 222            | 225                   | Yes   | 0.50   | 225              | 225                   | Yes   | 0.58   |
|       | 75               | 225            | 225                   | Yes   | 0.61   | 227              | 225                   | Yes   | 0.72   |
|       | 80               | 227            | 225                   | Yes   | 0.72   | 230              | 225                   | Yes   | 0.88   |
|       | 85               | 230            | 225                   | Yes   | 0.85   | 232              | 225                   | Yes   | 0.94   |
| 90    | 234              | 225            | Yes                   | 0.95  | 236    | 225              | Yes                   | 0.99  |        |
| 95    | 240              | 225            | Yes                   | 0.99  | 242    | 225              | Yes                   | >0.99 |        |
| 8     | 5                | 191            | 226                   | No    | <0.01  | 194              | 226                   | No    | <0.01  |
|       | 10               | 197            | 226                   | No    | <0.01  | 199              | 226                   | No    | <0.01  |
|       | 15               | 201            | 226                   | No    | 0.01   | 203              | 226                   | No    | <0.01  |
|       | 20               | 204            | 226                   | No    | 0.02   | 206              | 226                   | No    | <0.01  |
|       | 25               | 207            | 226                   | No    | 0.03   | 209              | 226                   | No    | <0.01  |
|       | 30               | 209            | 226                   | No    | 0.05   | 211              | 226                   | No    | 0.01   |
|       | 35               | 211            | 226                   | No    | 0.08   | 213              | 226                   | No    | 0.01   |
|       | 40               | 213            | 226                   | No    | 0.10   | 215              | 226                   | No    | 0.03   |
|       | 45               | 215            | 226                   | No    | 0.16   | 217              | 226                   | No    | 0.07   |
|       | 50               | 217            | 226                   | No    | 0.22   | 219              | 226                   | No    | 0.14   |
|       | 55               | 219            | 226                   | No    | 0.31   | 221              | 226                   | No    | 0.23   |
|       | 60               | 221            | 226                   | No    | 0.35   | 223              | 226                   | No    | 0.36   |
|       | 65               | 223            | 226                   | No    | 0.45   | 225              | 226                   | Yes   | 0.50   |
|       | 70               | 225            | 226                   | Yes   | 0.55   | 227              | 226                   | Yes   | 0.64   |
|       | 75               | 228            | 226                   | Yes   | 0.69   | 229              | 226                   | Yes   | 0.77   |
|       | 80               | 230            | 226                   | Yes   | 0.78   | 232              | 226                   | Yes   | 0.90   |
|       | 85               | 234            | 226                   | Yes   | 0.90   | 235              | 226                   | Yes   | 0.97   |
| 90    | 237              | 226            | Yes                   | 0.95  | 239    | 226              | Yes                   | 0.99  |        |
| 95    | 243              | 226            | Yes                   | 0.99  | 244    | 226              | Yes                   | >0.99 |        |

| Grade | Start Percentile | Reading (Fall) |                       |       |        | Reading (Winter) |                       |       |        |
|-------|------------------|----------------|-----------------------|-------|--------|------------------|-----------------------|-------|--------|
|       |                  | Fall RIT       | Projected Proficiency |       |        | Winter RIT       | Projected Proficiency |       |        |
|       |                  |                | Spring Cut            | Ready | Prob.* |                  | Spring Cut            | Ready | Prob.* |
| 9     | 5                | 194            | 229                   | No    | <0.01  | 196              | 229                   | No    | <0.01  |
|       | 10               | 200            | 229                   | No    | <0.01  | 201              | 229                   | No    | <0.01  |
|       | 15               | 204            | 229                   | No    | 0.01   | 205              | 229                   | No    | <0.01  |
|       | 20               | 207            | 229                   | No    | 0.01   | 208              | 229                   | No    | <0.01  |
|       | 25               | 210            | 229                   | No    | 0.03   | 211              | 229                   | No    | <0.01  |
|       | 30               | 212            | 229                   | No    | 0.05   | 213              | 229                   | No    | <0.01  |
|       | 35               | 214            | 229                   | No    | 0.07   | 215              | 229                   | No    | 0.01   |
|       | 40               | 216            | 229                   | No    | 0.10   | 217              | 229                   | No    | 0.03   |
|       | 45               | 218            | 229                   | No    | 0.15   | 219              | 229                   | No    | 0.06   |
|       | 50               | 220            | 229                   | No    | 0.21   | 221              | 229                   | No    | 0.11   |
|       | 55               | 222            | 229                   | No    | 0.28   | 223              | 229                   | No    | 0.19   |
|       | 60               | 224            | 229                   | No    | 0.36   | 225              | 229                   | No    | 0.30   |
|       | 65               | 226            | 229                   | No    | 0.45   | 227              | 229                   | No    | 0.43   |
|       | 70               | 228            | 229                   | Yes   | 0.55   | 229              | 229                   | Yes   | 0.57   |
|       | 75               | 231            | 229                   | Yes   | 0.68   | 232              | 229                   | Yes   | 0.76   |
|       | 80               | 233            | 229                   | Yes   | 0.76   | 234              | 229                   | Yes   | 0.86   |
| 85    | 236              | 229            | Yes                   | 0.85  | 237    | 229              | Yes                   | 0.94  |        |
| 90    | 240              | 229            | Yes                   | 0.93  | 241    | 229              | Yes                   | 0.99  |        |
| 95    | 246              | 229            | Yes                   | 0.99  | 247    | 229              | Yes                   | >0.99 |        |
| 10    | 5                | 193            | 234                   | No    | <0.01  | 194              | 234                   | No    | <0.01  |
|       | 10               | 199            | 234                   | No    | <0.01  | 200              | 234                   | No    | <0.01  |
|       | 15               | 203            | 234                   | No    | <0.01  | 204              | 234                   | No    | <0.01  |
|       | 20               | 206            | 234                   | No    | <0.01  | 207              | 234                   | No    | <0.01  |
|       | 25               | 209            | 234                   | No    | 0.01   | 210              | 234                   | No    | <0.01  |
|       | 30               | 212            | 234                   | No    | 0.02   | 212              | 234                   | No    | <0.01  |
|       | 35               | 214            | 234                   | No    | 0.03   | 215              | 234                   | No    | <0.01  |
|       | 40               | 216            | 234                   | No    | 0.04   | 217              | 234                   | No    | <0.01  |
|       | 45               | 218            | 234                   | No    | 0.07   | 219              | 234                   | No    | 0.01   |
|       | 50               | 220            | 234                   | No    | 0.10   | 221              | 234                   | No    | 0.02   |
|       | 55               | 223            | 234                   | No    | 0.17   | 223              | 234                   | No    | 0.05   |
|       | 60               | 225            | 234                   | No    | 0.23   | 225              | 234                   | No    | 0.09   |
|       | 65               | 227            | 234                   | No    | 0.30   | 227              | 234                   | No    | 0.15   |
|       | 70               | 229            | 234                   | No    | 0.38   | 230              | 234                   | No    | 0.31   |
|       | 75               | 232            | 234                   | Yes   | 0.50   | 232              | 234                   | No    | 0.43   |
|       | 80               | 235            | 234                   | Yes   | 0.62   | 235              | 234                   | Yes   | 0.63   |
| 85    | 238              | 234            | Yes                   | 0.74  | 238    | 234              | Yes                   | 0.80  |        |
| 90    | 242              | 234            | Yes                   | 0.86  | 242    | 234              | Yes                   | 0.94  |        |
| 95    | 248              | 234            | Yes                   | 0.96  | 248    | 234              | Yes                   | 0.99  |        |

\*Prob. = Probability of obtaining Ready proficiency status on the ACT Aspire test in the spring.

**Table 3.9. ACT Aspire Proficiency Projection based on MAP Growth Fall and Winter RIT Scores—  
Mathematics**

| Grade | Start Percentile | Mathematics (Fall) |                       |       |        | Mathematics (Winter) |                       |       |        |
|-------|------------------|--------------------|-----------------------|-------|--------|----------------------|-----------------------|-------|--------|
|       |                  | Fall RIT           | Projected Proficiency |       |        | Winter RIT           | Projected Proficiency |       |        |
|       |                  |                    | Spring Cut            | Ready | Prob.* |                      | Spring Cut            | Ready | Prob.* |
| 3     | 5                | 169                | 200                   | No    | <0.01  | 176                  | 200                   | No    | <0.01  |
|       | 10               | 174                | 200                   | No    | 0.03   | 181                  | 200                   | No    | <0.01  |
|       | 15               | 177                | 200                   | No    | 0.08   | 184                  | 200                   | No    | 0.02   |
|       | 20               | 179                | 200                   | No    | 0.14   | 187                  | 200                   | No    | 0.05   |
|       | 25               | 182                | 200                   | No    | 0.27   | 189                  | 200                   | No    | 0.10   |
|       | 30               | 184                | 200                   | No    | 0.32   | 191                  | 200                   | No    | 0.20   |
|       | 35               | 185                | 200                   | No    | 0.38   | 193                  | 200                   | No    | 0.34   |
|       | 40               | 187                | 200                   | Yes   | 0.50   | 195                  | 200                   | Yes   | 0.50   |
|       | 45               | 189                | 200                   | Yes   | 0.62   | 197                  | 200                   | Yes   | 0.66   |
|       | 50               | 190                | 200                   | Yes   | 0.68   | 198                  | 200                   | Yes   | 0.74   |
|       | 55               | 192                | 200                   | Yes   | 0.78   | 200                  | 200                   | Yes   | 0.86   |
|       | 60               | 194                | 200                   | Yes   | 0.86   | 202                  | 200                   | Yes   | 0.93   |
|       | 65               | 195                | 200                   | Yes   | 0.89   | 203                  | 200                   | Yes   | 0.95   |
|       | 70               | 197                | 200                   | Yes   | 0.94   | 205                  | 200                   | Yes   | 0.98   |
|       | 75               | 199                | 200                   | Yes   | 0.96   | 207                  | 200                   | Yes   | 0.99   |
|       | 80               | 201                | 200                   | Yes   | 0.98   | 209                  | 200                   | Yes   | >0.99  |
|       | 85               | 204                | 200                   | Yes   | 0.99   | 212                  | 200                   | Yes   | >0.99  |
| 90    | 207              | 200                | Yes                   | >0.99 | 215    | 200                  | Yes                   | >0.99 |        |
| 95    | 212              | 200                | Yes                   | >0.99 | 220    | 200                  | Yes                   | >0.99 |        |
| 4     | 5                | 179                | 211                   | No    | <0.01  | 185                  | 211                   | No    | <0.01  |
|       | 10               | 184                | 211                   | No    | 0.01   | 190                  | 211                   | No    | <0.01  |
|       | 15               | 188                | 211                   | No    | 0.04   | 194                  | 211                   | No    | 0.01   |
|       | 20               | 190                | 211                   | No    | 0.08   | 197                  | 211                   | No    | 0.03   |
|       | 25               | 193                | 211                   | No    | 0.17   | 199                  | 211                   | No    | 0.07   |
|       | 30               | 195                | 211                   | No    | 0.27   | 201                  | 211                   | No    | 0.14   |
|       | 35               | 197                | 211                   | No    | 0.38   | 203                  | 211                   | No    | 0.26   |
|       | 40               | 198                | 211                   | No    | 0.44   | 205                  | 211                   | No    | 0.42   |
|       | 45               | 200                | 211                   | Yes   | 0.56   | 207                  | 211                   | Yes   | 0.58   |
|       | 50               | 202                | 211                   | Yes   | 0.68   | 209                  | 211                   | Yes   | 0.74   |
|       | 55               | 204                | 211                   | Yes   | 0.78   | 211                  | 211                   | Yes   | 0.86   |
|       | 60               | 205                | 211                   | Yes   | 0.78   | 212                  | 211                   | Yes   | 0.90   |
|       | 65               | 207                | 211                   | Yes   | 0.86   | 214                  | 211                   | Yes   | 0.96   |
|       | 70               | 209                | 211                   | Yes   | 0.92   | 216                  | 211                   | Yes   | 0.98   |
|       | 75               | 211                | 211                   | Yes   | 0.96   | 218                  | 211                   | Yes   | 0.99   |
|       | 80               | 214                | 211                   | Yes   | 0.99   | 221                  | 211                   | Yes   | >0.99  |
|       | 85               | 216                | 211                   | Yes   | 0.99   | 223                  | 211                   | Yes   | >0.99  |
| 90    | 220              | 211                | Yes                   | >0.99 | 227    | 211                  | Yes                   | >0.99 |        |
| 95    | 225              | 211                | Yes                   | >0.99 | 232    | 211                  | Yes                   | >0.99 |        |

| Grade | Start Percentile | Mathematics (Fall) |                       |       |        | Mathematics (Winter) |                       |       |        |
|-------|------------------|--------------------|-----------------------|-------|--------|----------------------|-----------------------|-------|--------|
|       |                  | Fall RIT           | Projected Proficiency |       |        | Winter RIT           | Projected Proficiency |       |        |
|       |                  |                    | Spring Cut            | Ready | Prob.* |                      | Spring Cut            | Ready | Prob.* |
| 5     | 5                | 187                | 220                   | No    | <0.01  | 192                  | 220                   | No    | <0.01  |
|       | 10               | 193                | 220                   | No    | 0.01   | 198                  | 220                   | No    | <0.01  |
|       | 15               | 196                | 220                   | No    | 0.02   | 201                  | 220                   | No    | <0.01  |
|       | 20               | 199                | 220                   | No    | 0.05   | 204                  | 220                   | No    | 0.01   |
|       | 25               | 202                | 220                   | No    | 0.12   | 207                  | 220                   | No    | 0.03   |
|       | 30               | 204                | 220                   | No    | 0.19   | 209                  | 220                   | No    | 0.07   |
|       | 35               | 206                | 220                   | No    | 0.28   | 211                  | 220                   | No    | 0.15   |
|       | 40               | 208                | 220                   | No    | 0.38   | 213                  | 220                   | No    | 0.27   |
|       | 45               | 210                | 220                   | Yes   | 0.50   | 215                  | 220                   | No    | 0.42   |
|       | 50               | 211                | 220                   | Yes   | 0.56   | 217                  | 220                   | Yes   | 0.58   |
|       | 55               | 213                | 220                   | Yes   | 0.67   | 219                  | 220                   | Yes   | 0.73   |
|       | 60               | 215                | 220                   | Yes   | 0.77   | 221                  | 220                   | Yes   | 0.85   |
|       | 65               | 217                | 220                   | Yes   | 0.85   | 223                  | 220                   | Yes   | 0.93   |
|       | 70               | 219                | 220                   | Yes   | 0.91   | 225                  | 220                   | Yes   | 0.97   |
|       | 75               | 221                | 220                   | Yes   | 0.95   | 228                  | 220                   | Yes   | 0.99   |
|       | 80               | 224                | 220                   | Yes   | 0.98   | 230                  | 220                   | Yes   | >0.99  |
| 85    | 227              | 220                | Yes                   | 0.99  | 233    | 220                  | Yes                   | >0.99 |        |
| 90    | 230              | 220                | Yes                   | >0.99 | 237    | 220                  | Yes                   | >0.99 |        |
| 95    | 236              | 220                | Yes                   | >0.99 | 242    | 220                  | Yes                   | >0.99 |        |
| 6     | 5                | 192                | 223                   | No    | <0.01  | 196                  | 223                   | No    | <0.01  |
|       | 10               | 198                | 223                   | No    | 0.01   | 202                  | 223                   | No    | <0.01  |
|       | 15               | 202                | 223                   | No    | 0.03   | 205                  | 223                   | No    | <0.01  |
|       | 20               | 205                | 223                   | No    | 0.07   | 209                  | 223                   | No    | 0.01   |
|       | 25               | 207                | 223                   | No    | 0.12   | 211                  | 223                   | No    | 0.03   |
|       | 30               | 209                | 223                   | No    | 0.19   | 214                  | 223                   | No    | 0.11   |
|       | 35               | 212                | 223                   | No    | 0.33   | 216                  | 223                   | No    | 0.20   |
|       | 40               | 214                | 223                   | No    | 0.44   | 218                  | 223                   | No    | 0.34   |
|       | 45               | 216                | 223                   | Yes   | 0.56   | 220                  | 223                   | Yes   | 0.50   |
|       | 50               | 218                | 223                   | Yes   | 0.67   | 222                  | 223                   | Yes   | 0.66   |
|       | 55               | 220                | 223                   | Yes   | 0.77   | 224                  | 223                   | Yes   | 0.80   |
|       | 60               | 222                | 223                   | Yes   | 0.85   | 226                  | 223                   | Yes   | 0.89   |
|       | 65               | 224                | 223                   | Yes   | 0.91   | 228                  | 223                   | Yes   | 0.95   |
|       | 70               | 226                | 223                   | Yes   | 0.95   | 230                  | 223                   | Yes   | 0.98   |
|       | 75               | 228                | 223                   | Yes   | 0.97   | 233                  | 223                   | Yes   | >0.99  |
|       | 80               | 231                | 223                   | Yes   | 0.99   | 236                  | 223                   | Yes   | >0.99  |
| 85    | 234              | 223                | Yes                   | >0.99 | 239    | 223                  | Yes                   | >0.99 |        |
| 90    | 238              | 223                | Yes                   | >0.99 | 243    | 223                  | Yes                   | >0.99 |        |
| 95    | 243              | 223                | Yes                   | >0.99 | 248    | 223                  | Yes                   | >0.99 |        |

| Grade | Start Percentile | Mathematics (Fall) |                       |       |        | Mathematics (Winter) |                       |       |        |
|-------|------------------|--------------------|-----------------------|-------|--------|----------------------|-----------------------|-------|--------|
|       |                  | Fall RIT           | Projected Proficiency |       |        | Winter RIT           | Projected Proficiency |       |        |
|       |                  |                    | Spring Cut            | Ready | Prob.* |                      | Spring Cut            | Ready | Prob.* |
| 7     | 5                | 195                | 229                   | No    | <0.01  | 198                  | 229                   | No    | <0.01  |
|       | 10               | 201                | 229                   | No    | <0.01  | 204                  | 229                   | No    | <0.01  |
|       | 15               | 205                | 229                   | No    | <0.01  | 208                  | 229                   | No    | <0.01  |
|       | 20               | 209                | 229                   | No    | 0.02   | 212                  | 229                   | No    | <0.01  |
|       | 25               | 211                | 229                   | No    | 0.03   | 215                  | 229                   | No    | 0.01   |
|       | 30               | 214                | 229                   | No    | 0.08   | 217                  | 229                   | No    | 0.02   |
|       | 35               | 216                | 229                   | No    | 0.14   | 220                  | 229                   | No    | 0.07   |
|       | 40               | 218                | 229                   | No    | 0.22   | 222                  | 229                   | No    | 0.15   |
|       | 45               | 221                | 229                   | No    | 0.38   | 224                  | 229                   | No    | 0.26   |
|       | 50               | 223                | 229                   | Yes   | 0.50   | 226                  | 229                   | No    | 0.42   |
|       | 55               | 225                | 229                   | Yes   | 0.62   | 228                  | 229                   | Yes   | 0.58   |
|       | 60               | 227                | 229                   | Yes   | 0.73   | 230                  | 229                   | Yes   | 0.74   |
|       | 65               | 229                | 229                   | Yes   | 0.82   | 233                  | 229                   | Yes   | 0.90   |
|       | 70               | 231                | 229                   | Yes   | 0.89   | 235                  | 229                   | Yes   | 0.95   |
|       | 75               | 234                | 229                   | Yes   | 0.95   | 238                  | 229                   | Yes   | 0.99   |
|       | 80               | 237                | 229                   | Yes   | 0.98   | 240                  | 229                   | Yes   | >0.99  |
|       | 85               | 240                | 229                   | Yes   | >0.99  | 244                  | 229                   | Yes   | >0.99  |
| 90    | 244              | 229                | Yes                   | >0.99 | 248    | 229                  | Yes                   | >0.99 |        |
| 95    | 250              | 229                | Yes                   | >0.99 | 254    | 229                  | Yes                   | >0.99 |        |
| 8     | 5                | 197                | 236                   | No    | <0.01  | 199                  | 236                   | No    | <0.01  |
|       | 10               | 203                | 236                   | No    | <0.01  | 206                  | 236                   | No    | <0.01  |
|       | 15               | 208                | 236                   | No    | <0.01  | 210                  | 236                   | No    | <0.01  |
|       | 20               | 211                | 236                   | No    | <0.01  | 214                  | 236                   | No    | <0.01  |
|       | 25               | 214                | 236                   | No    | 0.01   | 217                  | 236                   | No    | <0.01  |
|       | 30               | 217                | 236                   | No    | 0.03   | 220                  | 236                   | No    | <0.01  |
|       | 35               | 219                | 236                   | No    | 0.06   | 222                  | 236                   | No    | 0.01   |
|       | 40               | 222                | 236                   | No    | 0.12   | 225                  | 236                   | No    | 0.04   |
|       | 45               | 224                | 236                   | No    | 0.18   | 227                  | 236                   | No    | 0.08   |
|       | 50               | 226                | 236                   | No    | 0.26   | 229                  | 236                   | No    | 0.16   |
|       | 55               | 229                | 236                   | No    | 0.40   | 231                  | 236                   | No    | 0.28   |
|       | 60               | 231                | 236                   | Yes   | 0.5    | 234                  | 236                   | Yes   | 0.50   |
|       | 65               | 233                | 236                   | Yes   | 0.55   | 236                  | 236                   | Yes   | 0.65   |
|       | 70               | 236                | 236                   | Yes   | 0.70   | 239                  | 236                   | Yes   | 0.84   |
|       | 75               | 238                | 236                   | Yes   | 0.78   | 241                  | 236                   | Yes   | 0.92   |
|       | 80               | 241                | 236                   | Yes   | 0.88   | 245                  | 236                   | Yes   | 0.99   |
|       | 85               | 245                | 236                   | Yes   | 0.96   | 248                  | 236                   | Yes   | >0.99  |
| 90    | 249              | 236                | Yes                   | 0.99  | 253    | 236                  | Yes                   | >0.99 |        |
| 95    | 256              | 236                | Yes                   | >0.99 | 259    | 236                  | Yes                   | >0.99 |        |

| Grade | Start Percentile | Mathematics (Fall) |                       |       |        | Mathematics (Winter) |                       |       |        |
|-------|------------------|--------------------|-----------------------|-------|--------|----------------------|-----------------------|-------|--------|
|       |                  | Fall RIT           | Projected Proficiency |       |        | Winter RIT           | Projected Proficiency |       |        |
|       |                  |                    | Spring Cut            | Ready | Prob.* |                      | Spring Cut            | Ready | Prob.* |
| 9     | 5                | 200                | 244                   | No    | <0.01  | 202                  | 244                   | No    | <0.01  |
|       | 10               | 207                | 244                   | No    | <0.01  | 208                  | 244                   | No    | <0.01  |
|       | 15               | 211                | 244                   | No    | <0.01  | 213                  | 244                   | No    | <0.01  |
|       | 20               | 215                | 244                   | No    | <0.01  | 217                  | 244                   | No    | <0.01  |
|       | 25               | 218                | 244                   | No    | <0.01  | 220                  | 244                   | No    | <0.01  |
|       | 30               | 221                | 244                   | No    | 0.01   | 222                  | 244                   | No    | <0.01  |
|       | 35               | 223                | 244                   | No    | 0.01   | 225                  | 244                   | No    | <0.01  |
|       | 40               | 226                | 244                   | No    | 0.03   | 228                  | 244                   | No    | <0.01  |
|       | 45               | 228                | 244                   | No    | 0.06   | 230                  | 244                   | No    | 0.01   |
|       | 50               | 230                | 244                   | No    | 0.09   | 232                  | 244                   | No    | 0.02   |
|       | 55               | 233                | 244                   | No    | 0.16   | 235                  | 244                   | No    | 0.06   |
|       | 60               | 235                | 244                   | No    | 0.23   | 237                  | 244                   | No    | 0.12   |
|       | 65               | 237                | 244                   | No    | 0.31   | 239                  | 244                   | No    | 0.22   |
|       | 70               | 240                | 244                   | No    | 0.45   | 242                  | 244                   | No    | 0.42   |
|       | 75               | 243                | 244                   | Yes   | 0.60   | 245                  | 244                   | Yes   | 0.65   |
|       | 80               | 246                | 244                   | Yes   | 0.73   | 248                  | 244                   | Yes   | 0.83   |
| 85    | 249              | 244                | Yes                   | 0.84  | 252    | 244                  | Yes                   | 0.96  |        |
| 90    | 254              | 244                | Yes                   | 0.94  | 256    | 244                  | Yes                   | 0.99  |        |
| 95    | 260              | 244                | Yes                   | 0.99  | 263    | 244                  | Yes                   | >0.99 |        |
| 10    | 5                | 198                | 251                   | No    | <0.01  | 199                  | 251                   | No    | <0.01  |
|       | 10               | 205                | 251                   | No    | <0.01  | 206                  | 251                   | No    | <0.01  |
|       | 15               | 210                | 251                   | No    | <0.01  | 211                  | 251                   | No    | <0.01  |
|       | 20               | 214                | 251                   | No    | <0.01  | 215                  | 251                   | No    | <0.01  |
|       | 25               | 217                | 251                   | No    | <0.01  | 218                  | 251                   | No    | <0.01  |
|       | 30               | 220                | 251                   | No    | <0.01  | 221                  | 251                   | No    | <0.01  |
|       | 35               | 223                | 251                   | No    | <0.01  | 224                  | 251                   | No    | <0.01  |
|       | 40               | 225                | 251                   | No    | <0.01  | 226                  | 251                   | No    | <0.01  |
|       | 45               | 228                | 251                   | No    | 0.01   | 229                  | 251                   | No    | <0.01  |
|       | 50               | 230                | 251                   | No    | 0.02   | 232                  | 251                   | No    | <0.01  |
|       | 55               | 233                | 251                   | No    | 0.04   | 234                  | 251                   | No    | <0.01  |
|       | 60               | 235                | 251                   | No    | 0.06   | 237                  | 251                   | No    | 0.01   |
|       | 65               | 238                | 251                   | No    | 0.11   | 239                  | 251                   | No    | 0.02   |
|       | 70               | 240                | 251                   | No    | 0.16   | 242                  | 251                   | No    | 0.07   |
|       | 75               | 243                | 251                   | No    | 0.25   | 245                  | 251                   | No    | 0.18   |
|       | 80               | 247                | 251                   | No    | 0.41   | 248                  | 251                   | No    | 0.36   |
| 85    | 250              | 251                | Yes                   | 0.54  | 252    | 251                  | Yes                   | 0.64  |        |
| 90    | 255              | 251                | Yes                   | 0.75  | 257    | 251                  | Yes                   | 0.90  |        |
| 95    | 262              | 251                | Yes                   | 0.93  | 264    | 251                  | Yes                   | >0.99 |        |

\*Prob. = Probability of obtaining Ready proficiency status on the ACT Aspire test in the spring.



**Table 3.10. ACT Aspire Proficiency Projection based on MAP Growth Spring RIT Scores**

| Grade | Start Percentile | Reading    |                       |       |        | Mathematics |                       |       |        |
|-------|------------------|------------|-----------------------|-------|--------|-------------|-----------------------|-------|--------|
|       |                  | Spring RIT | Projected Proficiency |       |        | Spring RIT  | Projected Proficiency |       |        |
|       |                  |            | Cut Score             | Ready | Prob.* |             | Cut Score             | Ready | Prob.* |
| 3     | 5                | 174        | 204                   | No    | <0.01  | 181         | 200                   | No    | <0.01  |
|       | 10               | 179        | 204                   | No    | <0.01  | 186         | 200                   | No    | <0.01  |
|       | 15               | 183        | 204                   | No    | <0.01  | 189         | 200                   | No    | <0.01  |
|       | 20               | 186        | 204                   | No    | <0.01  | 192         | 200                   | No    | <0.01  |
|       | 25               | 188        | 204                   | No    | <0.01  | 194         | 200                   | No    | 0.02   |
|       | 30               | 191        | 204                   | No    | <0.01  | 196         | 200                   | No    | 0.08   |
|       | 35               | 193        | 204                   | No    | <0.01  | 198         | 200                   | No    | 0.25   |
|       | 40               | 195        | 204                   | No    | <0.01  | 200         | 200                   | Yes   | 0.50   |
|       | 45               | 197        | 204                   | No    | 0.01   | 202         | 200                   | Yes   | 0.75   |
|       | 50               | 199        | 204                   | No    | 0.06   | 203         | 200                   | Yes   | 0.85   |
|       | 55               | 201        | 204                   | No    | 0.17   | 205         | 200                   | Yes   | 0.96   |
|       | 60               | 202        | 204                   | No    | 0.27   | 207         | 200                   | Yes   | 0.99   |
|       | 65               | 204        | 204                   | Yes   | 0.50   | 209         | 200                   | Yes   | >0.99  |
|       | 70               | 207        | 204                   | Yes   | 0.83   | 211         | 200                   | Yes   | >0.99  |
|       | 75               | 209        | 204                   | Yes   | 0.94   | 213         | 200                   | Yes   | >0.99  |
|       | 80               | 211        | 204                   | Yes   | 0.99   | 215         | 200                   | Yes   | >0.99  |
|       | 85               | 214        | 204                   | Yes   | >0.99  | 218         | 200                   | Yes   | >0.99  |
| 90    | 218              | 204        | Yes                   | >0.99 | 221    | 200         | Yes                   | >0.99 |        |
| 95    | 223              | 204        | Yes                   | >0.99 | 226    | 200         | Yes                   | >0.99 |        |
| 4     | 5                | 181        | 209                   | No    | <0.01  | 189         | 211                   | No    | <0.01  |
|       | 10               | 187        | 209                   | No    | <0.01  | 194         | 211                   | No    | <0.01  |
|       | 15               | 190        | 209                   | No    | <0.01  | 198         | 211                   | No    | <0.01  |
|       | 20               | 193        | 209                   | No    | <0.01  | 201         | 211                   | No    | <0.01  |
|       | 25               | 196        | 209                   | No    | <0.01  | 203         | 211                   | No    | <0.01  |
|       | 30               | 198        | 209                   | No    | <0.01  | 206         | 211                   | No    | 0.04   |
|       | 35               | 200        | 209                   | No    | <0.01  | 208         | 211                   | No    | 0.15   |
|       | 40               | 202        | 209                   | No    | 0.01   | 210         | 211                   | No    | 0.37   |
|       | 45               | 204        | 209                   | No    | 0.06   | 212         | 211                   | Yes   | 0.63   |
|       | 50               | 206        | 209                   | No    | 0.17   | 213         | 211                   | Yes   | 0.75   |
|       | 55               | 208        | 209                   | No    | 0.38   | 215         | 211                   | Yes   | 0.92   |
|       | 60               | 210        | 209                   | Yes   | 0.62   | 217         | 211                   | Yes   | 0.98   |
|       | 65               | 212        | 209                   | Yes   | 0.83   | 219         | 211                   | Yes   | >0.99  |
|       | 70               | 214        | 209                   | Yes   | 0.94   | 221         | 211                   | Yes   | >0.99  |
|       | 75               | 216        | 209                   | Yes   | 0.99   | 224         | 211                   | Yes   | >0.99  |
|       | 80               | 218        | 209                   | Yes   | >0.99  | 226         | 211                   | Yes   | >0.99  |
|       | 85               | 221        | 209                   | Yes   | >0.99  | 229         | 211                   | Yes   | >0.99  |
| 90    | 225              | 209        | Yes                   | >0.99 | 233    | 211         | Yes                   | >0.99 |        |
| 95    | 230              | 209        | Yes                   | >0.99 | 238    | 211         | Yes                   | >0.99 |        |

| Grade | Start Percentile | Reading    |                       |       |        | Mathematics |                       |       |        |
|-------|------------------|------------|-----------------------|-------|--------|-------------|-----------------------|-------|--------|
|       |                  | Spring RIT | Projected Proficiency |       |        | Spring RIT  | Projected Proficiency |       |        |
|       |                  |            | Cut Score             | Ready | Prob.* |             | Cut Score             | Ready | Prob.* |
| 5     | 5                | 188        | 217                   | No    | <0.01  | 195         | 220                   | No    | <0.01  |
|       | 10               | 193        | 217                   | No    | <0.01  | 201         | 220                   | No    | <0.01  |
|       | 15               | 197        | 217                   | No    | <0.01  | 205         | 220                   | No    | <0.01  |
|       | 20               | 199        | 217                   | No    | <0.01  | 208         | 220                   | No    | <0.01  |
|       | 25               | 202        | 217                   | No    | <0.01  | 210         | 220                   | No    | <0.01  |
|       | 30               | 204        | 217                   | No    | <0.01  | 213         | 220                   | No    | 0.01   |
|       | 35               | 206        | 217                   | No    | <0.01  | 215         | 220                   | No    | 0.04   |
|       | 40               | 208        | 217                   | No    | <0.01  | 217         | 220                   | No    | 0.15   |
|       | 45               | 210        | 217                   | No    | 0.01   | 219         | 220                   | No    | 0.37   |
|       | 50               | 212        | 217                   | No    | 0.06   | 221         | 220                   | Yes   | 0.63   |
|       | 55               | 214        | 217                   | No    | 0.17   | 223         | 220                   | Yes   | 0.85   |
|       | 60               | 216        | 217                   | No    | 0.38   | 225         | 220                   | Yes   | 0.96   |
|       | 65               | 217        | 217                   | Yes   | 0.50   | 228         | 220                   | Yes   | >0.99  |
|       | 70               | 220        | 217                   | Yes   | 0.83   | 230         | 220                   | Yes   | >0.99  |
|       | 75               | 222        | 217                   | Yes   | 0.94   | 232         | 220                   | Yes   | >0.99  |
|       | 80               | 224        | 217                   | Yes   | 0.99   | 235         | 220                   | Yes   | >0.99  |
|       | 85               | 227        | 217                   | Yes   | >0.99  | 238         | 220                   | Yes   | >0.99  |
| 90    | 231              | 217        | Yes                   | >0.99 | 242    | 220         | Yes                   | >0.99 |        |
| 95    | 236              | 217        | Yes                   | >0.99 | 248    | 220         | Yes                   | >0.99 |        |
| 6     | 5                | 192        | 220                   | No    | <0.01  | 198         | 223                   | No    | <0.01  |
|       | 10               | 197        | 220                   | No    | <0.01  | 204         | 223                   | No    | <0.01  |
|       | 15               | 201        | 220                   | No    | <0.01  | 208         | 223                   | No    | <0.01  |
|       | 20               | 203        | 220                   | No    | <0.01  | 211         | 223                   | No    | <0.01  |
|       | 25               | 206        | 220                   | No    | <0.01  | 214         | 223                   | No    | <0.01  |
|       | 30               | 208        | 220                   | No    | <0.01  | 217         | 223                   | No    | 0.02   |
|       | 35               | 210        | 220                   | No    | <0.01  | 219         | 223                   | No    | 0.08   |
|       | 40               | 212        | 220                   | No    | 0.01   | 221         | 223                   | No    | 0.25   |
|       | 45               | 214        | 220                   | No    | 0.03   | 223         | 223                   | Yes   | 0.50   |
|       | 50               | 216        | 220                   | No    | 0.11   | 225         | 223                   | Yes   | 0.75   |
|       | 55               | 218        | 220                   | No    | 0.27   | 227         | 223                   | Yes   | 0.92   |
|       | 60               | 219        | 220                   | No    | 0.38   | 230         | 223                   | Yes   | 0.99   |
|       | 65               | 221        | 220                   | Yes   | 0.62   | 232         | 223                   | Yes   | >0.99  |
|       | 70               | 223        | 220                   | Yes   | 0.83   | 234         | 223                   | Yes   | >0.99  |
|       | 75               | 226        | 220                   | Yes   | 0.97   | 237         | 223                   | Yes   | >0.99  |
|       | 80               | 228        | 220                   | Yes   | 0.99   | 239         | 223                   | Yes   | >0.99  |
|       | 85               | 231        | 220                   | Yes   | >0.99  | 243         | 223                   | Yes   | >0.99  |
| 90    | 235              | 220        | Yes                   | >0.99 | 247    | 223         | Yes                   | >0.99 |        |
| 95    | 240              | 220        | Yes                   | >0.99 | 253    | 223         | Yes                   | >0.99 |        |

| Grade | Start Percentile | Reading    |                       |       |        | Mathematics |                       |       |        |
|-------|------------------|------------|-----------------------|-------|--------|-------------|-----------------------|-------|--------|
|       |                  | Spring RIT | Projected Proficiency |       |        | Spring RIT  | Projected Proficiency |       |        |
|       |                  |            | Cut Score             | Ready | Prob.* |             | Cut Score             | Ready | Prob.* |
| 7     | 5                | 193        | 225                   | No    | <0.01  | 199         | 229                   | No    | <0.01  |
|       | 10               | 199        | 225                   | No    | <0.01  | 206         | 229                   | No    | <0.01  |
|       | 15               | 202        | 225                   | No    | <0.01  | 210         | 229                   | No    | <0.01  |
|       | 20               | 205        | 225                   | No    | <0.01  | 214         | 229                   | No    | <0.01  |
|       | 25               | 208        | 225                   | No    | <0.01  | 217         | 229                   | No    | <0.01  |
|       | 30               | 210        | 225                   | No    | <0.01  | 219         | 229                   | No    | <0.01  |
|       | 35               | 212        | 225                   | No    | <0.01  | 222         | 229                   | No    | 0.01   |
|       | 40               | 214        | 225                   | No    | <0.01  | 224         | 229                   | No    | 0.04   |
|       | 45               | 216        | 225                   | No    | <0.01  | 226         | 229                   | No    | 0.15   |
|       | 50               | 218        | 225                   | No    | 0.01   | 229         | 229                   | Yes   | 0.50   |
|       | 55               | 220        | 225                   | No    | 0.06   | 231         | 229                   | Yes   | 0.75   |
|       | 60               | 222        | 225                   | No    | 0.17   | 233         | 229                   | Yes   | 0.92   |
|       | 65               | 224        | 225                   | No    | 0.38   | 235         | 229                   | Yes   | 0.98   |
|       | 70               | 226        | 225                   | Yes   | 0.62   | 238         | 229                   | Yes   | >0.99  |
|       | 75               | 228        | 225                   | Yes   | 0.83   | 241         | 229                   | Yes   | >0.99  |
|       | 80               | 231        | 225                   | Yes   | 0.97   | 244         | 229                   | Yes   | >0.99  |
|       | 85               | 234        | 225                   | Yes   | >0.99  | 247         | 229                   | Yes   | >0.99  |
| 90    | 238              | 225        | Yes                   | >0.99 | 251    | 229         | Yes                   | >0.99 |        |
| 95    | 243              | 225        | Yes                   | >0.99 | 258    | 229         | Yes                   | >0.99 |        |
| 8     | 5                | 194        | 226                   | No    | <0.01  | 199         | 236                   | No    | <0.01  |
|       | 10               | 200        | 226                   | No    | <0.01  | 206         | 236                   | No    | <0.01  |
|       | 15               | 204        | 226                   | No    | <0.01  | 211         | 236                   | No    | <0.01  |
|       | 20               | 207        | 226                   | No    | <0.01  | 215         | 236                   | No    | <0.01  |
|       | 25               | 209        | 226                   | No    | <0.01  | 218         | 236                   | No    | <0.01  |
|       | 30               | 212        | 226                   | No    | <0.01  | 221         | 236                   | No    | <0.01  |
|       | 35               | 214        | 226                   | No    | <0.01  | 224         | 236                   | No    | <0.01  |
|       | 40               | 216        | 226                   | No    | <0.01  | 226         | 236                   | No    | <0.01  |
|       | 45               | 218        | 226                   | No    | 0.01   | 229         | 236                   | No    | 0.01   |
|       | 50               | 220        | 226                   | No    | 0.03   | 231         | 236                   | No    | 0.04   |
|       | 55               | 222        | 226                   | No    | 0.11   | 233         | 236                   | No    | 0.15   |
|       | 60               | 224        | 226                   | No    | 0.27   | 236         | 236                   | Yes   | 0.50   |
|       | 65               | 226        | 226                   | Yes   | 0.50   | 238         | 236                   | Yes   | 0.75   |
|       | 70               | 228        | 226                   | Yes   | 0.73   | 241         | 236                   | Yes   | 0.96   |
|       | 75               | 231        | 226                   | Yes   | 0.94   | 244         | 236                   | Yes   | >0.99  |
|       | 80               | 233        | 226                   | Yes   | 0.99   | 247         | 236                   | Yes   | >0.99  |
|       | 85               | 236        | 226                   | Yes   | >0.99  | 251         | 236                   | Yes   | >0.99  |
| 90    | 240              | 226        | Yes                   | >0.99 | 255    | 236         | Yes                   | >0.99 |        |
| 95    | 246              | 226        | Yes                   | >0.99 | 262    | 236         | Yes                   | >0.99 |        |

| Grade | Start Percentile | Reading    |                       |       |        | Mathematics |                       |       |        |
|-------|------------------|------------|-----------------------|-------|--------|-------------|-----------------------|-------|--------|
|       |                  | Spring RIT | Projected Proficiency |       |        | Spring RIT  | Projected Proficiency |       |        |
|       |                  |            | Cut Score             | Ready | Prob.* |             | Cut Score             | Ready | Prob.* |
| 9     | 5                | 195        | 229                   | No    | <0.01  | 201         | 244                   | No    | <0.01  |
|       | 10               | 201        | 229                   | No    | <0.01  | 208         | 244                   | No    | <0.01  |
|       | 15               | 205        | 229                   | No    | <0.01  | 213         | 244                   | No    | <0.01  |
|       | 20               | 208        | 229                   | No    | <0.01  | 217         | 244                   | No    | <0.01  |
|       | 25               | 211        | 229                   | No    | <0.01  | 220         | 244                   | No    | <0.01  |
|       | 30               | 213        | 229                   | No    | <0.01  | 223         | 244                   | No    | <0.01  |
|       | 35               | 216        | 229                   | No    | <0.01  | 226         | 244                   | No    | <0.01  |
|       | 40               | 218        | 229                   | No    | <0.01  | 228         | 244                   | No    | <0.01  |
|       | 45               | 220        | 229                   | No    | <0.01  | 231         | 244                   | No    | <0.01  |
|       | 50               | 222        | 229                   | No    | 0.01   | 233         | 244                   | No    | <0.01  |
|       | 55               | 224        | 229                   | No    | 0.06   | 236         | 244                   | No    | <0.01  |
|       | 60               | 226        | 229                   | No    | 0.17   | 238         | 244                   | No    | 0.02   |
|       | 65               | 228        | 229                   | No    | 0.38   | 241         | 244                   | No    | 0.15   |
|       | 70               | 230        | 229                   | Yes   | 0.62   | 244         | 244                   | Yes   | 0.50   |
|       | 75               | 233        | 229                   | Yes   | 0.89   | 247         | 244                   | Yes   | 0.85   |
|       | 80               | 236        | 229                   | Yes   | 0.99   | 250         | 244                   | Yes   | 0.98   |
|       | 85               | 239        | 229                   | Yes   | >0.99  | 254         | 244                   | Yes   | >0.99  |
| 90    | 243              | 229        | Yes                   | >0.99 | 258    | 244         | Yes                   | >0.99 |        |
| 95    | 249              | 229        | Yes                   | >0.99 | 266    | 244         | Yes                   | >0.99 |        |
| 10    | 5                | 192        | 234                   | No    | <0.01  | 198         | 251                   | No    | <0.01  |
|       | 10               | 199        | 234                   | No    | <0.01  | 206         | 251                   | No    | <0.01  |
|       | 15               | 203        | 234                   | No    | <0.01  | 211         | 251                   | No    | <0.01  |
|       | 20               | 206        | 234                   | No    | <0.01  | 215         | 251                   | No    | <0.01  |
|       | 25               | 209        | 234                   | No    | <0.01  | 218         | 251                   | No    | <0.01  |
|       | 30               | 212        | 234                   | No    | <0.01  | 221         | 251                   | No    | <0.01  |
|       | 35               | 214        | 234                   | No    | <0.01  | 224         | 251                   | No    | <0.01  |
|       | 40               | 217        | 234                   | No    | <0.01  | 227         | 251                   | No    | <0.01  |
|       | 45               | 219        | 234                   | No    | <0.01  | 230         | 251                   | No    | <0.01  |
|       | 50               | 221        | 234                   | No    | <0.01  | 232         | 251                   | No    | <0.01  |
|       | 55               | 223        | 234                   | No    | <0.01  | 235         | 251                   | No    | <0.01  |
|       | 60               | 226        | 234                   | No    | 0.01   | 238         | 251                   | No    | <0.01  |
|       | 65               | 228        | 234                   | No    | 0.03   | 240         | 251                   | No    | <0.01  |
|       | 70               | 230        | 234                   | No    | 0.11   | 243         | 251                   | No    | <0.01  |
|       | 75               | 233        | 234                   | No    | 0.38   | 246         | 251                   | No    | 0.04   |
|       | 80               | 236        | 234                   | Yes   | 0.73   | 250         | 251                   | No    | 0.37   |
|       | 85               | 239        | 234                   | Yes   | 0.94   | 254         | 251                   | Yes   | 0.85   |
| 90    | 244              | 234        | Yes                   | >0.99 | 259    | 251         | Yes                   | >0.99 |        |
| 95    | 250              | 234        | Yes                   | >0.99 | 267    | 251         | Yes                   | >0.99 |        |

\*Prob. = Probability of obtaining Ready proficiency status on the ACT Aspire test in the spring.

#### 4. References

- ACT, Inc. (2018). *ACT aspire student proficiency by demographic: AR*. Retrieved from <https://adesandbox.arkansas.gov/folder?v=fMDkwNmM5ZjE0OGM4YTZIMml2OTVjZDFkNWE2NzBmNzM&f=fNDVjMWNmN2FkYWEzMTImNDYyZDk1MDcyMDJjMTAyODY>.
- Im, S., Li, S., & Agrimson, J. (2018). *2018 linking study: Predicting grades k–2 performance on Arkansas ACT Aspire from NWEA MAP Growth*. NWEA Research Report. Portland, OR: NWEA.
- Kolen, M. J., & Brennan, R. L. (2004). *Test equating, scaling, and linking*. New York: Springer.
- Pommerich, M., Hanson, B., Harris, D., & Scoring, J. (2004). Issues in conducting linkage between distinct tests. *Applied Psychological Measurement*, 28(4), 247–273.
- Thum, Y. M., & Hauser, C. H. (2015). *NWEA 2015 MAP norms for student and school achievement status and growth*. NWEA Research Report. Portland, OR: NWEA.