

Understanding Maine's Achievement Levels on the Reading and Math Assessments from Spring 2021 to Spring 2023

For more information about Maine's Reading and Math Assessments, please visit our website:

https://www.maine.gov/doe/Testing_Accountability/MECAS/NWEA

How were achievement level cut scores determined for the spring 2021 and spring 2022 MAP Growth assessment administrations?

NWEA MAP Growth is a norm-referenced assessment that allows for the comparison of a student's achievement and growth to the expected achievement and growth of students in the same grade level across the nation. In order to create norms that define average student score as well as standard deviations from that score, NWEA collects data from between 3.6 and 5.5 million test scores from 500,000 to 700,000 students attending over 24,500 public schools in 5,800 districts spread across all 50 states. NWEA's 2020 [MAP Growth Normative Data Overview](#) is based upon data gathered from 2015 to 2018.

What are norms?

Norms allow us to compare a student's achievement to students in a large sample: a norm group.

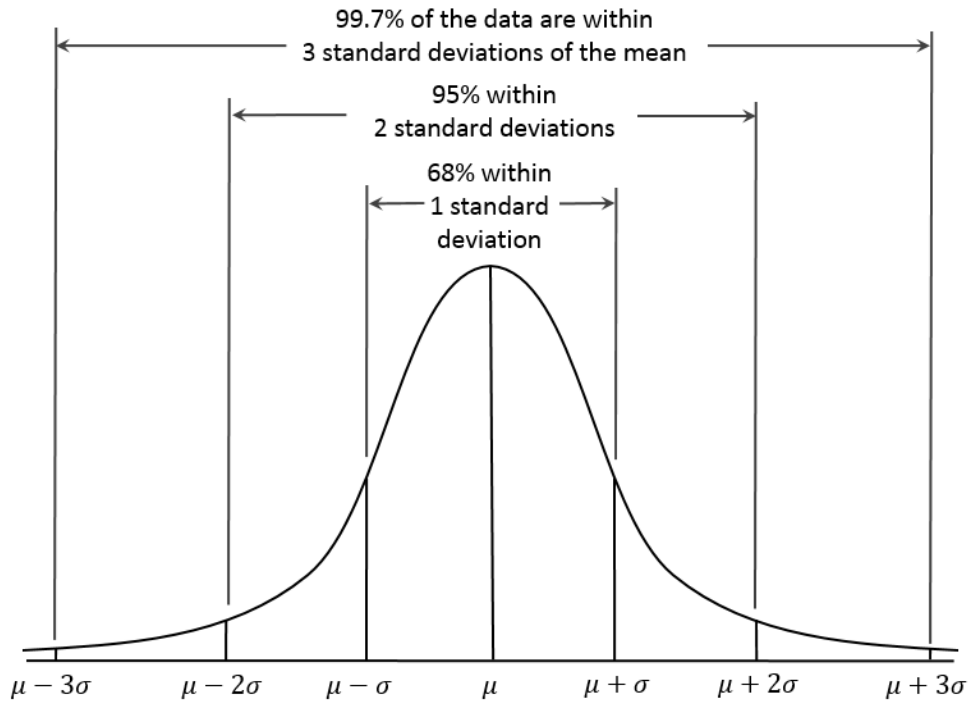
After a test is created, it is administered to a large, diverse group of children who make up the norm group. The children's scores are ranked from low to high performance. The scores are then statistically manipulated to form a statistical model called a *normal distribution*. Test scores (along with many other measurable attributes such as height, weight, etc.) form a normal distribution. This means that there are more scores in the middle than at the highest and lowest ends, and the scores are not biased to the high or low end. A normal distribution graphed visually creates the familiar "bell curve".

[Source: [What are norms?](#)]

Understanding Standard Deviation (SD)

The columns labeled "SD" in the Cut Score Tables shown below contain the standard deviations of the means. Standard deviation is simply a measure of dispersion of scores around the mean, or average; the smaller the SD, the more compact the scores are around the mean. For example, the standard deviation for the grade 3 math MAP Growth assessment is 14.11 and the standard deviation for the grade 10 math MAP Growth assessment is 21.25. This tells us that third-grade students were more likely to have similar scores on the math assessment than tenth grade students.

For all normal distributions, approximately 68% of the observations fall within one standard deviation of the mean (average), 95% of the observations fall within two standard deviations, and 99.7% fall within three standard deviations.



[Source: https://commons.wikimedia.org/wiki/File:Empirical_Rule.PNG]

Because NWEA MAP Growth is a norm-referenced assessment, the Department created cut scores based on the national mean and standard deviation from NWEA's [MAP Growth Normative Data Overview](#). Students whose score fell within one standard deviation of the national mean are in the "At Expectations" category.

CUT SCORE TABLES

Reading Achievement

| Reading | Spring | | At Expectations | Below Expectations | Above Expectations |
|---------|--------|-------|-----------------|--------------------|--------------------|
| Grade | Mean | SD | Range | | |
| 3 | 197.12 | 16.27 | 180.85 - 213.39 | ≤180.84 | ≥213.40 |
| 4 | 204.83 | 16.31 | 188.52 - 221.14 | ≤188.51 | ≥221.15 |
| 5 | 210.98 | 15.97 | 195.01 - 226.95 | ≤195 | ≥226.96 |
| 6 | 215.36 | 16.03 | 199.33 - 231.39 | ≤199.32 | ≥231.40 |
| 7 | 218.36 | 16.38 | 201.98 - 234.74 | ≤201.97 | ≥234.75 |
| 8 | 221.66 | 16.87 | 204.79 - 238.53 | ≤204.78 | ≥238.54 |
| 10 | 223.51 | 18.2 | 205.31 - 241.71 | ≤205.30 | ≥241.72 |
| 11 | 224.71 | 18.5 | 206.21 - 243.21 | ≤206.20 | ≥243.22 |

Math Achievement

| Math | Spring | | At Expectations | Below Expectations | Above Expectations |
|-------|--------|-------|-----------------|--------------------|--------------------|
| Grade | Mean | SD | | | |
| 3 | 201.08 | 14.11 | 186.97 - 215.19 | ≤186.96 | ≥215.20 |
| 4 | 210.51 | 15.56 | 194.95 - 226.07 | ≤194.94 | ≥226.08 |
| 5 | 218.75 | 16.7 | 202.05 - 235.45 | ≤202.04 | ≥235.46 |
| 6 | 222.88 | 17.47 | 205.41 - 240.35 | ≤205.40 | ≥240.36 |
| 7 | 226.73 | 18.6 | 208.13 - 245.33 | ≤208.12 | ≥245.34 |
| 8 | 230.3 | 19.95 | 210.35 - 250.25 | ≤210.34 | ≥250.25 |
| 10 | 232.42 | 21.25 | 211.17 - 253.67 | ≤211.16 | ≥253.68 |
| 11 | 234.25 | 21.65 | 212.60 - 255.90 | ≤212.59 | ≥255.90 |

As such, if the performance of students within a school or SAU in spring 2022 fit perfectly with the performance of students at the same grade level in that subject across the nation from 2015-2018, we would expect 68% of students to be within the “At Expectations” range and 84% of students to be either “At Expectations” or “Above Expectations.”

The achievement level determinations are based on a single “snapshot” of student performance on one spring assessment administration. Student growth is not a factor in the achievement level determinations.

[Will achievement level cut scores be determined in the same way for the spring 2023 administration of the Through Year Assessment?](#)

No, achievement level cut scores will not be determined in the same way for the spring 2023 administration of the Maine Through Year Assessment.

For the Maine Through Year Assessment, student performance will be measured on the spring summative portion of the assessment according to four achievement levels: Well Below, Below, At, and Above State Expectations. This will be based on a student’s performance relative to grade-level state expectations as defined in Maine’s accountability standards for Reading and Math, the Common Core State Standards. For a better understanding of grade-level state expectations, the [Achievement Level Explorer Tool](#) provides performance expectations for each grade-level standard at each of the four achievement levels.

Each question on the summative portion of the spring Maine Through Year Assessment is aligned to one of the standards at one of the four achievement levels. Achievement level cut scores for the summative portion of the Maine Through Year Assessment will be determined by standard setting in summer 2023 once student results are available. Similar to the spring 2021 and 2022 achievement level determinations, students’ scores and achievement levels are based on a single “snapshot” of student performance on one spring administration.