2015 NWEA MAP Growth Normative Data

Looking for context to MAP® Growth™ normative percentiles? The **"2015 NWEA™ Comparative Data One Sheet"** includes multiple **College and Career Readiness (CCR)** benchmarks, including those from **ACT® and Smarter Balanced Assessment Consortium (Smarter Balanced)**.

By using carefully constructed measurement scales that span grades, MAP Growth interim assessments from NWEA offer educators efficient and very accurate estimates of student achievement status within a subject. Before achievement test scores can be useful to educators, however, they need to be evaluated within a context.

To that end, 2015 RIT Scale Norms allow educators to compare achievement status—and changes in achievement status (growth) between test occasions—to students' performance in the same grade at a comparable stage of the school year. This contextualizing of student performance:

- helps teachers as they plan instruction for individual students or confer with parents
- supports school and district administrators as they focus on allocating resources
- empowers school staff as they work to improve all educational outcomes

For the research behind changes to the 2015 RIT Scale Norms, please see **page six**.

For many reasons, it is inadvisable to compare performance of a student on one set of test norms to his or her performance on another. NWEA strongly advises educators to use the 2015 norms because they provide the current and most accurate reference for MAP Growth scores.

Slight differences from the 2011 norms have been observed, some of which reflect true change in the performance of the students. In addition, evidence indicates three other plausible sources for these differences.

- Schools demographics changed between 2011 and 2015 and may have contributed to differences.
- Methodological improvements such as a larger and more representative sample, the use of nine (vs five) terms of data, and a new model for estimating growth have made the 2015 norms more accurate.
- The varied nature of Common Core State Standards adoption, implementation, and testing appear to have resulted in lower test scores. The sources of these observed differences are the subject of further research.

Well-constructed test score norms can inform many education-related activities. Educators find RIT Scale Norms especially useful in four key areas:

1. Individualizing instruction
2. Setting achievement goals for students or entire schools
3. Understanding achievement patterns
4. Evaluating student performance

MAP Growth Status and Growth Norms for Students and Schools

The 2015 NWEA RIT Scale Norms Study provides status and growth norms for individual students as well as for schools on each of the four RIT scales: reading, language usage, mathematics, and general science. The study's results are based on K–11 grade level samples. Each sample is comprised of 72,000 to 153,000 student test records from approximately 1,000 schools. These numbers vary by subject. These samples were drawn randomly from test record pools of up to 10.2 million students attending more than 23,500 public schools spread across 6,000 districts in 49 states. Rigorous procedures were used to ensure that the norms were representative of the U.S. school-age population.

Since MAP Growth assessments can be administered on a schedule designed to meet a school's needs, tests can be administered at any time during the school year. The 2015 norms adjust for this scheduling flexibility by accounting for instructional days, allowing more valid comparisons for status and growth. For example, the norms may be used to locate a student's achievement status (as a percentile rank) for any specified instructional week of the school year.

Similar adjustments are made to the norms when comparing student growth. Median growth conditioned on the student's initial score may be determined for any number of instructional weeks separating two test occasions. This allows educators to make appropriate norm-referenced interpretations of test results that are consistent with their chosen testing schedule. As an additional feature, the norms provide the percentile rank corresponding to a student's observed gain over an instructional interval of a specific length. That is, the norms tell educators what percentage of students made at least as much growth as a particular student for the same period of time, whatever its duration. Situating growth as relative to percentages of students nationwide helps educators move beyond the simple conclusion that a student either did or did not "make target growth."

In order for the norms to take instructional days into account, school district calendars for each school represented in the study sample were retrieved. Using the instructional days data plus the dates of testing, NWEA created "periods or testing seasons" for beginning-of-year norms, middle-of-year norms, and end-of-year norms. Tests occurring at the center of these periods were used to construct the status and growth norms tables that appear below. However, if a school's testing calendar does not conform to the one used to construct these tables, the normative references provided through the NWEA reporting system still allow appropriate comparisons to be made.

Understanding Standard Deviation (SD)

The columns labeled "SD" in the tables below contain the standard deviations of the means. An SD is simply a measure of dispersion of scores around the mean value; the smaller the SD, the more compact the scores are around the mean. SDs are particularly useful when comparing student-level norms and school-level norms and can help educators make a range of inferences. For example, knowing the spread of the data can help identify students who fall well above or below the school average. When making determinations of relative effectiveness, the SDs linked to school norms can also help determine if schools have roughly the same range of scores.

The norms in the tables below have a very straightforward interpretation. For example, in the status norms for reading, grade 2 students in the middle of the "begin-year" period had a mean score of 174.7 and a standard deviation of 15.5. To get a sense of how much dispersion there was, the SD 15.5 can be subtracted from the mean and added to the mean to produce a range of about 159–190. Since the norms are based on the bell curve, we know that 68% of all scores are expected to fall between in this range.

2015 READING Student Status Norms

	Begin-Year		Mid-Year		End-Year	
Grade	Mean	SD	Mean	SD	Mean	SD
K	141.0	13.54	151.3	12.73	158.1	12.85
1	160.7	13.08	171.5	13.54	177.5	14.54
2	174.7	15.52	184.2	14.98	188.7	15.21
3	188.3	15.85	195.6	15.14	198.6	15.10
4	198.2	15.53	203.6	14.96	205.9	14.92
5	205.7	15.13	209.8	14.65	211.8	14.72
6	211.0	14.94	214.2	14.53	215.8	14.66
7	214.4	15.31	216.9	14.98	218.2	15.14
8	217.2	15.72	219.1	15.37	220.1	15.73
9	220.2	15.68	221.3	15.54	221.9	16.21
10	220.4	16.85	221.0	16.70	221.2	17.48
11	222.6	16.75	222.7	16.53	222.3	17.68

2015 MATHEMATICS Student Status Norms

	Begin-Year		Mid-Year		End-Year	
Grade	Mean	SD	Mean	SD	Mean	SD
K	140.0	15.06	151.5	13.95	159.1	13.69
1	162.4	12.87	173.8	12.96	180.8	13.63
2	176.9	13.22	186.4	13.11	192.1	13.54
3	190.4	13.10	198.2	13.29	203.4	13.81
4	201.9	13.76	208.7	14.27	213.5	14.97
5	211.4	14.68	217.2	15.33	221.4	16.18
6	217.6	15.53	222.1	16.00	225.3	16.71
7	222.6	16.59	226.1	17.07	228.6	17.72
8	226.3	17.85	229.1	18.31	230.9	19.11
9	230.3	18.13	232.2	18.62	233.4	19.52
10	230.1	19.60	231.5	20.01	232.4	20.96
11	233.3	19.95	234.4	20.18	235.0	21.30

2015 LANGUAGE USAGE Student Status Norms

	Begin-Year		Mid-Year		End-Year	
Grade	Mean	SD	Mean	SD	Mean	SD
2	174.5	16.58	184.9	15.34	189.7	15.47
3	189.4	15.20	196.8	14.24	200.0	14.11
4	198.8	14.66	204.4	13.83	206.7	13.64
5	205.6	13.87	209.7	13.23	211.5	13.19
6	210.7	13.79	213.9	13.30	215.3	13.38
7	214.0	13.82	216.5	13.52	217.6	13.70
8	216.2	14.17	218.1	13.92	219.0	14.26
9	218.4	14.15	219.7	13.98	220.4	14.50
10	218.9	15.04	219.7	14.99	220.1	15.74
11	221.5	14.96	222.1	14.85	222.1	15.80

2015 GENERAL SCIENCE Student Status Norms

	Begin-Year		Mid-Year		End-Year	
Grade	Mean	SD	Mean	SD	Mean	SD
3	187.5	11.74	192.6	10.92	195.4	11.01
4	194.6	11.16	198.7	10.75	201.0	10.92
5	200.2	11.06	203.7	10.80	205.7	11.07
6	204.3	11.54	207.1	11.40	208.6	11.73
7	207.2	11.92	209.5	11.87	210.9	12.23
8	210.3	12.28	212.3	12.19	213.5	12.63
9*	212.4	12.83	213.9	12.78	214.8	13.32
10*	213.4	13.76	214.5	13.72	215	14.29

*Only status norms are provided for grades 9 and 10 general science. These status norms describe the distributions of achievement in general science academic skills and content knowledge for the relevant student populations for these grades and are useful for screening and placement purposes. Test results should not be used to evaluate performance where science content is more specialized, such as in topically differentiated high school science courses (e.g., biology, chemistry, physics).

Growth norms developed for the 2015 RIT Scale Norms Study reflect the common observation that the rate of academic growth is related to the student's starting status on the measurement scale; typically, students starting out at a lower level tend to grow more. The growth norm tables below show mean growth when the mean grade level status score is used as the starting score. In each case, the starting score is treated as a factor predicting growth. If a particular student's starting score was below the grade level status mean, the growth mean is typically higher. Similarly, students with starting scores above the grade level mean would typically show less growth on average. This procedure, coupled with the inclusion of instructional days in computing the norms, results in a highly flexible and better contextualized reference for understanding RIT scores.

2015 READING Student Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
K	10.3	6.01	6.81	5.46	17.1	8.11
1	10.8	6.00	5.99	5.46	16.8	8.09
2	9.5	6.05	4.52	5.49	14.0	8.20
3	7.3	5.79	3.02	5.33	10.3	7.59
4	5.4	5.56	2.33	5.19	7.8	7.05
5	4.2	5.60	1.97	5.21	6.1	7.15
6	3.2	5.62	1.54	5.22	4.8	7.19
7	2.5	5.58	1.25	5.20	3.7	7.11
8	1.9	6.05	0.99	5.49	2.8	8.19
9	1.1	6.35	0.60	5.68	1.7	8.87
10	0.6	6.72	0.17	5.91	0.7	9.66

2015 MATHEMATICS Student Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
K	11.4	5.56	7.67	5.03	19.1	7.59
1	11.4	5.50	6.97	4.99	18.4	7.45
2	9.5	5.35	5.72	4.90	15.2	7.11
3	7.8	5.08	5.19	4.73	13.0	6.47
4	6.8	5.05	4.78	4.72	11.6	6.41
5	5.8	5.22	4.13	4.82	9.9	6.80
6	4.4	5.20	3.26	4.80	7.7	6.75
7	3.5	5.11	2.47	4.75	6.0	6.55
8	2.9	5.59	1.78	5.05	4.6	7.66
9	2.0	5.81	1.17	5.19	3.1	8.15
10	1.5	6.18	0.85	5.42	2.3	8.92

2015 LANGUAGE USAGE Student Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
2	10.4	6.61	4.74	5.70	15.2	9.83
3	7.4	5.61	3.14	5.06	10.6	7.69
4	5.6	5.26	2.28	4.84	7.9	6.90
5	4.1	5.21	1.76	4.81	5.8	6.78
6	3.2	5.23	1.32	4.83	4.5	6.84
7	2.5	5.14	1.10	4.77	3.6	6.61
8	1.9	5.40	0.96	4.93	2.9	7.22
9	1.4	5.65	0.65	5.08	2.0	7.79
10	0.8	6.03	0.42	5.32	1.2	8.61

2015 GENERAL SCIENCE Student Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
3	5.1	6.28	2.88	5.85	8.0	8.02
4	4.2	5.94	2.27	5.64	6.4	7.19
5	3.5	5.92	2.04	5.63	5.5	7.13
6	2.8	5.92	1.59	5.63	4.3	7.14
7	2.3	5.91	1.39	5.62	3.7	7.10
8	2.0	6.09	1.24	5.73	3.2	7.56

Using School Norms

Just as references to performance at the student level are important, school-level references can provide important insights. Because student-level norms are inappropriate for understanding the performance and progress of groups of students—such as students from a specific grade level—the 2015 RIT Scale Norms Study includes norms for schools in addition to student norms for status and growth.

School-level norms provide references for comparing how grade levels of students within a school compare, as a group, to:

- the same grade level of students in another specific school
- the same grade level of students in public schools across the U.S.

This allows school and district administrators to use school-level norms to monitor school performance over time, and to compare schools' performance within the district. The tables below contain school norms for growth. The important difference between student and school growth is in the SD columns. As the tables show, the growth of students at any grade level is understandably more muted than the growth of the individual students.

2015 READING School Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	Mean	SD	Mean	SD	Mean	SD
K	10.3	1.73	6.8	1.29	17.1	3.02
1	10.8	1.59	6.0	1.20	16.8	2.79
2	9.5	1.43	4.5	1.07	14.0	2.50
3	7.3	1.17	3.0	0.88	10.3	2.05
4	5.4	0.96	2.3	0.72	7.8	1.68
5	4.2	1.02	2.0	0.77	6.1	1.78
6	3.2	1.10	1.5	0.82	4.8	1.92
7	2.5	1.05	1.3	0.79	3.7	1.83
8	1.9	1.29	1.0	0.97	2.8	2.25
9	1.1	1.33	0.6	1.00	1.7	2.32
10	0.6	1.59	0.2	1.19	0.7	2.78

2015 MATHEMATICS School Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	Mean	SD	Mean	SD	Mean	SD
K	11.4	1.77	7.7	1.32	19.1	3.09
1	11.4	1.71	7.0	1.28	18.4	2.99
2	9.5	1.52	5.7	1.14	15.2	2.66
3	7.8	1.26	5.2	0.94	13.0	2.20
4	6.8	1.30	4.8	0.97	11.6	2.27
5	5.8	1.54	4.1	1.16	9.9	2.70
6	4.4	1.33	3.3	1.00	7.7	2.33
7	3.5	1.22	2.5	0.92	6.0	2.13
8	2.9	1.26	1.8	0.94	4.6	2.20
9	2.0	1.36	1.2	1.02	3.1	2.38
10	1.5	1.53	0.9	1.15	2.3	2.67

2015 LANGUAGE USAGE School Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	Mean	SD	Mean	SD	Mean	SD
2	10.4	1.49	4.7	1.12	15.2	2.61
3	7.4	1.29	3.1	0.97	10.6	2.26
4	5.6	1.02	2.3	0.77	7.9	1.79
5	4.1	0.98	1.8	0.74	5.8	1.71
6	3.2	1.04	1.3	0.78	4.5	1.82
7	2.5	1.07	1.1	0.81	3.6	1.88
8	1.9	1.09	1.0	0.82	2.9	1.90
9	1.4	1.25	0.7	0.94	2.0	2.18
10	0.8	1.44	0.4	1.08	1.2	2.52

2015 GENERAL SCIENCE School Growth Norms

	Begin-to-Mid Year		Mid-to-End Year		Begin-to-End Year	
Grade	Mean	SD	Mean	SD	Mean	SD
3	5.1	1.24	2.9	0.93	8.0	2.16
4	4.2	1.07	2.3	0.80	6.4	1.87
5	3.5	1.07	2.0	0.80	5.5	1.87
6	2.8	0.91	1.6	0.68	4.3	1.58
7	2.3	0.79	1.4	0.60	3.7	1.39
8	2.0	0.99	1.2	0.74	3.2	1.72

MAP Growth Norms Study Design/Method: Comparing 2015 to 2011

Design/Method	2011	2015	Benefit to Norms	Results and Reports
Time Span	5 terms, Spring 2009–Fall 2011	9 terms, Fall 2011–Spring 2014	Improves results accuracy	Uses more data for curve fitting
Instructional Time	High % of generic calendars	Lower % of generic calendars	Improves results accuracy	Uses better measures of instructional time
Growth Model	Regular polynomial	Additive polynomial	Improves results accuracy	Reduces seasonal bias
Weights	School Challenge Index 1.0	School Challenge Index 2.0	Improves results accuracy	Better recognizes demographic differences between states
Growth Terms	Spring-Spring, Fall-Fall, Fall-Spring, Fall-Winter	Winter-Winter, Fall-Fall, Spring-Spring, Fall-Winter, Fall-Spring, Winter-Spring	Increases reports utility	Adds new term-to-term comparisons
Student and School Norms in the Same Study	Separate studies	Same study	Increases reports utility	Appropriately supports student and school grade-level comparisons

Thum & Hauser, 2015 Student and School RIT Norms Research Update 1; 4/9/2015

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