2020 NWEA MAP Growth normative data overview

By using carefully constructed measurement scales that span grade levels, MAP® Growth™ interim assessments from NWEA® offer educators precise and accurate estimates of student achievement within a subject. Before achievement test scores can be useful to educators, however, they need to be evaluated within a coherent interpretive context. The 2020 NWEA MAP Growth norms can provide one source of context.

For example, the 2020 MAP Growth norms allow educators to compare achievement status—and changes in achievement status (growth)—to students' performance in the same grade at a comparable stage of the school year or across two test events within or across school years. This information:

+ helps teachers 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 more information about the changes to the 2020 MAP Growth norms and the research behind them, please see .

For many reasons, it is inadvisable to compare performance of a student on one set of MAP Growth test norms to his or her performance on another set of MAP Growth test norms (i.e., 2015 versus 2020 norms). NWEA strongly advises educators to use the 2020 MAP Growth norms, especially when reviewing data longitudinally, because these norms provide the most current and accurate reference for MAP Growth scores.

Differences between the 2020 and 2015 MAP Growth norms have been observed. Most notably, student achievement has declined in recent years across subject areas, grades, and terms. There are also differences in the magnitude of growth observed between test events. On average, in mathematics and reading, the 2020 growth norms show slightly lower means in the earlier grades and slightly greater means in the upper grades. Drops in the average mathematics and reading achievement for grades four and eight are consistent with recent declines reported on the National Assessment of Educational Progress (NAEP) for these subjects and grades.

Well-constructed test score norms can inform many education-related activities. Educators make use of the MAP Growth norms in many ways, including:

1. evaluating student achievement and growth

2. individualizing instruction

3. setting achievement and growth goals for students or groups of students in a school

4. supporting conversations about achievement patterns

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MAP Growth achievement status and growth norms for students and schools

The NWEA 2020 MAP Growth norms Study provides achievement status and growth norms for individual students and grade levels within schools in each of the four subject areas: reading, language usage, mathematics, and general science. The study's results are based on K–12 grade level samples. Records are sampled 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.

Rigorous sampling and weighting procedures, which were consistent with the approach taken with the 2015 MAP Growth norms, were used to ensure that the 2020 norms were representative of the U.S. public school student population.

MAP Growth assessments can be administered on a schedule designed to meet a school's needs. As a result, student scores reflect different amounts of instruction. Under such circumstances, normative comparisons will be unfair, for example, if students with 16 weeks of instruction are compared to students with 20 weeks of instruction. Like the 2015 norms, the 2020 norms accommodate this scheduling flexibility by constructing time-continuous norms. MAP Growth achievement and growth are defined for a number of different instructional weeks during the year, allowing for more valid comparisons and interpretations of student and school achievement status and growth.

Similar instructional week flexibility is addressed in the student and school growth norms. Growth anticipated for students with the same initial score may be determined for varying numbers of instructional weeks separating two test occasions. This allows educators to make appropriate normative interpretations of test results that are consistent with their students' particular testing schedules. With the accompanying conditional growth percentiles, the norms tell educators if students made growth consistent with that of other students (in the same grade and subject area, with the same initial RIT score) with the same amount of instruction between test events. Situating

growth relative to students nationwide helps educators move beyond the simple conclusion that a student either did or did not "make target growth" and understand the extent and magnitude by which a student's growth exceeded or fell short of the growth observed for other similar students.

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 actual dates of testing, NWEA estimated fall, winter, and spring norms. The default instructional weeks were used to construct the achievement status and growth norms tables that appear on the following pages. Specifically, the 4th week is used for fall norms, the 20th week is used for winter norms, and the 32nd week is used for spring norms. However, if a school's testing calendar does not conform to the instructional weeks used to construct these tables, the normative references provided through the MAP Growth reporting system still allow appropriate comparisons to be made.

Understanding standard deviation (SD)

The columns labeled "SD" in the following tables 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 educators understand the extent to which student achievement or growth exceeds or falls short of student- or school-level means.

Student achievement norms

The norms in the tables below have a very straightforward interpretation. For example, in the achievement norms for reading, grade 2 students in the fall had a mean score of 172.35 and a standard deviation of 15.19. To get a sense of how much variation there was, the SD of 15.19 can be subtracted from the mean and added to the mean to produce a range of about 157–188. Since the norms are based on the bell curve, we know that 68% of all grade 2 reading scores are expected to fall within this range.

2020 Reading Student Achievement Norms						
	Fall		Winter		Spring	
Grade	Mean	SD	Mean	SD	Mean	SD
K	136.65	12.22	146.28	11.78	153.09	12.06
1	155.93	12.66	165.85	13.21	171.40	14.19
2	172.35	15.19	181.20	15.05	185.57	15.49
3	186.62	16.65	193.90	16.14	197.12	16.27
4	196.67	16.78	202.50	16.25	204.83	16.31
5	204.48	16.38	209.12	15.88	210.98	15.97
6	210.17	16.46	213.81	15.98	215.36	16.03
7	214.20	16.51	217.09	16.21	218.36	16.38
8	218.01	17.04	220.52	16.69	221.66	16.87
9	218.90	19.02	220.52	18.73	221.40	19.03
10	221.47	17.92	222.91	17.81	223.51	18.20
11	223.53	17.73	224.64	17.80	224.71	18.50
12	223.80	19.32	223.85	21.21	224.33	23.08

2020 Mathematics Student Achievement Norms						
	Fall		Winter		Spring	
Grade	Mean	SD	Mean	SD	Mean	SD
K	139.56	12.45	150.13	11.94	157.11	12.03
1	160.05	12.43	170.18	12.59	176.40	13.18
2	175.04	12.98	184.07	13.01	189.42	13.44
3	188.48	13.45	196.23	13.64	201.08	14.11
4	199.55	14.40	206.05	14.90	210.51	15.56
5	209.13	15.19	214.70	15.88	218.75	16.70
6	214.75	16.12	219.56	16.74	222.88	17.47
7	220.21	17.41	224.04	17.96	226.73	18.60
8	224.92	18.94	228.12	19.33	230.30	19.95
9	226.43	19.83	228.67	20.06	230.03	20.63
10	229.07	20.23	231.21	20.61	232.42	21.25
11	231.72	20.61	233.49	20.91	234.25	21.65
12	233.02	21.60	233.31	23.07	234.19	24.63

2020 Language Usage Student Achievement Norms						
	Fall		Winter		Spring	
Grade	Mean	SD	Mean	SD	Mean	SD
2	173.98	16.06	183.83	15.40	188.40	15.89
3	187.71	15.33	195.14	14.64	198.32	14.65
4	197.33	15.10	202.87	14.44	205.00	14.33
5	204.17	14.55	208.45	13.98	210.19	13.90
6	209.43	14.35	212.81	13.92	214.19	13.94
7	212.65	14.72	215.28	14.39	216.47	14.42
8	215.54	14.74	217.73	14.45	218.74	14.56
9	216.68	15.52	218.18	15.30	219.00	15.51
10	218.82	15.10	220.19	15.11	220.86	15.45
11	220.66	14.94	221.86	14.98	222.33	15.53

2020 General Science Student Achievement Norms						
	Fall		Winter		Spring	
Grade	Mean	SD	Mean	SD	Mean	SD
2	177.70	13.43	184.59	12.35	187.87	12.46
3	187.84	12.25	193.29	11.63	195.88	11.76
4	194.65	11.68	199.15	11.50	201.22	11.75
5	200.23	11.77	204.30	11.72	206.17	12.12
6	203.86	12.04	207.26	12.02	208.47	12.41
7	206.56	12.65	209.50	12.73	210.61	13.17
8	209.64	13.25	212.41	13.17	213.44	13.64
9*	211.40	14.10	213.42	14.17	213.99	14.72
10*	213.24	14.26	214.95	14.42	215.29	15.07

* These science 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).

School norms

Just as references to performance at the student level are important, school references can also provide important insights. Because research shows that the variation of groups of students tend to be much smaller than that of the students themselves, student-level norms are inappropriate for understanding the performance and progress of groups of students. If groups of students in a school are evaluated against the student norms, strongly performing schools will tend to have their outcome understated while poorly performing schools will tend to have their performance overstated. The 2020 MAP Growth norms Study includes achievement and growth norms for grade-levels within schools in addition to student achievement status and growth norms.

School 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 norms to monitor school performance over time, and to compare schools' performance within the district. The tables below contain school growth norms. The important difference between student and school growth is in the SD columns. As the tables show, the growth of groups of students at any grade level is understandably less variable than the growth of individual students.

2020 Reading School Growth Norms

Grade	Fall-to-Winter Mean	SD	Winter-to-Spring Mean	SD	Fall-to-Spring Mean	SD
K	9.63	1.43	6.81	1.07	16.45	2.49
1	9.92	1.47	5.55	1.10	15.47	2.57
2	8.85	1.44	4.37	1.08	13.22	2.52
3	7.28	1.23	3.22	0.92	10.50	2.14
4	5.82	1.21	2.33	0.91	8.16	2.11
5	4.64	1.15	1.86	0.86	6.50	2.01
6	3.64	1.02	1.55	0.77	5.19	1.79
7	2.89	1.02	1.27	0.76	4.16	1.78
8	2.51	1.18	1.14	0.88	3.65	2.06
9	1.62	1.16	0.88	0.87	2.51	2.03
10	1.43	0.96	0.60	0.72	2.04	1.68
11	1.11	1.25	0.08	0.94	1.18	2.19
12	0.05	1.31	0.47	1.01	0.52	2.30

2020 Mathematics School Growth Norms

Grade	Fall-to-Winter Mean	SD	Winter-to-Spring Mean	SD	Fall-to-Spring Mean	SD
K	10.57	1.36	6.97	1.02	17.54	2.38
1	10.13	1.44	6.22	1.08	16.35	2.52
2	9.03	1.30	5.35	0.97	14.38	2.27
3	7.75	1.21	4.85	0.91	12.60	2.12
4	6.50	1.16	4.46	0.87	10.96	2.02
5	5.56	1.39	4.05	1.04	9.61	2.42
6	4.81	1.28	3.32	0.96	8.13	2.24
7	3.83	1.19	2.69	0.89	6.52	2.08
8	3.20	1.38	2.18	1.04	5.38	2.42
9	2.24	1.10	1.36	0.83	3.60	1.93
10	2.14	1.16	1.21	0.87	3.35	2.02
11	1.77	1.15	0.76	0.86	2.52	2.01
12	0.30	1.23	0.88	0.93	1.18	2.15

2020 Language Usage School Growth Norms

Grade	Fall-to-Winter Mean	SD	Winter-to-Spring Mean	SD	Fall-to-Spring Mean	SD
2	9.85	1.65	4.57	1.24	14.41	2.88
3	7.43	1.13	3.18	0.84	10.61	1.97
4	5.54	1.01	2.13	0.76	7.67	1.76
5	4.27	0.92	1.74	0.69	6.02	1.61
6	3.37	0.80	1.38	0.60	4.75	1.40
7	2.63	0.78	1.19	0.59	3.82	1.37
8	2.19	0.86	1.01	0.64	3.21	1.50
9	1.50	0.82	0.82	0.61	2.33	1.43
10	1.37	0.81	0.67	0.60	2.04	1.41
11	1.20	0.97	0.47	0.73	1.67	1.70

2020 General Science School Growth Norms

Grade	Fall-to-Winter Mean	SD	Winter-to-Spring Mean	SD	Fall-to-Spring Mean	SD
2	6.88	1.21	3.29	0.91	10.17	2.12
3	5.45	1.42	2.59	1.07	8.04	2.49
4	4.50	1.17	2.07	0.88	6.57	2.05
5	4.08	1.22	1.87	0.91	5.95	2.13
6	3.40	1.22	1.21	0.91	4.61	2.13
7	2.94	1.22	1.11	0.92	4.05	2.14
8	2.77	1.23	1.03	0.92	3.79	2.15
9	2.02	1.33	0.57	1.00	2.59	2.31
10	1.72	1.13	0.34	0.85	2.05	1.97

Separate tables for the school achievement norms are not shown in this document because the means (i.e., average values) for school and student achievement are equivalent. The standard deviations for the school norms are much smaller than for students, however, meaning that the range between high and low values seen at the school level are far smaller than the variability commonly seen for individual students. Additional information on the school achievement norms can be found in the 2020 MAP Growth norms Study.

MAP Growth Norms Study: Comparing 2020 to 2015

National norms overview: 2020 vs. 2015				
Design/Method	2020	2015	Change	Benefits
Growth model (methodology)	Multilevel Growth Model	Multilevel Growth Model	No significant changes to norming methodology	**Consistency and reliability** By maintaining consistency in a proven methodology, we can better understand changes in student achievement and growth trends
# of terms	9 Testing Terms	9 Testing Terms	Same number of testing terms (9), but more recent data	**Maximal information from available student test score histories** Using nine testing terms provides the optimal amount of data points to support norms for both achievement and growth
Time period	Fall 2015→ Spring 2018 (Fall, Winter, Spring across 3 years)	Fall 2011→ Spring 2014 (Fall, Winter, Spring across 3 years)	2020 norms use much more recent data	**Recent data = more relevant norms** Using more recent data ensures that we are providing updated estimates of achievement and growth norms
Testing calendars	Higher % of norm data linked to **actual** district testing calendars	Lower % of norm data linked to **actual** district testing calendars	2020 norms use 2.5x more data points that are tied to actual district testing calendars	**Improved measurement of growth** Incorporating more data that is tied to actual district testing calendars improves our ability to develop a more accurate measure of instructional exposure, resulting in more accurate norms
Growth terms	Winter–Winter Fall–Fall Spring–Spring Fall–Winter Fall–Spring Winter–Spring (NEW!) Spring–Fall*	Winter–Winter Fall–Fall Spring–Spring Fall–Winter Fall–Spring Winter–Spring	2020 norms have added the Spring–Fall comparison term	**Understanding of full-year learning** Adding the Spring-Fall term pair lets us better understand the phenomenon of "summer loss," which provides a better description of a student's performance over a full year
Additional filter for student test-taking effort	Uses effortful scores only (i.e. 10% or fewer rapid guesses)	Uses effortful and non-effortful scores	New feature of norms	**Better data = better norms** Using more clearly defined target populations for achievement and growth norms, plus removing construct irrelevant variance due to student test-taking effort, allows for better data and norms

Grade coverage: National norms 2020 vs. 2015				
Subject	2020	2015	Change	Benefit
Math K–12	Achievement: K–12 Growth: K–12	Achievement: K–11 Growth: K–10	Achievement: 12th grade Growth: 11 & 12th grade	**More coverage = better tracking** Adding more grade level coverage increases the opportunity to help better contextualize the achievement and growth of all students
Reading	Achievement: K–12 Growth: K–12	Achievement: K–11 Growth: K–10	Achievement: 12th grade Growth: 11 & 12th grade	
Language Usage	Achievement: 2–11 Growth: 2–11	Achievement: 2–11 Growth: 2–10	Achievement: No change Growth: 11th grade	
Science (General)	Achievement: 2–10 Growth: 2–10	Achievement: 3–10 Growth: 3–8	Achievement: 2nd grade Growth: 2nd, 9th, 10th grade	

* Note: Spring-to-Fall term pair will not be available in MAP Growth reporting in July 2020.

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