**Minnesota** Department of

Education

Growth Data Help Document

What are growth scores?

Minnesota's Growth Model could be described as representing an empirical, actuarial or normative approach to setting year-to-year expectations for changes in academic achievement. The basic approach is to define groups of students based on their MCA scores in Year 1 (grade N) and determine their MCA score distributions in Year 2 (grade N+1). For example, take 3rd graders who scored 339 on the Reading MCA-III in 2014, and determine their scores on the 2015 Grade 4 Reading MCA-III. (See Figure 1 below.) Their grade 4 score distribution can be summarized by calculating the mean and standard deviation of those scores. The mean (440 in the example) represents the expected grade 4 performance for this group, and the standard deviation (10 in the example) indicates how much variation was observed among these students in their grade 4 scores. A student who scored 339 in grade 3 and 445 in grade 4 has performed above expectation by 5 scale score points. We could also say that student has performed ½ standard deviation (5÷10=½) above expectation. Scores that report variations around a mean in standard deviation units are commonly referred to as z-scores. The student just described would be awarded a growth z-score of +.5. Similarly, another student who scored 339 in grade 3 but only 430 in grade 4 has scored 10 points (or 1 standard deviation) below the expectation (mean), and would earn a growth z-score of -1.

Figure 1. Hypothetical Year 2 Score Distribution for Students with Year 1 Score = 339
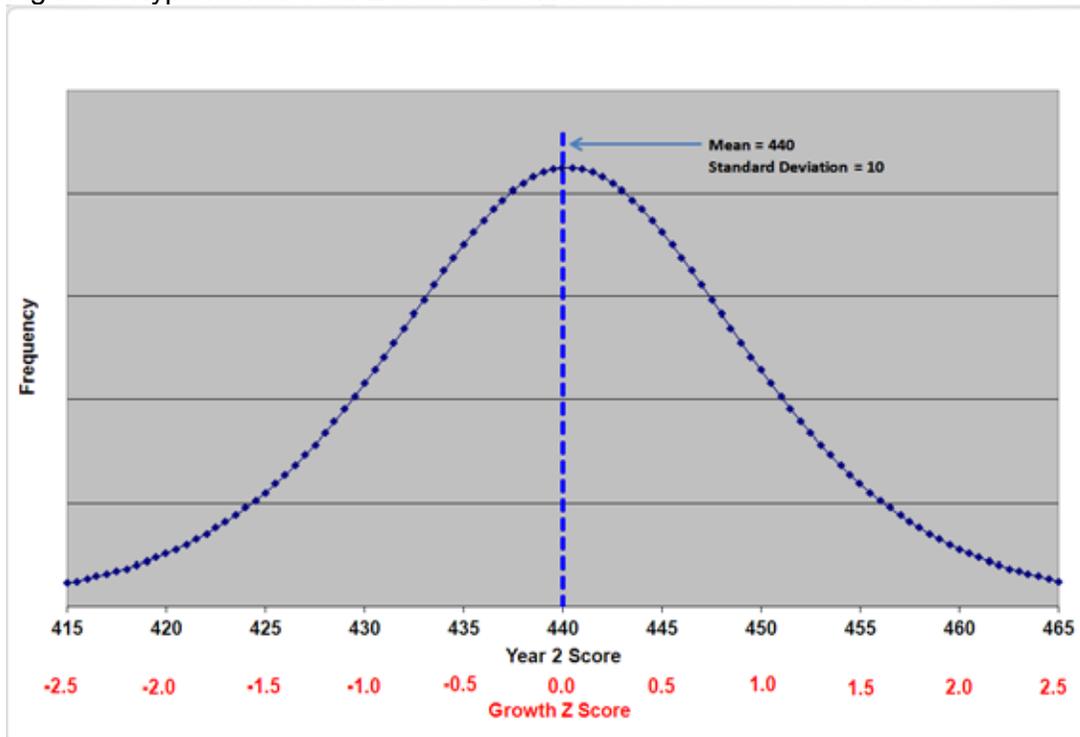
More generally, a student's Minnesota Growth z-score can be calculated as:

Growth Z-Score = (Student Score – Expectation) ÷ Standard Deviation.

The average student in any group would be expected to earn the group mean, or a z-score of zero. Therefore, zero is the expectation for meeting growth targets each year. Negative growth z-scores represent Year 2 achievement below expectation, whereas positive growth z-scores indicate achievement better than expected, given the Year 1 score.

For more information about growth calculations, you can refer to the functional requirements document. This file can be found by going to the Data Center and selecting Data Reports and Analytics. Select the link called Assessment and Growth Files. There, select the test name to be Growth and a year. Once you list the files, several file options will appear. The functional requirements document is labeled Minnesota Growth Calculations. The PDF document under the Help Files column for many of the files are also the functional requirements documentation.

Which students receive a growth score?

Growth scores are only determined for students participating in statewide Title-I accountability tests in mathematics and reading. Title-I accountability tests currently include the Minnesota Comprehensive Assessment (MCA) and Minnesota Test of Academic Skills (MTAS). Students must have tested in Year 2 on the same accountability test as on Year 1 and received a valid score in both years. The one exception to the requirement that students be tested on the same test was for students who took the now-discontinued MCA-Modified (MOD) in 2014 (Year 1), and the MCA in 2015 (Year 2). Students must also have made a normal grade progression to receive a growth score. That is, students who participated in the grade 3 assessment in Year 1

must have participated in the grade 4 assessment in Year 2. Students who skip or repeat grades do not receive growth scores. Growth scores are calculated for students in grades 4-8, 10 (reading only), and 11 (math only).

How are growth scores used in Minnesota?

Individual student z-scores are used in two different ways for accountability purposes in Minnesota. For the Multiple Measurements Rating (MMR), which was adopted as a result of Minnesota's approved ESEA Flexibility Request, a school's overall growth score is computed by averaging the z-scores of all students enrolled within the school for the full academic year. As in the other domains of the MMR, a school's performance is given a percentile rank and multiplied by 25 possible points to determine a point total in the growth domain. For more information about the growth domain in the MMR, please see the video about [MMR Growth](#).

The Minnesota Growth Model reports growth scores in three categories: Low, Medium and High Growth. For the Minnesota Growth Model, a school's growth is reported as the percentages of students who make Low, Medium or High Growth on the MCA. The Low, Medium and High Growth distinctions are not used in the MMR.

How are growth score codes of Low, Medium, and High assigned?

In general, students who have a growth z-score of less than -0.5 have Low Growth (L); students who have a growth z-score between -0.5 and +0.5 have Medium Growth (M); students who have a growth z-score of greater than +0.5 have High Growth (H). Students may have slightly higher or lower growth z-scores than these cut points because the nearest scale score is used for classification of Low, Medium, and High rather than a strict correspondence with the observed growth z-score. This means it is possible that a student may have a growth z-score of +0.55 but receive a growth code of Medium.

How are growth expectations or targets set?

Expectations, or targets, for students are set based on average changes in scale scores from year to year on statewide assessments. Expectations are slightly adjusted for the first two cohorts of students taking the new standards in the prior year and the current year. Therefore, growth expectations were set for mathematics grades 4-8 in 2014, for reading for grades 4-8 in 2015, for mathematics grade 11 in 2015, and for reading grade 10 in 2016.

Where can growth targets be found?

Growth target information can be found in the Determining Growth Target Ranges file. To find this file, go to the Data Center and select [Data Reports and Analytics](#). Select the link called Assessment and Growth Files. There, select the test name to be Growth and the year of data you would like to see. This file provides the growth targets by test and grade in both mathematics and reading. This file also describes the process by which growth targets are calculated.

What are the columns in the Determining Growth Target Ranges File?

testName	count	subject	grade	range	average	stdev	minSS	maxSS	highGrowth	medGrowth	lowGrowth	priorYearTestName
MCA-III	0	M	03	1 - 1	409.78177510	9.22306681	301	301	414	405	0	MCA-III
MCA-III	0	M	03	2 - 2	410.55199740	9.36466405	302	302	415	406	0	MCA-III
MCA-III	0	M	03	3 - 3	411.28675340	9.50133887	303	303	416	407	0	MCA-III
MCA-III	0	M	03	4 - 4	411.99129350	9.63294567	304	304	417	407	0	MCA-III
MCA-III	0	M	03	5 - 5	412.67142270	9.75937648	305	305	418	408	0	MCA-III
MCA-III	0	M	03	6 - 6	413.33333760	9.88056004	306	306	418	408	0	MCA-III
MCA-III	0	M	03	7 - 7	413.98341720	9.99645971	307	307	419	409	0	MCA-III
MCA-III	0	M	03	8 - 8	414.62797190	10.10707031	308	308	420	410	0	MCA-III
MCA-III	0	M	03	9 - 9	415.27296060	10.21241382	309	309	420	410	0	MCA-III
MCA-III	0	M	03	10 - 10	415.92369510	10.31253441	310	310	421	411	0	MCA-III
MCA-III	0	M	03	11 - 11	416.58455630	10.40749276	311	311	422	411	0	MCA-III
MCA-III	0	M	03	12 - 12	417.25875510	10.49736015	312	312	423	412	0	MCA-III
MCA-III	0	M	03	13 - 13	417.94817300	10.58221248	313	313	423	413	0	MCA-III
MCA-III	0	M	03	14 - 14	418.65331650	10.66212462	314	314	424	413	0	MCA-III
MCA-III	1301	M	03	15 - 15	419.37341060	10.73716490	315	315	425	414	0	MCA-III
MCA-III	143	M	03	16 - 16	420.10663910	10.80738997	316	316	426	415	0	MCA-III
MCA-III	175	M	03	17 - 17	420.85052200	10.87283927	317	317	426	415	0	MCA-III
MCA-III	182	M	03	18 - 18	421.60239610	10.93352859	318	318	427	416	0	MCA-III
MCA-III	229	M	03	19 - 19	422.35994310	10.98944157	319	319	428	417	0	MCA-III
MCA-III	240	M	03	20 - 20	423.12168610	11.04051795	320	320	429	418	0	MCA-III
MCA-III	280	M	03	21 - 21	423.88734200	11.08663773	321	321	429	418	0	MCA-III
MCA-III	308	M	03	22 - 22	424.65791380	11.12760128	322	322	430	419	0	MCA-III

Overview | 2015 ObservedMeansSDs | **2015 Targets**

The data related to growth targets are found on the Target tab of the Excel file. The following is a list of the variables included in the file with a brief description of what is included in the column.

Test Name (testName): The name of the test a student took in the current year (Year 2).

Count: The number of students observed statewide having performed in the scale score range reported in the Range column on the test, subject, and grade from Year 1. Some of the counts are 0, meaning that no students in the state had scores in the scale score range in Year 1.

Subject: The subject is either mathematics (M) or reading (R) and represents both Year 1 and Year 2 tests.

Grade: The grade in which the student tested in Year 1.

Range: The range of scale scores used for grouping students in the growth z-score calculation from Year 1. For the MCA, these scale scores are represented only by the last two digits of the scale score.

Average: The mean scale score for students scoring in the range reported in the Range variable. In order to have a positive z-score, students must score at the scale score found by rounding up the average value to the nearest whole scale score.

Standard Deviation (stdev): The standard deviation of the distribution of scale scores for students scoring in the range reported in the Range variable.

Minimum Scale Score (minSS): The minimum scale score used from Year 1 for grouping students in the calculation of the growth z-score.

Maximum Scale Score (maxSS): The maximum scale score used from Year 1 for grouping students in the calculation of the growth z-score.

High Growth (highGrowth): The lowest scale score to be classified as High Growth. This is the scale score which corresponds with the z-score cutoff of +0.5.

Medium Growth (medGrowth): The lowest scale score to be classified as Medium Growth. This is the scale score which corresponds with the z-score cutoff of -0.5.

Low Growth (lowGrowth): The lowest score a student can receive to be considered to have Low Growth. This is set to 0 for all values in the table. Any score below the Medium Growth cutoff is considered Low Growth.

Prior Year Test Name (priorYearTestName): This column was new in the 2015 release. Prior to the 2015 release, students must have completed the same accountability test in Year 1 and Year 2 (MCA, MOD, or MTAS both years). With the discontinuation of the MOD test, some students taking the MCA previously took the MOD and some previously took the MCA who received growth scores, necessitating this column. This column represents which test students took in Year 1.

What is important to consider when using the growth score codes of Low, Medium, and High?

The growth score codes reported on the Data Center on the Minnesota Report Card > Student Progress and in Data Reports and Analytics > Assessment and Growth are based on the Minnesota Growth Model. This model was developed only using results from the Minnesota Comprehensive Assessment (MCA) mathematics and reading assessments. Students must have taken and received valid scores on the MCAs in both the current year and prior year to receive a growth score. Additionally, students must have made normal grade progression (e.g., taking the grade 3 exam in 2015 and grade 4 exam in 2016). Students in grade 3 do not have a growth z-score or growth score code because they could not have taken the MCA in grade 2.

The growth score codes of Low, Medium, and High **do not represent** whether a student has learned less than, about a year, or more than a year's worth of material; there is no clear relationship between growth z-scores and information learned. The growth score codes only indicate how a student is performing relative to students who appeared to have a similar level of knowledge in the prior year. Students with Low Growth performed lower in the current year than the majority of students who had scored similarly to them in the prior year. Students with High Growth performed higher in the current year than the majority of students who had scored similarly to them in the prior year. Students with Medium Growth may have performed better or worse in in the current year than the average student who had scored similarly to them in the prior year.

The designations of Low, Medium, and High do not directly indicate whether a student is performing at a level that has them on a trajectory to become proficient or maintain proficiency. In general, students who were not proficient in the prior year need to have High Growth in the current year to be on a trajectory which indicates it is likely the student will be proficient in future years. For students who were proficient in the prior year, High or Medium Growth has historically been predictive of maintaining proficiency. However, because Medium Growth can indicate falling behind their peers on average, caution should be taken with assuming Medium Growth is sufficient to maintain proficiency.

How can districts and schools use growth target data?

Prior to receiving growth data, schools and districts can use the growth targets to classify students as meeting growth expectations or to categorize the level of growth students have reached. As an alternative to looking at which third of the distribution students were (looking at low, medium, and high), using four levels which also takes into consideration whether students met their growth expectations can be used. Students receiving a z-score of greater than +0.5 would still be classified as high growth, students with z-scores from 0 to +0.5 would be considered moderate (these two groups make up the group of students meeting growth expectations), students receiving z-scores from -0.5 to 0 could be considered low growth, and students with less than -0.5 z-scores could be considered very low growth.

If, instead, a school or district wants to focus on determining average growth z-scores prior to growth data being released, the average score and standard deviation reported in the growth targets file can be used to calculate a z-score for each student. This can then be aggregated across students for determining an average growth z-score. Once the Growth Detail Download is released, the calculation of student specific z-scores is completed and presented within the downloadable table.

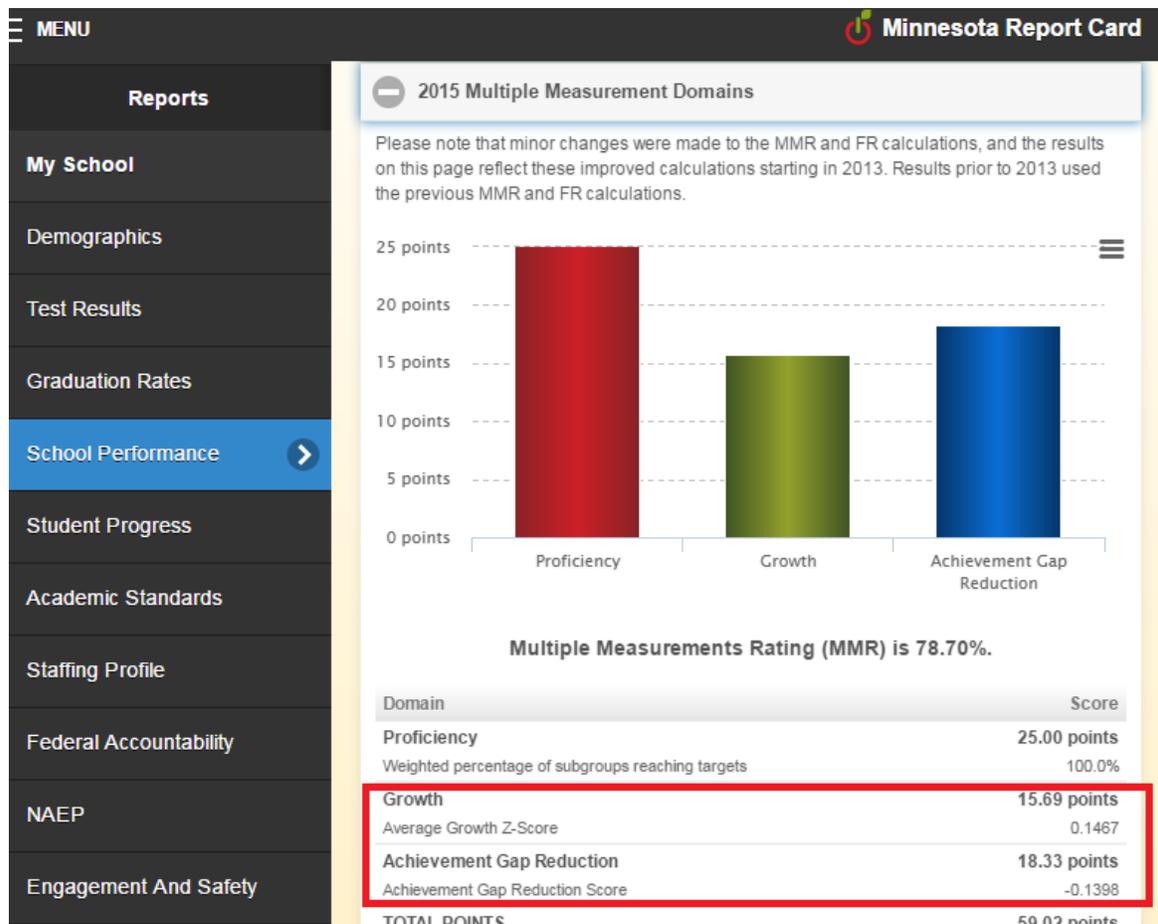## Where can I find growth data in the MDE Data Center?

[Minnesota Report Card](#)
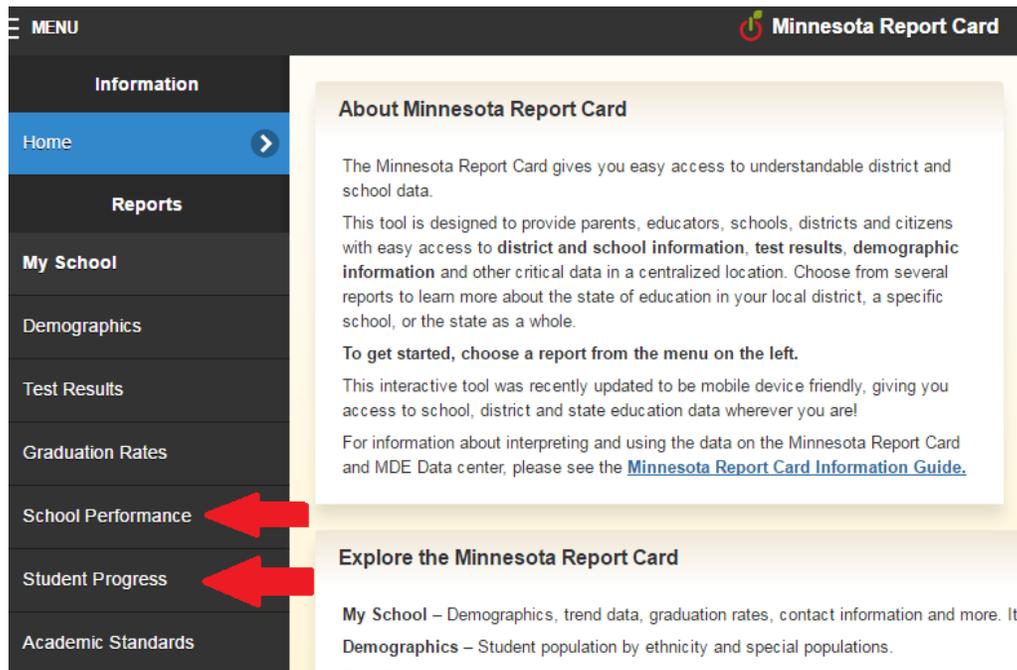
- Student Progress report: Utilizes the Minnesota Growth Model. The first panel shows the percentage of students "on track" for success. This is the percentage of students who had been proficient in the prior year and had High or Medium Growth plus the percentage of the students who had not been proficient in the prior year with High Growth. The second panel shows the proportions of students receiving a growth score code of Low, Medium, or High in the most recent year of data available. The third panel shows the matrix of proficient or not proficient in the previous year with the growth score codes for the most recent year of data available.

- School Performance report: Presents the average growth z-score across math and reading used in MMR Growth. The achievement gap reduction score is also based on growth z-scores. MMR growth is fundamentally the same as the Minnesota Growth Model, except students taking MTAS (and historically MOD) are also included.

[Data Reports and Analytics](#)

Assessment and Growth Files

- Determining Growth Target Ranges: Select the link called Assessment and Growth Files. There, select the test name to be Growth and the year of data you would like to see. This file provides the growth targets by test and grade in both mathematics and reading. This file also describes the process by which growth targets are calculated.

- Functional Requirements: Select the link called Assessment and Growth Files. There, select the test name to be Growth and a year. Once you list the files, several file options will appear. The functional requirements document is labeled Minnesota Growth Calculations. The PDF document under the Help Files column for many of the files are also the functional requirements documentation.

- Minnesota Growth Model: Select the link called Assessment and Growth Files. There, select the test to be Growth and the year of data you are seeking. The xlsx extension file will provide Minnesota Growth data broken down by grade for all schools and districts in the state. In order to see information by grade by student group, the zip file must be downloaded.

Multiple Measurement Data

- Multiple Measurement Files: Provides a spreadsheet of all schools in the state, which includes all the information provided on the Minnesota Report Card's School Performance report.

- Multiple Measurement District Download: Provides information for all schools within a particular district in a spreadsheet with several tabs. Information by student group and subject are provided for each of the MMR domains, as appropriate.

For more information on MMR, please see the Multiple Measurement Rating (MMR) webpage. MDE > School Support > Elementary and Secondary Education Act (ESEA) Flexibility Waiver > Multiple Measurement Rating (MMR).

Secure Reports

If you have access to Assessment Secure Reports, you will have access to all Secure Reports listed below.

- Growth Detail Download: Provides a spreadsheet of individual student data, including specific students' growth z-scores, prior year, and current year score information.

- Proficiency and Growth Tracking report: Creates pivot tables from the Growth Detail Download using AYP filters and logic.

- Growth Summary Report and Download: Provides the data which is presented in the Student Progress report on the Minnesota Report Card. However, unlike the data on the Report Card, the data can be split by grade and student group.

- Multiple Measurement System report: Provides more in depth information for average growth z-scores by student groups and subject, as appropriate for the growth and achievement gap reduction domains using MMR Growth.

For more information on MMR, please see the Multiple Measurement Rating (MMR) webpage. MDE > School Support > Elementary and Secondary Education Act (ESEA) Flexibility Waiver > Multiple Measurement Rating (MMR).