2023 School Performance Rating Calculations



Rating components & measures

The MSF School Performance Rating is comprised of 3 components: academics, climate & equity

These roll up into a single school rating. Each component is calculated from different measures that indicate a school's quality in that area. Traditional high schools, alternative high schools & K-8's feature different academic measures (& corresponding equity measures).*

- **1. Academics:** Number of students on grade level &/or on track for college
- 2. Climate: Measuring stability vs. instability
- **3. Equity:** Difference in the Academic and Climate measures between different demographic groups within a school

*Please see appendix B for specific calculations

Rating components & measures

Component	Measures	
1. Academic 60%	 MCA* Math & Reading proficiency (on grade level, K-8) MCA Math & Reading progress (progressing toward/ on grade level, K-8) 	 ACT Composite Score (HS**) 4-yr grad rate (HS) College graduation or continuation (HS)
2. Climate 20%	 Teacher retention (% of teachers at the school Consistent attendance (% of students who a 	ool the previous year) ttend at least 90% of the time)
3. Equity 20%	 Inter-school MCA proficiency & progress ga Inter-school college graduation or continuat Proportion of teachers of color relative to st 	ps between student groups (K-8) ion gaps (HS) udents of color (all)

*MCA measure includes the MTAS ** Alternative High Schools are not given a Rating

Ratings Calculations - Curving Data

Each measure is divided into 5 color-coded categories, split by 4 cut points. Those cut points are curved to fit an even distribution on a 0 to 100 scale. This allows for comparison across measures.

Example: Math Progress	Red	Orange	Yellow	Green	Blue
MDE Reported Value	≤30%	≤38% to 30>%	≤47% to >38%	≤60% to >47%	>60%
SPR Calculated Value	≤20%	≤20% to 40>%	≤40% to >60%	≤60% to >80%	>80%

Example:

Math Progress is split into 5 categories. It is then curved to fit a 20/40/60/80 distribution using the formula $y = 87.927 * \ln(x) - 279.93$, where x is the MDE Reported value and y is the SPR Calculated (curved) value.

A school with a Math Progress rate of 45% would be given a curved value of 55%, awarding them a Yellow rating.



Ratings Calculations - Weighting

To arrive on component ratings, a weighted average of the measures within the component is calculated.

Example:

Sunnyside Elementary has calculated the following measures in the Academic component.

	Weight	MDE Reported Value	SPR Calculated Value	Color
Math Proficiency	13%	33%	62%	Green
Reading Proficiency	13%	51%	84%	Blue
Math Progress	37%	45%	55%	Yellow
Reading Progress	37%	54%	57%	Yellow
Academic Rating (Weighted Avg)	-	-	68%	Green

This same technique is used to award an Overall Rating. That is, the three components contribute to a weighted average, the result of which is the Overall Rating.

Appendix A Measure cut points & weighting

Academic component cut points & weighting - K-8 (60%)

Measure & Weight					
	Blue	Green	Yellow	Orange	Red
MCA Math Proficiency (37%)	>45%	≤45% to >33%	≤33% to >17%	≤17% to >9%	≤9%
MCA Reading Proficiency (37%)	>50%	≤50% to 42>%	≤42% to >22%	≤22% to >18%	≤18%
MCAS Math Progress (13%)	>60%	≤60% to >47%	≤47% to >38%	≤38% to 30>%	≤30%
MCA Reading Progress (13%)	>67%	≤67% to >54%	≤54% to >47%	≤47% to >38%	≤38%

Academic component cut points & weighting - high school (60%)

points					
	Blue	Green	Yellow	Orange	Red
ACT (25%)	>21	≤21 to >18	≤18 to >15	≤15 to >14	≤14
4-yr grad rate (33%)	>90%	≤90% to >80%	≤80% to >70%	≤70% to >50%	≤50%
College persistence (42%)	>84%	≤84% to >75%	≤75% to >65%	≤65% to >55%	≤55%

Climate component cut points & weighting - K-8 schools (20%)

Measure & weight					
	Blue	Green	Yellow	Orange	Red
Teacher retention (50%)	>90%	≤90% to >82%	≤82% to >74%	≤74% to >66%	≤66%
Consistent attendance (50%)	>95%	≤95% to >90%	≤90% to >80%	≤80% to >65%	≤65%

Climate component cut points & weighting - high school (20%)

Measure & weight					
	Blue	Green	Yellow	Orange	Red
Teacher retention (50%)	>90%	≤90% to >82%	≤82% to >74%	≤74% to >66%	≤66%
Consistent attendance (50%)	>84%	≤84% to >72%	≤72% to >64%	≤64% to >60%	≤60%

Equity component cut points & weighting - K-8 schools (20%)

Measure & weight

	Blue	Green	Yellow	Orange	Red
Proficiency gap – math (10%)	<10%	≥10% to <24%	≥24% to <37%	≥37% to <50%	≥50%
Proficiency gap – reading (10%)	<10%	≥10% to <24%	≥24% to <37%	≥37% to <50%	≥50%
Progress gap – math (15%)	<7%	≥7% to <13%	≥13% to <20%	≥20% to <32%	≥32%
Progress gap - reading (15%)	<7%	≥7% to <13%	≥13% to <20%	≥20% to <32%	≥32%
Consistent attendance gap (20%)	<2.5%	≥2.5% to <5%	≥5% to <7.5%	≥7.5% to <10%	≥10%
Teachers of color to students of color ratio (30%)	>1:2	≤1:2 to >1:1.6	≤1:1.6 to >1:1.2	≤1:1.2 to >1:0.7	≤1:0.7

Cut points were determined by looking at the distribution of results from Minneapolis schools (all schools included in Minneapolis School Finder)

Equity component cut points & weighting - high school (20%)

Measure & weight					
	Blue	Green	Yellow	Orange	Red
4-year grad gap - (25%)	>30%	≤30% to >60%	≤60% to >70%	≤70% to >75%	≤75%
College persistence gap (25%)	>4%	≤4% to >12%	≤12% to >20%	≤20% to >32%	≤32%
Consistent attendance gap (20%)	<3%	≥3% to <10%	≥10% to <15%	≥15% to <20%	≥20%
Teachers of color to students of color ratio (30%)	>1:2	≤1:2 to >1:1.6	≤1:1.6 to >1:1.2	≤1:1.2 to >1:0.7	≤1:0.7

Cut points were determined by looking at the distribution of results from Minneapolis schools (all schools included in Minneapolis School Finder)

Appendix B Data definitions (Data from MDE, unless noted)

Academic component definitions - K-8 schools

Measure	Definition			
MCA Proficiency	% of students proficient on the MCA			
MCA Progress	% of students making progress, as defined by MDE (This is a proxy for growth; there is not currently a good measure for growth on the MCAs)			

Academic component definitions - high schools

Measure	Definition
ACT	Average ACT composite score
4-year graduation rate (traditional HS only)	% of seniors graduating after 4 years of HS
College persistence (all HS)	% of students continuing in college or being employed 2 years after graduating multiplied by the % of students who graduated (SLEDS database)

Climate component definitions

Measure	Definition
	Category of "returning" is used from the Staff Employment file
Teacher retention	This does not capture teachers who left during the year, which can represent poor culture \geq 92%
	% of students attending school 90% of the days or more, defined by MDE
Consistent attendance	(Students & families who like the school are more likely to attend regularly; transportation can be a barrier if it is unreliable; in light of COVID, there are many more students who have to stay home) For the current rating, consistent attendance was calculated using the inverse of chronic absenteeism, which is defined percent of students missing greater than 10% of school days.
Ctudent mehility	Number of students entering or exiting the school during the school year divided by the total enrollment, defined by MDE
Student mobility index	(MN has generous transportation for students experiencing high mobility or homelessness, making it possible for schools to continue to transport kids when they move within the Twin Cities)

Equity component definitions - K-8 schools

Measure	Definition	
Proficiency gap	Calculation of average & range of proficiency % by student groups (student groups as defined by ESSA)*	
Growth gap	Calculation of average & range of proficiency % by student groups (student groups as defined by ESSA)*	
Consistent attendance gap	Calculation of average & range of proficiency % by student groups (student groups as defined by ESSA)*	
Teachers of color to students of color ratio	Ranking of the % of teachers of color divided by the % of students of color	

Equity component definitions high schools

Measure	Definition
4-year grad gap	Calculation of average & range of graduation % by student groups (student groups as defined by ESSA)*
College persistence gap	Calculation of average & range of % of HS graduates starting college & persisting or graduating as of 2 nd academic year
Consistent attendance gap	Calculation of average & range of proficiency % by student groups (student groups as defined by ESSA)*
Teachers of color to students of color ratio	Ranking of the % of teachers of color divided by the % of students of color

Gap calculations

- For "Calculation of average & range of [measure] % by student groups," we apply the <u>coefficient of variation</u>, or "CV." The formula is a statistical measure of the relative range of data points in a data series around the mean (average). To learn more about the value of this calculation, please watch <u>this video</u>.
- CV provides a normed way to compare schools' data averages & ranges. The smaller the CV, the more similar the experiences of the students at the school.
 If the CV is larger, student experiences are more inconsistent.
- For each measure, GMS calculated the average & range of the student groups at their school. Student groups (with at least 20 students) are reported and provided by MDE. Groups are set based on the demographics categories captured in reporting; they include race, socio-economics, SPED status & ELL status. For more information on the ESSA groups & calculations, go to <u>MDE</u> <u>ESSA accountability</u>.

Gap calculations (sample)

Measure	Definition	School 1	School 2	School 3
Mean (X)	Average	55	55	38
Standard Deviation (SD)	Variance from the mean	7	5	3.4
Coefficient of Variation	SD/X	13%	9%	9%

In this sample, schools 1 & 2 have the same average proficiency but the range of scores are bigger at school 1 (meaning there's greater difference between the different groups of students). In school 2, student groups are performing more equitably.

In school 3, students are performing as equitably as in school 2; however, their average achievement is much lower.



Curve Equations (K8)

Component	Measure	Equation
Academic	MCA Math Proficiency	$y = 0.0019 x^3 - 0.1618 x^2 + 5.7347x - 19.86$
	MCA Reading Proficiency	$y = 0.0054 x^3 - 0.5652 x^2 + 20.107x - 187.3$
	MCA Math Progress	y = 87.927 * ln(x) – 279.93
	MCA Reading Progress	y = 107.96 * ln(x) – 373.25
Climate	Teacher Retention	y = 2.5 x – 145
	Consistent Attendance	$y = 1.0457 * e^{0.0454x}$
Equity	MCA Math Proficiency Gap	y = 1.0532 x + 4.5267
	MCA Reading Proficiency Gap	y = 1.0532 x + 4.5267
	MCA Math Progress Gap	y = -3x + 100
	MCA Reading Progress Gap	y = -3x + 100
	Consistent Attendance Gap	y = -8x + 100
	Teachers of color to students of color ratio	$y = 0.4483 * x^{1.325}$

Curve Equations (HS)

Component	Measure	Equation
Academic	4 Year Graduation Rate	$y = 0.0227 x^2 - 1.6636 x + 46.182$
	College Continuation	2.1219 x – 97.472
	АСТ	139.72 * ln(x) – 345.31
Climate	Teacher Retention	y = 2.5 x - 145
	Consistent Attendance	y = -0.0758 x ² + 13.333 x - 505.76
Equity	4 Year Graduation Gap	$y = -0.0008 x^3 + 0.0033x^2 - 3.2107 x + 122.13$
	Consistent Attendance Gap	$y =0567x^2 - 2.2548 x + 87.46$
	Teachers of color to students of color ratio	$y = 0.4483 * x^{1.325}$