Minnesota 8th Grade MCAIII Mathematics Teacher Reflection Form

Have your students mastered these benchmarks?

Number and Operations

Vocabulary	irrational, real, square ***root, radical***, consecutive, scientific notation, significant digits, standard form
Exceeds Standard	Conceptual understanding of real numbers.
Meets Standard	Recognizes real numbers in various forms; compares real numbers; generates equivalent expressions involving rational numbers in routine problems/situations, including scientific notation.
Partially Meets	Recognizes familiar rational and irrational numbers.
Does Not Meet	Recognizes fractions and terminating decimals as rational numbers.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
		8.1.1.1	Classify **real numbers** as **rational** or **irrational.** Know that when a **square root** of a positive integer is not an integer, then it is irrational.	
		8.1.1.2	Compare real numbers; locate **real numbers** on a number line. Identify the **square root** of a positive integer as an integer, or if it is not an integer, locate it as a real number between two consecutive positive integers.	
		8.1.1.3	Determine rational approximations for solutions to problems involving real numbers. *For example*: A calculator can be used to determine that $\sqrt{7}$ is approximately 2.65.	
		8.1.1.4	Know and apply the properties of positive and negative integer **exponents** to generate equivalent **numerical expressions**.	
		8.1.1.5	Express approximations of very large and very small numbers using **scientific notation**; understand how calculators display numbers in scientific notation.	

Algebra

Vocabulary	***independent, dependent,*** function, ***constant***, ***coefficient,*** linear***, nth term, arithmetic sequence, geometric sequence, linear function, non-linear function, progression,*** common difference, exponential, common ratio, ***intercept***, associative, commutative, distributive, identity, property, order of operations, slope-intercept form, point-slope form, standard form, system of equations, undefined, infinite, intersecting, identical, square root
Exceeds Standard	Conceptual understanding of dependent and independent variables; solves equations and inequalities & interprets solutions; represents non-routine linear situations with tables, verbal descriptions, symbols, equations, and graphs; converts between forms of a linear equation (i.e., standard, point-slope, slope-intercept); knows names of algebraic properties for justification in evaluating algebraic expressions; represents systems of linear equations provided a verbal description; solves a linear system algebraically and graphically and expresses the solution as an ordered pair.
Meets Standard	Recognizes a linear function in symbolic and graphic presentations; represents familiar and routine linear situations with tables, verbal descriptions, symbols, equations, and graphs and translates from one representation to another; identifies graphical properties of linear functions; generates and evaluates equivalent algebraic expressions; identifies systems of linear equations when provided a verbal description; identifies the solution of a linear system as the intersection of the two lines when given the graph; solves equations & inequalities using algebraic properties.
Partially Meets	Recognizes familiar linear functions in symbolic (using key variables) and graphic presentations; translates linear representations from an equation in slope-intercept form to a graph; identifies y-intercept and slope from graphical representation or an equation written in slope-intercept form; evaluates routine algebraic expressions; solves equations with variables using substitution.
Does Not Meet	Recognizes linear functions in graphic presentations; translates linear representations from a table to a graph; identifies slope by counting whole number units on a graph; identifies patterns in a table of a linear function (e.g., recognizes patterns for *x* or *y*-values but not the relationship between *x* and *y*); substitutes "easy" numbers and evaluates simple expressions.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
		8.2.1.1	Understand that a **function** is a relationship between an **independent variable** and a **dependent variable** in which the value of the independent variable determines the value of the dependent variable. Use **functional notation**, such as ***f*(*x*)**, to represent such relationships.	
		8.2.1.2	Use **linear functions** to represent relationships in which changing the **input variable** by some amount leads to a change in the **output variable** that is a constant times that amount.	
		8.2.1.3	Understand that a **function is linear** if it can be expressed in the **form** $f(x)=mx+b$ or if its graph is a straight line.	
		8.2.1.4	Understand that an **arithmetic sequence** is a linear function that can be expressed in the **form** $f(x)=mx+b$, where *x* = 0, 1, 2, 3,….	
		8.2.1.5	Understand that a **geometric sequence** is a non-linear function that can be expressed in the **form** $f(x)=ab^x$, where *x* = 0, 1, 2, 3,….	
		8.2.2.1	Represent **linear functions** with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another.	
		8.2.2.2	Identify graphical properties of linear functions including **slopes** and **intercepts**. Know that the slope equals the rate of change, and that the *y*-intercept is zero when the function represents a proportional relationship.	
		8.2.2.3	Identify how **coefficient** changes in the equation $f(x) = mx + b$ affect the graphs of linear functions.	
		8.2.2.4	Represent **arithmetic sequences** using equations, tables, graphs and verbal descriptions, and use them to solve problems.	
		8.2.2.5	Represent **geometric sequences** using equations, tables, graphs and verbal descriptions, and use them to solve problems.	
		8.2.3.1	Evaluate **algebraic expressions**, including expressions containing **radicals** and **absolute values**, at specified values of their variables.	

		8.2.3.2	Justify steps in generating equivalent expressions by identifying the properties used, including the properties of algebra. Properties include the **associative**, **commutative** and **distributive** laws, and the **order of operations**, including grouping symbols.	
		8.2.4.1	Use **linear equations** to represent situations involving a constant rate of change, including proportional and non-proportional relationships.	
		8.2.4.2	Solve multi-step **equations** in one variable. Solve for one variable in a multi-variable equation in terms of the other variables. Justify the steps by identifying the properties of equalities used.	
		8.2.4.3	Express linear equations in **slope-intercept**, **point-slope** and **standard forms**, and convert between these forms. Given sufficient information, find an equation of a line.	
		8.2.4.4	Use **linear inequalities** to represent relationships in various contexts.	
		8.2.4.5	Solve **linear inequalities** using properties of inequalities. Graph the solutions on a number line.	
		8.2.4.6	Represent relationships in various contexts with **equations** and **inequalities** involving the **absolute value** of a linear expression. Solve such equations and inequalities and graph the solutions on a number line.	
		8.2.4.7	Represent relationships in various contexts using **systems of linear equations**. Solve systems of linear equations in two variables symbolically, graphically and numerically.	
		8.2.4.8	Understand that a **system of linear equations** may have no solution, one solution, or an infinite number of solutions. Relate the number of solutions to pairs of lines that are intersecting, parallel or identical. Check whether a pair of numbers satisfies a system of two linear equations in two unknowns by substituting the numbers into both equations.	
		8.2.4.9	Use the relationship between **square roots** and **squares of a number** to solve problems.	

Geometry and Measurement

Vocabulary	Pythagorean Theorem
Exceeds Standard	Conceptual understanding of the Pythagorean Theorem and applies it in non-routine problems; understands and applies slopes of parallel and perpendicular lines graphically and symbolically.
Meets Standard	Applies the Pythagorean Theorem to solve problems; identifies parallel lines graphically and symbolically; partial connection of slope with perpendicular lines.
Partially Meets	Substitutes numbers in the Pythagorean Theorem to determine hypotenuse; partial connection of slope with parallel lines.
Does Not Meet	Recognizes the equation for the Pythagorean Theorem; recognizes parallel or perpendicular lines on a graph.

Self-Reflection #1	**Unit**	**#**	**Benchmark**	**Self-Reflection #2**
		8.3.1.1	Use the **Pythagorean Theorem** to solve problems involving **right triangles**.	
		8.3.1.2	Determine the distance between two points on a horizontal or vertical line in a coordinate system. Use the **Pythagorean Theorem** to find the distance between any two points in a coordinate system.	
		8.3.1.3	Informally justify the Pythagorean Theorem by using measurements and diagrams.	
		8.3.2.1	Understand and apply the relationships between the **slopes of parallel lines** and between the **slopes of perpendicular lines**.	
		8.3.2.2	Analyze polygons on a coordinate system by determining the slopes of their sides.	
		8.3.2.3	Given a line on a coordinate system and the coordinates of a point not on the line, find lines through that point that are parallel and perpendicular to the given line, symbolically and graphically.	

Data Analysis and Probability

Vocabulary	***scatterplot, line of best fit,*** correlation
Exceeds Standard	Given a data set, student determines the line of best fit and interprets the data; assesses reasonableness of predictions in non-routine situations
Meets Standard	Given a data set, student identifies the line of best fit and interprets the data; makes predictions about the data set.
Partially Meets	Given a data set, student identifies the line of best fit and makes statements about the general trend of the data.
Does Not Meet	Generalizes the properties of the line of best fit of a graphed data set; displays data using scatterplots.

Self-Reflection #1	**Unit**	**#**	**Benchmark**	**Self-Reflection #2**
		8.4.1.1	Collect, display and interpret data using **scatterplots**. Use the shape of the scatterplot to informally estimate a **line of best fit** and determine an **equation for the line**.	
		8.4.1.2	Use a **line of best fit** to make statements about approximate rate of change and to make predictions about values not in the original data set.	
		8.4.1.3	Assess the reasonableness of predictions using **scatterplots** by interpreting them in the original context.	

Benchmarks that will be taught by the mid-January OLPA

Unit 1 –
Unit 2 –
Unit 3 –
Unit 4 – (taught in January)

HOW TO USE THE MCA TEACHER RELECTION FORMS

Minnesota MCAIII Mathematics Teacher Reflection Form

Have your students mastered these benchmarks? What is your evidence?

Directions: Take 20 minutes 2-5 times a year to reflect on your student's mastery of grade level standards. All staff are highly encouraged to reflect one week prior to and within one week after all MCA testing dates (including OLPA). The questions on this sheet written in **red** are questions you can ask yourself as you use the reflection form.

Achievement Level Descriptors
HOW are you teaching the standards?

	Strand (Number and Operations, Algebra, Geometry and Measurement, Data Analysis or Probability)
Vocabulary	*This section represents the vocabulary highlighted in the Test Specifications. All of these terms may show up on student assessments. In addition, terms from prior grades will be on the assessment.* ***What specific best practices for teaching vocabulary have you used to teach all these terms? What evidence do you have that students have mastered these terms? Are all students using these terms orally and in writing?*** *Tip: ELL and Sp Ed staffs have great ideas for teaching academic vocabulary to students.* ***Words highlighted are terms that appear in the test specifications more than once. If a term appears in slightly larger font, this term appears multiple times.***
Exceeds Standard	This is the gold standard level for all students. All students should receive instruction that allows them to master this level. This level often expects students to have ***conceptual understanding*** of the standards in this section. It requires students to make connections. If students only receive teaching at the lower levels, most will not meet or exceed the state standards. **What specific classroom experiences have given your students a chance to master conceptual understanding of grade level standards?**
Meets Standard	Students who "Meet' grade level standards have are considered 'proficient' by the state.
Partially Meets	Students who score as "Partially Meets" on the MCA's have likely mastered the skills in the 'does not meet' section below as well as the skills listed in this section. Ask yourself: **"What is the difference between the words in the 'partially meets' and 'does not meet' sections? What did this look like in my classroom?"**
Does Not Meet	Students who score as "Does Not Meet" on the MCA's can only do items described in this section. This level often represents teaching skills vs. teaching concepts. **What percent of my teaching is represented by the description in this level**? It is recommended that teachers spend at most 25% of their time teaching at this level.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
It is important for all teachers to personally reflect on each benchmark. How one reflects can take many forms. Here are 2 options, but feel free to reflect in your own way. **Option 1:** How well do you predict your students will do on each benchmark? Rank each benchmark as High OR Medium OR Low **Option 2** - Use this rubric **1**: I have not taught this benchmark **2**: I have taught this benchmark **3**: I have assessed this benchmark **4**: I have evidence that 85% or more of students have mastered the entire benchmark. **5**: 85% or more of students have mastered the benchmark and consistently use appropriate notation and mathematical vocabulary both written and orally.	COMING SUMMER 2013 The numbers in this section represent the units listed on the MPS Focused Instruction curriculum guide Year-at-a–glance (YAG)	The number in this section represents the numbers the state uses to identify each benchmark in the standards. 1st #: Grade Level 2nd #: Strand 3rd #: Standard 4th #: Benchmark	This section is the exact benchmark language from the Minnesota 2007 MCAIII state standards. These are the benchmarks all students in grades 3-8th and 11th grade will be assessed on each May. Sites that choose to participate in the OLPA (Optional Local Purpose Assessment) will be assessed on these benchmarks as well.	This column can also be completed using one of the reflection options from the first column. Note: This same form can be used by students, particularly at the secondary level, to personally reflect on their progress towards meeting grade level standards.

Benchmarks that will be taught by the mid-January OLPA:

COMING SUMMER 2013

This is a list of benchmarks from the Focused Instruction Curriculum Guides that students should have mastered by the end of Semester 1.