Minnesota 7th Grade MCAIII Mathematics Teacher Reflection Form

Have your students mastered these benchmarks?

Number and Operations

Vocabulary	***terminating, repeating***, opposite, coordinate, origin, inverse, simple interest, compound interest, proportion, absolute value
Exceeds Standard	Conceptual understanding of rational numbers including justification of why a number is rational; solves non-routine (complex) problems/situations using rational numbers.
Meets Standard	Recognizes rational numbers in various forms and converts between forms; compares positive and negative rational numbers; solves multi-step problems involving rational numbers in routine problems/situations including proportions; understands that absolute value is the distance from zero.
Partially Meets	Changes numbers in fractional form to decimal form and uses to compare; recognizes common repeating decimals and perfect squares under 100 as rational; solves multi-step problems involving familiar rational numbers when all relevant information is present and the question is clearly defined.
Does Not Meet	Changes numbers in fractional form to decimal form by dividing; recognizes that short terminating decimals, fractions, and whole numbers are rational; recognizes familiar numbers as rational; recognizes that a negative numbers is less than a positive number; solves one-step problems with integers; uses a set of defined steps to find a missing number in a given proportion.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
		7.1.1.1	Know that every **rational number** can be written as the **ratio** of two **integers** or as a terminating or repeating decimal. Recognize that **π is not rational**, but that it can be approximated by rational numbers such as $\frac{22}{7}$ and 3.14.	
		7.1.1.2	Understand that **division** of **two integers** will always result in a **rational number**.	
		7.1.1.3	Locate **positive** and **negative rational numbers** on a number line, understand the concept of **opposites**, and **plot pairs** of positive and negative **rational numbers** on a **coordinate grid**.	
		7.1.1.4	**Compare** positive and negative rational numbers expressed in various forms using the symbols **< , > , = , ≤ , ≥** .	
		7.1.1.5	Recognize and generate **equivalent representations** of positive and negative rational numbers, including equivalent fractions.	
		7.1.2.1	**Add, subtract, multiply and divide positive and negative rational numbers** that are integers, fractions and terminating decimals; use efficient and generalizable procedures, including **standard algorithms**; raise positive rational numbers to whole-number **exponents**.	
		7.1.2.2	Use real-world contexts and the **inverse relationship** between addition and subtraction to explain why the procedures of arithmetic with negative rational numbers make sense.	
		7.1.2.3	Understand that calculators and other computing technologies often **truncate** or **round** numbers.	
		7.1.2.4	Solve problems in various contexts involving calculations with positive and negative rational numbers and positive integer **exponents**, including **computing simple and compound interest.**	
		7.1.2.5	Use **proportional reasoning** to solve problems involving **ratios** in various contexts.	
		7.1.2.6	Demonstrate an understanding of the relationship between the **absolute value** of a rational number and distance on a number line. Use the symbol for **absolute value.**	

Algebra

Vocabulary	***proportional,*** inversely, ***origin, slope,*** simplify, evaluate, substitute
Exceeds Standard	Distinguishes proportional relationships from other relationships; understands the concept of proportionality and applies it to non-routine problem solving situations; uses the properties as well as order of operations to generate equivalent algebraic expressions and solve non-routine problems; represents and solves equations involving non-routine representations
Meets Standard	Understands the concept of proportionality and applies to routine problem solving situations; uses properties of algebra as well as order of operations to generate equivalent algebraic expressions and solve problems; represents and solves equations involving one variable, symbolically.
Partially Meets	Matches a proportion to a given problem situation; writes algebraic expressions using the commutative and associative properties; solves equations numerically (by substitution).
Does Not Meet	Represents simple context as a graph; relies on key words to determine operations to represent relationships; solves one-step equations in explicit situations following rote procedure, instead of the concept of equality.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
		7.2.1.1	Understand that a relationship between 2 variables, *x* and *y*, is **proportional** if it can be expressed in the **form** $\frac{y}{x}=k$ **or** $y=kx$. Distinguish proportional relationships from other relationships, including **inversely proportional** relationships $xy=k$ **or** $y=\frac{k}{x}$.	
		7.2.1.2	Understand that the graph of a **proportional relationship** is a line through the origin whose slope is the unit rate (constant of proportionality).	
		7.2.2.1	Represent **proportional relationships** with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another. Determine the unit rate (constant of proportionality or slope) given any of these representations.	
		7.2.2.2	Solve multi-step problems involving **proportional relationships** in numerous contexts.	
		7.2.2.3	Use knowledge of **proportions** to assess the reasonableness of solutions.	

		7.2.2.4	Represent real-world or mathematical situations using **equations** and **inequalities** involving **variables** and positive and negative rational numbers.	
		7.2.3.1	Use properties of algebra to generate equivalent numerical and algebraic **expressions** containing rational numbers, grouping symbols and whole number exponents. Properties of algebra include **associative**, **commutative** and **distributive** laws.	
		7.2.3.2	Evaluate **algebraic expressions** containing rational numbers and whole number exponents at specified values of their variables.	
		7.2.3.3	Apply understanding of **order of operations** and grouping symbols when using calculators.	
		7.2.4.1	Represent relationships in various contexts with equations involving variables and positive and negative rational numbers. Use the properties of equality to solve for the value of a **variable**. Interpret the solution in the original context.	
		7.2.4.2	**Solve equations** resulting from proportional relationships in various contexts.	

Geometry and Measurement

Vocabulary	***radius, diameter, circumference,*** cylinder, lateral area, ***similar, corresponding, scale factor,*** scale drawing, conversion
Exceeds Standard	Justifies formulas for surface area and volume; can see relationships between circles and cylinders; solves problems involving scale factor and area ratios (with or without a diagram); uses algebraic rules to describe multiple translations or reflections on a grid.
Meets Standard	Uses formulas to calculate area and circumference of circles and volume and surface area of cylinders; uses proportions and ratios to solve problems involving scale drawings and conversions; uses verbal descriptions to perform translations or reflections on a grid.
Partially Meets	Uses formulas for area and circumference of a circle and volume of a cylinder when exact values to substitute are given; solves problems with similar figures when a diagram is provided with corresponding parts labeled with "friendly" numbers; uses verbal description to perform a single translation or reflection on a grid.
Does Not Meet	Calculates the circumference of a circle when given the diameter; recognizes a translation or a reflection on a coordinate grid.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
		7.3.1.1	Demonstrate an understanding of the proportional relationship between the **diameter** and **circumference** of a circle and that the unit rate (constant of proportionality) is π . Calculate the **circumference** and **area** of circles and **sectors** of circles to solve problems in various contexts.	
		7.3.1.2	Calculate the **volume** and **surface area** of **cylinders** and justify the formulas used.	
		7.3.2.1	Describe the properties of **similarity**, compare geometric figures for similarity, and determine **scale factors**.	
		7.3.2.2	Apply **scale factors**, length ratios and area ratios to determine side lengths and areas of similar geometric figures.	
		7.3.2.3	Use **proportions** and **ratios** to solve problems involving scale drawings and conversions of measurement units.	
		7.3.2.4	Graph and describe **translations** and **reflections** of figures on a coordinate grid and determine the coordinates of the vertices of the figure after the **transformation**.	

Data Analysis and Probability

Vocabulary	stem-and-leaf plot, outlier, circle graph, histogram, frequency table
Exceeds Standard	Efficiently determines mean, median and range regardless of presentation; understands abstractly how change in data set impacts mean and median (quantity of change without recalculating); interprets circle graphs and histograms to solve problems; uses proportions to calculate probabilities and solve non-routine problems.
Meets Standard	Calculates mean, median and range from various data displays; understands impact of change in data set (increase or decrease); reads circle graphs and histograms to solve problems; calculates probability as a fraction of sample space.
Partially Meets	Calculates mean, median and range from a string of numbers (knows to order data set to determine median – or does not have to write down the ordered data set); reads circle graphs to solve problems; determines the sample space for an experiment using inefficient procedures; understands simple probability in fractions, decimals, and percents.
Does Not Meet	Calculates mean, median and range from a string of numbers using rote procedures (numbers must be in increasing order to calculate median); matches a given data set to the graph of the data; determines sample space (i.e., the set of all possible outcomes) in a simple and very familiar context; understands simple probability expressed in fractional form.

Self-Reflection #1	Unit	#	Benchmark	Self-Reflection #2
		7.4.1.1	Design simple experiments and collect data. Determine **mean**, **median** and **range** for quantitative data and from data represented in a display.	
		7.4.1.2	Describe the impact that inserting or deleting a **data point** has on the mean and the median of a data set.	
		7.4.2.1	Use reasoning with **proportions** to display and interpret data in circle **graphs (pie charts) and histograms.**	
		7.4.3.1	Use random numbers generated by a calculator or a spreadsheet or taken from a table to simulate situations involving randomness, make a **histogram** to display the results, and compare the results to known **probabilities**.	
		7.4.3.2	Calculate **probability** as a fraction of a **sample space** or as a fraction of area. Express **probabilities** as percents, decimals and fractions	
		7.4.3.3	Use proportional reasoning to draw conclusions about and predict **relative frequencies** of outcomes based on probabilities.	

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.