Mathematics Curriculum

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Number and Quantity

CCSS Domain: The Real Number System (N-RN)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Extend the properties of exponents to rational exponents	describe the properties of addition and subtraction, multiplication and division on fractions and decimals.	MA 1 3.1	Recall	Perform the basic operations with whole numbers, decimals, fractions, and integers. Discuss how each operation effects numbers.	Verbal questions and answer
	apply properties of operations (including order of operations) to positive rational numbers.	MA 1 1.6		Work in pairs to solve problems involving the distributive, commutative, associative, and identity properties.	Practice presentations

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Number and Quantity

CCSS Domain: Quantities (N-Q)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Reason quantitatively and use units to solve problems	reason quantitatively and use units to compare and order all positive rational numbers and find their approximate locations on a number line to solve problems.	MA 6 1.1	Recall	Make a number line and place the following numbers in order on the number line: 2, 7, 3, 6, and 10.	Observation
	reason and use units to recognize and generate equivalent forms of fractions, decimals, and percents to solve problems.	MA 6 1.1		Solve problems (including word problems) involving fractions, decimals and percents. Underline the key word(s) in each problem and demonstrate your understanding of them by choosing the correct operation.	Discussion
	reason quantitatively to recognize equivalent representations for the same number and generate them by decomposing and composing numbers to solve problems.	MA 5 1.6		Demonstrate and understanding of how numbers relate to each other in their various forms by writing fractions, decimals, and percents as equivalent numerals, and writing whole numbers in expanded form.	Individual White Boards
	classify and describe numbers by their characteristics, including whole number common factors, prime or composite, and square numbers.	MA 1,5 1.10		Given a set of numbers with a variety of characteristics, work cooperatively to identify and classify them as odd/even, square numbers, primes and composites, and as whole number factors, and multiples.	Questioning

Subject Area: Intermediate Math I (9-12)					
CCSS Conceptual Category: Number and Quantity					
CCSS Domain: The Complex Number System (N-CN)					
Show-Me Standards					
CCSS Cluster	**Common Core Standard**	**Show Me Standards**	**DOK**	**Instructional Strategies Student Activities/Resources**	**Assessment**
	The students will:				
Perform arithmetic operations with complex numbers	perform arithmetic operation to complex numbers, using mental computation or paper-pencil calculations for simple cases and technology for more complicated cases.	MA1 1.10	Sill/Concept	Apply operations to solve real number problems (i.e., number of hours worked, pay per hour, gross pay, deductions, and net pay) using mental math or paper-pencil for simple calculations and technology for more complex problems.	Assignments

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Number and Quantity

CCSS Domain: The Complex Number System (N-CN)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Use complex numbers in polynomial identities and equations	apply all operations on real numbers, including integers.	MA1 3.1	Skills/Concept	Work independently using all operation to solve problems with real numbers.	Quiz
	estimate and justify the results of all operations on rational numbers.	MA 1 3.2		Know, explain, and use the rules of rounding numbers in order to estimate answers and judge their reasonableness based on the facts given and the expected result. State and use the rules of rounding whole numbers and decimals to estimate answers and to check the reasonableness of your answers.	Whiteboard
	Solve problems using rations and rates.	MA 1 3.2		Demonstrate the ability to use and understand ratio and or proportion to solve problems.	Complete individual classroom assignments.

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Algebra

CCSS Domain: Seeing Structure in Expressions (A-SSE)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Interpret the structure of expressions	use symbolic algebra to represent unknown quantities in expressions, equations and inequalities and solve one-step equations.	MA 5 3.3	Skill/Concept	Change the following statements into an expression, equation, or inequality, using variable(s) to represent unknown quantities. Change the following statements into an expression, equation, or inequality, using variable(s) to represent unknown quantities.	white boards
	use the cumulative, distributive, and associative properties to generate equivalent forms for simple algebraic expressions.	MA 4 3.6		Work individually to evaluate expressions which contain variables. Examples: 3x = 12; y + 3 = 12; z - 19 = 28; etc.	classroom assignments
	compare and contrast various forms of representations and patterns.	MA 4 1.6		Looking at various tables and graphs: identify the purpose and the representations.	individual white boards

Subject Area: Intermediate Math I (9-12)					
CCSS Conceptual Category: Algebra					
CCSS Domain: Seeing Structure in Expressions (A-SSE)					
Show-Me Standards					
CCSS Cluster	**Common Core Standard**	**Show Me Standards**	**DOK**	**Instructional Strategies Student Activities/Resources**	**Assessment**
	The students will:				
Write expressions in equivalent forms to solve problems	make equivalent forms to compare and contrast various forms of representations and patterns.	MA 4 1.6	Recall	Work independently to think, write, and talk math by comparing various patterns. Tell how they are alike or different.	Discussion
	represent and describe patterns with tables, graphs, pictures, symbolic rules, or words.	MA 4 1.6		Create and use patterns and relationships of numbers to make patterns and determine the next number in a given sequence.	individual white board

Subject Area: Intermediate Math I (9-12)					
CCSS Conceptual Category: Algebra					
CCSS Domain: Arithmetic with Polynomials and Rational Expressions (A-APR)					
Show-Me Standards					
CCSS Cluster	**Common Core Standard**	**Show Me Standards**	**DOK**	**Instructional Strategies Student Activities/Resources**	**Assessment**
	The students will:				
Perform arithmetic operations on polynomials	represent and describe patterns with tables, graphs, pictures, symbolic rules, or words.	MA 4 1.6	Recall	Create and use patterns and relationships of numbers to make patterns and determine the next number in a given pattern. Example: Explain the following pattern, find the next three numbers in the sequence. 1, 1, 2, 3, 5, 8, ... Answer: Each number is the sum of the two numbers before it. For example, 1 + 1 = 2, then 1 + 2 = 3, then 2 + 3 = 5, etc. The next three numbers in the sequence would be 13 (5+8), 21 (8+13), and 34 (13+21). This is known as the Fibonacci sequence.	White board

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Algebra

CCSS Domain: Reasoning with Equations and Inequalities (A-REI)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Understand solving equations as a process of reasoning and explain the reasoning	identify, model, describe, and compare situations with constant or varying rates of change.	MA 4 1.6	Recall	Solve the following problem involving varying rates of change (time). Sam is participating in a 10-mile race. The race has checkpoints every two miles. Sam's times at each checkpoint are recorded in the table below. Checkpoint 1 2 3 4 5 Distance 2 4 6 8 10 Time (min.) 15 25 40 45 57 1. Between what two checkpoints was Sam going the fastest? 2. Between what two checkpoints was Sam going the slowest? 3. How did you arrive at your answers	Questioning

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Algebra

CCSS Domain: Reasoning with Equations and Inequalities (A-REI)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Solve equations and inequalities in one variable	model and solve problems, using multiple representations such as tables, expressions, and one-step equations.	MA 4 3.6	Skill/Concept	Use an equation to model solve the following problem: If one soda costs $ .50, how much will five sodas cost? Write an equation to represent the information given, solve, and check. Show your work.	Think/ pair/ share

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Geometry

CCSS Domain: Congruence (G-CO)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Experiment with transformations in the plane	identify and create polygons and designs with rotational symmetry.	MA 2 1.6	Skill/Concept	Draw examples and label	Visual Representations
	describe relationships between the corresponding sides, corresponding angles, and corresponding perimeters of similar polygons.	MA 2 1.6		Describe & classify how the two figures below are similar and how they are different, angles/sides/ perimeters for similar polygons. Make a chart to illustrate your answer. Similarities / Differences Polygon / Length of bases Quadrilaterals / Areas No right angles / Different shapes Same height / # of parallel line	Learning Response Logs
	name, identify, describe, analyze, and classify 2- and 3-dimensional shapes by describing their attributes.	MA 2 1.6		In looking at a variety of 1-, 2-, and 3-dimensional figures, identify and describe polygons and solid figures, classifying them by their properties and using the correct geometric vocabulary.	Think/pair/share

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Geometry

CCSS Domain: Congruence (G-CO)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Understand congruence in terms of rigid motions	describe the relationship between the scale factor and the perimeter and the area of the image using a dilation (contractions-magnifications)/(stretching/shrink-ing.	MA 2 3.6	Recall	Example: Draw a shape, cut it out, then apply either a slide (translation), turn (rotation), or flip (reflection). Draw a picture of the new position of the shape and identify the transformation you used.	Practice Presentations

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Geometry

CCSS Domain: Congruence (G-CO)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Prove geometric theorems	predict, draw, describe the results of sliding/translating, flipping/reflecting and turning/ rotating around a center point of a polygon.	MA 2 3.3	Skill/Concept	Create, identify and describe the results of using transformations on congruent and similar figures.	Think/pair/share
	given a prism, identify the shapes of the faces.			Identify 2- and 3-dimensional figures using isometric drawings and mat plans.	Learning Response Log

Subject Area: Intermediate Math I (9-12)					
CCSS Conceptual Category: Geometry					
CCSS Domain: Congruence (G-CO)					
Show-Me Standards					
CCSS Cluster	**Common Core Standard**	**Show Me Standards**	**DOK**	**Instructional Strategies Student Activities/Resources**	**Assessment**
	The students will:				
Make geometric constructions	draw or use visual models to represent and solve problems.	MA 2 3.3	Skill/Concept	Work in small groups to draw or use visual models to illustrate and solve a problem .Example: In the figure below, find all possible routes that carriage horses could take to get from the stables (X) to the entrances of Scenic Park (Y). Draw a map of your neighborhood. Include one or more places you frequently visit: a store, a friend's or relative's house, your church, etc. Show the (shortest) route(s) you would take in traveling to each location.	Project

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Statistics and Probability

CCSS Domain: Interpreting Categorical and Quantitative Data (S-ID)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Summarize, represent, and interpret data on a single count or measurement variable	formulate questions, design studies and collect data about a characteristic.	MA 3 1.2	Strategic Thinking	Design a study, including questions and data collection methods regarding characteristic or topic. Example: Study - Food eaten most often in the cafeteria. Questions - What do you eat most often in the cafeteria for lunch? How many times a week/month do you eat this food? What other food(s) would you like to have in the cafeteria? Data collection - personal interview, pencil-paper survey with a checklist, formal observation.	Think/pair/share

Subject Area: Intermediate Math I (9-12)

CCSS Conceptual Category: Statistics and Probability

CCSS Domain: Interpreting Categorical and Quantitative Data (S-ID)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Summarize, represent, and interpret data on a two categorical and quantitative variables	Interpret circle graphs, create and interpret stem and leaf plots.	MA 3 1.6	Strategic Thinking	Choose and construct an appropriate graphical representation (circle graph, scatter plot, bar graph, etc.) for organizing and interpreting data gathered in the cafeteria study. Draw conclusions based on your representative data.	Classroom Assignment
	compare different representations of the same data and evaluate how well each representation shows important aspects of the data.	MA 3 3.5		Show the following data using a frequency table and a bar graph and determine the most informative method and defend your choice.	Think/pair/share
	use observations about differences between 2 samples to make conjectures about the populations from which the samples were taken.	MA 3 3.5		Compare 2 budgets and make a conjecture about the populations the data was taken from.	Learning Response Logs

Subject Area: Intermediate Math I (9-12)					
CCSS Conceptual Category: Statistics and Probability					
CCSS Domain: Interpreting Categorical and Quantitative Data (S-ID)					
Show-Me Standards					
CCSS Cluster	**Common Core Standard**	**Show Me Standards**	**DOK**	**Instructional Strategies Student Activities/Resources**	**Assessment**
	The students will:				
Interpret linear models	use a model (diagram, list, sample space, or area model to illustrate the possible outcomes of an event.	MA 3 3.6	Sill/Concept	Using three different items, list the different combinations that could be created.	Think/pair/share

Subject Area: Intermediate Math I (9-12)

CCSS Domain: Measurement and Data (MD)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Work with time and money	solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.	MA 1 1.10	Skill/concept	Given different amounts of coins: determine value; given an amount, give coins using the smallest number of coins; give change from a given amount for a purchased amount.	Think/pair/share
	solve problems of elapsed time to the hour/minute, and of addition and subtraction of time to the hour/minute, using an analog clock.	MA 5 3.1			Think/pair/share

Subject Area: Intermediate Math I (9-12)

CCSS Domain: Measurement and Data (MD)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Convert like measurement units within a given measurement system	identify and justify the unit of measure using a ruler: inches: whole, half, 1/4, 1/8, 1/16; mm, cm.	MA 2 3.1	Recall	Demonstrate their understanding of units of customary and metric measurement by identifying and utilizing the correct unit	Think/pair/share
	convert from one unit to another within a system of linear measurement (customary and metric.)	MA 2 1.6		Know structures of measurement and work together to measure and convert these measurements within each system.	classroom assignment

Subject Area: Intermediate Math I (9-12)

CCSS Domain: Measurement and Data (MD)

Show-Me Standards

CCSS Cluster	Common Core Standard	Show Me Standards	DOK	Instructional Strategies Student Activities/Resources	Assessment
	The students will:				
Represent and interpret data	solve problems involving addition and subtraction of time (hours, minutes and seconds).	MA 5 3.1	Skill/Concept	Solve problems of elapsed time to the hour/minute, and of addition and subtraction of time to the hour/minute, using an analog clock.	Questions
	using a ruler; draw lines to corresponding lengths.			Draw lines that correspond to lengths that are given to the students.	Think/pair/share

Subject Area: Intermediate Math I (9-12)					
CCSS Domain: Measurement and Data (MD)					
Show-Me Standards					
CCSS Cluster	**Common Core Standard**	**Show Me Standards**	**DOK**	**Instructional Strategies Student Activities/Resources**	**Assessment**
	The students will:				
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition	identify equivalent weights and capacities within a system of measure.	MA 2 1.6	Recall	Determine largest in volume, (i.e. gallon/quart, oz/cup, pts/oz.)	Questions