Math 8 (1) - DRAFT

STRAND	SUBSTRAND	STANDARD	BENCHMARK	ESSENTIAL ELEMENTS	MATERIALS / RESOURCES	ASSESSMENTS
Numbers and Operations		Read, write, compare, classify and represent real numbers, and use them to solve problems in various contexts.	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. Know that the sum of a rational number and an irrational number is irrational, and the product of a non-zero rational number and an irrational number is irrational. 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. Know and apply the properties of positive and negative integer exponents to generate equivalent numerical expressions. Express approximations of very large and very small numbers using scientific notation; understand how calculators display numbers in scientific notation. Multiply and divide numbers expressed in scientific notation	Classify rational and irrational numbers. Justify that a number is rational or irrational. Identify a perfect square. Recite the perfect squares 1-15. Classify real numbers as whole, integer, rational, irrational. Identify the square root of a positive integer or locate it on a number line between two consecutive integers. Multiply and divide expressions with positive and negative exponents. Rewrite an expression containing a negative exponent as a positive exponent. Multiply and divide monomials. Express a number given in standard	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 2.7, 8.1, 8.2, 8.3, 8.4 Real numbers chart Study Island	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 2 Common Assessment (Test) Chapter 8 Common Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)

				form in scientific notation and vice versa. Multiply and divide expressions in scientific notation form.		
Algebra		Understand the concept of function in real-world and mathematical situations, and distinguish between linear and nonlinear functions.	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. 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. 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.	Evaluate an expression given in function notation. Identify independent and dependant variables in expressions and in word problems. Identify domain and range / x and y / input and output in expressions and word problems. Understand the relationship between slope and rate of change in word problems. Determine whether a function is linear or non-linear. Explain.	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 1.6, 4.2, 4.7 x and y chart *Algebra Adventure: Learning Algebra* DVD *Learn Algebra 2* DVD Infinite Algebra I (Kuta software) McGraw-Hill *Algebra with Pizzazz* by Steve and Janis Marcy (copyright 2002)	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 1 Common Assessment (Test) Chapter 4 Common Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)
Algebra		Recognize linear functions in real-world and mathematical situations; represent linear functions and other functions with tables,	Represent linear functions with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another. Identify graphical properties of linear functions including slopes and intercepts. Know that the slope equals the rate of change, and that the *y-*	Write a function from a table or verbal description. Graph a linear function using a table. Identify the slope	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 4.3, 4.4, 4.5, 4.6, 4.7 Graphing calculator website:	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 4 Common

		verbal descriptions, symbols and graphs; solve problems involving these functions and explain results in the original context.	intercept is zero when the function represents a proportional relationship. Identify how coefficient changes in the equation $f(x) = mx + b$ affect the graphs of linear functions. Know how to use graphing technology to examine these effects.	and y-intercept given a graph. Understand the relationship between slope and rate of change in word problems. Write and identify a direct variation equation. Identify how changes in slope affect the graph of a function. Identify positive and negative slope. Graph and manipulate a linear function on a graphing calculator. Identify an arithmetic and geometric sequence.	http://www.coolamth.com http://gcalc.net *Algebra Adventure: Learning Algebra* DVD *Learn Algebra 2* DVD Infinite Algebra I (Kuta software) McGraw-Hill *Algebra with Pizzazz* by Steve and Janis Marcy (copyright 2002)	Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)
Algebra		Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions.	Evaluate algebraic expressions, including expressions containing radicals and absolute values, at specified values of their variables. 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.	Evaluate algebraic expressions given a variety of symbols for specified values of variables. Justify steps in solving equations. Identify properties of addition and multiplication. Identify properties	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 1.2, 2.2, 2.4, 2.5, 6.5, 11.1, 11.3 Algebra tiles *Algebra Adventure: Learning Algebra* DVD *Learn Algebra 2* DVD	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 1 Common Assessment (Test) Chapter 2 Common Assessment (Test) Chapter 6 Common

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Strand			Standard	Benchmark	Objectives	Resources	Assessment
					of equality. Evaluate an expression using the order of operations.	Infinite Algebra I (Kuta software) McGraw-Hill *Algebra with Pizzazz* by Steve and Janis Marcy (copyright 2002)	Assessment (Test) Chapter 11 Common Assessment (Test *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)
Algebra			Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	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. 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. Use linear inequalities to represent relationships in various contexts. Solve linear inequalities using properties of inequalities. Graph the solutions on a number line. Represent relationships in various contexts using systems of linear equations. Solve systems of linear equations in two variables symbolically, graphically and numerically. 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	Solve a multi-step equation in one variable, justifying the properties used. Rewrite a multi-variable equation in terms of a specified variable. Given two points, a point and slope, or the graph of a line, write the equation in slope-intercept, point-slope, and standard form. Convert an equation from one form to another. Write an inequality to represent a word problem and solve it. Solve and graph multi-step linear inequalities. Write a system of equations given a	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 1.4, 3.1, 3.3, 5.1, 5.3, 5.4, 6.1, 6.2, 7.1, 7.2, 7.3, 7.4, 7.5 Algebra tiles *Algebra Adventure: Learning Algebra* DVD *Learn Algebra 2* DVD Infinite Algebra I (Kuta software) McGraw-Hill *Algebra with Pizzazz* by Steve and Janis Marcy (copyright 2002)	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 1 Common Assessment (Test) Chapter 3 Common Assessment (Test) Chapter 5 Common Assessment (Test) Chapter 6 Common Assessment (Test) Chapter 7 Common Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)

			into both equations.	word problem. Solve a system of equations by graphing, by substitution, and by adding or subtracting. Identify systems of equations that have no solution, one solution, or an infinite number of solutions and justify your answer Identity if an ordered pair is a solution to a system of equations.		
Geometry and Measurement		Solve problems involving right triangles using the Pythagorean Theorem and its converse.	Use the Pythagorean Theorem to solve problems involving right triangles. 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.	Find a missing length in a right triangle, square or rectangle using the Pythagorean Theorem. Given 3 side lengths, determine what type of triangle is formed. Use the Pythagorean Theorem to find the distance between any two points in a coordinate plane.	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 5.5 and 11.4	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 5 Common Assessment (Test) Chapter 11 Common Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)
Geometry and Measurement		Solve problems involving parallel and	Understand and apply the relationships between the slopes of parallel lines and between the slopes of perpendicular	Given equations of two lines, determine if they	McDougal Littell Algebra I textbook (copyright 2007) and all	*Formative*: Senteos ticket in/out

		perpendicular lines on a coordinate system.	lines. Dynamic graphing software may be used to examine these relationships. Analyze polygons on a coordinate system by determining the slopes of their sides.	are parallel, perpendicular, or neither. Given the slope of a line, identify the slope of parallel and perpendicular lines. Using slope and side length identify the most specific name of a polygon on a coordinate plane.	accompanying resources: section 5.5	HW quizzes class activities daily warm-ups *Summative*: Chapter 5 Common Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)
Data Analysis and Probability		Interpret data using scatterplots and approximate lines of best fit. Use lines of best fit to draw conclusions about data.	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. Use appropriate titles, labels and units. Know how to use graphing technology to display scatterplots and corresponding lines of best fit. 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. Assess the reasonableness of predictions using scatterplots by interpreting them in the original context.	Create and label a scatterplot. Draw a line of best fit and write an equation for that line. Using Excel, create a scatterplot and line of best fit. Use the line of best fit to make predictions. Given a scatterplot and prediction, determine the reasonableness of the prediction.	McDougal Littell Algebra I textbook (copyright 2007) and all accompanying resources: sections 5.6 and 5.7 Excel	*Formative*: Senteos ticket in/out HW quizzes class activities daily warm-ups *Summative*: Chapter 5 Common Assessment (Test) *Cumulative*: All tests following that chapter. Standards tests quarterly. MCA II (spring) NWEA (fall, winter, spring)