Course: 3 (8th Grade)	Semester: Fall	Team Members: Bradley, Coles, Conley, Hamrick, Marks			
Description of Standard	**Example of Proficient Understanding**	**Example of Advanced Understanding**	**Prerequisite Skills**	**When Taught**	**Common Assessment**
What is the essential standard to be learned? Describe in student friendly terms.	What does proficient student work look like? Provide an example.	What does advanced student work look like? Provide an example.	What prior knowledge, skills, or vocabulary is necessary for a student to master this standard?	Approximate time taught?	What will we use to assess this standard?
QUARTER 1					
I can write decimal expansions for all numbers and identify rational numbers as those that either repeat or terminate	Converting decimals where all digits repeat or terminate without a calculator and with minimal error	Converting decimals where one or more digits do not repeat followed by decimals that do repeat, without a calculator,	Multiplication tables, common fractions and decimals, place values, GCF's	August	Unit 1 Test
I can use estimation to find approximations of square and cube roots.	Determining between which two integers a square root is and which integer it is closer to, no calculator	Estimate roots to the tenths place using a method (such as square tile method), non calculator, also being able to estimate cube roots	Understanding what is a square or cube root, knowing common perfect squares	August	Unit 1 Test
I can order and compare rational and irrational numbers and locate them on the number line.	Given a number line, estimating decimal expansions of rational and irrational numbers to nearest tenths and place appropriate on a number line	Creating a reasonable number line based on given numbers, estimating decimal expansions of numbers with more accuracy and	Knowing decimal expansions of common fractions, knowing place values, understanding the negative side of a	August-September	Unit 1 Test

		placing on number line	number line works backwards		
I can apply the properties of integer exponents to generate equivalent numerical expressions.	Multiply, divide, power to power, negative, and zero exponent rules with numeric bases without a calculator	Multiply, divide, power to power, negative, and zero exponent rules with algebraic bases including coefficients and multiple variables, without a calculator	Integer rules, knowledge of what an exponent is including exponent expansion rule, vocabulary (coefficient, base, exponent),	September-October	Unit 2 Test
QUARTER 2					
I can solve equations with variables on both sides.	Solve a multi-step equation with variables on both sides without a calculator, with integer coefficients, including no solution and infinite solutions	Solving a multi-step equation with variables on both sides, without a calculator, with rational coefficients by eliminating fractions and decimals	Solving equations with variables on one side, distributive property, integer rules, knowledge of basic inverse operations, identifying/combining like terms	October (and then throughout the rest of the year)	Unit 4 Test (unit 3 skipped because unit 3 is scientific notation)
I can determine the equation of the line from the graph of the line either going through the origin or through the y-axis.	Determine the slope and y-intercept when the y-intercept is explicitly shown on the graph, include fractional and negative slopes	Writing the equation given 2 points (one not necessarily the y-intercept), writing equations of lines that have zero or undefined slope (ex. y=3, x=-5)	Graphing points in the coordinate plane, Vocabulary - origin, coordinate point, ordered pair, quadrant, y-axis, slope, rise over run,	October	Unit 5 Test

I can graph the equation of a line in the form y=mx+b	Identify slope and y-intercept from y=mx+b and accurately graph on a coordinate plane	Converting an equation into y=mx+b (from standard or point-slope form), then graphing on a coordinate plane	Graphing points in the coordinate plane, Vocabulary - origin, coordinate point, ordered pair, quadrant, y-axis, slope, rise over run, slope-intercept form,	October-November	Unit 5 Test
I can determine the slope of a line from an equation, two given points, a table, or a graph.	Determine the slope from multiple representations in simplest form	Use similar triangles to justify and identify slope on a graph	Rise over run, change in y over change in x,	November	Unit 5 Test
I can analyze and solve a pair of simultaneous linear equations.	Solving a system of equations using graphing and substitution (where both equations are solved for the same variable), recognize that the solution is the coordinate point (x,y) where the lines intersect; writing equations in slope intercept form from a word problem and solving the system to analyze the solution in the context of the problem	Solving a system of equations using graphing, substitution (where one equation is solved for one variable, either x or y), and elimination (where multiplication is required on one equation). Word problems where one equation might be written in standard form and interpreting the solution in the context of the problem	Graphing equations in slope-intercept form in coordinate plane. Solving equations with variables on both sides. Checking solutions	November-December	Unit 6 Test

QUARTER 3					
I can write an equation to model a linear function by determining the rate of change and initial value from various representations.	Writing a linear equation in y=mx+b from a word problem or other representation where the initial value is explicitly stated and the rate of change must be found	Write a linear equation in y = mx+b from a word problem or other representation where the rate of change must be found and the initial value is not explicitly stated; writing the equation using function notation	Rate of change, slope, y-intercept slope-intercept form	January	Unit 7 Test
I can interpret the rate of change (slope) and initial value (y-intercept) of a linear function in terms of the situation it models and in terms of its graph or table of values.	Interpreting the initial value when explicitly stated, finding and interpreting the rate of change with the appropriate units	Finding rate of change by unit conversions (from weeks to days, minutes to hours, etc), finding and interpreting the initial value when not explicitly stated in the problem	Unit rate, evaluating linear functions for independent or dependent variables	January-February	Unit 7 Test
I can compare two functions represented in the same way and represented differently (algebraically, graphically, numerically in tables, or by verbal description).	Comparing the initial value and rate of change of functions represented in the same or different ways	Determining if one or both functions are proportional, finding which function would optimize a situation	Rate of change	January - February	Unit 7 Test

I can describe in qualitative language, the functional relationship between two quantities by analyzing a graph.	Matching a graph to its story, looking at a graph being able to analyze and interpret the relationship between the two quantities (such as time and distance, etc), analyzing a graph based on its increasing, decreasing, and constant,	Given a story, being able to create a graph that accurately depicts the scenario, identifying increasing and decreasing intervals using inequalities and interval notation, comparing intervals to determine which has a faster rate of change	Components of a graph- increasing, decreasing, constant/no change, intercepts, maximum, minimum.	February	Unit 7 Test
I can apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems.	Finding any side length of a right triangle, use Pythagorean Theorem in a real-world situation (finding distance, how high up the wall is the ladder, length of diagonal of a square or rectangle)	Knowing Pythagorean Triples, identifying a triangle as right, obtuse, or acute, using the Pythagorean Theorem to find diagonals of cubes and prisms, using the Pythagorean Theorem to find the area of a triangle	Square root, solving equations using inverse operations, definition of right triangle	February - March	Unit 8 Test
QUARTER 4					

Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines. Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.	Graphing the pre-image and image with translations, rotations, reflections, and dilations; labeling vertices using prime notation; using arrow notation to describe transformations; understanding if a transformation is rigid or non-rigid; dilating a figure about the origin, rotating a figure about the origin; identifying the transformation given the pre-image and image; describing and identifying the properties of transformations	Graphing composite transformations: translations, rotations, reflections and dilations. Reflecting over lines other than the x and y axis (such as y=x or y=-x), dilating a figure from a point using a ruler; rotating a figure about a point other than the origin	Rigid motion, graphing in the coordinate plane, Integer rules,	March - April	Unit 9 Test
I can apply the volume formula of cones, cylinders, and spheres to solve real-world and mathematical problems.	Find the volume of cones, cylinders, spheres (including hemispheres) from a diagram and apply to a real world situation (including comparing volumes and composite volumes); understanding the difference between approximated/estimated volume and exact volume; using	Finding the volume of all solids (rectangular, triangular, trapezoidal prisms); given the volume finding the side length; how changes in parameters affect the volume	Area formula of circle	April	Unit 10 Test

	appropriate units on answers				
I can solve problems involving measurement data using the equation of a linear model by interpreting the slope and intercept.	Creating a scatter plot of data; identifying the equation of the line of best fit for a scatter plot; using a line of best fit to make a reasonable prediction for a future event	Writing and estimating the equation for a line of best fit both by hand and using technology (Desmos); interpreting the initial value and rate of change from a line of best fit	Plotting points on coordinate plane, slope, y-intercept, slope-intercept form	May	Unit 11 Test