Grade 8
Quarter 1 Math Priority Standards and Skills

Mathematical Practices 8.MP
The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.
8.MP.1 Make sense of problems and persevere in solving them.
8.MP.2 Reason abstractly and quantitatively.
8.MP.3 Construct viable arguments and critique the reasoning of others.
8.MP.4 Model with mathematics.
8.MP.5 Use appropriate tools strategically.
8.MP.6 Attend to precision.
8.MP.7 Look for and make use of structure.
8.MP.8 Look for and express regularity in repeated reasoning

Standards	Skills Students will be able to:	Notes
Expressions and Equations 8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions.	Work with radicals and integer exponents.
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 108 and the population of the world as 7 × 109, and determine that the world population is more than 20 times larger.	Work with radicals and integer exponents.
8.EE.4	Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor	Work with radicals and integer exponents.

	spreading). Interpret scientific notation that has been generated by technology.	
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	Work with radicals and integer exponents.
8.EE.7	Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Analyze and solve linear equations and pairs of simultaneous linear equations.
8.EE.8	Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points,	Analyze and solve linear equations and pairs of simultaneous linear equations.

	determine whether the line through the first pair of points intersects the line through the second pair.	

Quarter 2 Priority Standards and Skills-**Functions**

Standards	Skills	Notes
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8.)	Define, evaluate, and compare functions.
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	Define, evaluate, and compare functions.
8.F.3	Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.	Define, evaluate, and compare functions.
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values	Use functions to model relationships between quantities.

8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Use functions to model relationships between quantities.

Quarter 3 Priority Standards and Skills-**Geometry 8.G**

Standards	Skills	Notes
8.G.2	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	Understand congruence and similarity using physical models, transparencies, or geometry software
8.G.3	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	Understand congruence and similarity using physical models, transparencies, or geometry software
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two dimensional figures, describe a sequence that exhibits the similarity between them.	Understand congruence and similarity using physical models, transparencies, or geometry software
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the	Understand congruence and similarity using physical models, transparencies, or geometry software

	three angles appears to form a line, and give an argument in terms of transversals why this is so.	

Quarter 4- Priority Standards-Geometry and Statistics and Probability

8.G.6	Explain a proof of the Pythagorean Theorem and its converse.	Understand and apply the Pythagorean Theorem.
8.G.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	Understand and apply the Pythagorean Theorem.
8.G.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system	Understand and apply the Pythagorean Theorem.
8.G.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

Statistics and Probability

Standards _____	Skills	Notes
8.SP.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.	Investigate patterns of association in bivariate data.

Supporting Standards:
Standards that are not highly assessed but should be presented if not mastered over the course of a year (or the course)