

Course: **Math**Grades: **8**

Teachers: _____

RP = Ratios and Proportions, NS = Number System, EE = Expressions and Equations, G = Geometry, SP = Statistics and Probability

Chap # Title	Common Core State Standard and Content		Skills and sections of the text which address them
Chapter 3 Solving Equations & Inequalities Chapter 6 Multi-step Equation & Inequalities	CC.8.EE.5	Understand the connections between proportional relationships, lines, and linear equations. 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.	3.1 – Solving +/- Equations 3.2 – Solving x/\div Equations 3.3 – Solving 2 Step Equ. 3.4 – Writing 2-step Equ. 6.1 – Solving Multi-Step Equ. 6.2 – Solve Var. on both sides 6.3 – Solve with Frac/Dec. 6.4 – Solving w/ Circumference
	CC.8.EE.7	Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable.	
	CC.8.EE.7a	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).	
	CC.8.EE.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	
Chapter 4 Factors, Fractions and Exponents	CC.8.EE.1	Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions.	4.6 – Rules of Exponents 4.7 – Negative/Zero Exp. 4.8 – Scientific Notation
	CC.8.EE.2	Work with radicals and integer exponents. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.	
	CC.8.EE.3	Work with radicals and integer exponents. 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.	
	CC.8.EE.4	Work with radicals and integer exponents. 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 spreading). Interpret scientific notation that has been generated by technology.	
Chapter 10 Measurement, Area and Volume	CC.8.G.9 Not in Text	Solve real-world and mathematical problems involving volume of cylinders, cones and spheres. Know the formulas for the volume of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	10.6 – Vol. of Prism/Cylinder 10.7 – Vol. of Pyramids/Cones

			Need to add Vol. of Spheres
Chapter 8 Polygons and Transformations	CC.8.G.1	Understand congruence and similarity using physical models, transparencies, or geometry software. 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.	8.1 – Angle Pairs 8.2 – Angles & Triangles 8.3 – Quadrilaterals 8.4 – Polygons & Angles 8.5 – Congruent Polygons 8.6 – Reflections/Symmetry 8.7 – Translations/Rotations 8.8 – Similarity & Dilations
	CC.8.G.2	CC.8.G.2 Understand congruence and similarity using physical models, transparencies, or geometry software. 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.	
	CC.8.G.3	Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.	
	CC.8.G.4	Understand congruence and similarity using physical models, transparencies, or geometry software. 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.	
	CC.8.G.5	Understand congruence and similarity using physical models, transparencies, or geometry software. 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	
Chapter 9 Real Numbers & Right Triangles	CC.8.NS.1.	Understand informally that every number has a decimal expansion; the rational numbers are those with decimal expansions that terminate in 0's or eventually repeat. Know that other numbers are call irrational.	9.1 – Square Roots 9.2 – Rational/Irrational #'s 9.3 – The Pythagorean Theorem 9.4 – Using the Pythagorean Theorem
	CC.8.NS.2	Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	
	CC.8.G.6	Understand and apply the Pythagorean Theorem. Explain a proof of the Pythagorean Theorem and its converse.	
	CC.8.G.7	Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	
	CC.8.G.8	Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	

Chapter 11 Linear Equations./graphs	CC.8.SP.1	Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	11.1 – Relations and Funct. 11.2 – Scatter Plots 11.4 – Graphs of Linear Funct 11.6 – Slope 11.7 –Slope-intercept form
	CC.8.SP.2	Investigate patterns of association in bivariate data. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	
	CC.8.SP.3	Investigate patterns of association in bivariate data. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept	
	CC.8.SP.4	Investigate patterns of association in bivariate data. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	
	CC.8.EE.5	Understand the connections between proportional relationships, lines, and linear equations. Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	
	CC.8.EE.6	Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b .	

Chapter 13 Polynomials and Functions	CC.8.F.1	Define, evaluate, and compare functions. 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.)	13.5 – Non-linear Functions
	CC.8.F.2	Define, evaluate, and compare functions. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	
	CC.8.F.3	Define, evaluate, and compare functions. 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.	
	CC.8.F.4	Use functions to model relationships between quantities. 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.	
	CC.8.F.5	Use functions to model relationships between quantities. 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.	