

8th Grade Math											
130 Days	Unit 1: 20 days	Unit 2: 25 days	Unit 3: 30 days			Unit 4: 10 days	Unit 5: 20 days		Unit 6: 25 days		
7 Unit Name	Integer Exponents and Scientific Notation	The Concept of Congruence and Similarity	Linear Equations			Examples of Functions from Geometry	Linear Functions		Introduction to Irrational Numbers Using Geometry		
Domain	Work with radicals and integer exponents.	Understand congruence and similarity using physical models, transparencies, or geometry software.	Understand the connections between proportional relationships, lines, and linear equations.	Analyze and solve linear equations and inequalities and pairs of simultaneous linear equations.	Understand and apply the Pythagorean Theorem	Define, evaluate, and compare functions.	Use functions to model relationships between quantities	Investigate patterns of association in bivariate data	Know that there are numbers that are not rational, and approximate them by rational numbers.	Work with radicals and integer exponents	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
Duration	20	25	5	15	10	10					
I Can Statements	I Can Statements	I Can Statements	I Can Statements			I Can Statements	I Can Statements		I Can Statements		
	8.EE.1a I can apply the properties of integer exponents to generate equivalent numerical expressions.	8.G.1a I can verify that angle measure and distance are preserved under rigid transformations.	8.EE.5a I can graph proportional relationships, interpreting the unit rate as the slope of the graph.	8.EE.7 I can solve linear equations and inequalities in one variable using the distributive property and combining like terms.	8.G.1 I can use models to demonstrate a proof of the Pythagorean Theorem and its converse.	8.F.1a I can understand that a function assigns to each input exactly one output.	8.F.4 I can use functions to model linear relationships between quantities.	8.DSP.1 I can construct and interpret scatter plots to investigate patterns of association between two quantities.	8.NS.1a I can compare and contrast rational and irrational numbers.	8.EE.2a I can evaluate square roots (of numbers up to 625) and cube roots (of numbers up to 1000)	8.G.9 I can solve problems involving surface area and volume
	8.EE.3 I can use scientific notation to estimate very large or very small quantities, and to express how many times as much one is than the other.	8.G.2 I can understand that figures are congruent and similar if a series of rigid transformations can be performed to map the pre-image to the image.	8.EE.5b I can compare proportional relationships represented in different ways (i.e. equation, graph, table).	8.EE.7a I can create and identify linear equations with one solution, infinitely many solutions or no solutions.	8.G.2 I can use the Pythagorean Theorem to determine unknown side lengths in right triangles.	8.F.1b I can determine if a relation is a function.	8.F.4a I can explain the parameters of a linear function.	8.DSP.2 I can write an equation for a line of fit.	8.NS.1c I can convert a repeating decimal into a fraction and vice-versa.	8.EE.1 I can use square root and cube root symbols to represent solutions to equations.	8.G.9a I can find the surface area of pyramids.
	8.EE.5 I can perform operations with numbers expressed in scientific notation and choose units of appropriate size for measurements.	8.G.2a I can describe a possible sequence of rigid transformations between two congruent, similar figures.	8.EE.6b I can derive the equation $y=mx$ or $y=mx+b$.	8.EE.8a I can graph systems of linear equations and recognize the intersection as the solution to the system.	8.G.3 I can use the Pythagorean Theorem to find the distance between points in a Cartesian coordinate system.	8.F.1c I can graph a function.	8.F.4c I can determine the x-intercept of a linear function.	8.DSP.4a I can construct and interpret a two-way table summarizing categorical data.	8.NS.2 I can use approximations to compare the size of irrational numbers.	8.EE.2c Recognize that non-perfect squares are irrational.	8.G.9b I can find the volume of pyramids, cones, and spheres.
		8.G.3 I can describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.		8.EE.8b I can explain why solution(s) to a system of two linear equations in two variables correspond to point(s) of intersection of the graphs.		8.F.2 I can compare characteristics of two functions each represented in a different way (i.e. graph, equation, table).	8.F.5 I can describe the functional relationship between two quantities from a graph or a verbal description.	8.DSP.4b I can use relative frequencies calculated for rows or columns to describe possible association between the two variables.	8.NS.2 I can approximate irrational numbers on a number line.		
		8.G.1b Investigate if orientation is preserved under rigid transformations.		8.EE.8c I can explain why systems of linear equations can have one solution, no solution or infinitely many solutions.		8.F.3 I can investigate the differences between linear and nonlinear functions.					
		8.G.4b Explore the relationship between the interior and exterior angles of a triangle.		8.EE.8d I can solve systems of two linear equations using substitution and elimination.		8.F.3a I can interpret the equation $y=mx+b$ as defining a linear function, specifically the slope and y-intercept.					
		8.G.4a I can derive the sum of the interior angles of a triangle.				8.F.3b I can recognize that the graph of a linear function has a constant rate of change.					
		8.G.4c I can construct and explore the angles created when parallel lines are cut by a transversal.				8.F.3c I can give examples of nonlinear functions.					
MO Learning Standards	MO Learning Standards	MO Learning Standards	MO Learning Standards			MO Learning Standards	MO Learning Standards		MO Learning Standards		
	8.EE.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, $32 \times 3^{-5} = 3^{-3} = 1/33 = 1/27$.	Verify experimentally the congruence properties of rigid transformations. a. Verify that angle measure, betweenness, collinearity and distance are preserved under rigid transformations.	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.	Solve linear equations and inequalities in one variable. a. Create and identify linear equations with one solution, infinitely many solutions or no solutions. b. Solve linear equations and inequalities with rational number coefficients, including equations and inequalities whose solutions require expanding expressions using the distributive property and combining like terms.	Use models to demonstrate a proof of the Pythagorean Theorem and its converse.	Explore the concept of functions. (The use of function notation is not required.) a. Understand that a function assigns to each input exactly one output. b. Determine if a relation is a function. c. Graph a function.	Use functions to model linear relationships between quantities. a. Explain the parameters of a linear function based on the context of a problem. b. Determine the parameters of a linear function. c. Determine the x-intercept of a linear function.	Construct and interpret scatter plots of bivariate measurement data to investigate patterns of association between two quantities.	8.NS.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	8.EE.2 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.	Solve problems involving surface area and volume. a. Understand the concept of surface area and find surface area of pyramids. b. Understand the concepts of volume and find the volume of pyramids, cones and spheres.
	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 3×10^8 and the population of the world as 7×10^9 , and determine that the world population is more than 20 times larger	Understand that two-dimensional figures are congruent if a series of rigid transformations can be performed to map the pre-image to the image. a. Describe a possible sequence of rigid transformations between two congruent figures.	8.EE.6 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.	Analyze and solve systems of linear equations. a. Graph systems of linear equations and recognize the intersection as the solution to the system. b. Explain why solution(s) to a system of two linear equations in two variables correspond to point(s) of intersection of the graphs. c. Explain why systems of linear equations can have one solution, no solution or infinitely many solutions. d. Solve systems of two linear equations.	Use the Pythagorean Theorem to determine unknown side lengths in right triangles in problems in two- and three-dimensional contexts.	Compare characteristics of two functions each represented in a different way.	Describe the functional relationship between two quantities from a graph or a verbal description.	Generate and use a trend line for bivariate data, and informally assess the fit of the line.	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). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations		

	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 s	Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.			Use the Pythagorean Theorem to find the distance between points in a Cartesian coordinate system.	Investigate the differences between linear and nonlinear functions. a. Interpret the equation $y = mx + b$ as defining a linear function, whose parameters are the slope (m) and the y-intercept (b). b. Recognize that the graph of a linear function has a constant rate of change c. Give examples of nonlinear functions.		Interpret the parameters of a linear model of bivariate measurement data to solve problems.		
		Understand that two-dimensional figures are similar if a series of transformations (rotations, reflections, translations and dilations) can be performed to map the pre-image to the image. a. Describe a possible sequence of transformations between two similar figures						Understand the patterns of association in bivariate categorical data displayed in a two-way table. a. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. b. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.		
		Explore angle relationships and establish informal arguments. a. Derive the sum of the interior angles of a triangle. b. Explore the relationship between the interior and exterior angles of a triangle. c. Construct and explore the angles created when parallel lines are cut by a transversal. d. Use the properties of similar figures to solve problems.								
SJ Topics	http://unesdoc.unesco.org/images/0024/002474/247444e.pdf		Gender Equity: The Pay Gap							
Necessary Scaffolding		(Finding x, y) coordinates		Combing signed numbers, solving one and two step equations, inequalities	Plotting (x, y) coordinates, right angles, hypotenuse			Long division		Pi