Course Name:	8th Grade Math		
Credits:	1		
Prerequisites:	n/a		
Description:	The idea behind the 8th grade Math class is to revisit previously introduced topics and build on the students' understanding by adding new skills and look for deeper comprehension of the concept. Topics in this course include: The Number System, Expressions and Equations, Functions, Geometry, and Statistics and Probability.		
Academic Standards:	Wisconsin State Standards in Mathematics (2011)		

Units:	Unit Length:	Unit Standards:	Unit Outcomes:
Equations	15 days	8.EE.7A-B	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. Show that a linear equations in one variable has one solution, infinitely many solutions, or no solution by transforming the equation into simpler forms.
Transformations	26 days	8.G.1A-C, 8.G.2, 8.G.3, 8.G.4	Verify the properties of translations, reflections, and rotations. Describe translations, reflections, and rotations using coordinates. Identify dilations. Understand that figures are congruent (or similar) when they can be related by a sequence of translations, reflections, and rotations (and dilatations). Describe a sequence that exhibits congruence or similarity between two figures.
Angles and Triangles	20 days	8.G.5	Classify and determine the measure of angles created when parallel lines are cut by a transversal. Demonstrate that the sum of the interior angle measures of a triangle is 180 degrees and apply this fact to find the unknown measures of angles and the sum of the angles of polygons. Use similar triangles to solve problems that include height and distance.
Graphing and Writing Linear Equations	24 days	8.EE.5, 8.EE.6, 8.F.4	Use similar triangles to explain why the slope is the same between any two points on a line. Graph proportional relationships, interpreting the unit rate as the slope. Compare proportional relationships represented in different ways. Derive y = mx and y = mx +b.
Systems of Linear Equations	20 days	8.EE.7A-B, 8.EE.8A-C	Show that a linear equation in one variable has one solution, infinitely many solutions, or no solution by transforming the equation into simpler forms. Solve multi-step equations. Understanding that the solution of a system of two linear equations in two variables corresponds to the point of intersection of their graphs. Solve systems of two linear equations in two variables graphically and algebraically.
Functions	18 days	8.F,1, 8.F.2, 8.F.3, 8.F.4	Understand the definition of a function. Compare and write functions represented in different ways (words, tables, graphs). Understand that y = mx +b is a linear function and recognize nonlinear functions.
Real Numbers and the Pythagorean Theorem	21 days	8.NS.1, 8.NS.2, 8.EE.2, 8.G.6, 8.G.7, 8.G.8	Understand that every rational number has a decimal expansion that terminates or repeats. Understand that numbers that are not rational are irrational. Compare irrational numbers using rational approximations. Evaluate square roots and cube roots, including those resulting from solving equations. Use the Pythagorean Theorem to find missing measures of right triangles and distances between points in the coordinate plane.
Data Analysis and Displays	7 days	8.SP.1, 8.SP.2, 8.SP.3	Construct and interpret scatter plots. Find and assess lines of fit for scatter plots.
Exponents	15 days	8.EE.1	Use the properties of integer exponents to generate equivalent expressions.

Unit Name: Equations	Length: 15 days		
Standards: 8.EE.7a-b	Outcomes: Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. Show that a linear equation in one variable has one solution, infinitely many solutions, or no solution by transforming the equation into simpler forms.		
Essential Questions: How can you solve multi-step equations and check the reasonableness of your solution? How can you solve an equation that has variables on both sides? How can you use a formula for one measurement to write a formula for a different measurement?	Learning Targets: Solve simple equations using addition, subtraction, multiplication, or division. Use inverse operations to solve multi-step equations. Use the Distributive Property to solve multi-step equations. Solve equations with variables on both sides. Determine whether equations have no solution or infinitely many solutions. Rewrite equations to solve for one variable in terms of the other variable(s).		
Topic 1: Solving Simple and Multi-Step Equations	Length: 7 days		
Standard(s): 8.EE.7a, 8.EE.7b	Academic Vocabulary: inverse operations, addition property of equality, subtractions property of equality, multiplication property of equality, division property of equality		
Lesson Frame:	We will: review what an equation is/has and what it means to get a solution		
	I will: solve simple equations using addition, subtraction, multiplication, or division.		
Lesson Frame:	We will: identify what inverse means and which operations are inverses of each other		
	I will: use inverse operations to solve multi-step equations.		
Lesson Frame:	We will: review what distributive property is		
	I will: use the distributive property to solve multi-step equations.		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 2: Solving Equations with Variables on Both Sides	Length: 5 days		
Standard(s): 8.EE.7a, 8.EE.7b	Academic Vocabulary: variable term, constant term		
Lesson Frame:	We will: review steps to solve complex equations		
	I will: solve equations with variables on both sides.		
Lesson Frame:	We will: investigate possible solution outcomes		
	I will: determine whether equations have no solution or infinitely many solutions.		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 3: Rewriting Equations and Formulas	Length: 3 days		
Standard(s): 8.EE.7b	Academic Vocabulary: literal equation, formula		
Lesson Frame:	We will: discuss how to solve for certain variables when more than one is present.		
	I will: rewrite equations to solve for one variable in terms of the other variable(s).		
Lesson Frame:	We will: review what a formula is		
	I will: recognize that a formula is a type of literal equation and be able to rewrite formulas to solve for one variable in terms of the other		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		

Unit Name: Transformations	Length: 26 days
Standards: 8.G.1A-C, 8.G.2, 8.G.3, 8.G.4	Outcomes: Verify the properties of translations, reflections, and rotations. Describe translations, reflections, and rotations using coordinates. Identify dilations. Understand that figures are congruent (or similar) when they can be related by a sequence of translations, reflections, and rotations (and dilatations). Describe a sequence that exhibits congruence or similarity between two figures.
Essential Questions: How can you identify congruent figures? How can you arrange tiles to make a tessellation? How can you reflect an image? What are the three basic ways to move an object in a plane? How can you use proportions to help make various multimedia products? How do changes in dimensions of similar geometric figures affect the perimeters and the areas of the figures? What does it mean to enlarge or reduce a figure in the coordinate plane?	Learning Targets: name corresponding angles and corresponding sides of congruent figures. Identify congruent figures. Identify translations. Translate figures in the coordinate plane. Identify reflections. Reflect figures in the x-axis or the y-axis of the coordinate plane. Identify rotations. Rotate figures in the coordinate plane. Use more than one transformation to find images of figures. Name corresponding angles and corresponding sides of similar figures. Identify similar figures. Find unknown measures of similar figures. Understand the relationship between perimeters of similar figures. Understand the relationship between areas of similar figures. Find ratios of perimeters and areas for similar figures. Identify dilations. Use more than one transformation to find images of figures.
Topic 1: Congruent Figures	Length: 3 days
Standard(s): 8.G.2	Academic Vocabulary: congruent, congruent figures, corresponding angles, corresponding sides
Lesson Frame:	We will: discuss congruency and corresponding angles and sides.
	I will: name corresponding angles and corresponding sides of congruent figures.
Lesson Frame:	We will: explore the criteria of congruent figures
	I will: identify congruent figures.
Lesson Frame:	We will: examine how we can use known information of congruent figures to find missing measures
	I will: practice using congruent figures to find unknown measures
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 2: Translations	Length: 4 days
Standard(s): 8.G.1, 8.G.2, 8.G.3	Academic Vocabulary: transformation, image, translation
Lesson Frame:	We will: investigate what happens when a figure is translated
	I will: identify a translation
Lesson Frame:	We will: display a variety of ways to calculate a translation on a graph
	I will: translate figures in the coordinate plane.
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 3: Reflections	Length: 4 days
Standard(s): 8.G.1, 8.G.2, 8.G.3	Academic Vocabulary: reflection, line of reflection
Lesson Frame:	We will: discuss the characteristics of a mirror image
	I will: identify a reflection
Lesson Frame:	We will: investigate direction and quadrants resulting in a reflection in the x-axis
	I will: demonstrate a reflection in the x-axis
Lesson Frame:	We will: investigate direction and quadrants resulting in a reflection in the y-axis
	I will: demonstrate a reflection in the y-axis
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 4: Rotations	Length: 8 days
Standard(s): 8.G.1, 8.G.2, 8.G.3	Academic Vocabulary: rotation, center of rotation, angle of rotation
Lesson Frame:	We will: demonstrate the characteristics of a rotation
	I will: identify a rotation
Lesson Frame:	We will: practice different techniques to use in order to rotate a figure in the coordinate plane
	I will: be able to rotate a figure in two directions and at various degrees of rotation
Lesson Frame:	We will: discuss sequences of transformations that result in prime and double prime images
	I will: follow a sequence of transformations to end in the correct resulting image on the coordinate plane
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 5: Similar Figures	Length: 3 days
Standard(s): 8.G.4	Academic Vocabulary: similar figures
Lesson Frame:	We will: explore characteristics of similar figures
	I will: identify similar figures
Lesson Frame:	We will: discover how knowing some information of similar figures allows us to find missing information
	I will: use similar figures to find unknown measures
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 6: Perimeters and Areas of Similar Figures	Length: 3 days
Standard(s): 8.G.4	Academic Vocabulary: ratio, proportions
Lesson Frame:	We will: review the meaning and set-up of ratios in context of using perimeters and areas of similar figures
	I will: find the ratios of the perimeters and areas of similar figures
Lesson Frame:	We will: review what a proportion is and how it is written
	I will: use proportions to find perimeters and areas
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 7: Dilations	Length: 1 days
Standard(s): 8.G.3	Academic Vocabulary: dilation, center of dilation
Lesson Frame:	We will: discuss the concept of enlarging or reducing the size of a figure
	I will: identify a dilation
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Unit Name: Angles and Triangles	Length: 20 days		
Standards: 8.G.5	Outcomes: Classify and determine the measure of angles created when parallel lines are cut by a transversal. Demonstrate that the sum of the interior angle measures of a triangle is 180 degrees and apply this fact to find the unknown measures of angles and the sum of the angles of polygons. Use similar triangles to solve problems that include height and distance.		
Essential Questions: How can you describe angles formed by parallel lines and transversals? How can you describe the relationship among the angles of a triangle? How can you find the sum of the interior angle measures and the sum of the exterior angle measures of a polygon? How can you use angles to tell whether triangles are similar?	Learning Targets: identify the angles formed when parallel lines are cut by a transversal. Find the measures of angles formed when parallel lines are cut by a transversal. Understand that the sum of the interior angle measures of a triangle is 180 degrees. Find the measure s of interior and exterior angles of triangles. Find the sum of the interior angle measures of polygons. Understand that the sum of the exterior angle measures of a polygon is 360 degrees. Find the measures of interior and exterior angles of polygons. Understand the concept of similar triangles. Identify similar triangles. Use indirect measurement to find missing measures.		
Topic 1: Parallel Lines and Transversals	Length: 5 days		
Standard(s): 8.G.5	Academic Vocabulary: transversal, interior angles, exterior angles, alternate interior angles, alternate exterior angles		
Lesson Frame:	We will: review and discuss properties of parallel lines. Explore what occurs when a transversal cuts parallel lines.		
	I will: identify and find angle measures when two parallel lines are cut by a transversal		
Lesson Frame:	We will: review the characteristics and appearance of corresponding angles		
	I will: use corresponding angles to find missing measures		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 2: Angles of Triangles	Length: 5 days		
Standard(s): 8.G.5	Academic Vocabulary: interior angles of a polygon, exterior angles of a polygon		
Lesson Frame:	We will: rediscover that all interior angle measure of a triangle must equal 180 degrees		
	I will: use interior angle measures of a triangle to find the missing angle measure(s)		
Lesson Frame:	We will: explore how the interior angle measures of a triangle are related to the exterior angle measure of a triangle		
	I will: use the exterior angle measures of a triangle formula to determine the measure of the exterior angle		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 3: Angles of Polygons	Length: 5 days		
Standard(s): 8.G.5	Academic Vocabulary: polygon, convex, concave, regular polygon		
Lesson Frame:	We will: use our knowledge of triangles to determine the formula for finding the sum of the interior angle measures of any polygon		
	I will: find the sum of the interior angle measures of polygons		
Lesson Frame:	We will: explore what happens when we know some of the pieces of information, but not all information about the sides and angles of polygons		
	I will: use multiple steps in order to find a missing interior angle measure of a polygon		
Lesson Frame:	We will: discuss what occurs on the exterior of a polygon and how all exterior angles of a polygon add up to 360 degrees		
	I will: find the missing exterior angle measure(s) of a polygon		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 4: Using Similar Triangles	Length: 5 days		
Standard(s): 8.G.5	Academic Vocabulary: indirect measurement		
Lesson Frame:	We will: explore what happens with the angles of two similar triangles		
	I will: identify similar triangles		
Lesson Frame:	We will: use real-world examples of when indirect measurement would be useful using similar triangles		
	I will: calculate the missing measure using indirect measurement		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		

Unit Name: Graphing and Writing Linear Equations	Length: 24 days		
Standards: 8.EE.5, 8.EE.6, 8.F.4	Outcomes: Use similar triangles to explain why the slope is the same between any two points on a line. Graph proportional relationships, interpreting the unit rate as the slope. Compare proportional relationships represented in different ways. Derive y = mx and y = mx +b.		
Essential Questions: How can you recognize a linear equation? How can you draw a linear equation's graph? How can you use the slope of a line to describe the line? How can you describe the graph of the equation y = mx? How can you describe the graph of the equation y = mx + b? How can you describe the graph of the equation ax + by = c? How can you write an equation of a line when you are given the slope and the y-intercept of the line?	Learning Targets: Understand that lines represent solutions of linear equations. Graph linear equations. Find slopes of lines by using two points. Find slopes of lines from tables. Identify parallel and perpendicular lines in the same plane. Write and graph proportional relationships. Find slopes and y-intercepts of graphs of linear equations. Graph linear equations written in slope-intercept form. Graph linear equations written in standard form. Write equations of lines in slope-intercept form.		
Topic 1: Graphing Linear Equations	Length: 4 days		
Standard(s): 8.EE.5	Academic Vocabulary: linear equation, solution		
Lesson Frame:	We will: investigate equations written in y = mx + b form and apply substitution		
	I will: graph a linear equation		
Lesson Frame:	We will: discuss the circumstances that occur when given the equations y = a and x = b		
	I will: graph a horizontal and a vertical line		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 2: Slope of a Line	Length: 4 days		
Standard(s): 8.EE.6	Academic Vocabulary: slope, rise, run		
Lesson Frame:	We will: explore different methods to determine the slope of a line		
	I will: find the slope of a line		
Lesson Frame:	We will: examine situations that involve horizontal lines and vertical lines		
	I will: find the slope of a horizontal line and of a vertical line		
Lesson Frame:	We will: practice using a table to investigate the data provided		
	I will: find the slope from a table		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 3: Graphing Proportional Relationships	Length: 4 days		
Standard(s): 8.EE.5, 8.EE.6	Academic Vocabulary: direct variation equation		
Lesson Frame:	We will: discuss how proportional relationships can be displayed using an equation and its graph		
	I will: graph a proportional relationship		
Lesson Frame:	We will: practice how to use direct variation equations		
	I will: write and use a direct variation equation		
Lesson Frame:	We will: examine proportional relationships and use linear equations and graphs to compare		
	I will: compare proportional relationships		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 4: Graphing Linear Equations in Slope-Intercept Form	Length: 4 days		
Standard(s): 8.EE.6	Academic Vocabulary: x-intercept, y-intercept, slope-intercept form		
Lesson Frame:	We will: explore what intercepts are and where they are located in slope-intercept form		
	I will: identify slopes and y-intercepts		
Lesson Frame:	We will: discuss how knowing slope-intercept form can result in graphing a line		
	I will: graph a linear equation in slope-intercept form		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 5: Graphing Linear Equations in Standard Form	Length: 4 days		
Standard(s): 8.EE.6	Academic Vocabulary: standard form		
Lesson Frame:	We will: investigate the process of rewriting equations written in one form into another form to graph it		
	I will: graph a linear equation in standard form		
Lesson Frame:	We will: explore other methods for rewriting equations in order to graph them		
	I will: graph a linear equation in standard form		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 6: Writing Equations in Slope-Intercept Form	Length: 4 days		
Standard(s): 8.F.4	Academic Vocabulary: n/a		
Lesson Frame:	We will: compile previous lessons to formulate an equation		
	I will: write equations in slope-intercept form		
Lesson Frame:	We will: practice reading the graph of a line and determine its equation		
	I will: write an equation		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		

Unit Name: Systems of Linear Equations	Length: 20 days		
Standards: 8.EE.7A-B, 8.EE.8A-C	Outcomes: Show that a linear equation in one variable has one solution, infinitely many solutions, or no solution by transforming the equation into simpler forms. Solve multi-step equations. Understanding that the solution of a system of two linear equations in two variables corresponds to the point of intersection of their graphs. Solve systems of two linear equations in two variables graphically and algebraically.		
Essential Questions: How can you solve a system of linear equations? How can you use substitution to solve a system of linear equations? How can you use elimination to solve a system of linear equations? Can a system of linear equations have no solution? Can a system of linear equations have many solutions?	Learning Targets: Write and solve systems of linear equations by graphing. Write and solve systems of linear equations by substitution. Write and solve systems of linear equations by elimination. Solve systems of linear equations with no solution or infinitely many solutions. Solve real-life problems.		
Topic 1: Solving Systems of Linear Equations by Graphing	Length: 5 days		
Standard(s): 8.EE.8a-c	Academic Vocabulary: system of linear equations, solution of a system of linear equations		
Lesson Frame:	We will: explore what happens when we graph two linear equations in the same plane		
	I will: solve a system of linear equations by graphing		
Lesson Frame:	We will: review how to turn words and contextual clues into mathematical sentences (equations)		
	I will: practice writing real-world situations as equations and graphing the solution of the system of linear equations		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 2: Solving Systems of Linear Equations by Substitution	Length: 5 days		
Standard(s): 8.EE.b-c	Academic Vocabulary: n/a		
Lesson Frame:	We will: revisit the concept of substitution and create a process for using in within a system of linear equations		
	I will: solve a system of linear equations by substitution		
Lesson Frame:	We will: explore how systems of linear equations can be used in everyday situations		
	I will: solve real-life problems by solving a system of linear equations by substitution		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 3: Solving Systems of Linear Equations by Elimination	Length: 5 days		
Standard(s): 8.EE.8b-c	Academic Vocabulary: n/a		
Lesson Frame:	We will: investigate what elimination means and how we can use it when noticing similarities in a system of linear equations		
	I will: solve a system of linear equations by elimination		
Lesson Frame:	We will: explore when additional steps in the process of using elimination might be needed		
	I will: solve a system of linear equations by elimination		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		
Topic 4: Solving Special Systems of Linear Equations	Length: 5 days		
Standard(s): 8.EE.8a-c	Academic Vocabulary: infinite		
Lesson Frame:	We will: investigate systems of linear equations forming parallel lines on the graph or false algebraic statements		
	I will: solve a system of linear equations using two methods to show there is no solution		
Lesson Frame:	We will: investigate systems of linear equations forming only one line on the graph or true algebraic statements w/o a variable		
	I will: solve a system of linear equations using two methods to show there is infinitely many solutions		
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:		

Unit Name: Functions	Length: 18 days
Standards: 8.F.1, 8.F.2, 8.F.3, 8.F.4	Outcomes: Understand the definition of a function. Compare and write functions represented in different ways (words, tables, graphs). Understand that y = mx +b is a linear function and recognize nonlinear functions.
Essential Questions: How can you use a mapping diagram to show the relationship between two data sets? How can you represent a function in different ways? How can you use a function to describe a linear pattern? How can you recognize when a pattern in real life is linear or nonlinear?	Learning Targets: Define relations and functions. Determine whether relations are functions. Describe patterns in mapping diagrams. Write function rules. Use input-output tables to represent functions. Use graphs to represent functions. Understand that the equation y = mx + b defines a linear function. Write linear functions using graphs or tables. Compare linear functions. Identify linear or nonlinear functions from tables or graphs. Compare linear and nonlinear functions.
Topic 1: Relations and Functions	Length: 4 days
Standard(s): 8.F.1	Academic Vocabulary: inputs, outputs, relation, mapping diagram, function
Lesson Frame:	We will: examine mapping diagrams and decipher information from them
	I will: list the ordered pairs of a relation
Lesson Frame:	We will: investigate mapping diagrams further for more specific results
	I will: determine whether relations are functions
Lesson Frame:	We will: practice reading mapping diagrams
	I will: describe a mapping diagram
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 2: Representations of Functions	Length: 5 days
Standard(s): 8.F.1	Academic Vocabulary: function rule
Lesson Frame:	We will: explore what function rules are
	I will: write function rules
Lesson Frame:	We will: practice using algebraic and mathematical properties
	I will: evaluate a function
Lesson Frame:	We will: explore data representations of functions
	I will: graph a function
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 3: Linear Functions	Length: 4 days
Standard(s): 8.F.2, 8.F.3, 8.F.4	Academic Vocabulary: linear function
Lesson Frame:	We will: review how to find the slope of a line by its graphed points and y-intercept
	I will: write a linear function using a graph
Lesson Frame:	We will: review how to find the slope of a line by its ordered pairs and y-intercept
	I will: write a linear function using a table
Lesson Frame:	We will: explore functions in various forms to make determinations about them
	I will: compare linear functions to one another
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 4: Comparing Linear and Nonlinear Functions	Length: 5 days
Standard(s): 8.F.3	Academic Vocabulary: nonlinear function
Lesson Frame:	We will: investigate x and y tables
	I will: identify functions from tables
Lesson Frame:	We will: interpret graphs
	I will: identify functions from graphs
Lesson Frame:	We will: examine various equations
	I will: identify a nonlinear function
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Unit Name: Real Numbers and the Pythagorean Theorem	Length: 21 days
Standards: 8.NS.1, 8.NS.2, 8.EE.2, 8.G.6, 8.G.7, 8.G.8	Outcomes: Understand that every rational number has a decimal expansion that terminates or repeats. Understand that numbers that are not rational are irrational. Compare irrational numbers using rational approximations. Evaluate square roots and cube roots, including those resulting from solving equations. Use the Pythagorean Theorem to find missing measures of right triangles and distances between points in the coordinate plane.
Essential Questions: How can you find the dimensions of a square or circle when you are given its area? How is the cube root of a number different from the square root of a number? How are the lengths of the sides of a right triangle related? How can you find decimal approximations of square roots that are not rational?	Learning Targets: Find square roots of perfect squares. Evaluate expressions involving square roots. Use square roots to solve equations. Find cube roots of perfect cubes. Evaluate expressions involving cube roots. Use cube roots to solve equations. Provide geometric proof of the Pythagorean Theorem. Use the Pythagorean Theorem to find missing sides lengths of right triangles. Define irrational numbers. Approximate square roots.
Topic 1: Finding Square Roots	Length: 5 days
Standard(s): 8.EE.2	Academic Vocabulary: square root, perfect square, radical sign, radicand
Lesson Frame:	We will: discuss what square roots and perfect squares are
	I will: find the square roots of a perfect square
Lesson Frame:	We will: examine non-perfect squares
	I will: find square roots
Lesson Frame:	We will: practice and review simplifying expressions
	I will: evaluate expressions involving square roots
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 2: Finding Cube Roots	Length: 5 days
Standard(s): 8.EE.2	Academic Vocabulary: cube root, perfect cube
Lesson Frame:	We will: discuss what cube roots are
	I will: find cube roots
Lesson Frame:	We will: practice and review simplifying expressions
	I will: evaluate expressions involving cube roots
Lesson Frame:	We will: review evaluating expressions with given values
	I will: evaluate an algebraic expression
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 3: The Pythagorean Theorem	Length: 5 days
Standard(s): 8.EE.2, 8.G.6, 8.G.7, 8.G.8	Academic Vocabulary: theorem, legs, hypotenuse, Pythagorean Theorem
Lesson Frame:	We will: explore right triangles
	I will: find the length of a hypotenuse
Lesson Frame:	We will: practice using the Pythagorean Theorem
	I will: find the length of a leg
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Topic 4: Approximating Square Roots	Length: 6 days
Standard(s): 8.NS.1, 8.NS.2, 8.EE.2	Academic Vocabulary: irrational number, real number
Lesson Frame:	We will: explore the set of real numbers
	I will: classify real numbers
Lesson Frame:	We will: investigate square root values
	I will: approximate a square root
Lesson Frame:	We will: discuss and review number values on a number line
	I will: compare real numbers
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Unit Name: Data Analysis and Displays	Length: 7 days
Standards: 8.SP.1, 8.SP.2, 8.SP.3	Outcomes: Construct and interpret scatter plots. Find and assess lines of fit for scatter plots.
Essential Questions: How can you construct and interpret a scatter plot?	Learning Targets: Construct and interpret scatter plots. Describe patterns in scatter plots.
Topic 1: Scatter Plots	Length: 4 days
Standard(s): 8.SP.1	Academic Vocabulary: scatter plot, outliers, clusters
Lesson Frame:	We will: explore what scatter plots are and what they show
	I will: interpret a scatter plot
Lesson Frame:	We will: investigate date on a scatter plot
	I will: identify relationships
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:
Topic 2: Lines of Fit	Length: 3 days
Standard(s): 8.SP.1, 8.SP.2, 8.SP.3	Academic Vocabulary: line of fit, line of best fit
Lesson Frame:	We will: revisit concepts of slope, y-intercepts, and linear equations
	I will: find a line of fit
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

Unit Name: Exponents	Length: 15 days
Standards: 8.EE.1	Outcomes: Use the properties of integer exponents to generate equivalent expressions.
Essential Questions: How can you use exponents to write numbers? How can you use inductive reasoning to observe patterns and write general rules involving properties of exponents? How can you divide two powers that have the same base? How can you evaluate a nonzero number with an exponent of zero? How can you evaluate a nonzero number with a negative integer exponent?	Learning Targets: Write expressions using integer exponents. Evaluate expressions involving integer exponents. Multiply powers with the same base. Find a power of a power. Find a power of a product. Divide powers with the same base. Simplify expressions involving the quotient of powers. Evaluate expressions involving numbers with zero as an exponent. Evaluate expressions involving negative integer exponents.
Topic 1: Exponents	Length: 3 days
Standard(s): 8.EE.1	Academic Vocabulary: power, base, exponent
Lesson Frame:	We will: define exponents and display visual meaning
	I will: write expressions using exponents
Lesson Frame:	We will: discuss positive and negative expressions with exponents
	I will: evaluate expressions
Lesson Frame:	We will: review order of operations
	I will: use order of operations to evaluate expressions involving exponents
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:
Topic 2: Product of Powers Property	Length: 4 days
Standard(s): 8.EE.1	Academic Vocabulary: product of powers property, power of a power property, power of a product property
Lesson Frame:	We will: explore the product of powers property
	I will: multiply powers with the same base
Lesson Frame:	We will: explore power of a power property
	I will: find a power of a power
Lesson Frame:	We will: explore power of a product property
	I will: find a power of a product
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:
Topic 3: Quotient of Powers Property	Length: 4 days
Standard(s): 8.EE.1	Academic Vocabulary: quotient of powers property
Lesson Frame:	We will: explore quotient of powers property
	I will: divide powers with the same base
Lesson Frame:	We will: review order of operations and simplifying expressions with exponents
	I will: simplify an expression
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:
Topic 4: Zero and Negative Exponents	Length: 4 days
Standard(s): 8.EE.1	Academic Vocabulary: n/a
Lesson Frame:	We will: explore the use of zero and negative exponents
	I will: evaluate expressions using power properties and zero or negative exponents
Performance Tasks: any or all- exit tickets, assignments (various forms), quiz, test	Notes:

September	October	November	December	January	February	March	April	May	June