

Unit 1 - Angles and Triangles

Lessons	Topics	Standards	Objectives	Essential Questions	Vocabulary
4 lessons 2 Quizzes 1 Review 1 Test	Parallel Lines and Transversals Angles of Triangles Angles of Polygons Using Similar Triangles	8.G.5	To identify the angles formed when parallel lines are cut by a transversal. To find measures of angles formed when parallel lines are cut by a transversal. To understand that the sum of a triangle is 180° . To find the measure of interior and exterior angles of triangles. To find the sum of the interior angle measures of polygons. To understand that the sum of the exterior angle measures of a polygon is 360° . To find the measures of interior and exterior angles of polygons. To understand the concept of similar triangles. To identify similar triangles. To use indirect measurement to find missing measures.	How can you describe angles formed by parallel lines and transversals? How can you describe the relationships among the angles of a triangle? How can you find the sum of 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?	Transversal Interior Angles Exterior Angles Interior Angles of a polygon Exterior Angles of a Polygon Convex Polygon Concave Polygon Regular Polygon Indirect Measurement

Chapter 2 - Transformations

Lesson	Topics	Standards	Objectives	Essential Questions	Vocabulary
7 Lessons 2 Quizzes 1 Review 1 Test	<p>Congruent Figures</p> <p>Translations</p> <p>Reflections</p> <p>Rotations</p> <p>Similar Figures</p> <p>Perimeters and Areas of Similar Figures</p> <p>Dilations</p>	<p>8.G.1</p> <p>8.G.2</p> <p>8.G.3</p> <p>8.G.4</p>	<p>To name corresponding angles and corresponding sides of congruent figures.</p> <p>To identify congruent figures.</p> <p>To identify translations.</p> <p>To translate figures in the coordinate plane.</p> <p>To identify reflections.</p> <p>To reflect figures in the x-axis or the y-axis of the coordinate plane.</p> <p>To identify rotations.</p> <p>To rotate figures in the coordinate plane.</p> <p>To use more than one transformation to find images of figures.</p> <p>To name corresponding angles and corresponding sides of similar figures.</p> <p>To identify similar figures.</p>	<p>How can you identify congruent triangles?</p> <p>How can you arrange tiles to make a tessellation?</p> <p>How can you use reflections to classify a frieze pattern?</p> <p>What are the three basic ways to move an object in a plane?</p> <p>How can you use proportions to help make decisions in art, design and magazine layouts?</p> <p>How do changes in dimensions of similar geometric figures affect the perimeters and the areas of the figures?</p> <p>How can you enlarge or reduce a figure in the coordinate plane?</p>	<p>Congruent Figures</p> <p>Corresponding Angles</p> <p>Corresponding Sides</p> <p>Transformations</p> <p>Image</p> <p>Translation</p> <p>Reflection</p> <p>Line of Reflection</p> <p>Rotation</p> <p>Center of Rotation</p> <p>Angle of Rotation</p> <p>Similar Figures</p> <p>Dilation</p> <p>Center of Dilation</p> <p>Scale Factor</p>

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			<p>To find unknown measures of similar figures.</p> <p>To understand the relationship between perimeters of similar figures.</p> <p>To understand the relationship between areas of similar figures.</p> <p>To find ratios of perimeters and areas for similar figures.</p> <p>To identify dilations.</p> <p>To dilate figures in the coordinate plane.</p> <p>To use more than one transformation to find images of figures.</p>		
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Chapter 3 - Volume and Similar Solids

Lesson	Topics	Standard s	Objectives	Essential Questions	Vocabulary
4 Lessons 2 Quizzes 1 Review 1 Test	Volumes of Cylinders Volumes of Cones Volumes of Spheres Surface Area and Volumes of Similar Solids	8.G.9	To find the volume of cylinders. To find the heights of cylinders given the volume. To solve real-life problems. To find the volumes of cones. To find the height of cones given the volume. To find the volumes of spheres. To find the radii of spheres given the volumes. Identify similar solids. To use properties of similar solids to find missing measures. To understand the relationship between surface areas and similar solids. To understand the relationship between volumes of similar solids.	How can you find the volume of a cylinder? How can you find the volume of a cone? How can you find the volume of a sphere? When the dimensions of a solid increases by a factor of k , how does the surface area change? How does the volume change?	Sphere Hemisphere Similar Solids

Unit 4 - Graphing and Writing Linear Equations

Lessons	Topics	Standards	Objectives	Essential Questions	Vocabulary
8 lessons 2 Quizzes 1 Review 1 Test	Graphing Linear Equations	8.EE.5	To understand that lines represent solutions of linear equations.	How can you recognize a linear equation? How can you draw its graph?	Linear Equation
		8.EE.6			Solution of a Linear Equation
	Slope of a Line	8.F.4	To graph linear equations.	How can you use the slope of a line to describe the line?	Slope
	Slopes of Parallel and Perpendicular Lines		To find slopes of lines by using two points.	How can you use an equation to identify parallel and perpendicular lines?	Rise
			To find slopes of lines from tables.	How can you describe the graph of the equation $y=mx+b$?	Run
	Graphing Proportional Relationships		To identify parallel and perpendicular lines.	How can you describe the graph of the equation $ax + by = c$?	X-intercept
			To write and graph proportional relationships.	How can you write an equation of a line when you are given the slope and the y-intercept of the line?	Y-intercept
	Graphing Linear Equations in Slope-Intercept Form		To find slopes and y-intercepts of graphs of linear equations.	How can you write an equation of a line when you are given the slope and a point on the line?	Slope-intercept form
			To graph linear equations written in slope-intercept form.		Standard Form
	Graphing Linear Equations in Standard Form		To graph linear equations written in standard form.		Point-slope form
Writing					

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	Equations in Slope-Intercept Form		Write equations of lines in slope-intercept form.		
	Writing Equations in Point-slope Form		To write equations of lines using a slope and a point.		
			To write equations of lines using two points.		

Unit 4 - Equations

Lessons	Topics	Standards	Objectives	Essential Questions	Vocabulary
4 lessons 2 Quizzes 1 Review 1 Test	Solving Simple Equations Solving Multi-step Equations Solving Equations with Variables on Both Sides Rewriting Equations and Formulas	8.EE.7 8.EE.7a 8.EE7b	To solve simple equations using addition, subtraction, multiplication and division. To use inverse operations to solve multi-step equations. To use the distributive property to solve multi-step equations. To solve equations with variables on both sides. To determine whether equations have no solution or infinitely many solutions.	How can you use inductive reasoning to discover rules in mathematics? How can you test a rule? How can you solve a multi-step equation? How can you 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?	Literal Equation

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			To rewrite equations to solve for one variable in terms of the other variable(s).		
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Unit 5 - Functions

Lessons	Topics	Standards	Objectives	Essential Questions	Vocabulary
5 lessons 2 Quizzes 1 Review 1 Test	Relations and Functions Representations of Functions Linear Functions Comparing Linear and Nonlinear Functions Analyzing and Sketching Graphs	8.F.1 8.F.2 8.F.3 8.F.4 8.F.5	To define relations and functions. To determine whether relations are functions. To describe patterns in mapping diagram. To write function rules. To use input-output tables to represent functions. To use graphs to represent functions. To understand that the equation $y=mx+b$ defines a linear function. To write linear functions using graphs or tables. To compare linear functions. To identify linear and nonlinear functions from tables or graphs.	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? How can you use a graph to represent relationships between quantities without using numbers?	Input Output Relation Mapping Diagram Function Function Rule Linear Function Nonlinear Function

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			<p>To compare linear and nonlinear functions.</p> <p>To analyze the relationship between two quantities using graphs.</p> <p>To sketch graphs to represent the relationship between two quantities.</p>		
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Unit 6 - Systems of Linear Equations

Lesson	Topics	Standards	Objectives	Essential Questions	Vocabulary
4 Lessons 2 Quizzes 1 Review	Solving Systems of Linear Equations by Graphing	8.EE.8a 8.EE.8b 8.EE.8c	To write and solve systems of linear equations by graphing.	How can you solve a system of linear equations?	System of Linear Equations

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<p>1 Test</p>	<p>Solving Systems of Linear Equations by Substitution</p> <p>Solving Systems of Linear Equations by Elimination</p> <p>Solving Special Linear Equations by Graphing</p>		<p>To solve real-life problems.</p> <p>To write and solve systems of linear equations by substitution.</p> <p>To write and solve systems of linear equations by elimination.</p> <p>To solve systems of linear equations with no solution or infinitely many solutions.</p>	<p>How can you use substitution to solve a system of equations?</p> <p>How can you use elimination to solve a system of linear equations?</p> <p>Can a system of linear equations have no solution?</p> <p>Can a system of a linear equation have many solutions?</p>	<p>Solution of a System of Linear Equations</p>
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Unit 7 - Exponents and Scientific Notation

Lessons	Topics	Standards	Objectives	Essential Questions	Vocabulary
7 lessons 2 Quizzes 1 Review 1 Test	Exponents Product of Powers Property Quotient of Powers Property Zero and Negative Exponents Reading Scientific Notation Writing Scientific Notation Operations in Scientific Notation	8.EE.1 8.EE.3 8.EE.4	To write expressions using integer exponents. To evaluate expressions involving integer exponents. To multiply powers with the same base. To find the power of a power. To find the power of a product. To divide powers with the same base. To simplify expressions involving the quotient of powers. To evaluate expressions involving numbers with zero as an exponent. To evaluate expressions involving negative integer exponents.	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? How can you read numbers that are written in scientific notation? How can you write a number in scientific notation? How can you perform operations with numbers written in scientific notation?	Power Base Exponent Scientific Notation

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			<p>To identify numbers written in scientific notation.</p> <p>Write numbers in standard form.</p> <p>To compare numbers in scientific notation.</p> <p>To write large and small numbers in scientific notation.</p> <p>To perform operations with numbers written in scientific notation.</p> <p>To add, subtract, multiply and divide numbers written in scientific notation.</p>		
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Chapter 8 - Data Analysis and Display

Lesson	Topics	Standards	Objectives	Essential Questions	Vocabulary
4 Lessons 1 Test	Scatter Plots Lines of Fit Two-Way Tables Choosing a Data Display	8.SP.1 8.SP.2 8.SP.3	To construct and interpret scatter plots. To describe patterns in scatter plots. To find lines of fit. To use lines of fit to solve problems. To read two-way tables. To make and interpret two-way tables. To choose an appropriate data display. To identify and analyze misleading data displays.	How can you construct and interpret a scatter plot? How can you use data to predict an event? How can you read and make a two-way table? How can you display data in a way that helps you make decisions?	Scatter Plot Line of Fit Line of Best Fit Two-way table Joint Frequency Marginal Frequency

Chapter 9 - Real Numbers and the Pythagorean Theorem

Lesson	Topics	Standards	Objectives	Essential Questions	Vocabulary
6 Lessons 2 Quizzes 1 Review 1 Test	Finding Square Roots Finding Cube Roots The Pythagorean Theorem Approximating Square Roots Repeating Decimals Using the Pythagorean Theorem	8.EE.2 8.G.6 8.G.7 8.G.8 8.NS.1 8.NS.2	To find square roots of perfect squares. To evaluate expressions involving square roots. To use square roots to solve equations. To find cube roots of perfect cubes. To evaluate expressions involving cube roots. To evaluate expressions involving cube roots. To use cube roots to solve equations. To provide geometric proof of the Pythagorean Theorem. To use the Pythagorean Theorem to find missing side lengths of right triangles. To solve real-life problems.	How can you find the dimensions of a square or a 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? In what other ways can you use the Pythagorean Theorem?	Square Root Perfect Square Radical Sign Radicand Cube Root Perfect Cube Theorem Legs Hypotenuse Pythagorean Theorem Irrational Number Real Numbers Distance Formula

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			<p>To define irrational numbers.</p> <p>To approximate square roots.</p> <p>To approximate values of expressions involving irrational numbers.</p> <p>To use the converse of the Pythagorean Theorem to identify right triangles.</p> <p>To use the Pythagorean Theorem to find distances in a coordinate plane.</p>		
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