Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

Topic #: 1 Name of Topic Real Numbers		Duration: # days (Quarter 1)		
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.NS.1 Give examples of rational and irrational numbers and explain the difference between them. Understand that every number has a decimal equivalent. For rational numbers, show that the decimal equivalent terminates or repeats, and convert a repeating decimal into a rational number.	1-1: Rational Numbers as Decimals	SWBAT write repeating decimals as fractions. Language Objective: SWBAT explain how to write repeating decimals as fractions.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.NS.1 Give examples of rational and irrational numbers and explain the difference between them. Understand that every number has a decimal equivalent. For rational numbers, show that the decimal equivalent terminates or repeats, and convert a repeating decimal into a rational number.	1-2 Understand Irrational Numbers	SWBAT identify an irrational number. Language Objective: SWBAT explain how to identify a number that is irrational.	• Irrational number • Perfect square • Square root	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, plot them approximately on a number line, and estimate the value of expressions involving irrational numbers.	1-3 Compare and Order Real Numbers	SWBAT compare and order rational and irrational numbers. Language Objective: SWBAT describe ways to compare and order rational and irrational numbers		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations.	1-4 Evaluate Square Roots	SWBAT find square roots and cube roots of rational numbers.	• Cube root • Perfect cube	• Online textbook examples and resources

Critical (1/3)
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Low (0/1)

Grade Level: 8 Subject: Math

	and Cube Roots	Language Objective: SWBAT show and explain how to find square roots and cube roots of rational numbers.		• PowerPoint/Word Document • Canvas Small Group:
8.NS.4 Use square root symbols to represent solutions to equations of the form x2 = p, where p is a positive rational number.	1-5 Solve Equations Using Square Roots and Cube Roots	SWBAT solve equations and problems, in real-world contexts, involving square roots and cube roots. Learning Objective: SWBAT explain how to solve equations involving squares or cubes.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.NS.3 Given a numeric expression with common rational number bases and integer exponents, apply the properties of exponents to generate equivalent expressions. 8.C.1 Solve real-world problems with rational numbers by using multiple operations.	1-6 Use Properties of Integer Exponents	SWBAT • understand the properties of exponents. • generate equivalent expressions with exponents. Language Objective: SWBAT explain how to use the properties of exponents to write equivalent expressions.	• Power of Products Property • Product of Powers Property • Quotient of Powers Property	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.NS.3 Given a numeric expression with common rational number bases and integer exponents, apply the properties of exponents to generate equivalent expressions.	1-7 More Properties of Integer Exponents	SWBAT • simplify expressions with negative and zero exponents.	• Negative Exponent Property • Zero Exponent Property	• Online textbook examples and resources • PowerPoint/Word Document • Canvas

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Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

8.C.1 Solve real-world problems with rational numbers by using multiple operations.		• evaluate expressions with negative and zero exponents. Language Objective: SWBAT describe how to write a number with a negative or zero exponent in a different way.		Small Group:
8.C.2 Solve real-world and other mathematical problems involving numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology, such as a scientific calculator, graphing calculator, or excel spreadsheet.	1-8 Use Powers of 10 to Estimate Quantities	SWBAT estimate very large and very small quantities by rounding and then writing that number as a single digit times a power of 10. Language Objective: SWBAT describe ways to estimate large and small quantities using a power of 10.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.2 Solve real-world and other mathematical problems involving numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology, such as a scientific calculator, graphing calculator, or excel spreadsheet.	1-9 Understand Scientific Notation	SWBAT • use scientific notation to write very large or very small quantities. • convert numbers written in scientific notation to standard form. Language Objective: SWBAT explain how to use scientific notation to write very large or very small quantities.	• Scientific notation	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations.	3-Act Mathematical Modeling:	SWBAT • use mathematical modeling to represent a problem		• Online textbook examples and resources

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Grade Level: 8 Subject: Math

8.C.2 Solve real-world and other mathematical problems involving numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology, such as a scientific calculator, graphing calculator, or excel spreadsheet.	Hard-Working Organs (Supplemental)	situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align exactly to the problem situation.		• PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.C.2 Solve real-world and other mathematical problems involving numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Interpret scientific notation that has been generated by technology, such as a scientific calculator, graphing calculator, or excel spreadsheet.	1-10 Operations with Numbers in Scientific Notation	SWBAT apply number properties to calculations with numbers in scientific notation. Language Objective: SWBAT explain how to perform operations with numbers in scientific notation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Topic #: 2 (Pre-Work, 2-1 to 2-4) Analyze and Solve Linear Equations Duration: # days (Quarter 1)				
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
	X Out of Textbook		•	•

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Grade Level: 8 Subject: Math

8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	2-1 Combine Like Terms to Solve Equations	SWBAT • combine like terms. • solve equations with like terms on one side of the equation. • make sense of scenarios and represent them with equations. Language Objective: SWBAT explain how to solve equations that have like terms on one side.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	2-2 Solve Equations with Variables on Both Sides	SWBAT • solve equations with like terms on both sides of the equation. • make sense of scenarios and represent them with equations. Language Objective: SWBAT explain how to solve equations with variables on both sides of the equal sign.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations.	2-3 Solve Multistep Equations	SWBAT plan multiple solution pathways and choose one to find the solution to multistep equations.		• Online textbook examples and resources

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Grade Level: 8 Subject: Math

8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.		Language Objective: SWBAT explain and show how to solve multistep equations and pairs of equations using more than one approach.		• PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.AF.2 Generate linear equations in one variable with one solution, infinitely many solutions, or no solutions. Justify the classification given.	2-4 Equations with No Solutions or Infinitely Many Solutions	SWBAT determine the number of solutions to an equation. Language Objective: SWBAT explain how to determine the number of solutions an equation has.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	IN-1 Solve Inequalities	SWBAT • explore the relationship between two-step inequalities and multi-step inequalities. • apply the Distributive Property to simplify and solve multi-step inequalities.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding	3-Act Mathematical Modeling: Powering	SWBAT • use mathematical modeling to represent a problem		• Online textbook examples and resources

expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems. 8.AF.2 Generate linear equations in one variable with one solution, infinitely many solutions, or no solutions. Justify the classification given.	Down (Supplemental)	situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align exactly to the problem situation.		• PowerPoint/Word Document • Canvas Small Group:

Topic #: 6 Congruence and Similarity		**Duration: # days (Quarter 2)**		
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.GM.3 Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines. 8.GM.6 Explore dilations, translations, rotations, and reflections on two-dimensional figures in the coordinate plane.	6-1 Analyze Translations	SWBAT • use coordinates to describe the rules of a translation • translate a two-dimensional figure on a coordinate plane by mapping each of its vertices Language Objective: SWBAT explain how to translate two-dimensional figures.	• Transformation • Translation • image	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.3 Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line	6-2 Analyze Reflections	SWBAT • understand reflections as a type of transformation and	• Reflection • Line of reflection	• Online textbook examples and resources

segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines. 8.GM.6 Explore dilations, translations, rotations, and reflections on two-dimensional figures in the coordinate plane.		how they differ from translations. • use coordinates to describe the image created by a reflection. • reflect a two-dimensional figure on a coordinate plane. Language Objective: SWBAT explain how to reflect two-dimensional figures.		• PowerPoint/Word Document • Canvas Small Group:
8.GM.3 Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines. 8.GM.6 Explore dilations, translations, rotations, and reflections on two-dimensional figures in the coordinate plane.	6-3 Analyze Rotations	SWBAT • identify and perform a rotation. • determine how a rotation affects a two-dimensional figure. Language Objective: SWBAT explain how to rotation a two-dimensional figure.	• Rotation • Angle of rotation • Center of rotation	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.3 Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure;	6-4 Compose Transformations	SWBAT • describe and perform a sequence of transformations. • apply their knowledge of transformations to solve problems.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

and parallel lines are mapped to parallel lines. 8.GM.6 Explore dilations, translations, rotations, and reflections on two-dimensional figures in the coordinate plane.		Language Objective: SWBAT explain how to describe and perform a sequence of transformations		Small Group:
8.GM.3 Verify experimentally the properties of rotations, reflections, and translations, including: lines are mapped to lines, and line segments to line segments of the same length; angles are mapped to angles of the same measure; and parallel lines are mapped to parallel lines. 8.GM.6 Explore dilations, translations, rotations, and reflections on two-dimensional figures in the coordinate plane.	3-Act Mathematical Modeling: Tricks of the Trade (Supplemental)	SWBAT: • use mathematical modeling to represent a problem situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align exactly to the problem situation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.4 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. Describe a sequence that exhibits the congruence between two given congruent figures.	6-5 Understand Congruent Figures	SWBAT: • use a sequence of transformations to justify the congruence of figures. • understand that reflections, rotations, and translations are actions that produce congruent geometric figures. Language Objective: SWBAT explain how to use a sequence of	• congruent	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

		translations, reflections, and rotations to show that figures are congruent.		
8.GM.5 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. Describe a sequence that exhibits the similarity between two given similar figures.	6-6 Describe Dilations	SWBAT: • verify the properties of a dilation. • graph the image of a dilation given a fixed center and a common scale factor. Language Objective: SWBAT describe how to dilate two-dimensional figures.	• Dilation • Scale factor • Enlargement • Reduction	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.5 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. Describe a sequence that exhibits the similarity between two given similar figures.	6-7 Understand Similar Figures	SWBAT perform a sequence of transformations to identify similar figures. Language Objective: SWBAT tell how to use a sequence of transformations including dilations to show that figures are similar.	• similar	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	6-8 Angles, Lines, and Transversals	SWBAT: • identify relationships between angles formed by parallel lines and a transversal. • determine the measures of angles formed by parallel lines and a transversal. • reason about parallel lines.	• transversal • corresponding angles • alternate interior angles • same-side interior angles	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

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Grade Level: 8 Subject: Math

		Language Objective: SWBAT explain how to identify and find the measures of angles formed by parallel lines and a transversal.		
8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	6-9 Interior and Exterior Angles of Triangles	SWBAT: • determine unknown measures of interior and exterior angles of triangles. • write and solve algebraic equations to find angle measures. Language Objective: SWBAT describe and show how to find the interior and exterior angle measures of a triangle.	• remote interior angles • exterior angle of a triangle	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.1 Solve linear equations and inequalities with rational number coefficients fluently, including those whose solutions require expanding expressions using the distributive property and collecting like terms. Represent real-world problems using linear equations and inequalities in one variable and solve such problems.	6-10 Angle-Angle Triangle Similarity	SWBAT: • determine triangle similarity by comparing the angle measures of the triangles. • solve algebraic problems involving similar triangles. Language Objective: SWBAT explain how to use angle measures to determine whether two triangles are similar.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

Topic #: 7 Understand and Apply the Pythagorean Theorem Duration: # days (Quarter 2)				
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.GM.7 Use inductive reasoning to explain the Pythagorean relationship.	3 Act Math Modeling: Go With the Flow (Supplemental)	SWBAT: • use mathematical modeling to represent a problem situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align exactly to the problem situation		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.7 Use inductive reasoning to explain the Pythagorean relationship. 8.GM.8 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and other mathematical problems in two dimensions. 8.C.1 Solve real-world problems with rational numbers by using multiple operations.	7-1 Understand the Pythagorean Theorem	SWBAT: • understand a proof of the Pythagorean Theorem. • use the Pythagorean Theorem to find the length of the hypotenuse or a leg of a right triangle. Language Objective: SWBAT explain how to use the Pythagorean Theorem to find unknown sides of triangles.	• hypotenuse • leg • Pythagorean Theorem • proof	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.7 Use inductive reasoning to explain the Pythagorean relationship.	7-2 Understand the Converse of the	SWBAT: • understand and apply the Converse of the	• Converse of the Pythagorean Theorem	• Online textbook examples and resources

Critical (1/3)
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Low (0/1)

Grade Level: 8 Subject: Math

8.GM.8 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and other mathematical problems in two dimensions. 8.C.1 Solve real-world problems with rational numbers by using multiple operations.	Pythagorean Theorem	Pythagorean Theorem to identify right triangles. • use the Converse of the Pythagorean Theorem to analyze two-dimensional shapes. Language Objective: SWBAT explain how to use the Converse of the Pythagorean Theorem to identify right triangles.		• PowerPoint/Word Document • Canvas Small Group:
8.GM.8 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and other mathematical problems in two dimensions. 8.C.1 Solve real-world problems with rational numbers by using multiple operations.	7-3 Apply the Pythagorean Theorem to Solve Problems	SWBAT use the Pythagorean Theorem and its converse to solve problems. Language Objective: SWBAT explain how to use the Pythagorean Theorem to solve problems.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.8 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and other mathematical problems in two dimensions. 8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.GM.9 Apply the Pythagorean Theorem to find the distance between two points in a coordinate plane.	7-4 Find Distance in the Coordinate Plane	SWBAT: • apply the Pythagorean Theorem to find the distance between two points on a coordinate plane. • use the Pythagorean Theorem to find the perimeter of a figure and to solve problems on the coordinate plane.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

		Language Objective: SWBAT explain how to use the Pythagorean Theorem to find the distance between two points in a coordinate plane.		

Topic #: 8 Solve Problems Involving Surface Area and Volume Duration: # days (Quarter 2)				
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.GM.1 Identify, define, and describe attributes of three-dimensional geometric objects (right rectangular prisms, cylinders, cones, spheres, and pyramids). Explore the effects of slicing these objects using appropriate technology and describe the two-dimensional figure that results.	IN-5 Attributes of 3-Dimensional Figures	SWBAT describe attributes of 3-dimensional figures, including the number of bases, faces, edges, and vertices.	•	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.1 Identify, define, and describe attributes of three-dimensional geometric objects (right rectangular prisms, cylinders, cones, spheres, and pyramids). Explore the effects of slicing these objects using appropriate technology and describe the two-dimensional figure that results.	IN-6 Cross Sections	SWBAT • describe and sketch cross sections of three-dimensional figures. • solve problems involving cross sections.	•	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.GM.2 Solve real-world and other mathematical problems involving	8-1 Find Surface Area of Three-Dimensional Figures	SWBAT calculate the surface areas of cylinders, cones, and spheres. Language Objective: SWBAT explain how to find the surface	• cone • cylinder • sphere	• Online textbook examples and resources • PowerPoint/Word Document • Canvas

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Low (0/1)

Grade Level: 8 Subject: Math

volume of cones, spheres, and pyramids and surface area of spheres.		area of cylinders, cones, and spheres.		Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.GM.2 Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface area of spheres.	8-2 Find Volume of Cylinders	SWBAT: • identify and use the correct formula to calculate the volume of cylinder. • recognize the relationship between the formulas for the volume of a rectangular prism and the volume of a cylinder. Language Objective: SWBAT explain how to use what I know about finding volumes of rectangular prisms to find the volume of a cylinder.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.GM.2 Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface area of spheres.	8-3 Find Volume of Cones	SWBAT: • find the volume of a cone. • recognize the relationship between volume of a cylinder and volume of a cone. Language Objective: SWBAT explain how to find the volume of cones.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.2 Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface area of spheres.	IN-7 Find Volume of Pyramids	SWBAT: • find the volume of pyramids.		• Online textbook examples and resources

		• solve problems involving the volume of pyramids.		• PowerPoint/Word Document • Canvas Small Group:
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.GM.2 Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface area of spheres.	8-4 Find Volume of Spheres	SWBAT: • calculate the volume of a sphere. • recognize the relationship between the formula for the volume of a cone and the volume of a sphere. Language Objective: SWBAT explain how to find the volume of a sphere and tell how to use it to solve problems.	• composite figure	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.GM.2 Solve real-world and other mathematical problems involving volume of cones, spheres, and pyramids and surface area of spheres.	3-Act Mathematical Modeling: Measuring Up (Supplemental)	SWBAT: • use mathematical modeling to represent a problem situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align to the problem situation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

Topic #: 2 (2-5 to 2-9) Analyze and Solve Linear Equations Continued				Duration: # days (Quarter 3)
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.C.1 Solve real-world problems with rational numbers by using multiple operations. 8.AF.7 Compare properties of two linear functions given in different forms, such as a table of values, equation, verbal description, and graph (e.g., compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed).	2-5 Compare Proportional Relationships	SWBAT analyze equations, linear graphs, and tables to find unit rates and compare proportional relationships. Language Objective: SWBAT explain how to compare proportional relationships represented in different ways.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.7 Compare properties of two linear functions given in different forms, such as a table of values, equation, verbal description, and graph (e.g., compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed).	2-6 Connect Proportional Relationships and Slope	SWBAT: • find the slope of a line using different strategies. • interpret a slope in context and relate it to steepness on a graph.	• slope	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the	2-7 Analyze Linear Equations: $y = mx$	SWBAT: • understand how the constant of proportionality and the slope relate in a linear equation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas

graph, and describe the meaning of each in the context of a problem.		• write a linear equation in the form $y=mx$ when the slope is given. • graph a linear equation in the form $y=mx$.		Small Group:
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem.	2-8 Understand the *Y*-intercept of a Line	SWBAT: • interpret and extend the table or graph of a linear relationship to find its *y*-intercept. • analyze graphs in context to determine and explain the meaning of the *y*-intercept.	• *y*-intercept	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem. 8.AF.5 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. Describe similarities and differences between linear and nonlinear functions from tables, graphs, verbal descriptions, and equation	2-9 Analyze Linear Equations: $Y=mx + b$	SWBAT: • graph a line from an equation in the form $y = mx + b$. • write an equation that represents the given graph of a line.	• slope-intercept form	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

Topic #: 5 Analyze and Solve Systems of Linear Equations			Duration: # days (Quarter 3)	
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem. 8.AF.8 Understand that solutions to a system of two linear equations correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.	5-1 Estimate Solutions by Inspection	SWBAT: • examine the graphs of a linear system of equations to determine the number of solutions of the system. • compare the equations in a linear system to determine the number of solutions of the system. Language Objective: SWBAT explain how to find the number of solutions a system of linear equations by inspecting the equations.	• systems of linear equations • solution of a system of linear equations	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem. 8.AF.8 Understand that solutions to a system of two linear equations	5-2 Solve Systems by Graphing	SWBAT create and examine graphs of linear systems of equations to determine the solution. Language Objective: SWBAT explain how to find the solution to a system of equations using graphs.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.				
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem. 8.AF.8 Understand that solutions to a system of two linear equations correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.	5-3 Solving Systems by Substitution	SWBAT: • understand how substitution can be used to solve a linear system of equations. • apply this understanding to interpret the results with one solution, no solutions, or infinitely many solutions. Language Objective: SWBAT explain who to solve systems of equations by using substitution.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem.	5-4 Solve Systems by Elimination	SWBAT: • understand how the process of elimination can be used to solve a system of linear equations with no solution, one solution, or infinitely many solutions.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

8.AF.8 Understand that solutions to a system of two linear equations correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.		• apply this understanding to solve mathematical and real-world problems. Language Objective: SWBAT explain how to solve systems of equations using elimination.		Small Group:
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem. 8.AF.8 Understand that solutions to a system of two linear equations correspond to points of intersection of their graphs because points of intersection satisfy both equations simultaneously. Approximate the solution of a system of equations by graphing and interpreting the reasonableness of the approximation.	3-Act Mathematical Modeling: Ups and Downs (Supplemental)	SWBAT: • use mathematical modeling to represent a problem situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align exactly to the problem situation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Topic #: 3 Use Functions to Model Relationships		**Duration: # days (Quarter 3)**		
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**

WA-NEE Community Schools

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

8.AF.3 Understand that a function assigns to each x-value (independent variable) exactly one y-value (dependent variable), and that the graph of a function is the set of ordered pairs (x, y).	3-1 Understand Relations and Functions	SWBAT: • identify whether a relation is a function. • interpret a function. Language Objective: SWBAT explain how to tell whether a relation is a function.	• relation • function	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.3 Understand that a function assigns to each x-value (independent variable) exactly one y-value (dependent variable), and that the graph of a function is the set of ordered pairs (x, y). 8.AF.5 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. Describe similarities and differences between linear and nonlinear functions from tables, graphs, verbal descriptions, and equation. 8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem.	3-2 Connect Representations of Functions	SWBAT: • identify functions by their equations, tables, and graphs. • represent linear and non-linear functions with graphs. Language Objective: SWBAT explain how to identify functions by their equations, tables, and graphs.	• constant rate of change • initial value • linear function • nonlinear function	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

8.AF.5 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. Describe similarities and differences between linear and nonlinear functions from tables, graphs, verbal descriptions, and equation. 8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem.	3-3 Compare Linear and Nonlinear Functions	SWBAT use different representations to compare linear and nonlinear functions. Language Objective: SWBAT explain how to compare linear and nonlinear functions.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.3 Understand that a function assigns to each x-value (independent variable) exactly one y-value (dependent variable), and that the graph of a function is the set of ordered pairs (x, y). 8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem.	3-Act Mathematical Modeling: Every Drop Counts (Supplemental)	SWBAT: • use mathematical modeling to represent a problem situation and to propose a solution. • test and verify the appropriateness of their math models. explain why the results from their mathematical models may not align exactly to the problem situation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

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Grade Level: 8 Subject: Math

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

8.AF.7 Compare properties of two linear functions given in different forms, such as a table of values, equation, verbal description, and graph (e.g., compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed).				
8.AF.6 Construct a function to model a linear relationship between two quantities given a verbal description, table of values, or graph. Recognize in y = mx + b that m is the slope (rate of change) and b is the y-intercept of the graph, and describe the meaning of each in the context of a problem. 8.AF.7 Compare properties of two linear functions given in different forms, such as a table of values, equation, verbal description, and graph (e.g., compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed).	3-4 Construct Functions to Model Linear Relationships	SWBAT write an equation in the form $y=mx + b$ to describe a linear function. Language Objective: SWBAT explain how to write an equation in the from $y=mx + b$ to describe a linear equation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.AF.4 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear, has a maximum or minimum value). Sketch a graph that exhibits the qualitative features of a function that has been verbally described.	3-5 Intervals of Increase and Decrease	SWBAT describe the behavior of a function in different intervals. Language Objective: SWBAT explain and show the behavior of a function and write a description to go with its graph.	• interval	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

8.AF.4 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear, has a maximum or minimum value). Sketch a graph that exhibits the qualitative features of a function that has been verbally described.	3-6 Sketch Functions From Verbal Descriptions	SWBAT: • draw a sketch of a graph for a function that has been described verbally. • analyze and interpret the sketch of a graph of a function. Language Objective: Explain how to sketch the graph of a function that has been described verbally.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Topic #: 4 Investigate Bivariate Data		Duration: # days (Quarter 4)		
Standard(s)	**Envision Lesson**	**Objective**	**Vocabulary**	**Materials**
8.DSP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantitative variables. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	4-1 Construct and Interpret Scatter Plots	SWBAT: • construct a scatter plot to model paired data. • utilize a scatter plot to identify and interpret the relationship between paired data. Language Objective: SWBAT explain how to construct a scatter plot and how to use it to understand the relationship between paired data.	• cluster • gap • measurement • data • negative • association • outlier • positive • scatter plot	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.DSP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantitative variables.	4-2 Analyze Linear Association	SWBAT: • recognize whether the paired data have a linear association, a nonlinear	• trend line	• Online textbook examples and resources

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. 8.DSP.2 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 describe the model fit by judging the closeness of the data points to the line.		association, or no association. • draw a trend line to determine whether a linear association is positive or negative and strong or weak. Language Objective: SWBAT explain how to use a line to represent the relationship between paired data.		• PowerPoint/Word Document • Canvas Small Group:
8.DSP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantitative variables. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. 8.DSP.2 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 describe the model fit by judging the closeness of the data points to the line. 8.DSP.3 Write and use equations that model linear relationships to make predictions, including interpolation and extrapolation, in real-world situations	4-3 Use Linear Models to Make Predictions	SWBAT: • use the slope and *y*-intercept of a trend line to make a prediction. • make a prediction when no equation is given by drawing trend lines and writing the equation of the linear model. Language Objective: SWBAT describe how to make a prediction using the equation of a line that closely fits a set of data.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

involving bivariate measurement data. Interpret the slope and y-intercept in context.				
8.DSP.3 Write and use equations that model linear relationships to make predictions, including interpolation and extrapolation, in real-world situations involving bivariate measurement data. Interpret the slope and y-intercept in context.	4-4 Interpret Two-Way Frequency Tables	SWBAT: • organize paired categorical data into a two-way frequency table. • compare and make conjectures about data displayed in a two-way frequency table. Language Objective: SWBAT explain how to display and interpret relationships between paired categorical data.	• categorical data	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.DSP.3 Write and use equations that model linear relationships to make predictions, including interpolation and extrapolation, in real-world situations involving bivariate measurement data. Interpret the slope and y-intercept in context.	4-5 Interpret Two-Way Relative Frequency Tables	SWBAT: • construct two-way relative frequency tables. • compare and make conjectures about data displayed in a two-way relative frequency table.	• relative • frequency table	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.DSP.5 Represent sample spaces and find probabilities of compound events(independent and dependent) using organized lists, tables, and tree diagrams	IN-2 Outcomes of Compound Events	SWBAT: • use a tree diagram, a table, or an organized list to represent the sample space for a compound event. • use the Multiplication Counting Principle to find	•	• Online textbook examples and resources • PowerPoint/Word Document • Canvas

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

8.DSP.6 For events with a large number of outcomes, understand the use of the multiplication counting principle. Develop the multiplication counting principle and apply it to situations with a large number of outcomes.		the total number of outcomes.		Small Group:
8.DSP.5 Represent sample spaces and find probabilities of compound events(independent and dependent) using organized lists, tables, and tree diagrams 8.DSP.4 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Understand and use appropriate terminology to describe independent, dependent, complementary, and mutually exclusive events.	IN-3 Find Probabilities of Independent Events	SWBAT • organize information about a compound event on a table, a tree diagram, or an organized list. • find the probability of compound independent events.	•	• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:
8.DSP.5 Represent sample spaces and find probabilities of compound events (independent and dependent) using organized lists, tables, and tree diagrams 8.DSP.4 Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. Understand and use appropriate terminology to describe independent, dependent,	IN-4 Find Probabilities of Dependent Events	SWBAT find the probability of dependent events.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group:

Critical (1/3)
Moderate (0/2) or (0/3)
Low (0/1)

Grade Level: 8 Subject: Math

complementary, and mutually exclusive events.				
8.DSP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantitative variables. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. 8.DSP.2 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 describe the model fit by judging the closeness of the data points to the line. 8.DSP.3 Write and use equations that model linear relationships to make predictions, including interpolation and extrapolation, in real-world situations involving bivariate measurement data. Interpret the slope and y-intercept in context.	3-Act Mathematical Modeling: Reach Out (Supplemental)	SWBAT: • use mathematical modeling to represent a problem situation and to propose a solution. • test and verify the appropriateness of their math models. • explain why the results from their mathematical models may not align exactly to the problem situation.		• Online textbook examples and resources • PowerPoint/Word Document • Canvas Small Group: