Wyoming Department of Education Required Virtual Education Course Syllabus

Niobrara County School District # 1

Program Name	Wyoming Virtual Academy	Content Area	MA
Course ID	D-MTH-08BV2-K	Grade Level	8
Course Name	Summit Math 8- Sem 2	# of Credits	
SCED Code		Curriculum Type	K12 Inc

COURSE DESCRIPTION

K12's Math 8 Summit course prepares students for more advanced study in algebra as students solve linear equations and systems of equations, work with radical and integer exponents, gain conceptual understanding of functions, and use functions to model quantitative relationships. To prepare students for more advanced study in geometry, the course emphasizes the Pythagorean theorem and a deepening exploration of similarity and congruence.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
7.EE.4a	Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)
8.EE.1	Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 × 3^(–5) = 3^(–3) = 1/(3^3) = 1/27.
8.EE.3	Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 10^8 and the population of the world as 7 × 10^9, and determine that the world population is more than 20 times larger.
8.EE.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
8.EE.6	Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y =mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.
8.EE.7a	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
8.EE.7b	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

8.EE.8a	Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
8.EE.8b	Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.
8.F.1	Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in Grade 8.)
8.F.2	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
8.F.3	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. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
8.F.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
8.F.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
8.G.3	Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.
8.G.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Course Introduction		
Readiness Checkpoint		
Unit 1: Linear Models Lesson 1: Exchange Ideas		Create and analyze data on a scatter plot. Determine if data plotted on a scatter plot have a linear association.

Unit 1: Linear Models Lesson 2: Patterns in Two-Way Tables		Create a two-way table to represent data. Create a relative frequency table for a two-way table. Compare two sets of relative frequency data and describe possible associations between the two sets.
Unit 1: Linear Models Lesson 3: Scatter Plots		Create a scatter plot using data in a table.
Unit 1: Linear Models Lesson 4: Clusters and Outliers	7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.); 7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Identify outliers and clusters on a scatter plot.
Unit 1: Linear Models Lesson 5: Associations in Scatter Plots	7.NS.3: Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.); 7.EE.A.1: Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	Determine whether a scatter plot shows positive, negative, or no association. Determine whether a scatter plot shows a linear or nonlinear association.
Unit 1: Linear Models Lesson 6: Lines of Best Fit		Draw a trend line. Write the equation of a trend line.
Unit 1: Linear Models Lesson 7: Interpret Slopes and Intercepts	8.EE.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 × 3^(–5) = 3^(–3) = 1/(3^3) = 1/27.	Analyze the equation of a trend line to summarize data or make predictions. Interpret the slope and y-intercept of a trend line.
Unit 1: Linear Models Lesson 8: Unit Review	8.EE.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 × 3^(–5) = 3^(–3) = 1/(3^3) = 1/27.	
Unit 1: Linear Models Lesson 9: Unit Test	8.EE.1: Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 × 3^(–5) = 3^(–3) = 1/(3^3) = 1/27.	
Unit 1: Linear Models Lesson 10: Extended Problems	8.EE.3: Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 × 10^8 and the population of the world as 7 × 10^9, and determine that the world population is more than 20 times larger.; 8.EE.4: Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	

Unit 2: Basic Geometric Shapes Lesson 1: Exchange Ideas	7.EE.4a: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?; 8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Identify angle pairs as adjacent, a linear pair, vertical, adjacent but not a linear pair, or none of these. Find the measure of one angle in an angle pair when you know the measure of the other angle.
Unit 2: Basic Geometric Shapes Lesson 2: Pairs of Angles		
Unit 2: Basic Geometric Shapes Lesson 3: Complementary and Supplementary Angles	7.EE.4a: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?; 8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 8.G.1	Identify angle pairs as complementary, supplementary, or neither. Find the measure of one angle in an angle pair when you know the measure of the other angle. Write and solve angle equations.
Unit 2: Basic Geometric Shapes Lesson 4: Two Lines and Transversals	7.EE.4a: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? 8.G.1	Identify the angle pairs formed by lines and transversals.

Unit 2: Basic Geometric Shapes Lesson 5: Parallel Lines and Transversals	7.EE.4a: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? 8.G.1	Make a conjecture about the angle pairs formed when parallel lines are intersected by a transversal. Find the measure of one angle in an angle pair formed by parallel lines and a transversal when you know the measure of the other angle.
Unit 2: Basic Geometric Shapes Lesson 6: Your Choice		
Unit 2: Basic Geometric Shapes Lesson 7: Triangles	8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 8.G.5	Classify a triangle by its angle measures. Use equations to find missing angle measures in triangles.
Unit 2: Basic Geometric Shapes Lesson 8: Angles of a Triangle	8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms. 8.G.5	Understand why the sum of the measures of the angles of a triangle is the same as the measure of a straight angle.
Unit 2: Basic Geometric Shapes Lesson 9: Exterior Angles of a Triangle	8.G.5	Understand why the measure of an exterior angle of a triangle is equal to the sum of the measures of the two nonadjacent interior angles. Find missing angle measures of a triangle.
Unit 2: Basic Geometric Shapes Lesson 10: Polygons	8.EE.7.a: Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).; 8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	Determine whether a figure is a polygon. Classify a polygon by its number of sides. Classify a polygon as regular, equiangular, equilateral, or none of these. Use equations to find polygon angle measures and side lengths.
Unit 2: Basic Geometric Shapes Lesson 11: Unit Review	8.EE.7.a: Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different	

	numbers).; 8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	
Unit 2: Basic Geometric Shapes Lesson 12: Unit Test	8.EE.7.b: Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	
Unit 2: Basic Geometric ShapesLesson 13: Extended Problems		
Interim Checkpoint 3		
Your Choice		
Unit 3: Volume Lesson 1: Exchange Ideas		Determine the volume of a cylinder.
Unit 3: Volume Lesson 2: Volumes of Cylinders		
Unit 3: Volume Lesson 3: Applications of Cylinders	8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	Solve real-world problems involving the volume of a cylinder.
Unit 3: Volume Lesson 4: Volumes of Cones	8.EE.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	Derive the formula for the volume of a cone. Find the volume of a cone.
Unit 3: Volume Lesson 5: Applications of Cones	8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	Solve real-world problems involving the volume of a cone.
Unit 3: Volume Lesson 6: Volume of Spheres		Derive the formula for the volume of a sphere. Derive the formula for the volume of a sphere. Find the volume of a sphere.
Unit 3: Volume Lesson 7: Applications of Spheres	8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	Solve real-world problems involving the volume of a sphere.

Unit 3: Volume Lesson 8: Volumes of Composite Figures	8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	Find the volume of a composite solid.
Unit 3: Volume Lesson 9: Unit Review	8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	
Unit 3: Volume Lesson 10: Unit Test	8.EE.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.; 8.EE.6: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.	
Unit 3: Volume Lesson 11: Extended Problems: Volume	8.EE.5: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.; 8.EE.7: Solve linear equations in one variable.	
Unit 4: Transformations, Congruence, and Similarity Lesson 1: Exchange Ideas		Describe a sequence of transformations that demonstrates how two figures are congruent.
Unit 4: Transformations, Congruence, and Similarity Lesson 2: Transformations	8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Classify a transformation as a rotation, a reflection, or a translation.
Unit 4: Transformations, Congruence, and Similarity Lesson 3: Corresponding Parts of Transformed Figures	8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Identify corresponding parts of transformed figures.

Unit 4: Transformations, Congruence, and Similarity Lesson 4: Congruence	8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Identify a sequence of transformations.
Unit 4: Transformations, Congruence, and Similarity Lesson 5: Sequences of Rigid Transformations		
Unit 4: Transformations, Congruence, and Similarity Lesson 6: Properties of Rigid Transformations	8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Describe the relationship between the pre-image and image in a sequence of transformations.
Unit 4: Transformations, Congruence, and Similarity Lesson 7: Rigid Transformations and the Coordinate Plane	8.F.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	Determine the coordinates of an image after a transformation.
Unit 4: Transformations, Congruence, and Similarity Lesson 8: Rigid Transformation Mapping Rules		Describe a translation given the coordinates of the pre-image and image figures. Describe a reflection given the coordinates of the pre-image and image figures Describe a rotation given the coordinates of the pre-image and image figures.
Unit 4: Transformations, Congruence, and Similarity Lesson 9: Dilations		Identify the image of a dilation. Determine the scale factor used in a dilation. Use the scale factor to classify a dilation as a reduction or an enlargement.
Unit 4: Transformations, Congruence, and Similarity Lesson 10: Similarity		Determine whether two polygons are similar. Write similarity statements for similar polygons. Find missing measures in similar polygons.
Unit 4: Transformations, Congruence, and Similarity Lesson 11: Similarity and Scale	8.G.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Determine the scale factor in similar polygons. Determine whether a scale factor represents a reduction or an enlargement. Determine the length of corresponding parts of similar figures.
Unit 4: Transformations, Congruence, and Similarity Lesson 12: Your Choice		
Unit 4: Transformations, Congruence, and Similarity Lesson 13: Dilations and the Coordinate Plane	8.G.3: Describe the effect of dilations, translations, rotations and reflections on two-dimensional figures using coordinates.	Determine the coordinates of an image after a dilation. Describe the dilation that occured when given the coordinates of the pre-image and image.

Unit 4: Transformations, Congruence, and Similarity Lesson 14: Sequences of Transformations and Dilations	8.G.4: Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	Describe a sequence of transformations that results in a pre-image and image that are similar. Determine whether a sequence of transformations results in figures that are congruent or in figures that are similar.
Unit 4: Transformations, Congruence, and Similarity Lesson 15: The AA Criterion	8.G.5: Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the three angles appear to form a line, and give an argument in terms of transversals why this is so.	Use the angle-angle criterion to determine whether triangles are similar.
Unit 4: Transformations, Congruence, and Similarity Lesson 16: Unit Review		
Unit 4: Transformations, Congruence, and Similarity Lesson 17: Unit Test		
Unit 4: Statistics Lesson 18: Extended Problems: Statistics		
Interim Checkpoint 4		
Your Choice		
Unit 5: Irrational Numbers Lesson 1: Exchange Ideas		Determine the subsets of the real numbers to which a given number belongs.
Unit 5: Irrational Numbers Lesson 2: Rational Numbers	8.EE.8.a: Analyze and solve pairs of simultaneous linear equations.a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.	Convert a rational number to a terminating decimal. Convert a rational number to a repeating decimal. Classify a rational number as a terminating decimal or a repeating decimal.
Unit 5: Irrational Numbers Lesson 3: Terminating and Repeating Numbers	8.EE.8.a: Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.; 8.EE.8.b: Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.; 8.EE.8.c: Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example,	Convert a terminating decimal to a rational number. Convert a repeating decimal to a rational number.

	given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	
Unit 5: Irrational Numbers Lesson 4: Understand Irrational Numbers	8.EE.8.a: Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.; 8.EE.8.b: Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.; 8.EE.8.c: Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	Find roots of perfect squares. Classify a number as rational or irrational. Identify the subsets of real numbers to which a number belongs.
Unit 5: Irrational Numbers Lesson 5: Approximations of Irrationals		Approximate the value of an expression containing an irrational number. Graph irrational numbers on a number line. Use approximations to compare irrational numbers.
Unit 5: Irrational Numbers Lesson 6: Evaluate Square Roots and Cube Roots	8.EE.8.b: Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.; 8.EE.8.c: Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	Find roots of perfect squares. Find roots of perfect cubes.
Unit 5: Irrational Numbers Lesson 7: Use Square Roots to Solve Equations	8.EE.8.b: Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.; 8.EE.8.c: Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of	Solve square root equations.

	points, determine whether the line through the first pair of points intersects the line through the second pair.	
Unit 5: Irrational Numbers Lesson 8: Use Cube Roots to Solve Equations		Solve cube root equations.
Unit 5: Irrational Numbers Lesson 9: Unit Review	8.EE.8.b: Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.; 8.EE.8.c: Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	
Unit 5: Irrational Numbers Lesson 10: Unit Test		
Unit 5: Irrational Numbers Lesson 11: Extended Problems		
Unit 6: The Pythagorean Theorem Lesson 1: Exchange Ideas		Determine an unknown side length of a right triangle using the Pythagorean theorem.
Unit 6: The Pythagorean Theorem Lesson 2: Use the Pythagorean Theorem	8.F.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required for Grade 8.); 8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Use the converse of the Pythagorean theorem to determine whether a triangle is a right triangle.
Unit 6: The Pythagorean Theorem Lesson 3: Converse of the Pythagorean Theorem		
Unit 6: The Pythagorean Theorem Lesson 4: Prove the Pythagorean Theorem		Prove the Pythagorean theorem. Prove the converse of the Pythagorean theorem.
Unit 6: The Pythagorean Theorem Lesson 5: Distances in the Coordinate Plane	8.F.1: Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required for Grade 8.); 8.F.4: Construct a	Use the Pythagorean theorem to find the length of a segment. Use the Pythagorean theorem to determine the third vertex of a right triangle.

	function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	
Unit 6: The Pythagorean Theorem Lesson 6: Your Choice	8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	
Unit 6: The Pythagorean Theorem Lesson 7: Applications of the Pythagorean Theorem	8.F.4: Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	Use the Pythagorean theorem to solve real-world problems.
Unit 6: The Pythagorean TheoremLesson 8: Pythagorean Theorem in 3-D	8.F.3: 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. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.	Use the Pythagorean theorem to find lengths in three-dimensional figures.
Unit 6: The Pythagorean Theorem Lesson 9: More Pythagorean Applications	8.F.2: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	Use the Pythagorean theorem to find lengths in two-dimensional figures.
Unit 6: The Pythagorean Theorem Lesson 10: Unit Review		
Unit 6: The Pythagorean Theorem Lesson 11: Unit Test	8.F.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	
Unit 6: The Pythagorean Theorem Lesson 12: Extended Problems	8.F.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the	

	qualitative features of a function that has been described verbally.	
Unit 7: Project: Climate Statistics Lesson 1: Select Your City and Features		Create and analyze a scatter plot. Determine whether data plotted on a scatter plot have a linear association and assess the fit of the straight line. Determine a trend line and its equation to approximate the linear relationship. Interpret the slope and y-intercept of the trend line in the context of the collected data.
Unit 7: Project: Climate Statistics Lesson 2: Describe the Units of Measure		Create and analyze a scatter plot. Determine whether data plotted on a scatter plot have a linear association and assess the fit of the straight line. Determine a trend line and its equation to approximate the linear relationship. Interpret the slope and y-intercept of the trend line in the context of the collected data.
Unit 7: Project: Climate Statistics Lesson 3: Construct a Scatter Plot		Create and analyze a scatter plot. Determine whether data plotted on a scatter plot have a linear association and assess the fit of the straight line. Determine a trend line and its equation to approximate the linear relationship. Interpret the slope and y-intercept of the trend line in the context of the collected data.
Unit 7: Project: Climate Statistics Lesson 4: Create a Linear Model		Create and analyze a scatter plot. Determine whether data plotted on a scatter plot have a linear association and assess the fit of the straight line. Determine a trend line and its equation to approximate the linear relationship. Interpret the slope and y-intercept of the trend line in the context of the collected data.
Unit 7: Project: Climate Statistics Lesson 5: What Did You Learn About Climate Statistics?		Create and analyze a scatter plot. Determine whether data plotted on a scatter plot have a linear association and assess the fit of the straight line. Determine a trend line and its equation to approximate the linear relationship. Interpret the slope and y-intercept of the trend line in the context of the collected data.

Unit 8: Grade 8 Semester A and B Assessments Lesson 1: Semester A Test, Parts 1 and 2		
Unit 8: Grade 8 Semester A and B Assessments Lesson 2: Your Choice		
Unit 8: Grade 8 Semester A and B Assessments Lesson 3: Semester B Test, Parts 1 and 2		
Unit 8: Grade 7 Semester A and B Assessments Lesson 4: Your Choice		