Mathematics Grade 8

Unit 1 Real Numbers

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
18 days	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties. Students should be able to write rational numbers as decimals and decimals as fractions Students should be able to write repeating decimals as fractions.	**Lesson 1-1 Rational Numbers as Decimals** SWBA to write repeating decimals as fractions. enVision 2.0 pgs. 7 - 12	Rational Number Irrational Number Repeating Decimal Terminating Decimal Fraction Integer	CC.2.1.8.E.1 Distinguish between Rational and Irrational Numbers using their properties. CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers. M08.A-N.1.1.1 Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats(limit repeating decimals to thousandths) M08.A-N.1.1.2 Convert a terminating or repeating decimal to a rational number (limit repeating decimals to thousandths) M08.A-N.1.1.3 Estimate the value of irrational numbers without a calculator. (Limit the radicand to less than 144)

							M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers. M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their locations on a number line.
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties. Students should be able to write rational numbers as decimals and decimals as fractions Students should be able to write repeating decimals as fractions.	**Lesson 1-2 Understand Irational Numbers** SWBA to identify a number that is irrational. enVision 2.0 pgs. 13 - 18	Rational Number Irrational Number Repeating Decimal Terminating Decimal Fraction Integer	CC.2.1.8.E.1 Distinguish between Rational and Irrational Numbers using their properties. CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers. M08.A-N.1.1.1 Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats(limit repeating decimals to thousandths) M08.A-N.1.1.2 Convert a terminating or repeating decimal to a rational number (limit repeating decimals to thousandths) M08.A-N.1.1.3 Estimate the value of irrational numbers without a calculator. (Limit the radicand to less than 144)

							M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers. M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their locations on a number line.
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties. Students should be able to write rational numbers as decimals and decimals as fractions Students should be able to compare and order rational and irrational numbers..	**Lesson 1-3 Compare and Order Real Numbers** SWBA to compare and order rational and irrational numbers. enVision 2.0 pgs. 19 - 24	Rational Number Irrational Number Repeating Decimal Terminating Decimal Fraction Integer	CC.2.1.8.E.1 Distinguish between Rational and Irrational Numbers using their properties. CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers. M08.A-N.1.1.1 Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats(limit repeating decimals to thousandths) M08.A-N.1.1.2 Convert a terminating or repeating decimal to a rational number (limit repeating decimals to thousandths) M08.A-N.1.1.3 Estimate the value of irrational numbers without a

							calculator. (Limit the radicand to less than 144) M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers. M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their locations on a number line.
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Apply concepts of radical and integer exponents to generate equivalent expressions. Estimate irrational numbers by comparing them to rational numbers. Students should be able to use powers and exponents to write large and small numbers Students will write and evaluate expressions using negative exponents. Students will find square roots of perfect squares. Students will estimate square	**Lesson 1-4 Evaluate Square Roots and Cube Roots** SWBA to find square roots and cube roots of rational numbers. enVision 2.0 pgs. 25 - 30	Power Base Exponent Negative Exponent Zero exponent Square root Perfect square Radical sign Non-perfect squares	CC.2.2.8.B.1 Apply concepts of radical and integer exponents to generate equivalent expressions. CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers. M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in exponential form with positive exponents) M08.B-E. 1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate

				roots of non-perfect squares			square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up to and including 5^3) without a calculator. M08.A-N.1.1.3 Estimate the value of irrational numbers without a calculator. (Limit the radicand to less than 144) M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers. M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their locations on a number line.
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms. Mathematical relationships cam be represented as expressions, equations, and	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers Expressions and Equations	Students will find square roots of perfect squares. Students will estimate square roots of non-perfect squares Student should be able to analyze, model and solve linear equations with square and cube roots. Students will solve one step-equation	Lesson 1-5 Solve Equations using square Roots and Cube Roots SWBA to solve equations involving squares and cubes. enVision 2.0 pgs. 31 - 36	Inverse Operation	CC.2.2.8.B.1 Apply concepts of radical and integer exponents to generate equivalent expressions. CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers. M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in

	inequalities in mathematical situations.			with square and cube roots.			exponential form with positive exponents) M08.B-E. 1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up to and including 5^3) without a calculator. M08.A-N.1.1.3 Estimate the value of irrational numbers without a calculator. (Limit the radicand to less than 144) M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers. M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their locations on a number line.
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties Apply one or more properties of integer	**Lesson 1-6 Use Properties of Integer Exponents** SWBA to use the properties of exponents to write equivalent expressions.	Product of Powers Power of Products Power of Powers Quotient of Powers	CC.2.2.8.1.B.1 1 Apply concepts of radical and integer exponents to generate equivalent expressions. M08.B-E.1.1.1 Apply one or more properties of

	structures in many equivalent forms.			exponents to generate equivalent numerical expressions	enVision 2.0 pgs. 39 - 44		integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in exponential form with positive exponents) M08.B-E.1.1.3 Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another. M08.B-E.1.1.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notations are used. Express answers in 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 (e.g., interpret 4.7EE9 displayed on a calculator as 4.7 x 10^9)

	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties Apply one or more properties of integer exponents to generate equivalent numerical expressions	**Lesson 1-7 More Properties of Integer Exponents** SWBA to write a number with a negative or zero exponent a different way. enVision 2.0 pgs. 45 - 50	Zero exponent Negative exponemet	CC.2.2.8.1.B.1 1 Apply concepts of radical and integer exponents to generate equivalent expressions. M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in exponential form with positive exponents) M08.B-E.1.1.3 Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another. M08.B-E.1.1.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notations are used. Express answers in 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 (e.g., interpret 4.7EE9 displayed on a calculator as 4.7 x 10^9)
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems?	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties Apply one or more properties of integer exponents to generate equivalent numerical expressions	**Lesson 1-8 Use Powers of 10 to Estimate Quantities** SWBA to estimate large and small quantities using a power of 10. enVision 2.0 pgs. 51 - 56	Zero exponent Negative exponemet	CC.2.2.8.1.B.1 1 Apply concepts of radical and integer exponents to generate equivalent expressions. M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in exponential form with positive exponents) M08.B-E.1.1.3 Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another. M08.B-E.1.1.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notations are used. Express answers in

							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 (e.g., interpret 4.7EE9 displayed on a calculator as 4.7 x 10^9)
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties Students will use scientific notation to write large and small numbers Students will compute with numbers in Scientific Notation	Lesson 1-9 Understand Scientific Notation SWBA to use scientific notation to write very large or very small quantities. enVision 2.0 pgs. 57 - 62	Scientific Notation	CC.2.2.8.1.B.1 1 Apply concepts of radical and integer exponents to generate equivalent expressions. M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in exponential form with positive exponents) M08.B-E.1.1.3 Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another.

							M08.B-E.1.1.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notations are used. Express answers in 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 (e.g., interpret 4.7EE9 displayed on a calculator as 4.7 x 10^9)
	Numbers, measures, expressions, equations, and inequalities can represent mathematical situations and structures in many equivalent forms.	What are real numbers? How are real numbers used to solve problems	Apply concepts of Rational Numbers and Irrational Numbers	Distinguish between Rational and Irrational Numbers using their properties Students will use scientific notation to write large and small numbers Students will compute with numbers in Scientific Notation	Lesson 1-10 Operations with Numbers in Scientific Notation SWBA to perform operations with numbers in scientific notation. enVision 2.0 pgs. 57 - 62	Scientific Notation	CC.2.2.8.1.B.1 1 Apply concepts of radical and integer exponents to generate equivalent expressions. M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator. (with final answers expressed in exponential form with positive exponents) M08.B-E.1.1.3 Estimate very large or very small quantities by using numbers expressed in the

							form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another. M08.B-E.1.1.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notations are used. Express answers in 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 (e.g., interpret 4.7EE9 displayed on a calculator as 4.7 x 10^9)
Review Unit 1 Real Numbers							
Assessment Unit 1 Real Numbers							
Unit 2 Analyze and Solve Linear Equations							

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	Mathematical relationships cam be represented as expressions, equations, and inequalities in mathematical situations.	How can we analyze connections between linear equations, and use them to solve problems?	Expressions and Equations	Students should be able to evaluate expressions and solve equations by combining like terms.	Lesson2-1 Combine Like Terms to solve equations. SWBA to solve equations that have like terms on one side. enVision 2.0 pgs. 85-90	Equivalent expressions Term Coefficient Like terms Constant Simplest form Simplifying the expression	Preparation for: CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.1 Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show that these possibilities is the case by successfully transforming the given equation into a simpler form until an equivalent form x = a, a = a, or a = b results (where a and b are different numbers). M08.B-E.3.1.2 Solve linear equations that have rational coefficients, including equations whose solutions require expanding using the distributive property or collecting like terms.
	Mathematical relationships cam be represented as expressions, equations, and inequalities in	How can we analyze connections between linear equations, and use them to solve problems?	Expressions and Equations	Student should be able to analyze, model and solve linear equations. Students will solve equations with	Lesson 2-2 Solve Equations with Variables on Both Sides. SWBA to solve equations with variables on both sides of the equal sign..	Null set Identity	CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.1 Write and identify linear equations in one variable with one

	mathematical situations.			variables on each side. Students will solve multi-step equations.	enVision 2.0 pgs. 91-96		solution, infinitely many solutions, or no solutions. Show that these possibilities is the case by successfully transforming the given equation into a simpler form until an equivalent form x = a, a = a, or a = b results (where a and b are different numbers). M08.B-E.3.1.2 Solve linear equations that have rational coefficients, including equations whose solutions require expanding using the distributive property or collecting like terms.
	Mathematical relationships cam be represented as expressions, equations, and inequalities in mathematical situations.	How can we analyze connections between linear equations, and use them to solve problems?	Expressions and Equations	Student should be able to analyze, model and solve linear equations. Students will solve equations with variables on each side. Students will solve multi-step equations with the distributive property on one and both sides.	**Lesson 2-3 Solve Multi-Step Equation** SWBA to solve multi-step equations and pairs of equations using more than one approach. enVision 2.0 pgs. 97-102	Distributive property Like Terms	CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.1 Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show that these possibilities is the case by successfully transforming the given equation into a simpler form until an equivalent form x = a, a = a, or a = b results (where a and b are different numbers). M08.B-E.3.1.2 Solve linear equations that have

							rational coefficients, including equations whose solutions require expanding using the distributive property or collecting like terms.
	Mathematical relationships cam be represented as expressions, equations, and inequalities in mathematical situations.	How can we analyze connections between linear equations, and use them to solve problems?	Expressions and Equations	Student should be able to analyze, model and solve linear equations. Students should be able to solve multi-step equations.	Lesson 2-4 Equations with No Solutions or Infinitely May Solutions SWBA to determine the number of solutions an equation has. enVision 2.0 pgs. 103-110	Null set Empty Set Infinitely Many	CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.1 Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show that these possibilities is the case by successfully transforming the given equation into a simpler form until an equivalent form x = a, a = a, or a = b results (where a and b are different numbers). M08.B-E.3.1.2 Solve linear equations that have rational coefficients, including equations whose solutions require expanding using the distributive property or collecting like terms.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to	How can we analyze connections between linear equations, and use them to solve problems?	Linear Equations and Functions	Students will compare proportional relationships represented by equations , tables, graphs., and verbal descriptions.	Lesson 2-5 Compare Proportional Relationships SWBA to compare proportional relationships	Coordinate plane Origin y-axis x-axis	Preparation for: CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations

	raise and answer questions.				represented in different ways.. enVision 2.0 pgs. 117-122	Quadrants Ordered pairs x-coordinate y-coordinate abscissa ordinate	M08.B-E.2.1.1 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can we analyze connections between linear equations, and use them to solve problems?	Linear Equations and Functions	Students should be able to identify proportional and non-proportional linear relationships by finding a constant rate of change. Students should be able to find the slope of a line.	Lesson 2-6 Connect Proportional Relationships and Slope SWBA to determine and interpret the slope of a line. enVision 2.0 pgs. 123-128	Linear relationship Constant rate of change Slope Rise Run	CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations M08.B-E.2.1.1 Graph proportional relationships, interpret the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. (Ex. Compare a distance-time graph to a distance –time equation to determine which of the two moving objects has a greater speed.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can we analyze connections between linear equations, and use them to solve problems?	Linear Equations and Functions	Students should be able to write a linear equation from two points. Students should be able to graph linear equations using the slope and y-intercept.	Lesson 2- 7 Analyze Linear Equations; Y=mx SWBA to write equations to describe linear relationships. enVision 2.0 pgs. 129-134		CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.

				Students should be able to graph and analyze slope triangles. Students should be able to graph a function using the x- and y- intercepts.			CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-E.2.1.2 Use similar right triangles to show and explain why the slope "m" is the same between any two distinct points on a non-vertical line in a coordinate plane. M08.B-E.3.1.5 Solve real-world and mathematical problems leading to two linear equations in two variables. M08.B-F.1.1.3 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.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can we analyze connections between linear equations, and use them to solve problems?	Linear Equations and Functions	Students should be able to write a linear equation from two points. Students should be able to graph linear equations using the slope and y-intercept.	Lesson 2- 8 Understand the y-intercept of a line. SWBA to find the y-intercept and explain what it means. enVision 2.0 pgs. 129-134	y-intercept slope-intercept form	CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.

				Students should be able to graph and analyze slope triangles. Students should be able to graph a function using the x- and y- intercepts.			CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-E.2.1.2 Use similar right triangles to show and explain why the slope "m" is the same between any two distinct points on a non-vertical line in a coordinate plane. M08.B-E.3.1.5 Solve real-world and mathematical problems leading to two linear equations in two variables. M08.B-F.1.1.3 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.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can we analyze connections between linear equations, and use them to solve problems?	Linear Equations and Functions	Students should be able to write a linear equation from two points or a graph. Students should be able to graph linear equations using the slope and y-intercept.	Lesson 2- 9 Analyze Linear Equations: y=mx +b SWBA to find the y-intercept and explain what it means. enVision 2.0 pgs. 141-146	Slope y-intercept slope-intercept form	CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.

				Students should be able to graph and analyze slope triangles. Students should be able to graph a function using the x- and y- intercepts.			CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-E.2.1.2 Use similar right triangles to show and explain why the slope "m" is the same between any two distinct points on a non-vertical line in a coordinate plane. M08.B-E.3.1.5 Solve real-world and mathematical problems leading to two linear equations in two variables. M08.B-F.1.1.3 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.
Review Unit 2 Analyze and Solve Linear Relationships							
Assessment Unit 2 Analyze and Solve Linear Relationships							
Unit 3 Use Functions to Model Relationships							

Estimated Unit Time Frames	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Linear Equations and Functions	Students should be able to determine if a relation is a functions Students should be able to compare properties of functions represented in different ways	Lesson 3-1 Understand Relations and Functions SWBA to determine whether a relation is a function.. enVision 2.0 pgs. 159-164	Relation Domain Range Function Function Table	CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-F.1.1.1 Determine whether a relation is a function. M08.B-F.1.1.3 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. M08.B-F.2.1.11 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 its graph or a table of values. M08.B-F.2.1.2 Describe qualitatively the

							functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or non-linear). Sketch or determine the graph that exhibits the qualitative features of a function that has been described verbally.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Linear Equations and Functions	Students should be able to Define, interpret and compare functions displayed algebraically, graphically, numerically in tables, and or verbal descriptions. Students should be able to 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 value. Students should be able to determine if a relation is a functions Students should be able to use the coordinate plane to represent relations	Lesson 3-2 Connect Representations to Functions SWBA to identify functions by their equations tables and graphs. enVision 2.0 pgs. 165-170	Relation Domain Range Function Function Table Independent variable Dependent Variable Linear function Continuous data Discrete data	CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-F.1.1.1 Determine whether a relation is a function. M08.B-F.1.1.3 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. M08.B-F.2.1.11 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

				Students should be able to find function values and complete function tables Students should be able to represent linear functions using function tables and graphs and determine whether a set of data is continuous or discrete Students should be able to compare properties of functions represented in different ways Students should be able to sketch and describe qualitative graphs.			or from a graph. Interpret the rate of change and initial value of a linear function in terms of its graph or a table of values. M08.B-F.2.1.2 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or non-linear). Sketch or determine the graph that exhibits the qualitative features of a function that has been described verbally.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Linear Equations and Functions	Students should be able to Define, interpret and compare functions displayed algebraically, graphically, numerically in tables, and or verbal descriptions. Students should be able to Interpret the rate of change and initial value of a	Lesson 3-3 Compare Linear and Nonlinear Functions SWBA to compare linear and nonlinear functions. enVision 2.0 pgs. 171-176	Relation Domain Range Function Function Table Independent variable Dependent Variable	CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-F.1.1.1 Determine whether a relation is a function. M08.B-F.1.1.3 Interpret the equation y = mx +b as defining a linear function

				linear function in terms of the situation it models, and in terms of its graph or a table of value. Students should be able write functions given two values or a graph. Students should be able to use the coordinate plane to represent relations Students should be able to find function values and complete function tables Students should be able to represent linear functions using function tables and graphs and determine whether a set of data is continuous or discrete Students should be able to compare properties of functions represented in different ways Students should be able to sketch and		Linear function Continuous data Discrete data	whose graph is a straight line; give examples of functions that are not linear. M08.B-F.2.1.11 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 its graph or a table of values. M08.B-F.2.1.2 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or non-linear). Sketch or determine the graph that exhibits the qualitative features of a function that has been described verbally.

				describe qualitative graphs.			
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Linear Equations and Functions	Students should be able to Define, interpret and compare functions displayed algebraically, graphically, numerically in tables, and or verbal descriptions. Students should be able to 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 value. Students should be able to determine if a relation is a functions Students should be able to use the coordinate plane to represent relations Students should be able to find function values and complete function tables Students should be able to represent linear functions using	Lesson 3-4 Construct Functions to Model Linear Relationships SWBA to write an equation I the form of y=mx + b to describe a linear function. enVision 2.0 pgs. 183-188	Relation Domain Range Function Function Table Independent variable Dependent Variable Linear function Continuous data Discrete data	CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-F.1.1.1 Determine whether a relation is a function. M08.B-F.1.1.3 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. M08.B-F.2.1.11 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 its graph or a table of values. M08.B-F.2.1.2 Describe qualitatively the

				function tables and graphs and determine whether a set of data is continuous or discrete Students should be able to compare properties of functions represented in different ways Students should be able to sketch and describe qualitative graphs.			functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or non-linear). Sketch or determine the graph that exhibits the qualitative features of a function that has been described verbally.
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Linear Equations and Functions	Students should be able to Define, interpret and compare functions displayed algebraically, graphically, numerically in tables, and or verbal descriptions. Students should be able to 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 value.	Lesson 3-5 Intervals of Increase and Decrease SWBA to describe the behavior of a function and write a description that goes with the graph. enVision 2.0 pgs. 189-194	Relation Domain Range Function Function Table Independent variable Dependent Variable Linear function Continuous data Discrete data	CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities. M08.B-F.1.1.1 Determine whether a relation is a function. M08.B-F.1.1.3 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. M08.B-F.2.1.11 Construct a function to model a linear relationship

				Students should be able to determine if a relation is a functions Students should be able to use the coordinate plane to represent relations Students should be able to find function values and complete function tables Students should be able to represent linear functions using function tables and graphs and determine whether a set of data is continuous or discrete Students should be able to compare properties of functions represented in different ways Students should be able to sketch and describe qualitative graphs.			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 its graph or a table of values. M08.B-F.2.1.2 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or non-linear). Sketch or determine the graph that exhibits the qualitative features of a function that has been described verbally.
	Mathematical relations and functions can be modeled through multiple	How are relationships represented mathematically?	Linear Equations and Functions	Students should be able to Define, interpret and compare functions displayed algebraically,	Lesson 3-6 Sketch Functions from Verbal Descriptions	Relation Domain Range	CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model

	representations and analyzed to raise and answer questions.			graphically, numerically in tables, and or verbal descriptions. Students should be able to 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 value. Students should be able to determine if a relation is a functions Students should be able to use the coordinate plane to represent relations Students should be able to find function values and complete function tables Students should be able to represent linear functions using function tables and graphs and determine whether a set of data is continuous or discrete Students should be able to compare	SWBA to sketch of a function that has been described verbally. enVision 2.0 pgs. 195-200	Function Function Table Independent variable Dependent Variable Linear function Continuous data Discrete data	relationships between quantities. M08.B-F.1.1.1 Determine whether a relation is a function. M08.B-F.1.1.3 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. M08.B-F.2.1.11 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 its graph or a table of values. M08.B-F.2.1.2 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or non-linear). Sketch or determine the graph that exhibits the

				properties of functions represented in different ways Students should be able to sketch and describe qualitative graphs.			qualitative features of a function that has been described verbally.
Review Unit 3 Use Functions to Model Relationships							
Assessment Unit 3 Use Functions to Model Relationships							
Unit 4 Investigate Bivariate Data							
Estimated Unit Time Frames	**Big Ideas**	**Essential Questions**	**Concepts (Know)**	**Competencies (Do)**	**Lessons/ Suggested Resources**	**Vocabulary**	**Standards/ Eligible Content**
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Data and Distributions	Construct, analyze, and interpret bivariate data displayed in scatter plots Identify and use linear models to describe bivariate measurement data. Students should be able to use a scatter plot to investigate the relationship between two sets of data.	Lesson 4-1 Construct and Interpret Scatter Plots SWBA to construct a scatter plot and use it to understand the relationship between paired data. enVision 2.0 pgs. 211-216	Bivariate Data Scatter Plot Cluster Gap Outlier Positive Association Negative Association	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations. M08.D-S.1.1.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear

				Students should be able to construct and make conjectures about scatter plots. Students should be able to draw lines of best fit and use them to make predictions about data.			association, and non-linear association. M08.D-S.1.1.2 For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line. M08.D-S. 1.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and y-intercept. (Ex. In a linear model for a biology experiment, interpret a slope 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Data and Distributions	Construct, analyze, and interpret bivariate data displayed in scatter plots Identify and use linear models to describe bivariate measurement data. Students should be able to use a scatter plot to investigate the relationship	Lesson 4-2 Analyze Linear Associations SWBA to use a line to represent the relationship between Paired Data enVision 2.0 pgs. 217-222	Trend line Linear Associations Nonlinear Associations	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations. M08.D-S.1.1.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear

				between two sets of data. Students should be able to construct and make conjectures about scatter plots. Students should be able to draw lines of best fit and use them to make predictions about data.			association, and non-linear association. M08.D-S.1.1.2 For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line. M08.D-S.1.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and y-intercept. (Ex. In a linear model for a biology experiment, interpret a slope 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Data and Distributions	Construct, analyze, and interpret bivariate data displayed in scatter plots Identify and use linear models to describe bivariate measurement data. Students should be able to use a scatter plot to investigate the relationship	Lesson 4-3 Use Linear Models to Make Predictions SWBA to make a prediction by using the equation of a line that closely fits the set of data. enVision 2.0 pgs. 223-228	Slope y-intercept	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations. M08.D-S.1.1.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear

				between two sets of data. Students should be able to construct and make conjectures about scatter plots. Students should be able to draw lines of best fit and use them to make predictions about data.			association, and non-linear association. M08.D-S.1.1.2 For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line. M08.D-S. 1.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and y-intercept. (Ex. In a linear model for a biology experiment, interpret a slope 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Data and Distributions	Construct, analyze, and interpret bivariate data displayed in scatter plots Identify and use linear models to describe bivariate measurement data. Students should be able to use a scatter plot to investigate the relationship	Lesson 4-4 Interpret Two Way Frequency Tables SWBA to display and interpret relationships between paired categorical data.. enVision 2.0 pgs. 231-236	Categorical Data Two-Way Frequency Tables	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations. M08.D-S.1.1.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear

				between two sets of data. Students should be able to construct and make conjectures about scatter plots. Students should be able to draw lines of best fit and use them to make predictions about data.			association, and non-linear association. M08.D-S.1.1.2 For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line. M08.D-S. 1.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and y-intercept. (Ex. In a linear model for a biology experiment, interpret a slope 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How are relationships represented mathematically?	Data and Distributions	Construct, analyze, and interpret bivariate data displayed in scatter plots Identify and use linear models to describe bivariate measurement data. Students should be able to use a scatter plot to investigate the relationship	Lesson 4-5 Interpret Two Way Relative Frequency Tables SWBA to find the relative frequencies of two way tables and interpret what they mean. enVision 2.0 pgs. 237-242	Categorical Data Relative Frequency Tables	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations. M08.D-S.1.1.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear

				between two sets of data. Students should be able to construct and make conjectures about scatter plots. Students should be able to draw lines of best fit and use them to make predictions about data.			association, and non-linear association. M08.D-S.1.1.2 For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line. M08.D-S. 1.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and y-intercept. (Ex. In a linear model for a biology experiment, interpret a slope 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.)
Review Unit 4 Investigate Bivariate Data							
Assessment Unit 4 Investigate Bivariate Data							
Unit 5 Analyze and Solve Systems of Linear Equations							
Estimated Unit Time Frames	**Big Ideas**	**Essential Questions**	**Concepts (Know)**	**Competencies (Do)**	**Lessons/ Suggested Resources**	**Vocabulary**	**Standards/ Eligible Content**

	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can expressions and equations be used to quantify, solve model and/or analyze mathematical situations?	Linear Equations	Interpret solutions to linear equations and systems of two linear equations. Analyze and solve pairs of simultaneous linear equations. Students should be able to solve systems of equations by graphing.	Lesson 5-1 Estimate Solutions by Inspection. SWBA to find the number of solutions of a system of equations by inspecting the equations. enVision 2.0 pgs. 257-262	Systems of linear equations Solution of a Systems of linear equations	CC.2.2.8.B.3 3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.3 Interpret solutions to a system of two linear equations in two variables as a point of intersection of their graphs because points on intersection satisfy both equations simultaneously. M08.B-E.3.1.4 Solve systems of two linear equations in two variables algebraically and estimate the solutions by graphing the equations. Solve simple cases by inspection. M08.B-E.3.1.5 Solve real world and mathematical problems leading to two linear equations in two variables. (ex. Given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair of points.)
	Mathematical relations and functions can be modeled through multiple representations	How can expressions and equations be used to quantify, solve model and/or analyze	Linear Equations	Interpret solutions to linear equations and systems of two linear equations.	Lesson 5-2 Solve systems By Graphing. SWBA to find the solution to a system of equations by using graphs.	Systems of linear equations Solution of a Systems of linear equations	CC.2.2.8.B.3 3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.3 Interpret solutions to a system of

	and analyzed to raise and answer questions.	mathematical situations?		Analyze and solve pairs of simultaneous linear equations. Students should be able to solve systems of equations by graphing.	enVision 2.0 pgs. 263-268		two linear equations in two variables as a point of intersection of their graphs because points on intersection satisfy both equations simultaneously. M08.B-E.3.1.4 Solve systems of two linear equations in two variables algebraically and estimate the solutions by graphing the equations. Solve simple cases by inspection. M08.B-E.3.1.5 Solve real world and mathematical problems leading to two linear equations in two variables. (ex. Given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair of points.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can expressions and equations be used to quantify, solve model and/or analyze mathematical situations?	Linear Equations	Interpret solutions to linear equations and systems of two linear equations. Analyze and solve pairs of simultaneous linear equations. Students should be able to solve systems of linear equations algebraically.	5-3 Solve systems of Equations by Substitution SWBA to solve a system of equations using Substitution. enVision 2.0 pgs. 271-276	Substitution	CC.2.2.8.B.3 3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.3 Interpret solutions to a system of two linear equations in two variables as a point of intersection of their graphs because points on intersection satisfy both equations simultaneously.

							M08.B-E.3.1.4 Solve systems of two linear equations in two variables algebraically and estimate the solutions by graphing the equations. Solve simple cases by inspection. M08.B-E.3.1.5 Solve real world and mathematical problems leading to two linear equations in two variables. (ex. Given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair of points.)
	Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can expressions and equations be used to quantify, solve model and/or analyze mathematical situations?	Linear Equations	Interpret solutions to linear equations and systems of two linear equations. Analyze and solve pairs of simultaneous linear equations. Students should be able to solve systems of linear equations algebraically.	5-4 Solve systems of Equations by elimination. SWBA to solve a system of equations using elimination.. enVision 2.0 pgs. 277-282	Elimination	CC.2.2.8.B.3 3 Analyze and solve linear equations and pairs of simultaneous linear equations. M08.B-E.3.1.3 Interpret solutions to a system of two linear equations in two variables as a point of intersection of their graphs because points on intersection satisfy both equations simultaneously. M08.B-E.3.1.4 Solve systems of two linear equations in two variables algebraically and estimate the solutions by graphing the equations. Solve

							simple cases by inspection. M08.B-E.3.1.5 Solve real world and mathematical problems leading to two linear equations in two variables. (ex. Given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair of points.)
Review Unit 5 Analyze and Solve Systems of Linear Equations							
Assessment Unit 5 Analyze and Solve Systems of Linear Equations							
Unit 6 Congruence and Similarity							
Estimated Unit Time Frames	**Big Ideas**	**Essential Questions**	**Concepts (Know)**	**Competencies (Do)**	**Lessons/ Suggested Resources**	**Vocabulary**	**Standards/ Eligible Content**
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use various tools to understand and apply geometric transformations to geometric figures. Students should be able to graph translations on the coordinate plane	6-1 Analyze Translations SWBA to translate two-dimensional figures. enVision 2.0 pgs. 297-302	Transformation Preimage Image Translation	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G-1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in

				Students should be able to graph reflections on the coordinate plane Students should be able to graph rotations on a coordinate plane Students should be able to use scale factor to graph dilations Students should be able to use transformations to create similar figures			rotations, reflections and translations) M08.C-G.1.1.3 Describe the effect of dilation, translations, rotations, and reflections on two-dimensional figures. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use various tools to understand and apply geometric transformations to geometric figures. Students should be able to graph translations on the coordinate plane Students should be able to graph reflections on the coordinate plane Students should be able to graph rotations on a coordinate plane Students should be able to use scale	6-2 Analyze Reflections SWBA to reflect two-dimensional figures. enVision 2.0 pgs. 297-308	Reflection Line of Reflection	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G-1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.3 Describe the effect of dilation, translations, rotations, and reflections on two-dimensional figures. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a

				factor to graph dilations Students should be able to use transformations to create similar figures			sequence of transformations that exhibit the similarity between them.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use various tools to understand and apply geometric transformations to geometric figures. Students should be able to graph translations on the coordinate plane Students should be able to graph reflections on the coordinate plane Students should be able to graph rotations on a coordinate plane Students should be able to use scale factor to graph dilations Students should be able to use transformations to create similar figures.	6-3 Analyze Rotations SWBA to rotate two-dimensional figures. enVision 2.0 pgs. 309-314	Rotations Angle of Rotation	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G-1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.3 Describe the effect of dilation, translations, rotations, and reflections on two-dimensional figures. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.
	Geometric relationships can be described, analyzed, and	How can the application of the attributes of geometric shapes support	Congruence and Similarity	Use various tools to understand and apply geometric transformations to geometric figures.	6-4 Compose Transformations	Rotations Angle of Rotation	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.

	classified based on special reasoning and/or visualization.	mathematical reasoning and problem solving?		Students should be able to graph translations on the coordinate plane Students should be able to graph reflections on the coordinate plane Students should be able to graph rotations on a coordinate plane Students should be able to use scale factor to graph dilations Students should be able to use transformations to create similar figures.	SWBA to describe and perform a sequence of transformations. enVision 2.0 pgs. 315-320		M08.C-G-1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.3 Describe the effect of dilation, translations, rotations, and reflections on two-dimensional figures. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use transformations to demonstrate congruence and similarity of geometric figures. Students should be able to use a series of transformations to create congruent figures Students should be able to write congruence statements for congruent figures.	6-5 Understand Congruent Figures SWBA to use a sequence of translations, reflections, and rotations to show that figures are congruent. enVision 2.0 pgs. 325-330	Congruent	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G.1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.2 Given two congruent figures, describe a sequence of

				Students should be able to identify similar polygons and find missing measures of similar polygons. Students should be able to identify angle relationships when parallel lines are cut by a transversal. Students should be able to use a sequence of rotations, reflections, translations, and dilations to map one figure on to another to determine similarity.			transformations that exhibit the congruence between them. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use various tools to understand and apply geometric transformations to geometric figures. Students should be able to graph translations on the coordinate plane Students should be able to graph reflections on the coordinate plane Students should be able to graph	6-6 Describe Dilations SWBA to dilate two-dimensional figures. enVision 2.0 pgs. 333-338	Dilation Scale factor Enlargement Reduction	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G-1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.3 Describe the effect of dilation, translations, rotations, and reflections on two-dimensional figures.

				rotations on a coordinate plane Students should be able to use scale factor to graph dilations Students should be able to use transformations to create similar figures			M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use transformations to demonstrate congruence and similarity of geometric figures. Students should be able to use a series of transformations to create congruent figures Students should be able to write congruence statements for congruent figures. Students should be able to identify similar polygons and find missing measures of similar polygons. Students should be able to identify angle relationships when parallel lines are cut by a transversal.	6-7 Understand Similar Figures SWBA to use a sequence of translations including dilations to show that figures are similar. enVision 2.0 pgs. 339-344	Similar	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G.1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibit the congruence between them. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.

				Students should be able to use a sequence of rotations, reflections, translations, and dilations to map one figure on to another to determine similarity.			
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use transformations to demonstrate congruence and similarity of geometric figures. Students should be able to use a series of transformations to create congruent figures Students should be able to write congruence statements for congruent figures. Students should be able to identify similar polygons and find missing measures of similar polygons Students should be able to identify angle relationships when parallel lines are cut by a transversal.	6-8 Angles, Lines and Transversals SWBA to identify and find the measures of angles formed by parallel lines and a transversal. enVision 2.0 pgs. 345-352	Transversals Corresponding Angles Alternate Interior Angles Same-Side interior Angles	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G.1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibit the congruence between them. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.

				Students should be able to use a sequence of rotations, reflections, translations, and dilations to map one figure on to another to determine similarity.			
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use transformations to demonstrate congruence and similarity of geometric figures. Students should be able to use a series of transformations to create congruent figures Students should be able to write congruence statements for congruent figures. Students should be able to identify similar polygons and find missing measures of similar polygons Students should be able to identify angle relationships when parallel lines are cut by a transversal. Students should be able to use a	6-9 Interior and Exterior Angles of a Triangle SWBA to find the interior and exterior angle measures of a triangle. enVision 2.0 pgs. 353-358	Remote interior angles Exterior angles of a triangle	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G.1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibit the congruence between them. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.

				sequence of rotations, reflections, translations, and dilations to map one figure on to another to determine similarity.			
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Congruence and Similarity	Use transformations to demonstrate congruence and similarity of geometric figures. Students should be able to use a series of transformations to create congruent figures Students should be able to write congruence statements for congruent figures. Students should be able to identify similar polygons and find missing measures of similar polygons Students should be able to identify angle relationships when parallel lines are cut by a transversal. Students should be able to use a sequence of rotations, reflections,	6-10 Angle-Angle Triangle Similarity SWBA to use the angle measures to determine whether two triangles are similar. enVision 2.0 pgs. 359-364	Angle-Angle Criterion	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. M08.C-G.1.1.1 Apply properties of rotations, reflections, and translations. (Ex. Angle measures are preserved in rotations, reflections and translations) M08.C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibit the congruence between them. M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibit the similarity between them.

				translations, and dilations to map one figure on to another to determine similarity.			
Review Unit 6 Congruence and Similarity							
Assessment Unit 6 Congruence and Similarity							
Unit 7 Understand and Apply the Pythagorean Theorem							
Estimated Unit Time Frames	**Big Ideas**	**Essential Questions**	**Concepts (Know)**	**Competencies (Do)**	**Lessons/ Suggested Resources**	**Vocabulary**	**Standards/ Eligible Content**
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Pythagorean Theorem	Apply the Pythagorean Theorem and its converse to solve mathematical problems in two and three dimensions. Students should be able to use the Pythagorean Theorem and its converse Students should be able to solve problems using the Pythagorean Theorem and its converse.	7-1 Understand the Pythagorean Theorem SWBA to use the Pythagorean Theorem to find unknown sides of triangles enVision 2.0 pgs. 381-386	Legs Hypotenuse Pythagorean Theorem Proof	CC.2.3.8.A.3 Understand and apply the Pythagorean Theorem to solve problems. CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions. CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations. M08.C-G.2.1.1 Apply the Pythagorean Theorem to show a triangle is a right triangle.

				Students should be able to find the distance between two points on the coordinate plane Students should be able to relate slope of a line to similar triangles.			M08.C-G.2.1.1 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems (Figures provided for problems in three dimensions will be consistent with eligible content in grade 8 and below.) M08.C-G.2.1.3 Apply the Pythagorean Theorem to find the distance between two points on a coordinate system. M08.B-E.1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up to and including 5^3) without a calculator. M08.B-E.2.1.3 Derive the equation y = mx + b for a line through the origin and a line intercepting a vertical axis at b.
	Geometric relationships can be described,	How can the application of the attributes of geometric shapes	Pythagorean Theorem	Apply the Pythagorean Theorem and its converse to solve	7-2 Understand the Converse of the Pythagorean Theorem	Converse of the Pythagorean Theorem	CC.2.3.8.A.3 Understand and apply the Pythagorean Theorem to solve problems.

	analyzed, and classified based on special reasoning and/or visualization.	support mathematical reasoning and problem solving?		mathematical problems in two and three dimensions. Students should be able to use the Pythagorean Theorem and its converse Students should be able to solve problems using the Pythagorean Theorem and its converse. Students should be able to find the distance between two points on the coordinate plane Students should be able to relate slope of a line to similar triangles.	SWBA to use the converse of the Pythagorean Theorem to identify right triangles enVision 2.0 pgs. 387-394		CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions. CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations. M08.C-G.2.1.1 Apply the Pythagorean Theorem to show a triangle is a right triangle. M08.C-G.2.1.1 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems (Figures provided for problems in three dimensions will be consistent with eligible content in grade 8 and below.) M08.C-G.2.1.3 Apply the Pythagorean Theorem to find the distance between two points on a coordinate system. M08.B-E.1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 =

							p, where p is a positive rational number. Evaluate square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up to and including 5^3) without a calculator. M08.B-E.2.1.3 Derive the equation y = mx + b for a line through the origin and a line intercepting a vertical axis at b.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Pythagorean Theorem	Apply the Pythagorean Theorem and its converse to solve mathematical problems in two and three dimensions. Students should be able to use the Pythagorean Theorem and its converse Students should be able to solve problems using the Pythagorean Theorem and its converse. Students should be able to find the distance between two points on the coordinate plane	7-3 Apply the Pythagorean Theorem to Solve Problems. SWBA to use the Pythagorean Theorem to solve problems. enVision 2.0 pgs. 395-400		CC.2.3.8.A.3 Understand and apply the Pythagorean Theorem to solve problems. CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions. CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations. M08.C-G.2.1.1 Apply the Pythagorean Theorem to show a triangle is a right triangle. M08.C-G.2.1.1 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems

				Students should be able to relate slope of a line to similar triangles.			(Figures provided for problems in three dimensions will be consistent with eligible content in grade 8 and below.) M08.C-G.2.1.3 Apply the Pythagorean Theorem to find the distance between two points on a coordinate system. M08.B-E.1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up to and including 5^3) without a calculator. M08.B-E.2.1.3 Derive the equation y = mx + b for a line through the origin and a line intercepting a vertical axis at b.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Pythagorean Theorem	Apply the Pythagorean Theorem and its converse to solve mathematical problems in two and three dimensions. Students should be able to use the	7-4 Find Distance on the coordinate plane. SWBA to use the Pythagorean Theorem to find the distance between two points in the coordinate plane. enVision 2.0		CC.2.3.8.A.3 Understand and apply the Pythagorean Theorem to solve problems. CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.

				Pythagorean Theorem and its converse Students should be able to solve problems using the Pythagorean Theorem and its converse. Students should be able to find the distance between two points on the coordinate plane Students should be able to relate slope of a line to similar triangles.	pgs. 401-406		CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations. M08.C-G.2.1.1 Apply the Pythagorean Theorem to show a triangle is a right triangle. M08.C-G.2.1.1 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems (Figures provided for problems in three dimensions will be consistent with eligible content in grade 8 and below.) M08.C-G.2.1.3 Apply the Pythagorean Theorem to find the distance between two points on a coordinate system. M08.B-E.1.1.2 Use square root and cube root symbols to represent solutions to equations of the form x^2 = p and x^3 = p, where p is a positive rational number. Evaluate square roots of perfect squares (up to and including 12^2) and cube roots of perfect cubes (up

							to and including 5^3) without a calculator. M08.B-E.2.1.3 Derive the equation y = mx + b for a line through the origin and a line intercepting a vertical axis at b.
Review Unit 7 Understand the Pythagorean Theorem							
Assessment Unit 7 Understand the Pythagorean Theorem							
Unit 8 Solving Problems Involving Volume							
Estimated Unit Time Frames	**Big Ideas**	**Essential Questions**	**Concepts (Know)**	**Competencies (Do)**	**Lessons/ Suggested Resources**	**Vocabulary**	**Standards/ Eligible Content**
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Cylinders, Cones and Spheres	Apply concepts of volume of cylinders, cones and spheres to solve real world and mathematical problems. Students should be able to find the volumes of cylinders. Students should be able to find the volumes of cones. Students should be able to find the volumes of spheres.	8-2 Find volumes of Cylinders. SWBA to use what in known about rectangular prisms to find the volume of a cylinder. enVision 2.0 pgs. 423-428	Cylinder Volume	CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones and spheres to solve real-world and mathematical problems. M08.C-G.3.1.1 Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems. Formulas will be provided.

	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Cylinders, Cones and Spheres	Apply concepts of volume of cylinders, cones and spheres to solve real world and mathematical problems. Students should be able to find the volumes of cylinders. Students should be able to find the volumes of cones. Students should be able to find the volumes of spheres.	8-3 Find volumes of Cones. SWBA to find the volume of a cylinder. enVision 2.0 pgs. 429-436	Volume Cones	CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones and spheres to solve real-world and mathematical problems. M08.C-G.3.1.1 Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems. Formulas will be provided.
	Geometric relationships can be described, analyzed, and classified based on special reasoning and/or visualization.	How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Cylinders, Cones and Spheres	Apply concepts of volume of cylinders, cones and spheres to solve real world and mathematical problems. Students should be able to find the volumes of cylinders. Students should be able to find the volumes of cones. Students should be able to find the volumes of spheres.	8-4 Find Volumes of Spheres. SWBA to find the volume of a spheres. enVision 2.0 pgs. 437-442	Volume Sphere	CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones and spheres to solve real-world and mathematical problems. M08.C-G.3.1.1 Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems. Formulas will be provided.
Review Unit 8 Solving Problems Involving Volume							
Assessment Unit 8 Solving Problems Involving Volume							
