Mathematics Grade 8

Unit 1 Real Numbers

Estimated	Big Ideas	Essential	Concepts	Competencies	Lessons/ Suggested	Vocabulary	Standards/ Eligible
Unit Time Frames		Questions	(Know)	(Do)	Resources		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. MO8.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) MO8.A-N.1.1.2 Convert a terminating or repeating decimal to a rational number (limit repeating decimal to thousandths) MO8.A-N.1.1.3 Estimate the value of irrational numbers without a calculator. (Limit the radicand to less than 144)

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						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,	What are real	Apply concepts of	Apply concepts of	Lesson 1-4 Evaluate	Power	CC.2.2.8.B.1 Apply
measures, expressions,	numbers?	Rational Numbers and Irrational	radical and integer exponents to	Square Roots and Cube Roots	Base	concepts of radical and integer exponents to
equations, and	How are real	Numbers	generate equivalent	Noois	Buse	generate equivalent
inequalities can	numbers used to		expressions.	SWBA to find square	Exponent	expressions.
represent mathematical	solve problems?		Estimate irrational	roots and cube roots of rational numbers.	Negative Exponent	CC.2.1.8.E.4 Estimate
situations and			numbers by	an Vinian 2.0	7	irrational numbers by
structures in many equivalent			comparing them to rational numbers.	enVision 2.0 pgs. 25 - 30	Zero exponent	comparing them to
forms.					Square root	rational numbers.
			Students should be able to use powers		Perfect square	M08.B-E.1.1.1 Apply one
			and exponents to			or more properties of integer exponents to
			write large and small numbers		Radical sign	generate equivalent
					Non-perfect	numerical expressions without a calculator. (with
			Students will write and evaluate		squares	final answers expressed in
			expressions using			exponential form with positive exponents)
			negative exponents.			
			Students will find			M08.B-E. 1.1.2 Use square root and cube root
			square roots of			symbols to represent
			perfect squares.			solutions to equations of
			Students will			the form x^2 = p and x^3 = p, where p is a positive
			estimate square			rational number. Evaluate

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			roots of non-perfect			square roots of perfect
			squares			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,	What are real	Apply concepts of	Students will find	Lesson 1-5 Solve	Inverse Operation	CC.2.2.8.B.1 Apply
measures,	numbers?	Rational Numbers	square roots of	Equations using square	·	concepts of radical and
expressions,		and Irrational	perfect squares.	Roots and Cube Roots		integer exponents to
equations, and	How are real	Numbers				generate equivalent
inequalities can	numbers used to		Students will	SWBA to solve equations		expressions.
represent	solve problems?	Expressions and	estimate square	involving squares and		·
mathematical		Equations	roots of non-perfect	cubes.		CC.2.1.8.E.4 Estimate
situations and			squares			irrational numbers by
structures in				enVision 2.0		comparing them to
many equivalent			Student should be	pgs. 31 - 36		rational numbers.
forms.			able to analyze,			
			model and solve			M08.B-E.1.1.1 Apply one
Mathematical			linear equations with			or more properties of
relationships			square and cube			integer exponents to
cam be			roots.			generate equivalent
represented as						numerical expressions
expressions,			Students will solve			without a calculator. (with
equations, and			one step-equation			final answers expressed in

inequalities in			with square and cube			exponential form with
mathematical			roots.			positive exponents)
situations.						promise emperiority,
						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 $x^3 = p$
						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,	What are real	Apply concepts of	Distinguish between	Lesson 1-6 Use	Product of Powers	CC.2.2.8.1.B.1 1 Apply
measures,	numbers?	Rational Numbers	Rational and	Properties of Integer		concepts of radical and
expressions,		and Irrational	Irrational Numbers	Exponents	Power of Products	integer exponents to
equations, and	How are real	Numbers	using their properties			generate equivalent
inequalities can	numbers used to			SWBA to use the	Power of Powers	expressions.
represent	solve problems?		A south conse	properties of exponents	Overtions f	N400 D E 4 4 4 4 1
mathematical			Apply one or more	to write equivalent	Quotient of	M08.B-E.1.1.1 Apply one
situations and			properties of integer	expressions.	Powers	or more properties of

structures in		exponents to		integer exponents to
many equivalent		generate equivalent	enVision 2.0	generate equivalent
forms.		numerical	pgs. 39 - 44	numerical expressions
		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.
				unother:
				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)

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Numbers,	What are real	Apply concepts of	Distinguish between	Lesson 1-7 More	Zero exponent	CC.2.2.8.1.B.1 1 Apply
measures,	numbers?	Rational Numbers	Rational and	Properties of Integer		concepts of radical and
expressions,		and Irrational	Irrational Numbers	Exponents	Negative	integer exponents to
equations, and	How are real	Numbers	using their properties		exponemet	generate equivalent
inequalities can	numbers used to			SWBA to write a number		expressions.
represent	solve problems?			with a negative or zero		
mathematical			Apply one or more	exponent a different		M08.B-E.1.1.1 Apply one
situations and			properties of integer	way.		or more properties of
structures in			exponents to			integer exponents to
many equivalent			generate equivalent	enVision 2.0		generate equivalent
forms.			numerical	pgs. 45 - 50		numerical expressions
			expressions			without a calculator. (with
			'			final answers expressed in
						exponential form with
						positive exponents)
						processor on position,
						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.
						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
						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,	What are real	Apply concepts of	Distinguish between	Lesson 1-8 Use Powers	Zero exponent	CC.2.2.8.1.B.1 1 Apply
measures,	numbers?	Rational Numbers	Rational and	of 10 to Estimate		concepts of radical and
expressions,		and Irrational	Irrational Numbers	Quantities	Negative	integer exponents to
equations, and	How are real	Numbers	using their properties		exponemet	generate equivalent
inequalities can	numbers used to			SWBA to estimate large		expressions.
represent	solve problems?			and small quantities		
mathematical			Apply one or more	using a power of 10.		M08.B-E.1.1.1 Apply one
situations and			properties of integer			or more properties of
structures in			exponents to	enVision 2.0		integer exponents to
many equivalent			generate equivalent	pgs. 51 - 56		generate equivalent
forms.			numerical			numerical expressions
			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.
						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,	What are real	Apply concepts of	Distinguish between	Lesson 1-9 Understand	Scientific Notation	CC.2.2.8.1.B.1 1 Apply
measures,	numbers?	Rational Numbers	Rational and	Scientific Notation		concepts of radical and
expressions,		and Irrational	Irrational Numbers			integer exponents to
equations, and	How are real	Numbers	using their properties	SWBA to use scientific		generate equivalent
inequalities can	numbers used to			notation to write very		expressions.
represent	solve problems		Students will use	large or very small		
mathematical			scientific notation to	quantities.		M08.B-E.1.1.1 Apply one
situations and			write large and small			or more properties of
structures in			numbers	enVision 2.0		integer exponents to
many equivalent				pgs. 57 - 62		generate equivalent
forms.						numerical expressions
			Students will			without a calculator. (with
			compute with			final answers expressed in
			numbers in Scientific			exponential form with
			Notation			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.

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						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,	What are real	Apply concepts of	Distinguish between	Lesson 1-10 Operations	Scientific Notation	CC.2.2.8.1.B.1 1 Apply
measures,	numbers?	Rational Numbers	Rational and	with Numbers in		concepts of radical and
expressions,		and Irrational	Irrational Numbers	Scientific Notation		integer exponents to
equations, and	How are real	Numbers	using their properties			generate equivalent
inequalities can	numbers used to			SWBA to perform		expressions.
represent	solve problems		Students will use	operations with numbers		·
mathematical			scientific notation to	in scientific notation.		M08.B-E.1.1.1 Apply one
situations and			write large and small			or more properties of
structures in			numbers	enVision 2.0		integer exponents to
many equivalent				pgs. 57 - 62		generate equivalent
forms.				pg3: 37 02		numerical expressions
			Students will			without a calculator. (with
			compute with			final answers expressed in
			numbers in Scientific			exponential form with
			Notation			positive exponents)
			11000001			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 Nur	mbers			
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

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mathematical			variables on each	enVision 2.0		solution, infinitely many
situations.			side.	pgs. 91-96		solutions, or no solutions.
						Show that these
			Students will solve			possibilities is the case by
			multi-step equations.			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	How can we	Expressions and	Student should be	Lesson 2-3 Solve Multi-	Distributive	CC.2.2.8.B.3 Analyze and
relationships	analyze	Equations	able to analyze,	Step Equation	property	solve linear equations and
cam be	connections	'	model and solve		,	pairs of simultaneous
represented as	between linear		linear equations.	SWBA to solve multi-step	Like Terms	linear equations.
expressions,	equations, and		'	equations and pairs of		
equations, and	use them to solve		Students will solve	equations using more		M08.B-E.3.1.1 Write and
inequalities in	problems?		equations with	than one approach.		identify linear equations in
mathematical	'		variables on each			one variable with one
situations.			side.	enVision 2.0		solution, infinitely many
				pgs. 97-102		solutions, or no solutions.
			Students will solve	100		Show that these
			multi-step equations			possibilities is the case by
			with the distributive			successfully transforming
			property on one and			the given equation into a
			both sides.			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
	l		l	l		equations that have

Mathematic	al How can we	Expressions and	Student should be	Lesson 2-4 Equations	Null set	rational coefficients, including equations whose solutions require expanding using the distributive property or collecting like terms. CC.2.2.8.B.3 Analyze and
relationship cam be represented expressions equations, a inequalities mathematic situations.	analyze connections between linear equations, and use them to solve problems?	Equations	able to analyze, model and solve linear equations. Students should be able to solve multistep equations.	with No Solutions or Infinitely May Solutions SWBA to determine the number of solutions an equation has. enVision 2.0 pgs. 103-110	Empty Set Infinitely Many	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.
Mathematic relations an		Linear Equations and Functions	Students will compare	Lesson 2-5 Compare Proportional	Coordinate plane	Preparation for:
functions ca modeled			proportional relationships	Relationships	Origin	CC.2.2.8.B.2 Understand the connections between
through multiple	equations, and use them to solve		represented by equations , tables,	SWBA to compare proportional	y-axis	proportional relationships, lines, and linear equations
representat and analyze	'		graphs., and verbal descriptions.	relationships	x-axis	

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			CC.2.2.8.C.1 Define, evaluate and compare functions. CC.2.2.8.C.2 Use concepts of functions to model
			able to graph a function using the x-			relationships between quantities.
			and y- intercepts.			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			CC.2.2.8.C.1 Define,
			able to graph and			evaluate and compare
			analyze slope			functions.
			triangles.			
						CC.2.2.8.C.2 Use concepts
			Students should be			of functions to model
			able to graph a			relationships between
			function using the x-			quantities.
			and y- intercepts.			
						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	How can we	Linear Equations and	Students should be	Lesson 2- 9 Analyze	Slope	CC.2.2.8.B.2 Understand
relations and	analyze	Functions	able to write a linear	Linear Equations:		the connections between
functions can be	connections		equation from two	y=mx +b	y-intercept	proportional relationships,
modeled	between linear		points or a graph.			lines, and linear equations
through	equations, and			SWBA to find the y-	slope-intercept	
multiple	use them to solve		Students should be	intercept and explain	form	CC.2.2.8.B.3 Analyze and
representations	problems?		able to graph linear	what it means.		solve linear equations and
and analyzed to			equations using the	\/:-: 2.0		pairs of simultaneous
raise and			slope and y-	enVision 2.0		linear equations.
answer			intercept.	pgs. 141-146		
questions.						1

			Students should be		CC.2.2.8.C.1 Define,			
			able to graph and		evaluate and compare			
			analyze slope		functions.			
			triangles.					
			o		CC.2.2.8.C.2 Use concepts			
			Students should be		of functions to model			
			able to graph a		relationships between			
			function using the x-		quantities.			
			and y- intercepts.		4-1			
			,		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.			
					coordinate plane.			
					M08.B-E.3.1.5 Solve real-			
					world and mathematical			
					problems leading to two			
					linear equations in two			
					variables.			
					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.			
	Ro	eview Unit 2 An	alyze and Solve Li	near Relationships				
Assessment Unit 2 Analyze and Solve Linear Relationships								
Unit 3 Use Functions to Model Relationships								
Office of affections to Woder Relationships								
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Unit Time	Big Ideas	Essential Questions	Concepts (Know)	Competencies (Do)	Lessons/ Suggested Resources	Vocabulary	Standards/ Eligible Content
re fu m th m re a ra a	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	How are	Linear Equations and	Students should be	Lesson 3-2 Connect	Relation	CC.2.2.8.C.1 Define,
relations and	relationships	Functions	able to Define,	Representations to		evaluate and compare
functions can be	represented		interpret and	Functions	Domain	functions.
modeled	mathematically?		compare functions			CC.2.2.8.C.2 Use concepts
through			displayed	SWBA to identify	Range	of functions to model
multiple			algebraically,	functions by their		relationships between
representations			graphically,	equations tables and	Function	quantities.
and analyzed to			numerically in tables,	graphs.		
raise and			and or verbal		Function Table	M08.B-F.1.1.1 Determine
answer			descriptions.	enVision 2.0		whether a relation is a
questions.				pgs. 165-170	Independent	function.
			Students should be		variable	
			able to Interpret the			M08.B-F.1.1.3 Interpret
			rate of change and		Dependent	the equation y = mx +b as
			initial value of a		Variable	defining a linear function
			linear function in			whose graph is a straight
			terms of the		Linear function	line; give examples of
			situation it models,			functions that are not
			and in terms of its		Continuous data	linear.
			graph or a table of			
			value.		Discrete data	M08.B-F.2.1.11 Construct
						a function to model a
			Students should be			linear relationship
			able to determine if a			between two quantities.
			relation is a functions			Determine the rate of
						change and initial value of
			Students should be			the function from a
			able to use the			description of a
			coordinate plane to			relationship or from two
			represent relations			(x , y) values, including
						reading these from a table

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			Students should be			or from a graph. Interpret
			able to find function			the rate of change and
			values and complete			initial value of a linear
			function tables			function in terms of its
						graph or a table of values.
			Students should be			
			able to represent			M08.B-F.2.1.2 Describe
			linear functions using			qualitatively the
			function tables and			functional relationship
			graphs and			between two quantities by
			determine whether a			analyzing a graph (e.g.,
			set of data is			where the function is
			continuous or			increasing or decreasing,
			discrete			linear or non-linear).
						Sketch or determine the
			Students should be			graph that exhibits the
			able to compare			qualitative features of a
			properties of			function that has been
			functions			described verbally.
			represented in			described verbally.
			different ways			
			uniferent ways			
			Students should be			
			able to sketch and			
			describe qualitative			
			graphs.			
Mathematical	How are	Linear Equations and	Students should be	Lesson 3-3 Compare	Relation	CC.2.2.8.C.1 Define,
relations and	relationships	Functions	able to Define,	Linear and Nonlinear	T.C.G.C.	evaluate and compare
functions can be	represented		interpret and	Functions	Domain	functions.
modeled	mathematically?		compare functions			CC.2.2.8.C.2 Use concepts
through	macricinatically.		displayed	SWBA to compare linear	Range	of functions to model
multiple			algebraically,	and nonlinear functions.	Tunge	relationships between
representations			graphically,	and nonlinear runctions.	Function	quantities.
and analyzed to			numerically in tables,	enVision 2.0	Tunction	quantities.
raise and			and or verbal	pgs. 171-176	Function Table	M08.B-F.1.1.1 Determine
answer			descriptions.	μες. 1/1-1/0	i unction rable	whether a relation is a
			uescriptions.		Independent	function.
questions.			Ctudents should be			Turiction.
			Students should be		variable	MOOD E 1 1 2 Internet
			able to Interpret the		Damandant	M08.B-F.1.1.3 Interpret
			rate of change and		Dependent	the equation y = mx +b as
			initial value of a		Variable	defining a linear function

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

			describe qualitative graphs.			
Mathematical	How are	Linear Equations and	Students should be	Lesson 3-4 Construct	Relation	CC.2.2.8.C.1 Define,
relations and	relationships	Functions	able to Define,	Functions to Model		evaluate and compare
functions can be	represented		interpret and	Linear Relationships	Domain	functions.
modeled	mathematically?		compare functions	'		CC.2.2.8.C.2 Use concepts
through	,		displayed	SWBA to write an	Range	of functions to model
multiple			algebraically,	equation I the form of		relationships between
representations			graphically,	y=mx + b to describe a	Function	quantities.
and analyzed to			numerically in tables,	linear function.		·
raise and			and or verbal		Function Table	M08.B-F.1.1.1 Determine
answer			descriptions.	enVision 2.0		whether a relation is a
questions.			'	pgs. 183-188	Independent	function.
1			Students should be		variable	
			able to Interpret the			M08.B-F.1.1.3 Interpret
			rate of change and		Dependent	the equation y = mx +b as
			initial value of a		Variable	defining a linear function
			linear function in			whose graph is a straight
			terms of the		Linear function	line; give examples of
			situation it models,			functions that are not
			and in terms of its		Continuous data	linear.
			graph or a table of			
			value.		Discrete data	M08.B-F.2.1.11 Construct
						a function to model a
			Students should be			linear relationship
			able to determine if a			between two quantities.
			relation is a functions			Determine the rate of
						change and initial value of
			Students should be			the function from a
			able to use the			description of a
			coordinate plane to			relationship or from two
			represent relations			(x , y) values, including
			,			reading these from a table
			Students should be			or from a graph. Interpret
			able to find function			the rate of change and
			values and complete			initial value of a linear
			function tables			function in terms of its
						graph or a table of values.
			Students should be			
			able to represent			M08.B-F.2.1.2 Describe
			linear functions using			qualitatively the

			function tables and graphs and determine whether a set of data is			functional relationship between two quantities by analyzing a graph (e.g., where the function is
			continuous or discrete			increasing or decreasing, linear or non-linear).
			Students should be able to compare properties of functions represented in different ways Students should be able to sketch and describe qualitative graphs.			Sketch or determine the graph that exhibits the qualitative features of a function that has been described verbally.
Mathematical relations and	How are relationships	Linear Equations and Functions	Students should be able to Define,	Lesson 3-5 Intervals of Increase and Decrease	Relation	CC.2.2.8.C.1 Define, evaluate and compare
functions can be	represented	, and a	interpret and		Domain	functions.
modeled through	mathematically?		compare functions displayed	SWBA to describe the behavior of a function	Range	CC.2.2.8.C.2 Use concepts of functions to model
multiple			algebraically,	and write a description	Nange	relationships between
representations and analyzed to			graphically, numerically in tables,	that goes with the graph.	Function	quantities.
raise and			and or verbal	enVision 2.0	Function Table	M08.B-F.1.1.1 Determine
answer			descriptions.	pgs. 189-194		whether a relation is a
questions.					Independent	function.
			Students should be		variable	M00 D E 4 4 2 1 1
			able to Interpret the rate of change and		Dependent	M08.B-F.1.1.3 Interpret the equation y = mx +b as
			initial value of a		Variable	defining a linear function
			linear function in		variable	whose graph is a straight
			terms of the		Linear function	line; give examples of
			situation it models,			functions that are not
			and in terms of its graph or a table of		Continuous data	linear.
			value.		Discrete data	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			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.
			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.			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	graphically,	SWBA to sketch of a	Function	relationships between
and analyzed to	numerically in tables,	function that has been		quantities.
raise and	and or verbal	described verbally.	Function Table	
answer	descriptions.			M08.B-F.1.1.1 Determine
questions.		enVision 2.0	Independent	whether a relation is a
	Students should be	pgs. 195-200	variable	function.
	able to Interpret the			
	rate of change and		Dependent	M08.B-F.1.1.3 Interpret
	initial value of a		Variable	the equation y = mx +b as
	linear function in			defining a linear function
	terms of the		Linear function	whose graph is a straight
	situation it models,			line; give examples of
	and in terms of its		Continuous data	functions that are not
	graph or a table of			linear.
	value.		Discrete data	
				M08.B-F.2.1.11 Construct
	Students should be			a function to model a
	able to determine if a			linear relationship
	relation is a functions			between two quantities.
				Determine the rate of
	Students should be			change and initial value of
	able to use the			the function from a
	coordinate plane to			description of a
	represent relations			relationship or from two
				(x , y) values, including
	Students should be			reading these from a table
	able to find function			or from a graph. Interpret
	values and complete			the rate of change and
	function tables			initial value of a linear
				function in terms of its
	Students should be			graph or a table of values.
	able to represent			
	linear functions using			M08.B-F.2.1.2 Describe
	function tables and			qualitatively the
	graphs and			functional relationship
	determine whether a			between two quantities by
	set of data is			analyzing a graph (e.g.,
	continuous or			where the function is
	discrete			increasing or decreasing,
				linear or non-linear).
	Students should be			Sketch or determine the
	able to compare			graph that exhibits the

	properties of		qualitative features of a
	functions		function that has been
	represented in		described verbally.
	different ways		
	Students should be		
	able to sketch and		
	describe qualitative		
	graphs.		

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	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

1	T	T	1		T	
			between two sets of			association, and non-
			data.			linear association.
			Students should be			M08.D-S.1.1.2 For scatter
			able to construct and			plots that suggest a linear
			make conjectures			association, identify a line
			about scatter plots.			of best fit by judging the
						closeness of the data
			Students should be			points to the line.
			able to draw lines of			
			best fit and use them			M08.D-S. 1.1.3 Use the
			to make predictions			equation of a linear model
			about data.			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.)
						iii iiiatare piane neigna,
Mathematical	How are	Data and	Construct, analyze,	Lesson 4-5 Interpret Two	Categorical Data	CC.2.4.8.B.1 Analyze
relations and	relationships	Distributions	and interpret	Way Relative Frequency	Categorical Data	and/or interpret bivariate
functions can be	represented	Distributions	bivariate data	Tables	Relative Frequency	data displayed in multiple
modeled	mathematically?		displayed in scatter	Tubles	Tables	representations.
through	matricinatically:		plots	SWBA to find the relative	Tables	representations.
multiple			piots	frequencies of two way		M08.D-S.1.1.1 Construct
representations			Identify and use	tables and interpret		and interpret scatter plots
and analyzed to			linear models to	what they mean.		for bivariate
raise and			describe bivariate	what they mean.		measurement data to
answer			measurement data.	enVision 2.0		
			measurement data.			investigate patterns of association between two
questions.			Students should be	pgs. 237-242		
						quantities. Describe
			able to use a scatter			patterns such as
			plot to investigate			clustering, outliers,
			the relationship			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										
Estimated	Unit 5 Analyze and Solve Systems of Linear Equations Estimated Big Ideas Essential Concepts Competencies Lessons/ Suggested Vocabulary Standards/ Eligible										
Unit Time Frames	DIS INCOS	Questions	(Know)	(Do)	Resources	v ocabalai y	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.)
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.)
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	Big Ideas	Essential	Concepts	Competencies	Lessons/ Suggested	Vocabulary	Standards/ Eligible
Unit Time		Questions	(Know)	(Do)	Resources		Content
Frames							
	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

	T	1		T	I		
				Students should be			rotations, reflections and
				able to graph			translations)
				reflections on the			
				coordinate plane			M08.C-G.1.1.3 Describe
							the effect of dilation,
				Students should be			translations, rotations,
				able to graph			and reflections on two-
				rotations on a			dimensional figures.
				coordinate plane			
				·			M08.C-G.1.1.4 Given two
				Students should be			similar two-dimensional
				able to use scale			figures, describe a
				factor to graph			sequence of
				dilations			transformations that
							exhibit the similarity
				Students should be			between them.
				able to use			
				transformations to			
				create similar figures			
	Geometric	How can the	Congruence and	Use various tools to	6-2 Analyze Reflections	Reflection	CC.2.3.8.A.2 Understand
	relationships	application of the	Similarity	understand and	0-2 Allalyze Reliections	Nenection	and apply congruence,
	can be	attributes of	Jiiiiiai ity		SWBA to reflect two-	Line of Reflection	
	described,			apply geometric transformations to		Line of Kerlection	similarity, and geometric transformations using
	,	geometric shapes			dimensional figures.		_
	analyzed, and	support		geometric figures.			various tools.
	classified based	mathematical		Charles de 111	enVision 2.0		1400 6 6 4 4 4 4 4
	on special	reasoning and		Students should be	pgs. 297-308		M08.C-G-1.1.1 Apply
	reasoning	problem solving?		able to graph			properties of rotations,
	and/or			translations on the			reflections, and
	visualization.			coordinate plane			translations. (Ex. Angle
							measures are preserved in
				Students should be			rotations, reflections and
				able to graph			translations)
				reflections on the			
				coordinate plane			M08.C-G.1.1.3 Describe
							the effect of dilation,
				Students should be			translations, rotations,
				able to graph			and reflections on two-
				rotations on a			dimensional figures.
				coordinate plane			
							M08.C-G.1.1.4 Given two
				Students should be			similar two-dimensional
1	I	1		able to use scale	I	I	figures, describe a

				factor to graph dilations Students should be able to use transformations to			sequence of transformations that exhibit the similarity between them.
				create similar figures			
rela can des ana clas on rea and	lationships n be scribed, alyzed, and issified based special	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 graph rotations on a coordinate plane Students should be able to use scale factor to graph dilations	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.
				able to use			
				transformations to create similar figures.			
rela can des	lationships n be scribed,	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.

alassified based	mathamatical			CMPA to describe and		
classified based	mathematical		Ctudonto ob acidal ba	SWBA to describe and		M09.C.C.1.1.1.A
on special	reasoning and		Students should be	perform a sequence of		M08.C-G-1.1.1 Apply
reasoning	problem solving?		able to graph	transformations.		properties of rotations,
and/or			translations on the	an) finite at 2.0		reflections, and
visualization.			coordinate plane	enVision 2.0		translations. (Ex. Angle
				pgs. 315-320		measures are preserved in
			Students should be			rotations, reflections and
			able to graph			translations)
			reflections on the			
			coordinate plane			M08.C-G.1.1.3 Describe
						the effect of dilation,
			Students should be			translations, rotations,
			able to graph			and reflections on two-
			rotations on a			dimensional figures.
			coordinate plane			
						M08.C-G.1.1.4 Given two
			Students should be			similar two-dimensional
			able to use scale			figures, describe a
			factor to graph			sequence of
			dilations			transformations that
						exhibit the similarity
			Students should be			between them.
			able to use			
			transformations to			
			create similar figures.			
Geometric	How can the	Congruence and	Use transformations	6-5 Understand	Congruent	CC.2.3.8.A.2 Understand
relationships	application of the	Similarity	to demonstrate	Congruent Figures	-	and apply congruence,
can be	attributes of	·	congruence and			similarity, and geometric
described,	geometric shapes		similarity of	SWBA to use a sequence		transformations using
analyzed, and	support		geometric figures.	of translations,		various tools.
classified based	mathematical			reflections, and rotations		
on special	reasoning and		Students should be	to show that figures are		M08.C-G.1.1.1 Apply
reasoning	problem solving?		able to use a series	congruent.		properties of rotations,
and/or			of transformations to	0		reflections, and
visualization.			create congruent	enVision 2.0		translations. (Ex. Angle
			figures	pgs. 325-330		measures are preserved in
				F-0-: 3-0 000		rotations, reflections and
			Students should be			translations)
			able to write			
			congruence			M08.C-G.1.1.2 Given two
			statements for			congruent figures,
			congruent figures.			describe a sequence of
			congruent ngures.			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			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	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 respectively.	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.

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

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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	Students should be able to use a sequence of rotations, reflections, translations, and dilations to map one figure on to another to determine 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	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)
			able to write congruence statements for congruent figures.			M08.C-G.1.1.2 Given two congruent figures, describe a sequence of
			Students should be able to identify			transformations that exhibit the congruence between them.
			similar polygons and find missing measures of similar polygons			M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a
			Students should be able to identify angle relationships when parallel lines are cut by a transversal.			sequence of transformations that exhibit the similarity between them.

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				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	How can the	Congruence and	Use transformations	6-9 Interior and Exterior	Remote interior	CC.2.3.8.A.2 Understand
	relationships	application of the	Similarity	to demonstrate	Angles of a Triangle	angles	and apply congruence,
	can be	attributes of		congruence and			similarity, and geometric
	described,	geometric shapes		similarity of	SWBA to find the interior	Exterior angles of a	transformations using
	analyzed, and	support		geometric figures.	and exterior angle	triangle	various tools.
	classified based	mathematical		_	measures of a triangle.	-	
	on special	reasoning and		Students should be	_		M08.C-G.1.1.1 Apply
	reasoning	problem solving?		able to use a series	enVision 2.0		properties of rotations,
	and/or			of transformations to	pgs. 353-358		reflections, and
	visualization.			create congruent			translations. (Ex. Angle
				figures			measures are preserved in
							rotations, reflections and
				Students should be			translations)
				able to write			
				congruence			M08.C-G.1.1.2 Given two
				statements for			congruent figures,
				congruent figures.			describe a sequence of
							transformations that
				Students should be			exhibit the congruence
				able to identify			between them.
				similar polygons and			
				find missing			M08.C-G.1.1.4 Given two
				measures of similar			similar two-dimensional
				polygons			figures, describe a
				110			sequence of
				Students should be			transformations that
				able to identify angle			exhibit the similarity
				relationships when			between them.
				parallel lines are cut			
				by a transversal.			
				by a cransversar.			
				Students should be			
				able to use a			
1		l	1	able to use a	1	1	

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			sequence of			
			rotations, reflections,			
			translations, and			
			dilations to map one			
			figure on to another			
			to determine			
			similarity.			
Geometric	How can the	Congruence and	Use transformations	6-10 Angle-Angle	Angle-Angle	CC.2.3.8.A.2 Understand
relationships	application of the	Similarity	to demonstrate	Triangle Similarity	Criterion	and apply congruence,
can be	attributes of		congruence and			similarity, and geometric
described,	geometric shapes		similarity of	SWBA to use the angle		transformations using
analyzed, and	support		geometric figures.	measures to determine		various tools.
classified based	mathematical			whether two triangles		
on special	reasoning and		Students should be	are similar.		M08.C-G.1.1.1 Apply
reasoning	problem solving?		able to use a series			properties of rotations,
and/or			of transformations to	enVision 2.0		reflections, and
visualization.			create congruent	pgs. 359-364		translations. (Ex. Angle
			figures			measures are preserved in
						rotations, reflections and
			Students should be			translations)
			able to write			
			congruence			M08.C-G.1.1.2 Given two
			statements for			congruent figures,
			congruent figures.			describe a sequence of
						transformations that
			Students should be			exhibit the congruence
			able to identify			between them.
			similar polygons and			
			find missing			M08.C-G.1.1.4 Given two
			measures of similar			similar two-dimensional
			polygons			figures, describe a
			1. 10-11			sequence of
			Students should be			transformations that
			able to identify angle			exhibit the similarity
			relationships when			between them.
			parallel lines are cut			
			by a transversal.			
			.,			
			Students should be			
			able to use a			
			sequence of			
			rotations, reflections,			
	1		rotations, reflections,			

		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 Big Ideas Unit Time Frames	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.

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				Students should be			M08.C-G.2.1.1 Apply the
				able to find the			Pythagorean Theorem to
				distance between			determine unknown side
				two points on the			lengths in right triangles in
				coordinate plane			real world and
							mathematical problems
				Students should be			(Figures provided for
				able to relate slope			problems in three
				of a line to similar			dimensions will be
				triangles.			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.
							eooramate 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	How can the	Pythagorean	Apply the	7-2 Understand the	Converse of the	CC.2.3.8.A.3 Understand
	relationships	application of the	Theorem	Pythagorean	Converse of the	Pythagorean	and apply the
	can be	attributes of		Theorem and its	Pythagorean Theorem	Theorem	Pythagorean Theorem to
	described,	geometric shapes		converse to solve	,		solve problems.
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analyzed, and	support	mathematical	SWBA to use the	
classified based	mathematical	problems in two and	converse of the	CC.2.2.8.B.1 Apply
on special	reasoning and	three dimensions.	Pythagorean Theorem to	concepts of radicals and
reasoning	problem solving?		identify right triangles	integer exponents to
and/or		Students should be		generate equivalent
visualization.		able to use the	enVision 2.0	expressions.
		Pythagorean	pgs. 387-394	
		Theorem and its		CC.2.2.8.B.2 Understand
		converse		the connections between
				proportional relationships,
		Students should be		lines, and linear
		able to solve		equations.
		problems using the		4
		Pythagorean		M08.C-G.2.1.1 Apply the
		Theorem and its		Pythagorean Theorem to
		converse.		show a triangle is a right
				triangle.
		Students should be		triungre.
		able to find the		M08.C-G.2.1.1 Apply the
		distance between		Pythagorean Theorem to
		two points on the		determine unknown side
		coordinate plane		lengths in right triangles in
		coordinate plane		real world and
		Students should be		mathematical problems
		able to relate slope		(Figures provided for
		of a line to similar		problems in three
				dimensions will be
		triangles.		
				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 $x^3 =$

	T			1	T	,
						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	How can the	Pythagorean	Apply the	7-3 Apply the		CC.2.3.8.A.3 Understand
relationships	application of the	Theorem	Pythagorean	Pythagorean Theorem to		and apply the
can be	attributes of		Theorem and its	Solve Problems.		Pythagorean Theorem to
described,	geometric shapes		converse to solve			solve problems.
analyzed, and	support		mathematical	SWBA to use the		
classified based	mathematical		problems in two and	Pythagorean Theorem to		CC.2.2.8.B.1 Apply
on special	reasoning and		three dimensions.	solve problems.		concepts of radicals and
reasoning	problem solving?			·		integer exponents to
and/or	,		Students should be	enVision 2.0		generate equivalent
visualization.			able to use the	pgs. 395-400		expressions.
			Pythagorean			•
			Theorem and its			CC.2.2.8.B.2 Understand
			converse			the connections between
						proportional relationships,
			Students should be			lines, and linear
			able to solve			equations.
			problems using the			•
			Pythagorean			M08.C-G.2.1.1 Apply the
			Theorem and its			Pythagorean Theorem to
			converse.			show a triangle is a right
						triangle.
			Students should be			
			able to find the			M08.C-G.2.1.1 Apply the
			distance between			Pythagorean Theorem to
			two points on the			determine unknown side
			coordinate plane			lengths in right triangles in
						real world and
						mathematical problems

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			Students should be		(Figures provided for
			able to relate slope		problems in three
			of a line to similar		dimensions will be
			triangles.		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.
					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 $x^3 = p$
					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	How can the	Pythagorean	Apply the	7-4 Find Distance on the	CC.2.3.8.A.3 Understand
relationships	application of the	Theorem	Pythagorean	coordinate plane.	and apply the
can be	attributes of	1116016111	Theorem and its	coordinate plane.	
				CM/DA to use the	Pythagorean Theorem to
described,	geometric shapes		converse to solve	SWBA to use the	solve problems.
analyzed, and	support		mathematical	Pythagorean Theorem to	000000000
classified based	mathematical		problems in two and	find the distance	CC.2.2.8.B.1 Apply
on special	reasoning and		three dimensions.	between two points in	concepts of radicals and
reasoning	problem solving?			the coordinate plane.	integer exponents to
and/or			Students should be		generate equivalent
visualization.			able to use the	enVision 2.0	expressions.

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	Pythagorean	pgs. 401-406	
	Theorem and its		CC.2.2.8.B.2 Understand
	converse		the connections between
			proportional relationships,
	Students should be		lines, and linear
	able to solve		equations.
	problems using the		
	Pythagorean		M08.C-G.2.1.1 Apply the
	Theorem and its		Pythagorean Theorem to
	converse.		show a triangle is a right
			triangle.
	Students should be		
	able to find the		M08.C-G.2.1.1 Apply the
	distance between		Pythagorean Theorem to
	two points on the		determine unknown side
	coordinate plane		lengths in right triangles in
			real world and
	Students should be		mathematical problems
	able to relate slope		(Figures provided for
	of a line to similar		problems in three
	triangles.		dimensions will be
			consistent with eligible
			content in grade 8 and
			below.)
			50.011.7
			M08.C-G.2.1.3 Apply the
			Pythagorean Theorem to
			find the distance between
			two points on a
			coordinate system.
			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 $x^3 = p$
			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 cones.	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	How can the application of the	Cylinders, Cones and Spheres	Apply concepts of volume of cylinders,	8-3 Find volumes of Cones.	Volume	CC.2.3.8.A.1 Apply the concepts of volume of
can be	attributes of	Sprieres	cones and spheres to	Cories.	Cones	cylinders, cones and
described.	geometric shapes		solve real world and	SWBA to find the volume	Colles	spheres to solve real-
analyzed, and	support		mathematical	of a cylinder.		world and mathematical
classified based	mathematical		problems.	or a cylinder.		problems.
on special	reasoning and		problems.	enVision 2.0		problems.
reasoning	problem solving?		Students should be	pgs. 429-436		M08.C-G.3.1.1 Apply
and/or	problem solving:		able to find the	pgs. 429-430		formulas for the volumes
visualization.			volumes of cylinders.			of cones, cylinders, and
Visualization.			volumes of cylinders.			spheres to solve real-
			Students should be			world and mathematical
			able to find the			problems. Formulas will
			volumes of cones.			be provided.
			volumes of cones.			be provided.
			Students should be			
			able to find the			
			volumes of spheres.			
Geometric	How can the	Cylinders, Cones and	Apply concepts of	8-4 Find Volumes of	Volume	CC.2.3.8.A.1 Apply the
relationships	application of the	Spheres	volume of cylinders,	Spheres.		concepts of volume of
can be	attributes of		cones and spheres to		Sphere	cylinders, cones and
described,	geometric shapes		solve real world and	SWBA to find the volume	'	spheres to solve real-
analyzed, and	support		mathematical	of a spheres.		world and mathematical
classified based	mathematical		problems.			problems.
on special	reasoning and		'	enVision 2.0		•
reasoning	problem solving?		Students should be	pgs. 437-442		M08.C-G.3.1.1 Apply
and/or	process comme		able to find the	pgs. ser se		formulas for the volumes
visualization.			volumes of cylinders.			of cones, cylinders, and
						spheres to solve real-
			Students should be			world and mathematical
			able to find the			problems. Formulas will
			volumes of cones.			be provided.
						•
			Students should be			
			able to find the			
1	i	1	volumes of spheres.	Ī	1	

Review Unit 8 Solving Problems Involving Volume

Assessment Unit 8 Solving Problems Involving Volume