EIGHTH GRADE MATHEMATICS CURRICULUM

Course 17001

Seventh grade students will deepen their understanding of the use of ratios in problem solving as well as multiply and divide fractions. They will continue to extend their fluency or mathematical operations with multi-digit numbers. The course will cover the relationships between dependent and independent variables. Students will extend their previous understanding to algebraic expressions and the process of solving one-variable equations. They will solve problems of area, surface, and volume. Coordinate graphing in all 4 quadrants will be used to solve problems. Students will also learn about statistical variability and be able to summarize a distribution of data.

EIGHTH GRADE MATHEMATICS OUTLINE:

Goals	Skills	Summative Assessments	Time Frame	Main Resources
 Analyze proportional relationships and use them to model and solve real- world and mathematical problems. Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations. Visualize and represent geometric figures and describe the relationships between them. Draw inferences about populations based on random sampling concepts. Draw informal comparative inferences about two populations. Investigate chance processes and develop, use, and evaluate probability models. 	 Apply and extend previous understandings of operations with fractions to operations with rational numbers. Apply properties of operations to generate equivalent expressions. Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume. 	Mid-year and End of Year Benchmark Assessments, PSSA	1-year	Glencoe Math: Course 2 ©2015

EIGHTH GRADE MATHEMATICS MAP:

TIME	BIG IDEAS	CONCEPTS	ESSENTIAL	STANDARDS	OBJECTIVES	DIFFERENTIATION	ASSESSMENT
FRAME			QUESTIONS				
FRAME Chapter 1 (Weeks 1- 4)	Real Numbers	 Write fractions as decimals and decimals as fractions. Write and evaluate expressions involving powers and exponents. Simplify a real number expressions by multiplying and dividing monomials. Use the Laws of Exponents to find powers of monomials. Simplify expressions involving negative exponents. Use scientific notation to write large and small numbers. Compute with numbers written in scientific notation. Find square roots and cube roots. Estimate square and cube roots. Compare mathematical expressions. 	• Why is it helpful to write numbers in different ways?	A1.1.1.1 Compare and/or order any real numbers (rational and irrational may be mixed). A1.1.1.1.2 Simplify square roots (e.g., $\sqrt{24} = 2\sqrt{6}$). 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.1.1.2a Convert a fraction to a decimal up to the hundredths place. M08.A-N.1.1.3	Lesson 1 Rational numbers are numbers that can be written as fractions. These include numbers such as the following: 0, -8, 3, $-4\frac{1}{3}, \frac{5}{6}, -3.$ 2.6, -3.175, 45% Both terminating and repeating decimals can be written as fractions, but non-terminating, non-repeating numbers such as $\pi \sqrt{2}$ and cannot be written as fractions. So, these number are not rational. The rules and properties for adding, subtracting, multiplying, and dividing rational numbers are the same as those for integers and fractions. Lessons 2 through 4 A product of repeated factors can be expressed as a power, using an exponent and a base. $3 \times 3 \times 3 \times 3 = 3^4$	Additional time Additional practice Partner/group work	Homework Classwork and Activities Quizzes Mid-Chapter Check Vocabulary Test Test
				Estimate the value of	2000		

		irrational numbers	 From this definition 		
		without a calculator			
			comes the Laws of		
		(limit whole number	Exponents, which		
		radicand to less than	include:		
		144). Example: √5 is	 Product of Powers: 		
		between 2 and 3 but	To multiply powers		
		closer to 2.	with the same base.		
		M08.A-N.1.1.4	add their		
		Lise rational	ovpopopts		
		approximations of	r^{2} r^{4} r^{2+4} r^{6}		
		approximations of	• $5 \cdot 5 = 5 = 5$		
			Quotient of Powers:		
		compare and order	To divide powers		
		irrational numbers.	with the same base,		
			subtract their		
		M08.A-N.1.1.5	exponents.		
		Locate/identify	26		
		rational and irrational	3 ⁻ 6-42		
		numbers at their	$\frac{-4}{-4} = 3 = 3$		
		approximate locations	3.		
		on a number line	•		
		on a number line.	 Power of a Power: 		
			To find the power of		
		M08.A-N.1.1.5a	a power, multiply		
		Locate a non-	the exponents.		
		terminating decimal at	• $(\Lambda^2)^3 - \Lambda^{2 \cdot 3} - \Lambda^6$		
		its approximate	(-, -) =		
		location on the	• Fower of a Froduct.		
		number line.	To find the power of		
			a product, find the		
			power of each		
			factor and multiply.		
			• $(2 \cdot 4)^5 = 2^5 \cdot 4^5$		
			Lessons 5 through 7		
			By definition.		
			number to the zero		
			• $3 = 1 24 = 1$		
			$100^{\circ} = 1$ $1^{\circ} = 1$		
			 any nonzero 		
			number to a		
			negative <i>n</i> power is		
			the multiplicative		
			inverse of its nth		
			power.		
			. 1	1	
			3-5_1	Ľ	
			<u> </u>	-	
			5 4		
			 It is often helpful to 		
			express very large		
			numbers such as		

		5,000,000,000 and	
		very small numbers	
		such as 0.000034 in	
		scientific notation,	
		where a number is	
		written as the	
		product of a number	
		(greater than or	
		equal to 1 and less	
		than 10) and a	
		power of 10.	
		• $2.1 \times 10^4 = 21,000$	
		$2.1 \times 10^{-4} =$	
		0.00021	
		 When the exponent 	
		of the power of 10	
		is positive, the	
		number is greater	
		than 1. When the	
		exponent of the	
		power of 10 is	
		negative, the	
		number is between	
		0 and 1.	
		Lessons 8 through	
		10	
		Squaring a number	
		and finding a square	
		root are inverse	
		operations.	
		 Every positive 	
		number has two	
		square roots, one	
		positive and one	
		negative. The	
		positive square root	
		is called the	
		principal square	
		root.	
		 The square root of 	
		a perfect square is	
		an integer.	
		$\sqrt{16} = 4$	
		V 10 4	
		because	
		$4 \times 4 = 16$	
		 The square root of 	
		a non-perfect	
		square is not an	
		integer, but it can	
		be estimated. To	
		estimate a square	

					root of a non-		
					perfect square, find		
					two perfect squares		
					between which the		
					non-perfect square		
					lies. For		
					$\sqrt{11}$		
					example,		
					must be between 3		
					. / 1.1		
					VII		
					and 4 since		
					V9		
					VS		
					lies between		
					√16		
					(3) and (4)		
					(3) and (4).		
					Cubing a number		
					and inding a cube		
					root are inverse		
					operations.		
					 I o find a cube root, 		
					find the number that		
					is used as a factor		
					three times.		
					$\sqrt[3]{125} = 5$		
					V125 5		
					because $5 \times 5 \times 5 =$		
					125		
					 To estimate a cube 		
					root to the nearest		
					whole number, find		
					two perfect cubes		
					between which the		
					non-perfect cube		
					root lies. For		
					3/20		
					V 50		
					example, is		
					between 3 and 4.		
					Since 3 × 3 × 3 = 27		
					and $4 \times 4 \times 4 = 64$.		
					and 27 is closer to		
					3/20		
					V 50		
					30 than 64,		
					is closer to 3 than it		
					is to 4.		
Chapter 2	 Equations in One 	1. Solve equations	What is	A1.1.1.3.1	Lesson 1-3	Additional time	Homework
(Weeks 5-	Variable	with rational	equivalence?	Simplify/evaluate	The numerical		

8)	coefficients		factor of a term that	Additional practice	Classwork and
0)	2 Solve two-step	properties/laws of	contains a variable	Additional practice	Activities
			is colled the	Bortpor/group work	Activities
	equations.	exponents, tools	is called the	Farmer/group work	0
	3. Write two-step	and/or absolute value			Quizzes
	equations that	to solve problems	variable. when the		
	represent	(exponents should be	coefficient is a		Mid-Chapter
	situations.	integers from -10 to	fraction, multiply		Check
	4. Solve equations	10).	each side by the		
	with variables on		multiplicative		Vocabulary
	each side.	CC.2.2.8.B.1	inverse of the		Test
	5. Solve multi-step	Apply concepts of	fraction.		
	equations.	radicals and integer	 A two-step equation 		Test
		exponents to	is an equation that		
		generate equivalent	contains two		
		expressions.	operations. To		
			solve two-step		
		M08.B-E.1.1.1	equations, use		
		Apply one or more	inverse operations		
		properties of integer	to undo each		
		exponents to	operation in reverse		
		generate equivalent	order of the order of		
		numerical	operations.		
		expressions without a	Lessons 4-5		
		calculator (with final	 Solving equations 		
		answers expressed in	sometimes requires		
		exponential form with	several steps		
		positive exponents).			
		Properties will be			
		provided Example:			
		$3^{12} \times 3^{-15} = 3^{-3} =$	•		
		17(0-0)			
		M08 B-F 1 1 2			
		Lise square root and			
		cube root symbols to			
		cube root symbols to			
		aquations of the form			
		v^{2} = p and v^{2} = p			
		x' = p and $x' = p$,			
		rational number			
		Evaluate Square 1001S			
		to and including 12/2)			
		to and including 12/2)			
		and cube roots of			
		periect cubes (up to			
		and including 5/3)			
		Example: If $x^2 = 25$			
		then $x = \pm \sqrt{25}$.			
		MU8.B-E.1.1.2a			
		Identify the meaning			

			of an avpanant		
			(limited to exponents		
			of 2 and 3).		
			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		
			or a single digit times		
			an integer power of		
			10 and express how		
			many times larger or		
			smaller one number is		
			than another.		
			Example: Estimate		
			the population of the		
			United States as 3 v		
			TUNB and the		
			population of the		
			world as 7×10^{9} and		
			determine that the		
			world population is		
			more than 20 times		
			larger than the United		
			States' nonulation		
			otates population.		
			···· · · ·		
			M08.B-E.1.1.4		
			Perform operations		
			with numbers		
			expressed in exientifie		
			expressed in scientific		
			notation, including		
			problems where both		
			decimal and scientific		
			notation are used		
			scientific notation and		
			choose units of		
			appropriate size for		
			monouromente of very		
			large or very small		
			quantities (e.g., use		
			millimeters per vear		
			for seafloor		
			spreading). Interpret		
			scientific notation that		
			has been generated		
			by technology (e.g.		
			interpret 4 7000		
			interpret 4.7EE9		
			displayed on a		
			calculator as $4.7 \times$		
			10/9)		
1			10 0).		

Chapter 3	 Equations in Two 	1. Identify	Why are graphs	A1.1.2.1.1	Lessons 1 through 3	Additional time	Homework
(Weeks 9-	Variables	proportional and	helpful?	Write, solve and/or	 A linear relationship 		
12)		nonproportional		apply a linear	has a constant rate	Additional practice	Classwork and
		linear relationships		equation (including	of change. In the		Activities
		by finding a		problem situations).	situation below, the	Partner/group work	
		constant rate of			constant rate of		Quizzes
		change.		A1.1.2.1.2	change is 4.		
		2. Use tables and		Use and/or identify an	 packages 1 		Mid-Chapter
		graphs to find to		algebraic property to	2 3		Check
		slope of a line.		Justify any step in an	4		Veeebuler
		3. Use direct variation		equation solving	• pens 4 8		Vocabulary
		4 Croph linear		process (linear	12 16		Test
		4. Graph linear		equations only).	In a proportional		Test
		the slope and v-		A11213	linear relationship		1631
		intercent		Interpret solutions to	between the		
		5. Graph an equation		problems in the	quantities a and b.		
		using the x- and y-		context of the problem	ine ratio is constant		
		intercepts.		situation (linear	draph passes		
		6. Write an equation		equations only).	through the origin		
		of a line.			The slope of a line		
		Solve systems of		A1.1.2.2.1	is the ratio of the		
		linear equations by		Write and/or solve a	vertical change		
		graphing.		system of linear	(rise) between any		
		8. Solve systems of		equations (including	two points on a line		
		equations		problem situations)	and the horizontal		
		algebraically.		using graphing,	change (run)		
				substitution and/or	between the same		
				elimination (limit	two points. The		
				systems to 2 linear	slope formula can		
				equations).	be used to find the		
				A1 1 2 2 2	slope of the line		
				Interpret solutions to	between any two		
				problems in the	points on the line.		
				context of the problem	For example, the		
				situation (systems of	slope of the line		
				2 linear equations	-1 and $(2, 2)$ is		
				only).			
				A1.2.1.2.1	• A lineal equation that describes a		
				Create, interpret	constant rate of		
				and/or use the	change is called		
				equation, graph or	direct variation. In a		
				table of a linear	direct variation		
				function.	relationship, the		
					ratio of is a		
				A1.2.1.2.2	constant k. The		
				I ranslate from one	variable y is said to		
				representation of a	vary directly with x.		
				another (green toble	This relationship		
				another (graph, table	can be represented		
	L			anu equation).	1	1	1

			as $= k \text{ or } y = kx$	
		CC 2 2 8 B 2	Lessons 4 through 6	
		Up do roto o d th o		
		Understand the	 The slope-intercept 	
		connections between	form of a linear	
		proportional	equation is $y = mx +$	
		relationships, lines.	b where m is the	
		and linear equations	slope and h is the v-	
		and inteal equations.	slope and bis the y-	
		0000000	intercept.	
		CC.2.2.8.B.3	• y = 5x − 8; m = 5	
		Analyze and solve	and b = −8	
		linear equations and	 To graph the 	
		pairs of simultaneous	equation $y = 5x - 8$	
		linear equations	using the clone and	
		inteal equations.	using the slope and	
			y-intercept:	
		WU0.D-E.2.1.1	 Step 1 Graph the 	
		Graph proportional	y-intercept.	
		relationships,	 Step 2 From -8 	
		interpreting the unit	on the v-axis	
		rate as the slope of	movo un E unito	
		the graph Compare		
		two different	and to the right 1	
		nreportional	unit for the slope	
		proportional	Place a point.	
		relationships	 Step 3 Draw a 	
		represented in	line passing	
		different ways.	through both	
		Example: Compare a	n einte	
		distance-time graph to	points.	
		a distance-time	 To graph functions 	
		a distance-time	using the x- and y-	
		equation to determine	intercepts:	
		which of two moving	 Step 1 Find the x- 	
		objects has greater	intercent by	
		speed.	replacing v with 0	
		M08 B-F 2 1 1a	and solving for x.	
		Compare two	• x - 5y =	
			10	
		proportional	• $x - 5(0) =$	
		relationships shown in	10	
		graph form.	• v - 10	
		M08.B-E.2.1.2	 Step 2 Find the 	
		Use similar right	y-intercept by	
		triangles to show and	replacing x with 0	
		explain why the slope	and solving for y.	
		m is the same	•	
		hetwoon ony two	• x - 5v -	
		between any two	• x 5y =	
		distinct points on a		
		non-vertical line in the	• 0 - 5y =	
		coordinate plane.	10	
			• -5y = 10	
		M08.B-E.2.1.3	• V = -2	
		Derive the equation v	• The x-intercent is	
		- my for a line		
		= mx for a line	10. The y-	

		through the origin and	intercept is -2.	
		the equation $v = mx + t$	Step 3 Locate	
		h for a line	the points $(10, 0)$	
		intercepting the	and $(0, -2)$ on a	
		vortical axia at h		
			coordinate plane.	
		M08.B-E.2.1.3a	Draw a line	
		Identify the slope and	passing through	
		y-intercept of a line on	both points.	
		a graph.	Lessons 7 and 8	
		-	 A system of 	
		M08.B-E.3.1.1	equations is a	
		Write and identify	collection of two or	
		linear equations in	more equations with	
		one variable with one	the same verichles	
		solution infinitoly	the same variables.	
		solution, minitely	A system of	
		many solutions, of no	equations can have	
		solutions. Show which	one of the following.	
		or these possibilities	 one solution: lines 	
		is the case by	intersect	
		successively	 no solution: parallel 	
		transforming the given	lines	
		equation into simpler	 infinitely many 	
		forms until an	colutions: como lino	
		equivalent equation of	Solutions. Same line	
		the form $x = a$ $a = a$	• A system of	
		or $a - b$ results	equations can also	
		(where a and b are	be solved	
		different numbere)	algebraically. For	
		ullelent numbers).	example, to solve	
			 y = 4x + 6 and y = 	
		М08.В-Е.3.1.1а	2x:	
		Select an algebraic	• v = 4x	
		equation using	+ 6 Write the first	
		addition or subtraction	equation	
		to solve a 2-step real-		
		world problem with	• $2x = 4x$	
		one variable.	+ 6 Replace y	
		M08.B-E.3.1.2	equation.	
		Solve linear equations	• $2x - 4x =$	
		that have rational	4x - 4x + 6	
		number coefficients	Subtract 4x	
		including equations	from each side.	
		whose solutions	• $-2x = 6$	
		roquiro ovponding	Divide each	
			side by −2.	
		expressions using the	• x = -3	
		distributive property	Simplify	
		and collecting like		
		terms.	-2(-2) - 6	
			-2(-3) = -6 Use	
		M08.B-E.3.1.2a	the value of -3 to	
		Solve a 2-step real-	tina y.	
		world problem using	 The solution to the 	

		an algebraic equation	system is $(-3, -6)$	
		involving addition or	System 13 (0, 0).	
		subtraction and one		
		variable		
		vallable.		
		M08.B-E.3.1.3		
		Interpret solutions to a		
		system of two linear		
		equations in two		
		variables as points of		
		intersection of their		
		graphs because		
		points of intersection		
		satisfy both equations		
		simultaneously.		
		M08.B-E.3.1.4		
		Solve systems of two		
		linear equations in		
		two variables		
		algebraically and		
		estimate solutions by		
		graphing the		
		equations. Solve		
		simple cases by		
		inspection. Example:		
		3x + 2y = 5 and $3x + 3x + 3x + 3x + 3x + 3x + 3x + 3x$		
		2y = 6 have no		
		solution because 3x +		
		2y cannot		
		simultaneously be 5		
		and 6.		
		M08.B-E.3.1.5		
		Solve real-world and		
		mathematical		
		problems leading to		
		two linear equations		
		in two variables		
		Example: Given		
		coordinates for two		
		pairs of points		
		determine whether		
		determine whether		
		the line through the		
		first pair of points		
		intersects the line		
		through the second		
		pair.		
		M08.B-E.3.1.5a		
		Graph a linear		
	 	equation.		

Chapter 4	Functions	1. Translate tables	How can we model	A1.1.2.1.1	Lessons 1 and 2	Additional time	Homework
(Week 13-		and graphs into	relationships	Write, solve and/or	A relation is a set of		
16)		linear equations.	between quantities?	apply a linear	ordered pairs that	Additional practice	Classwork and
		2. Represent		equation (including	can be represented		Activities
		relations using		problem situations).	as a table or a	Partner/group work	
		tables and graphs.			graph. For example,		Quizzes
		3. Find function		A1.1.2.1.2	the relation $\{(-2, 3),$		
		values and		Use and/or identify an	(1, 3), (4, 2)} can be		Mid-Chapter
		complete function		algebraic property to	shown by graphing		Check
		tables.		Justify any step in an	each ordered pair		Manahadama
		4. Represent linear		equation solving	on a coordinate		Vocabulary
		tables and graphs		process (linear	plane.		rest
		5 Compare		equations only).	If a table or graph		Test
		oroperties of		A11213	snows a pattern, it		1631
		functions		Interpret solutions to	is sometimes		
		represented in		problems in the	possible to		
		different ways		context of the problem	situation with an		
		6. Find and interpret		situation (linear	algebraic		
		the rate of change		equations only).	expression or		
		and initial value of			equation. The table		
		a function.		A1.2.1.1.1	below shows the		
		7. Determine whether		Analyze a set of data	number of pints per		
		a function is linear		for the existence of a	quart.		
		or nonlinear.		pattern and represent	Lessons 3 through 6		
		8. Graph quadratic		the pattern	 A function is a 		
		functions.		algebraically and/or	special type of		
		9. Sketch and		graphically.	relation in which		
		describe qualitative			each member of the		
		graphs.		A1.2.1.1.2	domain (input		
				Determine if a relation	value) is paired with		
				is a function given a	exactly one		
				araph	member in the		
				graph.	range (output		
				A12113	Value).		
				Identify the domain or	Lessons / infough 9		
				range of a relation	Some functions are linear and others		
				(may be presented as	are poplinear. You		
				ordered pairs, a	can use a table or a		
				graph, or a table).	graph to make the		
					determination. If a		
				A1.2.1.2.1	function is linear, its		
				Create, interpret	graph is a straight		
				and/or use the	line and a table of		
				equation, graph or	values for the		
				table of a linear	function exhibits a		
				function.	constant rate of		
				A10100	change.		
				Translate from one	A nonlinear function		
				representation of a	is a function whose		
		1	L	representation of a	L	1	1

		linear function to another (graph, table and equation). A1.2.2.1.1 Identify, describe and/or use constant rates of change.	graph is not a straight line and a table of values for the function displays a rate of change that is not constant.	
		A1.2.2.1.2 Apply the concept of linear rate of change (slope) to solve problems.		
		A1.2.2.1.3 Write or identify a linear equation when given		
		the graph of the line 2 points on the line, or the slope and a point on a line,		
		(Linear equation may be in point-slope, standard and/or slope-intercept form).		
		.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph. 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.1.1.2		

		Compare properties		
		Compare properties		
		of two functions, each		
		represented in a		
		different way (i.e.,		
		algebraically		
		argebiaduly,		
		graphically,		
		numerically in tables,		
		or by verbal		
		descriptions)		
		Examples Civen e		
		Example. Given a		
		linear function		
		represented by a		
		table of values and a		
		linear function		
		represented by an		
		algebraic expression,		
		determine which		
		function has the		
		greater rate of		
		greater fate of		
		change.		
		M08.B-F.1.1.3		
		Interpret the equation		
		w my has defining		
		y = mx + b as defining		
		a linear function		
		whose graph is a		
		straight line: give		
		examples of functions		
		that are not linear		
		that are not linear.		
		M08.B-F.2.1.1		
		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 -		
		nom a description of a		
		relationship or from		
		two (x, y) values,		
		including reading		
		these from a table or		
		from a graph		
		nom a graph.		
		Interpret the rate of		
		change and initial		
		value of a linear		
		function in terms of		
		the situation it models		
		and in terms of its		
		graph or a table of		
		values		
		1000.		

				M08.B-F.2.1.1a Determine the missing value in a graph showing a real- world linear relationship. 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 nonlinear). Sketch or determine a graph that exhibits the qualitative features of a function that has been described verbally. M08.B-F.2.1.2a Describe the relationship between two variables with a linear relationship			
				displayed in graph form.			
Chapter 5	Triangles and the	1. Identify	How can algebraic	CC.2.3.8.A.3	Lessons 1 and 2	Additional time	Homework
(Week 17- 20)	Pythagorean Theorem	 relationships of angles formed by two parallel lines cut by a transversal. Write geometric proofs. Find missing angle measures in triangles. Find the sum of the angle measures of a polygon and the measure of one interior angle of a regular polygon. Use the Pythagorean Theorem. 	concepts be applied to geometry?	Understand and apply the Pythagorean Theorem to solve problems. G.2.1.2.1 Calculate the distance and/or midpoint between 2 points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations).	 A relation is a set of ordered pairs that can be represented as a table or a graph. For example, the relation {(-2, 3), (1, 3), (4, 2)} can be shown by graphing each ordered pair on a coordinate plane. If a table or graph shows a pattern, it is sometimes possible to represent the situation with an algebraic 	Additional practice Partner/group work	Classwork and Activities Quizzes Mid-Chapter Check Vocabulary Test Test

		6. Solve problems		G.2.1.2.3	expression or		
		using the		Use slope, distance	equation. The table		
		Pythagorean		and/or midpoint	below shows the		
		Theorem.		between 2 points on a	number of pints per		
		7. Find the distance		coordinate plane to	quart.		
		between two points		establish properties of	Lessons 3 through 6		
		on the coordinate		a 2-dimensional	A function is a		
		plane.		shape.	special type of		
					relation in which		
				M08.C-G.2.1.1	each member of the		
				Apply the converse of	domain (input		
				the Pythagorean	value) is paired with		
				theorem to show a	exactly one		
				triangle is a right	member in the		
				triangle.	range (output		
				5	value).		
				M08.C-G.2.1.2	Lessons 7 through 9		
				Apply the	 Some functions are 		
				Pythagorean theorem	linear and others		
				to determine unknown	are nonlinear. You		
				side lengths in right	can use a table or a		
				triangles in real-world	graph to make the		
				and mathematical	determination. If a		
				problems in two and	function is linear. its		
				three dimensions.	graph is a straight		
				(Figures provided for	line and a table of		
				problems in three	values for the		
				dimensions will be	function exhibits a		
				consistent with	constant rate of		
				Eligible Content in	change.		
				grade 8 and below.)	A nonlinear function		
				-	is a function whose		
				M08.C-G.2.1.2a	graph is not a		
				Apply the	straight line and a		
				Pythagorean theorem	table of values for		
				to determine	the function		
1				length/distance in a	displays a rate of		
				real-world problem.	change that is not		
				M08.C-G.2.1.3	constant.		
				Apply the	Example of a linear		
				Pythagorean theorem	function:		
				to find the distance			
				between two points in			
				a coordinate system.			
Chapter 6	 Transformations 	1. Graph translations	 How can we best 	CC.2.3.8.A.2	 Students should be 	Additional time	Homework
(Week 21-		on the coordinate	show or describe	Understand and apply	able to graph		
24)		plane.	the change in	congruence,	translations on the	Additional practice	Classwork and
		2. Graph reflections	position of a figure?	similarity, and	coordinate plane.		Activities
		on the coordinate		geometric	 Students should be 	Partner/group work	
		plane.		transformations using	able to use scale	and understanding.	Quizzes
		3. Graph rotations on		various tools.	factors to graph		
		the coordinate					Mid-Chapter

		plane. 4. Use scale factors to graph dilations.		M08.C-G.1.1.1 Identify and apply properties of rotations, reflections, and translations. Example: Angle measures are preserved in rotations, reflections, and	 dilations. Students should be able to graph rotations on the coordinate plane. Students should be able to graph reflections on the coordinate plane 		Check Vocabulary Test Test
				translations. M08.C-G.1.1.1a Identify a rotation, reflection, or translation of a two- or three-dimensional figure.			
				M08.C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them.			
				M08.C-G.1.1.3 Describe the effect of dilations, translations, rotations, and reflections on two- dimensional figures using coordinates.			
				M08.C-G.1.1.4 Given two similar two- dimensional figures, describe a sequence of transformations that exhibits the similarity between them.			
Chapter 7 (Week 25- 28)	Congruence and Similarity	 Use a series of transformations to create congruent figures. Write congruence statements for congruent figures. Use transformations to 	How can you determine congruence and similarity?	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools. G.1.2.1.1	 Identify and describe figures based on congruence and to determine what transformation the figures may have undergone. 	Additional time Additional practice Partner/group work	Homework Classwork and Activities Quizzes Mid-Chapter Check

oreste similar	Identify and/or upo	
figures	properties of triangles	Vaaabulany
1 Identify similar	properties of thangles why some lightes	Tost
4. Identity Similar	are congruent and	Test
polygons and ind missing moasures	Identify and/or use Identify and	Test
of similar polygons		Test
5 Solvo problemo	properties of describe	
5. Solve problems	quadriaterals corresponding parts	
Involving similar	of congruent	
triangles.	G.1.2.1.3 figures.	
6. Relate the slope of	• Apply principles of	
a line to similar	properties of congruence to	
triangles.	Isosceles and determine missing	
7. Find the	equilateral triangles. length or angle	
relationship	values in congruent	
between	G.1.2.1.4 figures.	
perimeters and	Identify and/or use Identify similar	
areas of similar	properties of regular triangles.	
tigures.	Polygons • Learn the	
	characteristics of	
	.1.2.1.5 similar polygons.	
	Identify and/or use • Apply the principles	
	properties of pyramids of similarity to	
	and prisms. indirect	
	measurement.	
	• Understand the	
	Use properties of concept of slope of	
	angles formed by similar triangles on	
	intersecting lines to a coordinate plane.	
	find the measures of	
	missing angles.	
	figures.	
	G.2.2.1.2	
	Use properties of	
	angles formed when	
	two parallel lines are	
	cut by a transversal to	
	find the measures of	
	missing angles.	
	M08.C-G.1.1.1	
	Identity and apply	
	properties of	
	rotations, reflections,	
	and translations.	
	Example: Angle	
	measures are	
	preserved in rotations,	
	reflections, and	
	translations.	
	.C-G.1.1.1a	
	Identify a rotation,	

				reflection, or translation of a two- or three-dimensional figure. .C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them.			
				.C-G.1.1.2a Identify figures that are congruent/similar.			
				M08.C-G.1.1.3 Describe the effect of dilations, translations, rotations, and reflections on two- dimensional figures using coordinates.			
				M08.C-G.1.1.4 Given two similar two- dimensional figures,			
				describe a sequence of transformations that exhibits the			
				them.			
Chapter 8	Volume and	1. Volume of	Why are formulas	CC.2.3.8.A.1	Lessons 1 through 3	Additional time	Homework
(Week 29- 32)	Surface Area	2. Volume of Cones 3. Volume of Spheres	important in math and science?	Apply the concepts of volume of cylinders, cones, and spheres to	 Volume is the measure of space occupied by a 	Additional practice	Classwork and Activities
		 Surface Area of Cylinders Surface Area of 		solve real-world and mathematical problems	three-dimensional region. It is measured in cubic	Partner/group work	Quizzes
		Cones 6. Changes of		.2.3.1.1	Inclusive in cubic units.Formulas for		Mid-Chapter Check
		Dimensions		Calculate the surface area of prisms, cylinders, cones,	Volume: • Cylinder • Cone		Vocabulary Test
				pyramids and/or spheres. Formulas are provided on the reference sheet.	 sphere Lessons 4 through 6 The lateral area L.A. of a prism is 		Test
				G.2.3.1.2	the sum of the		

				Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet. G.2.3.1.3 Find the measurement of a missing length given the surface area or volume. 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. M08.C-G.3.1.1a Complete the formula for volume to solve a real-world or mathematical problem.	 areas of the lateral faces. The surface area <i>S.A.</i> is the sum of the lateral area and the area of the base(s). Formulas for Latera Figure • Model cylinder cone Similar solids are three-dimensional figures that have the same shape and whose corresponding linear measures are proportional. The scale factor of similar solids is how much larger or smaller one solid is than another. It is written as a ratio in simplest form. The surface area and volume of a similar solid can be found using ratios. Ratios of Surface Area <i>S.A.</i> of Solid <i>B</i> = <i>S.A.</i> of Solid <i>A</i> × (scale factor)² Ratios of Volume <i>V</i> of Solid <i>B</i> = <i>V</i> of Solid <i>A</i> × (scale factor)³ 		
Chapter 9 (Week 33- 36)	Scatter Plots and Data Analysis	 Construct and make conjectures about scatter plots. Draw lines of best fit and use them to make predictions 	Why is learning mathematics important?	A1.2.2.2.1 Draw, find and/or write an equation for a line of best fit for a scatter plot.	 Lessons 1 through 3 A scatter plot is used to explore possible relationships between a data set 	Additional time Additional practice Partner/group work	Homework Classwork and Activities Quizzes

3. Construct and interpret brow-ay tables. Analyze and/or interpret brow-ay dicenter and variation. X x 1 3 s Find the measures of center and variation. Mdk-Chapter Check Mdk-Chapter Check 5. Find and interpret the measures of data. C2.24.812 brow and that gatterns of of data. 10 Y 19 20 6. Analyze data distributions. C2.24.812 brow and that gatterns of of data. 11 Test Test MdB C-Distributions. MdB C-Distributions. The data in the table can be plotted interpret scatter plots to bostney patterns such as clustering. The data in the table can be plotted in the following scatter plots The data may have a relationship. The data may have a relationship. MdB D-S.1.1.2 MdB D-S.1.1.2 For scatter plots CO Foccus 1.JPG The data may have a relationship. MdB D-S.1.1.2 The data may have a relationship. The data may have a relationship. The data may have a relationship. MdB D-S.1.1.2 The data points to the inner secontario. The data points to the data points to the scatter plots MdB D-S.1.1.3 Use the equation of the inner weak laber and under the inner. A two-wy table show 6 at romo on essentie groups MdB D-S.1.1.3 Use the equation of the inner weak laber and unvisite data and A two-wy table show 6 at romo on essentie groups		about data.	CC.2.4.8.B.1	with two variables.	
interpret biorate tables. 4. Find the measures of center and variation. interpret biorate data displayed in wriation. 4. S 6. 7 8 Check 5. Find and interpret deviation for a set of data. CC.2.4.8.12 (Lorderstand that patterns of association can be seen in biorated data distributions. 0 Test M08.D-S.1.1.1 Construct and minutepret distributions. CO.2.4.8.12 (Lorderstand that patterns of association can be seen in biorated data distributions. Test Test M08.D-S.1.1.2 Construct and minutepret association biowards data distributions. M08.D-S.1.1.1 Construct and minutepret association biowards data displayed association biowards data distributions. Test Test M08.D-S.1.1.2 Interpret sector association biowards data displayed association d		3. Construct and	Analyze and/or	• x 1 3	Mid-Chapter
data displayed in multiple representations. 6 7 Vocabulary Test 5. Find and interpret the mean absolute diviation for a set distributions. 00 7 10 6. Analytic distributions. 00 13 0 7. May the distributions. 00 13 0 8. Mean the distributions. 00 13 0 9. May the distributions. 00 13 0 10. May the distributions. 00 00 00 10. May		interpret two-way	interpret bivariate	4 5	Check
4. Find the measures or detert and variation. multiple ^{-/-} incrementations. 8 9 Vocabulary Test 5. Find and interpret the mean absolute deviation for a set of data. CC.2.4.8.8.2 1.4 13 Test 0. Analyza data distributions. 0. Analyza data distributions. 0. Stata in the table can be plotted interpret scatter plots for bivariate association. 0. The data in the table can be plotted in the pret scatter plots for bivariate association. Test M08.D-5.1.12 Understand table scatter plots for bivariate association. M08.D-5.1.2 For scatter plots the sasociation. The data points of a bivariate association. - Woeabulary test M08.D-5.1.1.2 Understand table scattering. - M08.D-5.1.1.2 Understand table scattering. - The data scattering. 0.10 - Stattering. - The data points of the data scatter plot that scatter plot that scatter plottering the data scatter plot the the line of best fit. - A norway table as actient of best fit. 0.DS.1.1.2 Under the closs of predictions.Scatter predictions.Scatter traitenes to two aff the data calle or upe as actine to points. - A norway table		tables.	data displayed in	6 7	
of center and variation. representations. 10 Test 5. Find and interpret the mean absolute deviation for a set of data. CC.2.4.8.8.2 Understand that patterns of association can be seen in bixariate data utilizing frequencies. 10 Test 0. Analyze data distributions. With 200 Weight and the patterns of association between two quantities. 13 8 0. Analyze data distributions. M08.D-S.1.1.1 Construct and measurement data to investigate patterns of association between two quantities. 0.0 Focus, 1.1PG The data may have a positive relationship, or no regative correlation, linear association, 1.1PG The data may have a positive or measurement data to investigate patterns of association between two quantities, positive or negative correlation, linear association, 1.1PG The data solution of the data points to the line. No.8.D-S.1.1.2 The data may have a positive or negative correlation, linear association, 1.1PF The data may have a positive or negative correlation, linear association, 1.1PF The data solution of the data points. No.8.D-S.1.1.2 The data may have a positive or negative correlation, linear association, 1.1PF The data solution of the data points to the line. No.8.D-S.1.2 The line that is vary lidentity a statement that describes the trationship between variables diplayed in a scatter plot solution as a scatter plot solution as a scatter plot solution the line. No.2.5.1.2 The line to best fit the line of best fit the line of best fit the line of best fit the data solution of the data solutore solution the linear indet to solution data relation to		4. Find the measures	multiple	8 9	Vocabulary
 Viriation. 5. Find and interpret the mean absolute deviation for a set of data. 6. Analyze data distributions. M08.D-S.1.12 Construct and interpret scatter plots for bivariate data utilizing frequencies. M08.D-S.1.12 For scatter plots the apatterns of association, identify a gaptive measurement data to for bivariate data and the gaptive correlations by the graph above, and yin the graph above, and		of center and	representations.	10	Test
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deviation for a set of data. patterns of association can be seen in bivariate discoran be interport scatter plot: The data in the discorant plot or bivariate measurement data to insertion between such as dustering, outliers, positive or negative association. The data may have a positive realizonship, or no relationship, or no relationship. There agaitve negative association. M08.D-S.1.12 For scatter plot linear association. M08.D-S.1.12 For scatter plot linear association. All or of best fit is association. All or of best fit is and nonlinear association. All or of best fit is and naving plots with no relationship between variables disployed in the line. All or of best fit is and making and mak		the mean absolute	Understand that	14 11	
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M08.D-S.1.1.2 Construct and interpret scatter plotScatter plot0.1- Construct and interpret scatter plot- Construct and apositive relationship, a megative relationship, or no relationship, or no relationship, here association0.1- Construct and investigate patterns of association between two quantiles. Describe patterns association, and nonlinear association, and nonlinear association, ine of best fit by judging the closeness of the date points to the line.M08.D-S.1.1.2 For scatter plots that suggest a linear association, data points to the line.M08.D-S.1.1.2 For scatter plots that suggest a linear association.M08.D-S.1.1.2 For scatter plots that suggest a linear associationM08.D-S.1.1.2 For scatter plots that suggest a linear associationM08.D-S.1.1.2 For scatter plots that suggest a linear associationM08.D-S.1.1.2 For scatter plots that suggest a linear associationM08.D-S.1.1.2 loently is that describes the ine ine of best fit to the line.M08.D-S.1.1.2 loently is that describes the is helpful for a scatterplot.M08.D-S.1.1.2 loently is the line.M08.D-S.1.1.2 loently is data and making a scatterplot.M08.D-S.1.1.2 loently is data a scatterplot.M08.D-S.1.1.2 loentl			-	in the following	
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context of bivariate variable are called univariate data and			problems in the	Data with one	
measurement data univariate data and			context of bivariate	variable are called	
			measurement data,	univariate data and	

		interpreting the slope	can be describe by	
		and intercept.	a measure of	
		Example: In a linear	center such as	
		model for a biology	mean median	
		experiment interpret	mode or range	
		a slope of 1.5 cm/br	Ouantitative data	
		as meaning that an	are data that can be	
		additional bour of	measured. The data	
		sunlight each day is	can be divided into	
		associated with an	four equal parts	
		additional 1.5 cm in	called quartiles	
		mature plant height	The median of the	
		mature plant height.	Ine median of the	
		Construct and	chan the median is	
		interpret a two-way	called the first	
		table summarizing	quartile of Q1.	
		data on two	Ine median of the	
		categorical variables	data values greater	
		collected from the	than the median is	
		conected norm the	called the third	
		relative frequencies	quartile or Q3.	
		calculated for rows or	Ihe five-number	
		calculated for Tows of	(minimum value,	
			first quartile (Q1),	
		botwoon the two	median, third	
		variables Example:	quartile (Q3),	
		Civen dete en	maximum value)	
		Given data on	summary provides	
		whether students	a numerical way of	
		nave a cullew off	characterizing a set	
		school nights and	of data.	
		whether they have	 The mean absolute 	
		home is there	deviation of a set of	
		nome, is there avidance that these	data is the average	
		who have a autow	distance between	
		also tend to have	each data value	
		chores?	and the mean.	
		010103:	 The standard 	
		M08 D-S 1 2 12	deviation of a set of	
		Answer a question	data is a calculated	
		Answel a question	value that shows	
		way table	how the data	
		way lable.	deviates from the	
			mean of the data.	