GMS Curriculum Map
Math
Grade 7

Domain Title	Number Systems	Expressions and Equations	Ratios and Proportions	Geometry	Probability and Statistics
Unit Overview	Students will build upon their learning to understand rational numbers, by finding patterns for mathematical operations. Through inquiry, students will apply the properties of rational numbers in a real-life setting, including the additive inverse. Students will deepen their understanding of operating with positive and negative rational numbers through learning tasks, formalizing rules using a number line, as well as abstractly. Students recognize that the context of a situation often determines the most appropriate form of a rational number, fluently converting between fraction and decimal forms. The concepts of the unit come together as students use properties of operations in situations involving rational numbers. This unit will culminate in students applying the operations of rational numbers in a real world situation.	The beginning of this unit expands upon students' understanding of equivalent expressions. They apply the properties of operations (commutative, associative, and distributive) to generate equivalent expressions and recognize how the properties of operations they previously learned with numbers also hold true for letters that represent numbers. Students will also generate and solve multi-step equations that represent real situations including markup and markdown. Students will also solve and graph multi-step inequalities on a number line. Finally, students will apply their learning of inequalities to model real life situations.	When students arrive to 7th grade, they have a basic understanding regarding ratios and how they are applied. This year, we will apply that knowledge to proportional relationships. Students will discover what proportional relationships are and how they can be represented with multiple models; such as tables, diagrams, verbal descriptions, equations and graphs. Students will use proportional relationships to solve real world problems. Students will also learn how to apply percents to real world scenarios; such as tip, tax, fees, percent increase/decrease, and percent error.	Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. Students reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.	Students build on their previous work with single data distributions to compare two data distributions and address questions about differences between populations. They begin informal work with random sampling to generate data sets and learn about the importance of representative samples for drawing inferences.
Duration	40 Day	33 Days	21 Days	24 Days	32 Days

Priority Standards	7.NS.A.1 7.NS.A.2 7.NS.A.3:	7.EE.A.1: 7.EE.A.2 7.EE.B.3 7.EE.B.4	7.RP.A.1 7.RP.A.2 7.RP.A.3	7.G.A.1 7.G.A.2 7.G.A.3 7.G.B.4 7.G.B.5 7.G.B.6	7.SP.A.1 7.SP.A.2. 7.SP.B.3. 7.SP.B.4: 7.SP.C.5:.. 7.SP.C.6 7.SP.C.7 7.SP.C.8
Essential Questions	1. How are rational number operations used to solve real world problems? 2. **What tools or skills are needed to effectively operate with numbers?**	1. How are equations and inequalities used to represent real world problems? 2. **How and when can equations be used to help solve real world problems?**	1. How are unit rates useful? 2. How and when can percents be applied to real world situations? a. 3. How/why do you use formulas to solve problems? 4. **When are ratios useful?**	1. When and how can geometric measurements and formulas be used outside of math class? 2. How does geometry help us describe objects? 3. **How do we use geometry to make sense of the real world?**	1. How do you analyze real world problems using statistics? 2. How do you predict future probabilities based on data? 3. **When is it necessary to communicate and justify information?**
Instructional Strategies	• Cooperative learning tasks • Performance tasks • Small group instruction • Applications to real world situations	• Cooperative learning tasks • Performance tasks • Small group instruction • Applications to real world situations	• Cooperative learning tasks • Performance tasks • Small group instruction • Applications to real world situations	• Cooperative learning tasks • Performance tasks • Small group instruction • Applications to real world situations	• Cooperative learning tasks • Performance tasks • Small group instruction • Applications to real world situations
Key Resources /Texts	Teacher developed Learning Tasks: Mixed Numbers, Integers, Number Lines, Rational Numbers, Operating with Rational Numbers	Teacher developed Learning Tasks: Fractions/Decimals/Percents, Mark-Up/Mark-Down, Applying Expressions, Solve One-Step Equations, Solve Multi-Step	Teacher developed Learning Tasks: Unit Rates with Tables, Proportionality, Proportionality Equations, Percent Change, Simple Interest	Teacher developed Learning Tasks: Scale Factor, Scale Drawing, Identifying Triangles, Circles (Circumference and Area) Core Skills Math: Grade 7 (Workbook)	Teacher developed Learning Tasks: Theoretical vs. Experimental Probability, Compound Probability, General Statistics: MMMR and MAD Core Skills Math: Grade 7 (Workbook)

Approved by Griswold Board of Education February 24, 2020

	Core Skills Math: Grade 7 (Workbook) Spectrum Math: Grade 7 (Workbook) SBAC sample items Illustrated Mathematics	Equations, Inequalities: Solving and Graphing Core Skills Math: Grade 7 (Workbook) Spectrum Math: Grade 7 (Workbook) SBAC sample items: IABs and ICAs	Core Skills Math: Grade 7 (Workbook) Spectrum Math: Grade 7 (Workbook) SBAC sample items: IABs and ICAs	Spectrum Math: Grade 7 (Workbook) SBAC sample items: IABs and ICAs	Spectrum Math: Grade 7 (Workbook) SBAC sample items: IABs and ICAs

Assessments	2 unit tests:
	Mixed numbers and number lines
	
	Operations with rational numbers
		2 unit tests:
		Expressions
		  Algebraic Expressions
		  Combining Like Terms
		  Mathematical Properties
		
		Equations
		  Solving 1-2 step Equations
		  Solving 1-2 step inequalities
			2 unit tests:
			 Unit Rates and Proportionality
			
			  Applications with percents
				2 unit tests:
				  Scale factor, Similar figures, Identifying Triangles, Angle Relationships
				
				  Area of quadrilaterals, Surface area of 3D Prisms, Volume of 3D Prisms
					2 unit tests:
					Population samples/statistical comparison
					 Probability

Performance Tasks	Inventory PT (Operating with Mixed Numbers) Let's Get Balanced PT (Operating with Integers) Abstract Number Lines End of Unit Task: Pizzeria Profits (Operating with Rational Numbers)	Which Deal is the Steal (FDP, Mark-Up Mark-Down) Candy Store (Creating and using Expressions) T-Shirts	Car Performance Task (Unit Rates) Which deal is the Steal Part 2 Animals of Rhommar	Build a City Project Pancakes (Circles) Blue Print	NBA Finals Project (MMMR, MAD) Secret agent task (Probability)
Writing	Performance tasks require students to write their explanations and justifications for their answers in paragraph form, using sequence words, and math vocabulary.	Performance tasks require students to write their explanations and justifications for their answers in paragraph form, using sequence words, and math vocabulary.	Performance tasks require students to write their explanations and justifications for their answers in paragraph form, using sequence words, and math vocabulary.	Performance tasks require students to write their explanations and justifications for their answers in paragraph form, using sequence words, and math vocabulary.	Performance tasks require students to write their explanations and justifications for their answers in paragraph form, using sequence words, and math vocabulary.

Scope and Sequence	PART 1: Operations with Rational Numbers	PART 1: Expressions	PART 1: Proportional Relationships	PART 1: Hands-On Geometry	PART 1: Probability

	1. Operations with fractions (5 Days) *Review*
	2. Operations with mixed numbers (7 Days)
	a. Convert between mixed numbers and improper fractions
	3. Operations with integers (10 Days)
	4. Operations with rational numbers (8 Days)
	a. (This is combining steps 1-3)
	b. Convert between fractions/mixed numbers and decimals
	PART 2: Rational Numbers using number lines
	1. Finding absolute values and identifying opposites (2 Days)
	2. Understanding abstract number lines (3 Days)
	a. Comprehend the additive inverse
	3. Expressing operations with rational numbers using a number line (5 Days)
	a. Only adding and subtracting
	b. Identify a math problem using a number line
		1. Math properties (8 Days)
		a. Commutative, associative, identity, inverse
		  i. Understanding which operations have specific properties
		b. Distributive
		2. Simplifying algebraic expressions (8 Days)
		a. Identify like terms *review*
		b. Simplify expressions using the distributive property
		3. Mark up/mark down (4 Days)
		4. Convert situations into algebraic expressions.
		PART 2: Equations
		1. Equations (8 Days)
		a. 1-step equations *Review*
		  i. Incorporate rational numbers
		b. 2-step equations
		  i. Incorporate rational numbers
		2. Inequalities (5 Days)
		a. 1-step inequalities (2-3 Days)
		  i. Identify the solution set on a number line
		  ii. *Determine when teaching if it is appropriate to incorporate negative coefficients or divisors in inequalities*
		b. 2-Step Inequalities (2-3 Days)
			1. Unit rate (3 Days)
			a. Incorporate complex fractions
			2. Proportionality (10 Days)
			a. Determine proportionality by finding equivalent ratios
			  i. Tables
			  ii. Graphs
			  iii. Equations
			b. Calculate the constant of proportionality
			  i. Tables
			  ii. Graphs
			  iii. Equations
			c. Create equations for proportional relationships
			d. Understand what specific points mean in terms of proportional graphs
			PART 2: Applications of Proportional Relationships
			1. Converting fractions, decimals, and percents *Review* (1 Day)
			2. Percent change (3 Days)
			3. Simple interest (2 Days)
			4. Solving proportions (2 Days)
				1. Scale Drawings (8 Days)
				a. Determine the scale factor
				b. Determine if two figures are similar figures
				c. Using scales, identify the actual size of an object and redraw with a different scale
				2. Constructing Geometric Figures (3 Days)
				a. Angles
				b. Triangles
				3. Cross-sections of 3-Dimensional Figures (1 Day)
				PART 2: Mathematical Geometry
				1. Calculate circumference and area of circles (2 Days)
				2. Supplementary, complementary, vertical, and adjacent angles (3 Days)
				a. Calculating missing angle measures
				3. Area of: triangles, rectangles, parallelograms, and trapezoids (3 Days)
				a. Area for composite shapes (2 Days)
				4. Surface area and volumes of: rectangular and right-triangular prisms (3 Days)
					1. Basic probability (2 Days)
					a. Likelihood of events
					2. Theoretical vs experimental probability (5 Days)
					3. Uniform probability (3 Days)
					a. Models for probability
					4. Compound probability (4 Days)
					a. Tree diagrams
					
					PART 2: Population
					1. Identify random sample versus bias sample (3 Days)
					a. Make predictions using data
					2. Draw inferences from random data samples (2-3 Days)
					
					PART 3: Statistics
					1. Frequency tables (4 Days)
					a. Inferences with frequency tables
					b. Line plot
					2. Mean, absolute mean deviation (8 Days)
					a. Comparing these values with multiple sets of data

		i. Identify the solution set on a number line ii. Incorporate rational numbers			