Soam Mathematics Calendar

Grade 7, Quarter 1

Note: This Mathematics Calendar is based on 90-minutes of daily Mathematics instruction. Individual teacher pacing may vary due to variances in class period length and student comprehension of the concepts taught. EngageNY 7th grade math materials are designed for 45-minutes of teacher led instruction. For the remainder of the class time the role of the teacher is to pull intervention groups and the student's time should be devoted to additional practice using Renaissance Math with Accelerated Math and Math Facts in a Flash.

Quarter1 Overview: In Module 1, students build upon their Grade 6 reasoning about ratios, rates, and unit rates (6.RP.A.1, 6.RP.A.2, 6.RP.3) to formally define proportional relationships and the constant of proportionality (7.RP.A.2).

In this module students examine situations carefully to determine if they are describing a proportional relationship. Their analysis is applied to relationships given in tables, graphs, and verbal descriptions (7.RP.A.2a). Students learn that the unit rate of a collection of equivalent ratios is called the constant of proportionality and can be used to represent proportional relationships with equations of the form $y = kx$, where k is the constant of proportionality (7.RP.A.2b, 7.RP.A.2c, 7.EE.B.4a). Students relate the equation of a proportional relationship to ratio tables and to graphs and interpret the points on the graph within the context of the situation (7.RP.A.2d). Students also extend their reasoning about ratios and proportional relationships to compute unit rates. Students apply their experience in the first two topics and their new understanding of unit rates for ratios and rates involving fractions to solve multistep ratio word problems (7.RP.A.3, 7.EE.B.4a). In the final topic of this module, students bring the sum of their experience with proportional relationships to the context of scale drawings (7.RP.A.2b, 7.G.A.1).

Topic A: Proportional Relationships
Focus Standards: 7.RP.A.2 Recognize and represent proportional relationships between quantities.

Topic B: Unit Rate and the Constant of Proportionality
Focus Standards: 7.RP.A.2b 7.RP.A.2c 7.RP.A.2d Recognize and represent proportional relationships between quantities. 7.EE.B.4a Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

Mid-Module Assessment: Topics A through B (assessment 1 day, return 1 day, remediation or further applications 2 days *if time allows*)

Topic C: Ratios and Rates Involving Fractions
Focus Standards: 7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems. 7.EE.B.4a Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

Topic D: Ratios and Scale Drawing
Focus Standards: 7.RP.A.2b Recognize and represent proportional relationships between quantities. 7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

End-of-Module Assessment: Topics A through D (assessment 1 day, return 1 day, remediation or further applications 2 days, *if time allows*)

Date	Module	Topic	Lesson	Student Objective	CCSS/MLS Standard	Must Do Extension	Could Do	Extension	Center Activities**
8/13/19 To 8/15/19	STAR Math Testing/Policy and Procedures for the following Math Centers/Accelerated Math & Math Facts in a Flash Set Goals for Students/Group Students by Level								
8/16/19	1 Ratios and Proportional Relationships	A Proportional Relationships	1	I can compute unit rates associated with ratios of quantities measured in different units.	7.RP.A.2 7.RP.A.2 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn. d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate. •	Must Do Lesson 1 Problem set 1 – 7 odd	Could Do 2 –6 even		****See Math Block framework for Math Center Suggestions**
8/17/19	1	A	2	I can understand that two quantities are *proportional to* each other when there exists a constant (number) such that each measure in the first quantity multiplied by this constant gives the corresponding measure in the second quantity.	7.RP.A.2	Must Do Lesson 2 Problem set 1 Could Do Problem set 2		Objective 6: Identify the constant of proportionality from an equation	
8/19/19	1	A	3	I can examine situations to decide whether two	7.RP.A.2	Must Do Lesson 3	Math Facts in a Flash		

				quantities are proportional to each other by checking for a constant multiple between measures of x and measures of y when given in a table.		Problem set 1,3,4,5 Could Do 2,6			
8/23/19	1	A	4	I can examine situations to decide whether two quantities are proportional to each other by checking for a constant multiple between measures of x and measures of y when given in a table or when required to create a table.	7.RP.A.2	Must Do Lesson 4 Problem set 1,2 Could Do 3 v		Objective 4: Identify the constant of proportionality from a table	
8/24/19	1	A	5	I can decide whether two quantities are proportional to each other by graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	7.RP.A.2	Must Do Lesson 5 Problem set 1 and 2 Could Do 3 and 4	Math Facts in a Flash		
8/25/19	1	A	6	I can examine situations carefully to decide whether two quantities are proportional to each other by graphing on a coordinate plane and observing whether all the points would fall on a line that passes through the origin.	7.RP.A.2	Must Do Lesson 6 Problem Set Word Problem	Math Facts in a Flash		

8/28/19	1	B Unit Rate and Constant of Proportionality	7	I can identify the same value relating the measures of x and y in a proportional relationship as the constant of proportionality and recognize it as the unit rate in the context of a given situation. Students find and interpret the constant of proportionality within the contexts of problems.	7.RP.A.2 7.RP.A.2 7.RP.A.2 7.EEI.B.3 7.EEI.B.4	Must Do Lesson 7 Problem set 1,2 odd Could Do 2,4 even		Objective 8: WP: Identify the constant of proportionality	
8/29/19	1	B	8	I can use the constant of proportionality to represent proportional relationships by equations in real-world contexts as they relate the equations to a corresponding ratio table and/or graphical representation.	7.RP.A.2 7.RP.A.2 7.RP.A.2 • 7.EEI.B.3 7.EEI.B.4	Must Do Lesson 8 Problem set 1,3,5 Could Do 2,4,6	Math Facts in a Flash		
8/30/19	1	B	9	I can use the constant of proportionality to represent proportional relationships by equations in real-world contexts as they relate the equations to a corresponding ratio	7.RP.A.2 7.RP.A.2 7.RP.A.2 • 7.EEI.B.3 7.EEI.B.4	Must Do Lesson9 Problem set 1,2 Could Do 3		Objective 9: Determine an equation that represents a proportional relationship	

				table and/or graphical representation.					
9/3/19	1	B	10	I can consolidate their understanding of equations representing proportional relationships as they interpret what points on the graph of a proportional relationship mean in terms of the situation or context of the problem, including the point (0,0). Students are able to identify and interpret in context the point (1,) on the graph of a proportional relationship where r is the unit rate.	7.RP.A.2 7.RP.A.2 7.RP.A.2d 7.EEI.B.3 7.EEI.B.4	Must Do Lesson 10 Problem set 1,5 Could do 2,3,4	Math Facts in a Flash		
9/4/19	1	C Ratios and Rates Involving Fractions	11	**Mid-Module Assessment** I can use ratio tables and ratio reasoning to compute unit rates associated with ratios of fractions in the context of measured quantities such as recipes, lengths, areas, and speed.	7.RP.A 7.RP.A.3 7.EEI.B.4a	Must Do Lesson 11 Problem set 1,3,5 Could do 2,4,6			
9/5/19	1	C	12	I can use unit rates to solve problems and analyze unit	7.RP.A 7.RP.A.3 7.EE.B.4	Must Do Lesson 12	Math Facts in a Flash		

				rates in the context of the problem.		Problem set 1,3 Could Do 2,4			
9/6/19	1	C	13	I can use tables to find an equivalent ratio of two partial quantities given a part-to-part ratio and the total of those quantities, in the third column, including problems with ratios of fractions.	7.RP.A 7.RP.A.3 7.EEI.B.4	Must Do Lesson 13 Problem set 1,3 Could do 2,4	Math Facts in a Flash		
9/9/19	1	C	14	I can solve multi-step ratio problems including fractional markdowns, markups, commissions, fees, etc.	7.RP.A 7.RP.A.3 7.EEI.B.4	Must Do Lesson 14 Examples 1,,2,4 Could Do Problem set		Objective 17: WP: Solve a multi-step ratio problem	
9/10/19	1	C	15	I can use equations and graphs to represent proportional relationships arising from ratios and rates involving fractions. Students interpret what points on the graph of the relationship mean	7.RP.A 7.RP.A.3 7.EEI.B.4	Must Do Lesson 15 Problem set 1-3 Could Do 4	Math Facts in a Flash		

				in terms of the situation or context of the problem.					
9/11/19	1	D Ratios of Scale Drawings	16	I can compare the scale drawing picture with the original picture and determine if the scale drawing is a reduction or an enlargement. Students match points and figures in one picture with points and figures in the other picture.	7.RP.A.2 7.GM.A.1	Must Do Lesson 16 Problem set 1,3,5 Could Do 2,4,6		Objective 80: Determine a dimension in a rescaled drawing of a geometric figure	
9/12/19	1	D	17	I can recognize that the enlarged or reduced distances in a scale drawing are proportional to the corresponding distances in the original picture. Given a picture or description of geometric figures, students make a scale drawing with a given scale factor.	7.RP.A.2 7.GM.A.1	Must Do Lesson 17 Problem set 1,3,5 Could Do 2,4,6	Math Facts in a Flash		
9/16/19	1	D	18	Given a scale drawing, I can compute the lengths in the actual picture using the scale. Students identify the scale factor in order to make intuitive comparisons of size, and then devise a strategy for efficiently finding	7.RP.A.2 7.GM.A.1	Must Do Lesson 18 Problem set 1,2,3 Could Do 4,5	Math Facts in a Flash		

				actual lengths using the scale.					
9/17/19	1	D	19	I can identify the scale factor. Given a scale drawing, students compute the area in the actual picture.	7.RP.A.2 7.GM.A.1	Must Do Lesson 19 Problem set 1,3,5 Could Do 2,4,6		Objective 84: Determine the ratio that relates the area of a scale drawing to the area of a geometric figure	
9/18/19	1	D	20	I can create their own scale drawings of the top-view of a furnished room or building.	7.RP.A.2 7.GM.A.1	Must Do Lesson 20 Must Do Application	Math Facts in a Flash		
9/19/19	1	D	21	Given a scale drawing, I can produce a scale drawing of a different scale. Students recognize that the scale drawing of a different scale is a scale drawing of the original scale drawing. For the scale drawing of a different scale, students compute the scale factor for the original scale drawing.	7.RP.A.2 7.GM.A.1	Could Do Lesson 21 No Must Do		Objective 80: Determine a dimension in a rescaled drawing of a geometric figure	
9/20/19	1	D	22	Given a scale drawing, I can produce a scale	7.RP.A.2 7.GM.A.1	Could Do Lesson 22	Math Facts in a Flash		

				drawing of a different scale. Students recognize that the scale drawing of a different scale is a scale drawing of the original scale drawing. For the scale drawing of a different scale, students compute the scale factor for the original scale drawing.		No Must Do			
9/23/19	**Review & End of Module Assessment**								
9/24/19	2 Rational Numbers	A Addition & Subtraction of Integers & Rational Numbers	1	I can add positive integers by counting up and negative integers by counting down. Students play the Integer Game to combine integers, justifying that an integer plus its opposite add to zero. Students know the opposite of a number is called the additive inverse because the sum of the two numbers is zero.	7.NS.A.1	Must Do Lesson 1 Problem set 1 - 5		Objective 26-27: Add/Subtract integers using a number line	
9/25/19	2	A	2	I will model integer addition on the number line by using horizontal arrows; e.g., an	7.NS.A.1	Must Do Lesson 2 Problem set 1,3,7 Could Do	Math Facts in a Flash		

				arrow for −2 is a horizontal arrow of length 2 pointing in the negative direction. I can recognize that the length of an arrow on the number line is the absolute value of the integer. Students add arrows (realizing that adding arrows is the same as combining numbers in the Integer Game). Given several arrows, students indicate the number that the arrows represent (the sum).		2,4,6			
9/26/19	2	A	3	I can understand addition of integers as putting together or counting up. For negative numbers counting down. Students use arrows to show the sum of two integers, $p+q$, on a number line and to show that the sum is distance $\|q\|$ from p to the right if q is positive and to the left if q is negative. Students refer back to the Integer Game to reinforce their	7.NS.A.1	Must Do Lesson 3 Problem set 1 - 5	Math Facts in a Flash		

				understanding of addition.					
9/27/19	2	A	4	I can understand the rules for adding rational numbers. Students justify the rules using arrows and a number line or by using the Integer Game. They extend their findings to begin to include sums of rational numbers.	7.NS.A.1	Must do Lesson 4 Problem set 1 - 4		Objective 28: Determine the distance between two rational numbers on a number line	
9/30/19	2	A	5	I can justify the rule for subtraction for all rational numbers from the inverse relationship between addition and subtraction	7.NS.A.1	Must Do Lesson 5 Problem set 1 – 5 Could do 6	Math Facts in a Flash		
10/1/19	2	A	6	I can justify the distance formula for rational numbers on a number line Students solve word problems involving changes in distance or temperature.	7.NS.A.1	Must Do Lesson 6 Problem set 1,3,5,7,9 Could do 2,4,6,8,10 Extension 11		Objective 28: Determine the distance between two rational numbers on a number line	

10/2/19	2	A	7	I can recognize that the rules for adding and subtracting integers apply to rational numbers. Given a number line, we can use arrows to model rational numbers where the length of the arrow is the absolute value of the rational number and the sign of the rational number is determined by the direction of the arrow with respect to the number line.	7.NS.A.1	Must Do Lesson 7 Problem set 1 – 4 Could Do 5 and 6	Math Facts in a Flash		
10/3/19	2	A	8	I can use properties of operations to add and subtract rational numbers without the use of a calculator. Students use the commutative and associative properties of addition to rewrite numerical expressions in different forms.	7.NS.A.1	Must Do Lesson 8 Problem set 1 – 6 Could do 7 and 8			
10/4/19	2	A	9	I can use properties of operations to add and subtract rational numbers without the use of a calculator. Students use the commutative and associative properties of	7.NS.A.1	Must Do Lesson 9 Problem set 1 -5	Math Facts in a Flash		

				addition to rewrite numerical expressions in different forms.					
10/7/19	2	B Multiplication & Division of Integers & Rational Numbers	10	I can practice and justify their understanding of multiplication of integers by using the Integer Game. Students use the properties and facts of operations to extend multiplication of whole numbers to multiplication of integers.	7.NS.A.2	Must Do Lesson 10 Problem set 1 - 3		Objective 37: Multiply integers	
10/8/19	2 Rational Numbers	B Multiplication and Division of Integers and Rational Numbers	11	I can understand the rules for multiplication of integers and that multiplying the absolute values of integer's results in the absolute value of the product. The sign, or absolute value, of the product is positive if the factors have the same sign and negative if they have opposite signs.	7.NS.A.2	Must Do Lesson 11 Problem set 1- 4 Could Do 5	Math Facts in a Flash		
10/9 – 10/11	**Use these days in the quarter as needed as review or assessment**								

****See Math Block framework for Math Center Suggestions**

CCSS and abbreviations	MLS and abbreviations
7.RP.A.2 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a	7.RP.A.2 Recognize and represent proportional relationships between quantities. a. Determine when two quantities are in a proportional

coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn. d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.	relationship. b. Identify and/or compute the constant of proportionality (unit rate). c. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation. d. Recognize that the graph of any proportional relationship will pass through the origin.
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.	7.EEI.B.3 Solve multi-step problems posed with rational numbers. a. Convert between equivalent forms of the same number. b. Assess the reasonableness of answers using mental computation and estimation strategies.
7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour.	7.RP.A.1 Compute unit rates, including those that involve complex fractions, with like or different units.
7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.	7.RP.A.3 Solve problems involving ratios, rates, percentages and proportional relationships.
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle	7.EEI.B.4 Write and/or solve linear equations and inequalities in one variable. a. Write and/or solve equations of the form x+p = q and px = q in which p and q are rational numbers. b. Write and/or solve two-step equations of the form px + q = r and p(x + q) = r, where p, q and r are rational numbers, and interpret the meaning of the solution in the context of the problem. c. Write, solve and/or graph inequalities of the form px + q > r or px + q < r, where p, q and r are rational numbers

is 54 cm. Its length is 6 cm. What is its width? b. Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.	
7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	7.GM.A.1 Solve problems involving scale drawings of real objects and geometric figures, including computing actual lengths and areas from a scale drawing and reproducing the drawing at a different scale.
7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged. b. Understand p + q as the number located a distance |q| from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, p - q = p+ (-q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.	7.NS.A.1 Apply and extend previous understandings of numbers to add and subtract rational numbers. a. Add and subtract rational numbers. b. Represent addition and subtraction on a horizontal or vertical number line. c. Describe situations and show that a number and its opposite have a sum of 0 (additive inverses). d. Understand subtraction of rational numbers as adding the additive inverse. e. Determine the distance between two rational numbers on the number line is the absolute value of their difference. f. Interpret sums and differences of rational numbers.
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with nonzero divisor) is a rational number. If p and q are integers, then -(p/q) = (-p)/q = p/(-q). Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a	7.NS.A.2 Apply and extend previous understandings of numbers to multiply and divide rational numbers. a. Multiply and divide rational numbers. b. Determine that a number and its reciprocal have a product of 1 (multiplicative inverse). c. Understand that every quotient of integers (with non-zero divisor) is a rational number. d. Convert a rational number to a decimal. e. Understand that all rational numbers can be written as fractions or decimal numbers that terminate or repeat. f. Interpret products and quotients of rational numbers by describing real-world contexts.

decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	