SoaM Mathematics Calendar

Grade 8, 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. Engage NY 8th grade mathematics materials are designed for 45-minutes of teacher led instruction. The remainder of the time is devoted to Math Centers; which must include Math By Myself (using Renaissance Math, which includes Accelerated Math and Math Fluency), Math with Someone (teacher intervention/remediation and/or peer), Math Writing (Justification Station, and/or math vocabulary).

Quarter Overview: In Module 1 students' knowledge of operations on numbers will be expanded to include operations on numbers in integer exponents. Module 1 also builds on students' understanding from previous grades with regard to transforming expressions as well as upon their foundation with exponents as they make conjectures about how zero and negative exponents of a number should be defined and prove the properties of integer exponents (8.EE.A.1). These properties are codified into three laws of exponents. They make sense out of very large and very small numbers, using the number line model to guide their understanding of the relationship of those numbers to each other (8.EE.A.3). Having established the properties of integer exponents, students learn to express the magnitude of a positive number through the use of scientific notation and to compare the relative size of two numbers written in scientific notation (8.EE.A.3). Students explore use of scientific notation and choose appropriately sized units as they represent, compare, and make calculations with very large quantities, such as the U.S. national debt, the number of stars in the universe, and the mass of planets; and very small quantities, such as the mass of subatomic particles (8.EE.A.4).

In Module 2 students learn about translations, reflections, and rotations in the plane and, more importantly, how to use them to precisely define the concept of *congruence*. Up to this point, "congruence" has been taken to mean, intuitively, "same size and same shape." Because this module begins with a serious study of geometry, this intuitive definition must be replaced by a precise definition. This module is a first step; its goal is to provide the needed intuitive background for the precise definitions that are introduced in this module for the first time. Throughout Topic A, on the definitions and properties of the basic rigid motions, students verify experimentally their basic properties and, when feasible, deepen their understanding of these properties using reasoning. They learn that the basic rigid motions preserve angle measurements, as well as segment lengths. Topic B is a critical foundation to the understanding of congruence. In Topic C, which introduces the definition and properties of congruence, students learn that congruence is just a sequence of basic rigid motions.

Date	Module	Topic	Lesson	Student Objective	CCSS/MLS Standard	Must Do	Can Do	Extension
8/13/19 - 8/16/19 Establish A Culture of Numeracy and High Expectation. Teach routines, policies, and procedures with visual models for all areas including: Math Centers/Accelerated Math & Math Facts in a Flash Set Goals for Students/Group Students by Level								
1 Integer Exponent & Scientific Notation A Exponential Notation & Properties of Integer Exponents 8.EE.A.1								
08/19/19	1	A	1	I can raise a number to a power & represent repeated multiplication symbolically. I can explain the reason for some bases requiring parentheses.	8.EE.A.1	Must Do: 1-5, 11,12	Can Do: 1-6,13	
08/20/19	1	A	2	I can recognize that multiplying identical exponent bases requires the addition of exponents. I can write equivalent numerical and symbolic expressions using the first law of exponents.	8.EE.A.1	Must Do: 1-4	Can Do: 5-8	
08/21/19	1	A	2	I can recognize that dividing identical exponent bases requires the subtraction of exponents. I can write equivalent numerical and symbolic expressions using the first law of exponents.	8.EE.A.1	Must Do: 9-12	Can Do: 13-16	
08/22/19	1	A	3	I can simplify powers of powers. I can recognize that when a product is raised to a power, each factor of the product is raised to that power. I can write simplified, equivalent numeric, and symbolic expressions using this new knowledge of powers.	8.EE.A.1	Must Do: 1-2,5	Can Do: 1-4,6	

08/23/19	1	A	4	I can recognize that a number raised to the zeroth power is equal to one.	8.EE.A.1	Must Do: 1-2,5-6	Can Do: 3-4	
08/26/19	1	A	5	I can recognize the definition of a number raised to a negative exponent. I can simplify and write equivalent expressions that contain negative exponents.	8.EE.A.1	Must Do: 1-3,5,6	Can Do: 4, 7-10	
08/27/19	1	A	6	I can apply the laws of exponents to include all integer exponents.	8.EE.A.1	Must Do: 1-2	Can Do: 3-4	
08/28/19	1	A	1-6	Topic A Review	8.EE.A.1			
08/29/19	1	**Mid-Module Assessment**						
08/30/19	1	**REVIEW/RETEACH as needed- if you are on pace with the calendar you may use this day anywhere within first quarter. If your students do not require this time proceed to the next lesson/activity. You may also borrow this day to reset your class by reviewing procedures and expectations as needed.**						
09/3/19 Module 1, Topic B Magnitude & Scientific Notation 8.EE.A.3& 8.EE.A.4								
09/3/19	1	B	7	I can recognize that positive powers of 10 are large numbers, and negative powers of 10 are small numbers.	8.EE.A.3 8.EE.A.4	Must Do: 1-2,4-5	Can Do: 3,6	
09/4/19	1	B	8	I can compare and estimate quantities in the form of a single digit times a power of 10. I can use my knowledge of ratios, fractions, and laws of exponents to simplify expressions.	8.EE.A.3 8.EE.A.4	Must Do: 1-2,5	Can Do: 3-4	
09/5/19	1	B	9	I can write, add, and subtract numbers in scientific notation and describe term leading digit.	8.EE.A.3 8.EE.A.4	Must Do: 1-6,7	Can Do: 8-9	
09/6/19	1	B	10	I can perform all operations for numbers expressed in scientific notation and/or standard notation.	8.EE.A.3 8.EE.A.4	Must Do: 1-5	Can Do:	

09/9/19	1	B	11	I can read, write and operate with numbers expressed in scientific notation.	8.EE.A.3 8.EE.A.4	Must Do: 1-3,5	Can Do: 4,6	
09/10/19	1	B	12	I can determine appropriate units for various measurements and rewrite measurements based on new units.	8.EE.A.3 8.EE.A.4	Must Do: 1-3	Can Do: 4,5	
09/11/19	1	B	13	I can compare numbers expressed in scientific notation. I can apply the laws of exponents to interpret data and use technology to compute large numbers.	8.EE.A.3 8.EE.A.4	Must Do: 1-2,4	Can Do 3,5-6	
09/12/19	1	**Module 1: Topic A and B Review**						
09/16/19	1	**End of Module Assessment**						
Module 2 Concept of Congruence A Definitions & Properties of the Basic Rigid Motions 8.G.A.1								
9/17/19	2	A	1	I can replicate a rigid motion that moves or maps one figure to another figure in the plane.	8.G.A.1	Must Do: 1	Can Do:	
9/18/19	2	A	2	I can perform translations of figures along a specific vector. I can label the image of a figure using appropriate notation.	8.G.A.1	Must Do: 1-2	Can Do:	`
9/19/19	2	A	3	I can recognize that when lines are translated, they are either parallel to the given line or they coincide. I can recognize that translations map parallel lines to parallel lines.	8.G.A.1	Must Do: 1-4	Can Do: 5-6	
9/20/19	A **REVIEW/RETEACH as needed- if you are on pace with the calendar you may use this day anywhere within first quarter. If your students do not require this time proceed to the next lesson/activity. You may also borrow this day to reset your class by reviewing procedures and expectations as needed.**							

9/23/19	2	A	4	I can define a reflection and perform a reflection across a line.	8.G.A.1	Must Do: 1-3,6,7	Can Do: 4-5, 8,9	
9/24/19	2	A	5	I can rotate a figure with a given degree around a given center.	8.G.A.1	Must Do: 1-4	Can Do: 5-8	
9/25/19	2	A	6	I can recognize that a rotation of 180 degrees moves a point on the coordinate plane $(a$,b) to $(-a,-b)$.	8.G.A.1	Must Do: 1-8	Can Do: 9	
9/26/19	**REVIEW/RETEACH as needed- if you are on pace with the calendar you may use this day anywhere within first quarter. If your students do not require this time proceed to the next lesson/activity. You may also borrow this day to reset your class by reviewing procedures and expectations as needed.**							
9/27/19	2	B	7	I can recognize the sequence of transformations (one move on the plane followed by another). I can recognize that a translation along a vector followed by another translation along a vector of the same length in the opposite direction can move all points of a plane back to its original position.	8.G.A.2	Must Do: 1-4	Can Do: 5-6	
9/30/19	2	B	8	I can show that a reflection is its own inverse transformation. I can regonize that a sequence of a reflection followed by a translation is not necessarily equal to a translation followed by a reflection.	8.A.G.2	Must Do: 1-3	Can Do: 4-7	
10/1/19	2	B	9	I can recognize that sequences of rotations preserve lengths of segments as well as degrees of measures of angles. I can describe a sequence of rigid motions that would map a triangle back to its original position after being rotated around two different centers.	8.A.G.2	Must Do: 1-5	Can Do:	
10/2/19	2	B	10	I can describe a sequence of rigid motions that maps one figure onto another.	8.A.G.2	Must Do:	Can Do: 4-5	

						1-3		
10/3/19	2	B		**Mid-Module Assessment**				
10/4/19	2	C	11	I can recognize the definition of congruence and related notation, i.e., ≅. I can prove two figures are congruent. I can recognize the basic properties of congruence are similar to the properties for all three rigid motions (translations, rotations, and reflections).	8.G.A.2 8.G.A.5	Must Do: 1-2	Can Do:	
10/7/19	2	C	12	I can recognize that corresponding angles, alternate interior angles, and alternate exterior angles of parallel lines are equal. I can know that when these pairs of angles are equal, then lines are parallel. I can present informal arguments to draw conclusions about angles formed when parallel lines are cut by a transversal.	8.G.A.2 8.G.A.5	Must Do: Exploratory Challenge 1-2	Can Do:	
10/8/19	2	C	13	I can determine the sum of the interior angles of a triangle is always 180°. I can draw conclusions about the angle sum of a triangle.	8.G.A.2 8.G.A.5	Must Do: Exploratory Challenge 1-2	Can Do:	
10/9/19 & 10/10/19	2	C	14	I can demonstrate a third informal proof of the angle sum theorem. I can find missing interior and exterior angle measures of triangles and present informal arguments to prove their answer is correct.	8.G.A.2 8.G.A.5	Must Do: 1-6	Can Do: 7-10	
10/11/19	2	A-C Review Module & End of Module Assessment						

**See Math Block Framework for Math Center Suggestions

CCSS and abbreviations	MLS and abbreviations
8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 32 × 3-5 = 3-3 = 1/33 = 1/27.	8.EEI.A.1 Know and apply the properties of integer exponents to generate equivalent expressions.
8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 times 108 and the population of the world as 7 times 109, and determine that the world population is more than 20 times larger.	8.EEI.A.3 Express very large and very small quantities in scientific notation and approximate how many times larger one is than the other.
8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use 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	8.EEI.A.4 Use scientific notation to solve problems. a. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. b. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities.
8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.	8.GM.A.1 Verify experimentally the congruence properties of rigid transformations. a. Verify that angle measure, betweeness, collinearity and distance are preserved under rigid transformations. b. Investigate if orientation is preserved under rigid transformations.
8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	8.GM.A.2 Understand that two-dimensional figures are congruent if a series of rigid transformations can be performed to map the preimage to the image. a. Describe a possible sequence of rigid transformations between two congruent figures.
8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.	8.GM.A.5 Explore angle relationships and establish informal arguments. a. Derive the sum of the interior angles of a triangle. b. Explore the relationship between the interior and exterior angles of a triangle. c. Construct and explore the angles created when parallel lines are cut by a transversal. d. Use the properties of similar figures to solve problems.