Advanced Math 6

Pacing Guide 2019 – 2020

1ST MARKING PERIOD (42 days) - *includes 12 days to test/remediate*

Unit 1	Integers (NNS)	Intro Real Number System SOL 6.3abc (integers) SOL 7.1e, (abs value) SOL 6.6abc (integer operations) SOL 6.8ab (coordinate plane, graphing) SOLs 6.4 (exponents,perfect sq) SOL 7.1d (sq roots)
UNIT 2	Fraction and Decimals Practical Problems (CE) (NNS)	SOL 6.5abc (multi step prac w/frac and decimals) SOL 7.2 (prac prob w/ rational numbers) SOL 6.2ab (equivalencies, compare/order)

2ND MARKING PERIOD (43 days) - *includes 6 days to test/remediate*

UNIT 3	Ratios (NNS)	SOLs 6.1 (ratio relationships)
UNIT 4	Proportional Reasoning (PFA)	6.12abcd (unit rate, prop relationships) SOL 7.3 (practical prob w/prop reasoning) SOL 7.2 (prac prob w/ rational numbers) **PBL: PLAN A PARTY!** **(incorporates all of unit 2,3,4)**

3RD MARKING PERIOD (48 days) - *includes 9 days to test/remediate*

UNIT 5	Algebra (PFA)	SOL 6.13 (one step equations) SOL 7.12 (two step equations and prac prob) SOL 6.14ab (one step inequalities) SOL 7.13 (two-step inequalities)
Unit 6	Geometry	SOLs 6.9 (congruence) SOL 6.7ab (circles) SOL 6.7c area and perimeter prac. prob. SOL 7.4ab volume/SA, **PBL: DESIGN YOUR DREAM HOME**

4TH MARKING PERIOD (47 days) - *includes 6 days to test/remediate*

UNIT 7	Data (STATS)	SOL 6.11ab (measures of center) SOL 6.10abc (circle graphs) SOL 7.9c (Histograms)
UNIT 8	SOL REVIEW / TESTING *(~ 11 days)*	

Unit : Integers		
SOL	**Content**	**Days**
6.3abc	**Integers**	
6.3a	● Model integers, including models derived from practical situations.	
	● Identify an integer represented by a point on a number line. *(Be sure to represents integers as improper fractions, exponents, and square roots.)*	
6.3b	● Compare and order integers using a number line.	
	● Compare integers, using mathematical symbols $(<, \leq, >, \geq, =)$.	
6.3c	● Identify and describe the absolute value of an integer.	
7.1e	**Absolute Value of Rational Numbers**	7 days
7.1e	● Demonstrate absolute value using a number line.	
	● Determine the absolute value of a rational number.	
	● Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle to solve practical problems.	
6.6abc	**Integer Operations**	
6.6a	***NO CALCULATOR*** (ONLY 6.6a)	
	● Model addition, subtraction, multiplication and division of integers using pictorial representations or concrete manipulatives.	
	● Add, subtract, multiply, and divide two integers.	

6.6b	● Solve practical problems involving addition, subtraction, multiplication, and division with integers.	5 days
6.6c	***NO CALCULATOR*** (ONLY 6.6c)	
	● Use the order of operations and apply the properties of real numbers to simplify numerical expressions involving more than two integers. Expressions should not include braces { } or brackets [ ], but may contain absolute value bars ||. Simplification will be limited to three operations, which may include simplifying a whole number raised to an exponent of 1, 2 or 3.	
6.8ab	**Coordinate Plane**	
6.8a	● Identify and label the axes, origin, and quadrants of a coordinate plane.	
	● Identify the quadrant or the axis on which a point is positioned by examining the coordinates (ordered pair) of the point. Ordered pairs will be limited to coordinates expressed as integers.	

SOL	Content	Days
6.8b	● Graph ordered pairs in the four quadrants and on the axes of a coordinate plane. Ordered pairs will be limited to coordinates expressed as integers.	5 days
	● Identify ordered pairs represented by points in the four quadrants and on the axes of the coordinate plane. Ordered pairs will be limited to coordinates expressed as integers.	
	● Relate the coordinates of a point to the distance from each axis and relate the coordinates of a single point to another point on the same horizontal or vertical line. Ordered pairs will be limited to coordinates expressed as integers.	
	● Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to determine the length of a side joining points with the same first coordinate or the same second coordinate. Ordered pairs will be limited to coordinates expressed as integers. Apply these techniques in the context of solving practical and mathematical problems.	
6.4	**Exponents and Perfect Squares**	
6.4	● Recognize and represent patterns with bases and exponents that are whole numbers.	5 days
	● Recognize and represent patterns of perfect squares not to exceed 20^2, by using grid paper, square tiles, tables, and calculators.	
	● Recognize powers of 10 with whole number exponents by examining patterns in place value.	
7.1d	**Square Roots**	
7.1d	*****NO CALCULATOR*** (ONLY 7.1d)** ● Identify the perfect squares from 0 to 400.	10 days
	● Determine the positive square root of a perfect square from 0 to 400.	
	● Represent and determine equivalencies among decimals, percents, fractions (proper or improper), and mixed numbers that have denominators that are 12 or less or factors of 100.	
	Unit 1 Benchmark: SOL 6.4, 7.1d, 6.3abc, 7.1e, 6.6abc, 6.8ab (3 days)	

Unit 2: Fractions, Decimals, and Percents   ***NO CALCULATOR*** (6.2ab)

SOL	Content	Days
6.2ab	*****NO CALCULATOR*** (6.2ab)**	
	· Represent ratios as fractions (proper or improper), mixed numbers, decimals, and/or percents.	
	· Determine the decimal and percent equivalents for numbers written in fraction form (proper or improper) or as a mixed number, including repeating decimals.	

SOL	CONTENT	Days
	● · Represent and determine equivalencies among decimals, percents, fractions (proper or improper), and mixed numbers that have denominators that are 12 or less or factors of 100. ● Compare two percents using pictorial representations and symbols (<, ≤, ≥, >, =). (b)	
	● Order no more than four positive rational numbers expressed as fractions (proper or improper), mixed numbers, decimals, and percents (decimals through thousandths, fractions with denominators of 12 or less or factors of 100). Ordering may be in ascending or descending order. (b)	
SOL	**CONTENT**	**Days**
6.5abc	**Practical Problems**	
6.5a	*****NO CALCULATOR*** (ONLY 6.5a)** ● Demonstrate/model multiplication and division of fractions (proper or improper) and mixed numbers using multiple representations. ● Multiply and divide fractions (proper or improper) and mixed numbers. Answers are expressed in simplest form.	
6.5b	● Solve single-step and multistep practical problems that involve addition and subtraction with fractions (proper or improper) and mixed numbers, with and without regrouping, that include like and unlike denominators of 12 or less. Answers are expressed in simplest form. ● Solve single-step and multistep practical problems that involve multiplication and division with fractions (proper or improper) and mixed numbers that include denominators of 12 or less. Answers are expressed in simplest form.	15 days
6.5c	● Solve multistep practical problems involving addition, subtraction, multiplication and division with decimals. Divisors are limited to a three-digit number, with decimal divisors limited to hundredths.	
	Unit 2 Test: SOL 6.2ab, 6.5abc + Spiral Review	3 days

Unit 3 and 4: Ratios and Proportions		
SOL	**Content**	**Days**
6.1	**Represent Ratios**	
6.1	●—Represent a relationship between two quantities using ratios. ● Represent a relationship in words that makes a comparison by using the notations $\frac{a}{b}$, $a{:}b$, and *a to b.* ● Create a relationship in words for a given ratio expressed symbolically.	5 days
6.12abcd	**Proportional Relationships**	
6.12a	● Make a table of equivalent ratios to represent a proportional relationship between two quantities, when given a ratio. ● Make a table of equivalent ratios to represent a proportional relationship between two quantities, when given a practical situation.	

6.12b	• Identify the unit rate of a proportional relationship represented by a table of values or a verbal description, including those represented in a practical situation. Unit rates are limited to positive values.	
	• Determine a missing value in a ratio table that represents a proportional relationship between two quantities using a unit rate. Unit rates are limited to positive values.	
6.12c	• Determine whether a proportional relationship exists between two quantities, when given a table of values or a verbal description, including those represented in a practical situation. Unit rates are limited to positive values.	15 days
	• Determine whether a proportional relationship exists between two quantities given a graph of ordered pairs. Unit rates are limited to positive values.	
6.12d	• Make connections between and among multiple representations of the same proportional relationship using verbal descriptions, ratio tables, and graphs. Unit rates are limited to positive values.	
SOL 7.3	**(practical problems with proportional reasoning)**	
	• Given a proportional relationship between two quantities, create and use a ratio table to determine missing values.	
	• Write and solve a proportion that represents a proportional relationship between two quantities to find a missing value.	
	• Apply proportional reasoning to convert units of measurement within and between the U.S. Customary System and the metric system when given the conversion factor. • Apply proportional reasoning to solve practical problems, including scale drawings. Scale factors shall have denominators no greater than 12 and decimals no less than tenths. • Using 10% as a benchmark, compute 5%, 10%, 15%, or 20% of a given whole number. • Using 10% as a benchmark, compute 5%, 10%, 15%, or 20% in a practical situation such as tips, tax, and discounts. • Solve problems involving tips, tax, and discounts. Limit problems to only one percent computation per problem.	
	Unit 3 Test: 6.1, 6.12abcd, 7.3	3 days

Unit 5: Algebra

6.13	**Solving One-Step Equations**	
	• Identify examples of the following algebraic vocabulary: equation, variable, expression, term, and coefficient.	
	• Represent and solve one-step linear equations in one variable, using a variety of concrete materials such as colored chips, algebra tiles, or weights on a balance scale.	
	• Apply properties of real numbers and properties of equality to solve a one-step equation in one variable. Coefficients are limited to integers and unit fractions. Numeric terms are limited to integers.	

6.13	• Confirm solutions to one-step linear equations in one variable.	5 days
	• Write verbal expressions and sentences as algebraic expressions and equations.	
	• Write algebraic expressions and equations as verbal expressions and sentences.	
	• Represent and solve a practical problem with a one-step linear equation in one variable.	
7.12	**Solving Two-Step Equations**	
7.12	• Represent and solve two-step linear equations in one variable using a variety of concrete materials and pictorial representations.	5 days
	• Apply properties of real numbers and properties of equality to solve two-step linear equations in one variable. Coefficients and numeric terms will be rational.	
	• Confirm algebraic solutions to linear equations in one variable.	
	• Write verbal expressions and sentences as algebraic expressions and equations.	
	• Write algebraic expressions and equations as verbal expressions and sentences.	
	• Solve practical problems that require the solution of a two-step linear equation.	

6.14ab	**Solve and Graph One-Step Inequalities**	
6.14a	• Given a verbal description, represent a practical situation with a one-variable linear inequality.	5 days
	• Identify a numerical value(s) that is part of the solution set of a given inequality.	
6.14b	• Apply properties of real numbers and the addition or subtraction property of inequality to solve a one-step linear inequality in one variable, and graph the solution on a number line. Numeric terms being added or subtracted from the variable are limited to integers.	
	• Given the graph of a linear inequality with integers, represent the inequality two different ways (e.g., $x < -5$ or $-5 > x$) using symbols.	
	• Identify a numerical value(s) that is part of the solution set of a given inequality.	
7.13	**Solve and Graph Two-Step Inequalities**	
	• Apply properties of real numbers and the multiplication and division properties of inequality to solve one-step inequalities in one variable, and the addition, subtraction, multiplication, and division properties of inequality to solve two-step inequalities in one variable. Coefficients and numeric terms will be rational.	

7.13	• Represent solutions to inequalities algebraically and graphically using a number line.		5 days
	• Write verbal expressions and sentences as algebraic expressions and inequalities.		
	• Write algebraic expressions and inequalities as verbal expressions and sentences.		
	• Solve practical problems that require the solution of a one- or two-step inequality.		
	• Identify a numerical value(s) that is part of the solution set of a given inequality.		
	Unit 5 Test: SOL 6.13, 7.12, 6.14ab, 7.13 + Spiral Review		3 days

Unit 6: Geometry

SOL	Content	Days
6.9	**Congruence**	
6.9	• Identify regular polygons. • Draw lines of symmetry to divide regular polygons into two congruent parts. • Determine the congruence of segments, angles, and polygons given their properties. • Determine whether polygons are congruent or noncongruent according to the measures of their sides and angles.	5 days
6.7abc	**Formulas**	
6.7c	• Solve problems, including practical problems, involving area and perimeter of triangles and rectangles. *(Be sure to also include area and perimeter of squares.)*	25 days
7.4ab	**Surface Area and Volume of Rectangular Prism** *(Surface Area and Volume will ONLY be found for Rectangular Prisms.)*	
7.4a	• Determine the surface area of rectangular prisms and cylinders using concrete objects, nets, diagrams, and formulas. • Determine the volume of rectangular prisms and cylinders using concrete objects, diagrams, and formulas.	
7.4b	• Determine if a practical problem involving a rectangular prism or cylinder represents the application of volume or surface area. • Solve practical problems that require determining the surface area of rectangular prisms and cylinders. • Solve practical problems that require determining the volume of rectangular prisms and cylinders.	
6.7a	• Derive an approximation for pi (3.14 or $\frac{22}{7}$) by gathering data and comparing the circumference to the diameter of various circles, using concrete materials or computer models.	

6.7b	• Solve problems, including practical problems, involving circumference and area of a circle when given the length of the diameter or radius.	
	Unit 6 Test: SOL 6.9, 7.4ab, 6.7abc + Spiral Review	3 days

Unit 7 : Data		
SOL	**Content**	**Days**
6.11ab	**Balance Point**	
6.11a	• Represent the mean of a set of data graphically as the balance point represented in a line plot.	7 days
6.11b	• Determine the effect on measures of center when a single value of a data set is added, removed, or changed.	
6.10abc	**Circle Graphs**	
6.10a	• Collect, organize and represent data in a circle graph. The number of data values should be limited to allow for comparisons that have denominators of 12 or less or those that are factors of 100 (e.g., in a class of 20 students, 7 choose apples as a favorite fruit, so the comparison is 7 out of 20, $\frac{7}{20}$, or 35%).	10 days
6.10b	• Make observations and inferences about data represented in a circle graph.	
6.10c	• Compare data represented in a circle graph with the same data represented in bar graphs, pictographs, and line plots.	
7.9c	**Comparing Histograms**	
7.9c	• Compare data represented in histograms with the same data represented in line plots, circle graphs, and stem-and-leaf plots. *(Compare ONLY Circle Graphs, Line Plots, and Histograms. You do not need to compare with Stem-and-Leaf Plots.)*	2 days
	Unit 7 Test: 6.11ab, 6.10abc, 7.9c + Spiral Review	3 days
Unit 8: SOL Review		
	Content	**Days**
SOL Review **Advanced Math 6 SOL Testing** **SOL Remediation / Re-Takes (if needed)**		11 days