Unit 6
Standards Review

Grade 7 Math

Unit Description:

Students will build fluency and continue to apply essential standards toward applications of concepts such as solving equations and inequalities, exponents, and coordinate plane graphing.

Standards for Mathematical Practice

MP.1 Make sense of problems and persevere in solving them.
MP.2 Reason abstractly and quantitatively.
MP.3 Construct viable arguments and critique the reasoning of others.
MP.4 Model with mathematics.
MP.5 Use appropriate tools strategically.
MP.6 Attend to precision.
MP.7 Look for and make use of structure.
MP.8 Look for and express regularity in repeated reasoning.

Louisiana Student Standards for Mathematics (LSSM)

7.EE.B. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	
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.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 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.*

6.EE.A Apply and extend previous understandings of arithmetic to algebraic expressions.

6.EE.A.1	Write and evaluate numerical expressions involving whole-number exponents.
6.EE.A.2.c	Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas* $V = s^3$ *and* $A = 6s^2$ *to find the volume and surface area of a cube with sides of length* $s = ½$ *.*

6.NS.C Apply and extend previous understandings of numbers to the system of rational numbers.

6.NS.C.6	Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. **a.** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite. **b.** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. **c.** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Enduring Understandings:	**Essential Questions:**
*Variables can be used to represent numbers in any type of mathematical problem. *Expressions can be manipulated to suit a particular purpose to solve problems efficiently. *Mathematical expressions, equations, inequalities, and graphs are used to	*How can I apply the order of operations and the fundamentals of algebra to solve problems involving equations and inequalities? *How can I justify that multiple representations in the context of a problem are equivalent expressions?

represent and solve real-world and mathematical problems. *Signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane *Integers and other rational numbers can be placed on a horizontal or vertical number line diagram.	*How do I assess the reasonableness of my answer? *How do I plot an ordered pair on the coordinate plane?