COMMON CORE AND PASS – SIDE – BY – SIDE
6TH GRADE MATHEMATICS

Oklahoma PASS/COMMON CORE Mathematics Content Standards 6th Grade CBMS Pacing Calendar			
Content Standards		**Common Core**	**Lesson(s)**
Standard 1: Algebraic Reasoning: Patterns and Relationships – The student will use algebraic methods to describe patterns, simplify and write algebraic expressions and equations, and solve simple equations in a variety of contexts.			
1.1 3rd 6 weeks	Generalize and extend patterns and functions using tables, graphs, and number properties (e.g., number sequences, prime and composite numbers, recursive patterns like the Fibonacci numbers).	**MOVING TO 8TH GRADE**	1-2, Explore 1-6, 6-2, Extend 6-2, 6-5, 6-6 Additional Lesson 1
1.2 1st 6 weeks	Write algebraic expressions and simple equations that correspond to a given situation.	**Apply and extend previous understandings of arithmetic to algebraic expressions.** 1. Write and evaluate numerical expressions involving whole-number exponents. 2. Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.*	1-6, Explore 1-9,6-7,12-2
1.3	Use substitution to simplify and evaluate algebraic expressions (e.g., if x = 5 evaluate 3 – 5x).	**Apply and extend previous understandings of arithmetic to algebraic expressions.** 1. Write and evaluate numerical expressions involving whole-number Exponents 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 wholenumber 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 $A = 6 s^2$ to find the volume and surface area of a cube with sides of length s = 1/2.* **Reason about and solve one-variable equations and inequalities.** 7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	1-5, 1-9, 3-7, 12-2

1.4		Write and solve one-step equations with one variable using number sense, the properties of equality (e.g., $1/3x = 9$).	**Apply and extend previous understandings of arithmetic to algebraic expressions.** 2. Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as $5 – y$.* Common Core State Standards for MAT HEMAT ICS grade 6	44 b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression $2 (8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.* 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 $A = 6 s_2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.* 3. Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression $3 (2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6 (4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.* **Reason about and solve one-variable equations and inequalities.** 5. Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 7. Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. 8. Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	1-8, Explore 12-3, Explore 12-4, 12-4, 12-5
Standard 2: Number Sense and Operation - The student will use numbers and number relationships to solve problems. The student will estimate and compute with integers, fractions, and decimals.				
2.1	**2nd 9 weeks**	Convert, compare and order decimals (terminating and non-terminating), fractions and percents using a variety of methods.	**Understand ratio concepts and use ratio reasoning to solve problems.** 3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	3-2, Explore 4-2, 4-2, 4-3, 4-6, 4-7, 4-8, 6-1, Extend 6-1, Explore 7-1, 7-3

2.2	4th 6 weeks	Number Operations		
2.2a	1st 6 weeks	Multiply and divide fractions and mixed numbers to solve problems using a variety of methods.	**Apply and extend previous understandings of multiplication and division to divide fractions by fractions.** 1. Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 3/4-cup servings are in 2/3 of a cup of yogurt? How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?*	Explore 5-7, 5-8, Explore 5-9, 5-10
2.2b	1st 6 weeks	Multiply and divide decimals with one or two digit multipliers or divisors to solve problems.	**Compute fluently with multi-digit numbers and find common factors and multiples.** 3. Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	Explore 3-6, Explore 3-7, 3-8 Explore 3-9
2.2c	1st 6 weeks	.Estimate solutions to single and multi-step problems using whole numbers, decimals, fractions, and percents and assess whether solutions are reasonable (e.g., 7/8 +8/9 is about 2, 0.9 + 0.3 is about 1).	**Understand ratio concepts and use ratio reasoning to solve problems.** 3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	3-4, Explore 3-5, 3-10, 5-3, Explore 5-4, 5-5, 5-6, 7-8
2.2d		Use the basic operations on integers to solve problems.	**MOVED TO 7TH GRADE**	1-4, 11-1, Explore 11-2, 11-3, 11-4, 11-6, 11-8, 11-9, 11-10
2.2e		Build and recognize models of multiples to develop the concept of exponents and simplify numerical expressions with exponents and parentheses using order of operations.	**Apply and extend previous understandings of arithmetic to algebraic expressions.** 1. Write and evaluate numerical expressions involving whole-number exponents. 2. Write, read, and evaluate expressions in which letters stand for numbers. 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 $A = 6 s_2$ to find the volume and surface area of a cube with sides of length s = 1/2.*	1-3, 1-4

Standard 3: Geometry – The student will use geometric properties and relationships to recognize, describe, and analyze shapes And representations in a variety of contexts.				
3.1	4th 6 weeks	Compare and contrast the basic characteristics of three – dimensional figures (pyramids, prisms, cones, and cylinders).		
3.2	4th 6 weeks	Compare and contrast congruent and similar figures.	**MOVED TO 8TH GRADE**	
3.3		Identify the characteristics of the rectangular coordinate system and use them to locate points and describe shapes drawn in all four quadrants.	**Apply and extend previous understandings of numbers to the system of rational numbers** 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 8. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. **Solve real-world and mathematical problems involving area, surface area, and volume** 3. Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	
Standard 4: Measurement – The student will use measurements within the metric and customary systems to solve problems in a variety of contexts.				
4.1	4th 6 weeks	Use formulas to find the circumference and area of circles in terms of pi.		Explore 10-2, LA 4 Additional Lesson 4
4.2	3rd 6 weeks	Convert, add, or subtract measurements within the same system to solve problems (e.g., 9' 8" + 3' 6" = __ , 150 minutes = __ hours and __minutes, 6 square inches = __ square feet).		8-2, 8-7 Additional Lesson 2

Standard 5: Data Analysis and Statistics – The student will use data analysis, probability, and statistics to interpret data in a variety of contexts.				
5.1	**2nd 6 weeks**	Data Analysis: Organize, construct displays, and interpret data to solve problems (eg., data from student experiments, tables, diagrams, charts, graphs).	**Develop understanding of statistical variability.** 3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number **Understand ratio concepts and use ratio reasoning to solve Problems** 3. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	2-1, 2-2, Extend 2-2, 2-3, 2-4, 2-5, 2-6, Extend 2-6, 2-7, 2-8, Extend 2-8, 2-9, 7-2
5.2	**2nd 6 weeks**	Probability: Use the fundamental counting principle on sets with up to five items to determine the number of possible combinations.		7-5
5.3	**1st 6 weeks**	Central Tendency: Find the measures of central tendency (mean, median, mode, and range) of a set of data (with and without outliers) and understand why specific measure provides the most useful information in a given context.	**Develop understanding of statistical variability.** 3. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. **Summarize and describe distributions.** 5. Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	2-6, Extend 2-6, 2-7, Extend 2-8