

2016-2017 Fourth Grade Overview: Math

Month(s)	Unit	Key Concepts "Students will know..."	Key Skills "Students will be able to..."
September	1. Place Value, Addition, and Subtraction to One Million	<ul style="list-style-type: none"> ● The value of each digit is determined by its position ● For whole numbers, the digit farthest to the right is in the ones place ● Moving to the left, each digit has a place value ten times the value of the place to the right ● The millions period is to the left of the thousands 	<ul style="list-style-type: none"> ● Place digits in correct place value positions ● Write numbers correctly in standard form ● Use place value to compare the value of numbers and determine greater than/less than ● Explain the process used to find the greatest six digit number ● Use understanding of place value to add and subtract multi-digit whole numbers using standard algorithm
October	2. Multiply 1-Digit Numbers	<ul style="list-style-type: none"> ● How to choose the best strategy for multiplying, including compensation and area models ● The distributive property of multiplication ● Basic multiplication facts and multiples 	<ul style="list-style-type: none"> ● Round to the greatest factor ● Multiply accurately ● Compare estimates and actual amounts ● Complete a multistep problem with accuracy
October - November	3. Multiply 2-Digit Numbers	<ul style="list-style-type: none"> ● Place value concepts and how they are applied in solving 2-digit multiplication problems ● How to use an area model to find the products of 2-digit numbers ● The distributive property of multiplication 	<ul style="list-style-type: none"> ● Identify the information needed to solve the problem ● Multiply and add partial products correctly ● Use place value to multiply 2-digit numbers ● Choose best methods to multiply 2-digit numbers
November - December	4. Divide by 1-Digit Numbers	<ul style="list-style-type: none"> ● Arrays are powerful representations to visualize multi-digit division ● Division is sharing or partitioning ● Division can be represented by repeated subtraction 	<ul style="list-style-type: none"> ● Model division with 1-digit divisors ● Use traditional algorithms to divide by 1-digit numbers ● Use remainders in division problems ● Estimate quotients
December	5. Factors, Multiples, and Patterns	<ul style="list-style-type: none"> ● The same number can be a factor and a multiple ● Factors and multiples are related ● The concepts of prime and composite numbers are directly related to the concepts of factors and multiples 	<ul style="list-style-type: none"> ● Correctly identify factor pairs of 30 that do not include 1 ● Correctly identify common factors ● Correctly identify a rule for a pattern ● Find the next sequence of numbers in a given pattern
January		<ul style="list-style-type: none"> ● How to use area and linear models to make sense of 	<ul style="list-style-type: none"> ● Correctly explain how to compare fractions to $\frac{1}{2}$

	6. Fraction Equivalence and Comparison	<ul style="list-style-type: none"> equivalent fractions That benchmarks like $\frac{1}{2}$ help us compare fractions and reason about relative size That the relation of the number of pieces to the size of the piece can be used to compare fractions with common numerators 	<ul style="list-style-type: none"> Clearly describe how to determine if fractions are equivalent Correctly order fractions from least to greatest and greatest to least
January - February	7. Add and Subtract Fractions	<ul style="list-style-type: none"> How to use fraction strips to model addition and subtraction of fractions with like denominators How to use mathematical language to describe and support models How to represent fractions flexibly How to use number sense to determine a fraction's proximity to 1 That working flexibly with fractions includes using properties Using models and mathematical language helps develop reasoning and flexibility in working with fractions 	<ul style="list-style-type: none"> Determine the correct operation needed to solve a problem Draw a model to represent the solution to a problem Record the equation that represents the solution Identify and explain the steps used to solve a multistep problem
February	8. Multiply Fractions by Whole Numbers	<ul style="list-style-type: none"> How to use a variety of representations (area models, number lines, counters) to model multiplying fractions by whole number How to understand specific problem types in terms of real world situations That many real life problems involve the product of a whole number and a fraction That many real world situations require estimating the products of a fraction and whole number How to construct viable arguments and critique the reasoning of others 	<ul style="list-style-type: none"> Draw an area model/diagram to represent multiplying a fraction by a whole number Use an area model/diagram to write an equation Use mathematical language to explain and defend problem solving strategies Interpret and solve real-world problems requiring the multiplication of a fraction by a whole number
February - March		<ul style="list-style-type: none"> Rectangles, squares and rhombuses always have two pairs of parallel sides Trapezoids always have one pair of parallel sides Squares and rectangles 	<ul style="list-style-type: none"> Students will be able to describe the building blocks of geometry Students will be able to classify triangles and quadrilaterals

	10. Two Dimensional Figures	<p>always have four right angles formed by adjacent perpendicular sides</p> <ul style="list-style-type: none"> • A rhombus with four right angles is a square • Some trapezoids have two right angles formed by adjacent perpendicular sides • A shape has a line symmetry if a line can separate the shape into two congruent parts • A shape may only have one, multiple, or no lines of symmetry 	<ul style="list-style-type: none"> • Students will be able to recognize symmetry in a polygon
March	11. Angles	<ul style="list-style-type: none"> • That circles are geometric shapes • Angles can be shown by choosing two points on the circle and connecting each of them to the center circle • Circles are commonly used to study fractions and angles can be related to fractions • Acute angles are angles that measure greater than 0 degrees but less than 90 degrees • Obtuse angles are angles that measure greater than 90 degrees but less than 180 degrees • Right angles are angles that measure exactly 90 degrees • Straight angles are angles that measure exactly 190 degrees. Straight angles are typically identified as straight lines • The center point of the protractor must be placed on the vertex of the angle • The zero degree mark on the protractor must align with one of the rays of the angle being measured. 	<ul style="list-style-type: none"> • Students will be able to correctly divide the circle into appropriate angles • Students will be able to correctly label each angle with its degree measure and as a fraction of a circle • Students will be able to correctly write an addition equation to represent the degree measure of a whole
March - April		<ul style="list-style-type: none"> • That a fraction with a denominator that is a multiple of 10 can be easily represented in decimal form 	<ul style="list-style-type: none"> • Use place value to compare decimal fractions • Explain how to write decimals as fractions and fractions as decimals

	13. Relate Fractions and Decimals	<ul style="list-style-type: none"> ● That using models such as decimal squares and number lines helps us to understand the relationship between fractions and decimals ● That the value of a fraction does not change when recorded in decimal form ● How to describe and represent decimal fractions in terms of place-value language ● How to translate between fractions, decimals, word form, place value, and money 	<ul style="list-style-type: none"> ● Add two decimal fractions using knowledge about fractions ● Use models and number lines to represent relationships between fractions and decimals ● Describe a given amount (e.g., 4/10) as a fraction, decimal, in word form, and in monetary terms
April	9. Algebra: Perimeter and Area	<ul style="list-style-type: none"> ● That the sum of the length of the sides of a quadrilateral results in the perimeter ● That area is the measure of how much space an object occupies ● How to distinguish between problems that call for a measure of perimeter and problems that call for a measure of area 	<ul style="list-style-type: none"> ● Draw rectangles with a specified perimeter and label sides correctly ● Calculate the area rectangles ● Calculate the perimeter of Quadrilaterals ● Determine unknown side lengths of rectangles ● Solve word problems involving calculation of area and perimeter of rectangles
May-June	12. Relative Sizes of Measurement	<ul style="list-style-type: none"> ● In order to compare the sizes of objects or situations, the attribute of comparison must be clearly identified e.g. weight vs. volume ● Measurement of a quantity is about comparison of that quantity with a fixed reference about of that quantity, or unit ● Time is an attribute to be measured 	<ul style="list-style-type: none"> ● Students will be able to compare the sizes of objects or situations knowing that the attribute of comparison must be clearly identified e.g. weight vs. volume ● Students will be able to show that measurement of a quantity is about comparison of that quantity with a fixed reference about of that quantity, or unit ● Students will understand time is an attribute to be measure