



2017–2018 School Year
**Common Core State
Standards Correlation**

Grade 4

Common Core State Standards
Mathematics

Common Core State Standards		Imagine Math	
Grade 4		Unit	Lesson
Operations and Algebraic Thinking			
Use the four operations with whole numbers to solve problems.			
4.OA.A.1	Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	Operations and Algebraic Thinking	Multiplication as a Comparison - Equations
4.OA.A.2	Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.	Operations and Algebraic Thinking	Multiplication as a Comparison - Word Problems
4.OA.A.3	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	Number and Operations in Base Ten	Estimating Solutions to Multistep Word Problems
		Operations and Algebraic Thinking	Interpreting Remainders Using Equations to Model and Solve Multi-step Problems
Gain familiarity with factors and multiples.			
4.OA.B.4	Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.	Operations and Algebraic Thinking	Factors Relating Factors and Multiples I Relating Factors and Multiples II
Generate and analyze patterns.			
4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. <i>For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i>	Operations and Algebraic Thinking	Generating and Describing Number Patterns

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Number & Operations in Base Ten			
Generalize place value understanding for multi-digit whole numbers.			
4.NBT.A.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. <i>For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division.</i>	Number and Operations in Base Ten	Understanding Place Value Relationships
4.NBT.A.2	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.	Number and Operations in Base Ten	Place Value Concepts Using Place Value Concepts to Compare Whole Numbers
4.NBT.A.3	Use place value understanding to round multi-digit whole numbers to any place.	Number and Operations in Base Ten	Rounding Whole Numbers Using Rounding in Problem Solving
Use place value understanding and properties of operations to perform multi-digit arithmetic.			
4.NBT.B.4	Fluently add and subtract multi-digit whole numbers using the standard algorithm.	Number and Operations in Base Ten	Adding and Subtracting with the Standard Algorithm Adding Whole Numbers
4.NBT.B.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Number and Operations in Base Ten	Multiplying 2-Digit Numbers by 2-Digit Numbers Multiplying Whole Numbers
4.NBT.B.6	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Number and Operations in Base Ten	Dividing Multiples of Ten Dividing Whole Numbers - One-Digit Divisors

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Number & Operations—Fractions			
Extend understanding of fraction equivalence and ordering.			
4.NF.A.1	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	Number and Operations - Fractions	Generating Equivalent Fractions Modeling Equivalent Fractions Reducing Fractions Understanding Fractions - Relationship Between Numerator and Denominator
4.NF.A.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.	Number and Operations - Fractions	Comparing Fractions - Visual Models Comparing Fractions with Different Numerators and Different Denominators Recognizing Valid Fraction Comparisons II
Build fractions from unit fractions.			
4.NF.B.3.A	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	Number and Operations - Fractions	Adding and Subtracting Fractions with Like Denominators Adding and Subtracting Fractions with Like Denominators in Real-World Situations
4.NF.B.3.B	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.	Number and Operations - Fractions	Decomposing Fractions and Mixed Numbers Writing Fractions as Mixed Numbers and Mixed Numbers as Fractions

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4.NF.B.3.C	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.	Number and Operations - Fractions	Adding and Subtracting Mixed Numbers with Like Denominators Adding and Subtracting Mixed Numbers with Like Denominators - Conceptual Strategies
4.NF.B.3.D	Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	Number and Operations - Fractions	Word Problems with Fractions and Mixed Numbers - Estimation Word Problems with Fractions and Mixed Numbers - Visual Models
4.NF.B.4.A	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. a. Understand a fraction a/b as a multiple of $1/b$. <i>For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$.</i>	Number and Operations - Fractions	Multiplying Unit Fractions by Whole Numbers
4.NF.B.4.B	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</i>	Number and Operations - Fractions	Multiplying Fractions by Whole Numbers
4.NF.B.4.C	Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i>	Number and Operations - Fractions	Solving Word Problems with Multiplication of Fractions by Whole Numbers

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Understand decimal notation for fractions, and compare decimal fractions.			
4.NF.C.5	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.</i>	Number and Operations - Fractions	Adding Fractions with Denominators of 10 or 100 Understanding Fractions with Denominators of 10 and 100
4.NF.C.6	Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as $62/100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i>	Number and Operations - Fractions	Comparing Decimal Fractions
		Number and Operations in Base Ten	Comparing and Ordering Decimal Fractions Comparing Fractions and Decimals Decimal Notation I Decimal Notation II Fraction and Decimal Equivalents
4.NF.C.7	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.	Number and Operations - Fractions	Decimals to Hundredths Recognizing Valid Decimal Comparisons
		Number and Operations in Base Ten	Comparing Decimals to Hundredths Introduction to Comparing Decimals to Hundredths
Measurement & Data			
Solve problems involving measurement and conversion of measurements.			
4.MD.A.1	Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i>	Measurement and Data	Units of Measure - Customary Units of Measure - Metric

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4.MD.A.2	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	This standard is not addressed.	This standard is not addressed.
4.MD.A.3	Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i>	Measurement and Data	Area and Perimeter of Rectangles
Represent and interpret data.			
4.MD.B.4	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. <i>For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.</i>	This standard is not addressed.	This standard is not addressed.
Geometric measurement: understand concepts of angle and measure angles.			
4.MD.C.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	Measurement and Data	Identifying and Comparing Angles

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4.MD.C.5.A	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.	Measurement and Data	Angles Angles 0 to 180
4.MD.C.5.B	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: b. An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	Measurement and Data	Angles Angles 0 to 180
4.MD.C.6	Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	Measurement and Data	Angles Angles 0 to 180
4.MD.C.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	Measurement and Data	Angles Angles 0 to 180
Geometry			
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.			
4.G.A.1	Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	Geometry	Classifying Quadrilaterals II Classifying Triangles Identifying and Classifying Lines, Rays, and Segments

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4.G.A.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	Geometry	Classifying Quadrilaterals II Classifying Triangles
4.G.A.3	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	Geometry	Symmetry