## Mathematics

## Grade 4

## Measurement and Data

I can:

- Apply the area and perimeter formulas for rectangles in real world and mathematical problems
- 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
- Know relative sizes of measurement units within one system of units including km, $\mathrm{m}, \mathrm{cm} ; \mathrm{kg}, \mathrm{g} ; \mathrm{lb}, \mathrm{oz} . ; \mathrm{l}, \mathrm{ml} ; \mathrm{hr}, \mathrm{min}, \mathrm{sec}$. 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
- Recognize angle measure as additive. When an angle is decomposed into nonoverlapping 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
- Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure
- Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement


## Geometry

I can:

- Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures
- 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 linesymmetric figures and draw lines of symmetry
- 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


## Operations and Algebraic Thinking

I can:

- Interpret a multiplication equation as a comparison
- Generate a number or shape pattern that follows a given rule
- 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
- Solve multistep word problems posed with whole numbers and having wholenumber 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
- Multiply or divide to solve word problems involving multiplicative comparison


## Numbers and Operations in Base 10

## I can:

- 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
- 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
- Use place value understanding to round multi-digit whole numbers to any place
- 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
- Find whole-number quotients and remainders with up to four-digit dividends and onedigit 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
- Fluently add and subtract multi-digit whole numbers using the standard algorithm.


## Numbers and Operations with Fractions and Decimals

I can:

- Explain why a fraction is equivalent to another fraction 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
- Compare two fractions with different numerators and different denominators
- 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
- 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
- Use decimal notation for fractions with denominators 10 or 100
- Apply and extend previous understandings of multiplication to multiply a fraction by a whole number

