Fourth Grade Math Standards

Key Concept: **Number Sense and Base Ten**

The student will:

4.NSBT.1 Understand that, in a multi-digit whole number, a digit represents ten times what the same digit represents in the place to its right.

4.NSBT.2 Recognize math periods and number patterns within each period to read and write in standard form large numbers through 999,999,999.

4.NSBT.3 Use rounding as one form of estimation and round whole numbers to any given place value.

4.NSBT.4 Fluently add and subtract multi-digit whole numbers using strategies to include a standard algorithm.

4.NSBT.5 Multiply up to a four-digit number by a one-digit number and multiply a two-digit number by a two-digit number using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using rectangular arrays, area models and/or equations.

4.NSBT.6 Divide up to a four-digit dividend by a one-digit divisor using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.

Key Concept: **Number Sense and Operations- Fractions**

The student will:

4.NSF.1 Explain why a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100), $\frac{a}{b}$, is equivalent to a fraction, $\frac{nxa}{nxb}$, 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.

4.NSF.2 Compare two given fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$ and represent the comparison using the symbols >, =, or <. 2

4.NSF.3 Develop an understanding of addition and subtraction of fractions (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100) based on unit fractions.

a. Compose and decompose a fraction in more than one way, recording each composition and decomposition as an addition or subtraction equation;
b. Add and subtract mixed numbers with like denominators;
c. Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

4.NSF.4 Apply and extend an understanding of multiplication by multiplying a whole number and a fraction (i.e., denominators 2, 3, 4, 5, 6, 8, 10, 12, 25, 100).

a. Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$;

b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number;
c. Solve real-world problems involving multiplication of a fraction by a whole number (i.e., use visual fraction models and equations to represent the problem).

4.NSF.5 Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100 and use this technique to add two fractions with respective denominators of 10 and 100.

4.NSF.6 Write a fraction with a denominator of 10 or 100 using decimal notation, and read and write a decimal number as a fraction.

4.NSF.7 Compare and order decimal numbers to hundredths, and justify using concrete and visual models.

Key Concept: **Algebraic Thinking and Operations**

The student will:
4.ATO.1 Interpret a multiplication equation as a comparison (e.g. interpret 35 = 5x7 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.

4.ATO.2 Solve real-world problems using multiplication (product unknown) and division (group size unknown, number of groups unknown).

4.ATO.3 Solve multi-step, real-world problems using the four operations. Represent the problem using an equation with a variable as the unknown quantity.

4.ATO.4 Recognize that a whole number is a multiple of each of its factors. Find all factors for a whole number in the range 1 – 100 and determine whether the whole number is prime or composite.

4.ATO.5 Generate a number or shape pattern that follows a given rule and determine a term that appears later in the sequence.

Key Concept: **Geometry**

The student will:

4.G.1 Draw points, lines, line segments, rays, angles (i.e., right, acute, obtuse), and parallel and perpendicular lines. Identify these in two-dimensional figures.

4.G.2 Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines.

4.G.3 Recognize right triangles as a category, and identify right triangles.

4.G.4 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.

Key Concept: **Measurement and Data Analysis**

The student will:

4.MDA.1 Convert measurements within a single system of measurement, customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., cm, m, km, g, kg, mL, L) from a larger to a smaller unit.

4.MDA.2 Solve real-world problems involving distance/length, intervals of time within 12 hours, liquid volume, mass, and money using the four operations.

4.MDA.3 Apply the area and perimeter formulas for rectangles.

4.MDA.4 Create a line plot to display a data set (i.e., generated by measuring length to the nearest quarter-inch and eighth-inch) and interpret the line plot.

4.MDA.5 Understand the relationship of an angle measurement to a circle.

4.MDA.6 Measure and draw angles in whole number degrees using a protractor.

4.MDA.7 Solve addition and subtraction problems to find unknown angles in real-world and mathematical problems.

4.MDA.8 Determine the value of a collection of coins and bills greater than $1.00.