Grade Three

The third-grade standards place emphasis on learning multiplication and division facts through the nines table. Concrete materials and two-dimensional representations will be used to introduce addition and subtraction with fractions and decimals and the concept of probability as chance. Students will use standard units (U.S. Customary and metric) for temperature, length, liquid volume, and weight and identify relevant properties of shapes, line segments, and angles.

While learning mathematics, students will be actively engaged, using concrete materials and appropriate technologies such as calculators and computers. However, facility in the use of technology shall not be regarded as a substitute for a student's understanding of quantitative concepts and relationships or for proficiency in basic computations.

Mathematics has its own language, and the acquisition of specialized vocabulary and language patterns is crucial to a student's understanding and appreciation of the subject. Students should be encouraged to use correctly the concepts, skills, symbols, and vocabulary identified in the following set of standards.

Problem solving has been integrated throughout the six content strands. The development of problem-solving skills should be a major goal of the mathematics program at every grade level. Instruction in the process of problem solving will need to be integrated early and continuously into each student's mathematics education. Students must be helped to develop a wide range of skills and strategies for solving a variety of problem types.

Number and Number Sense

3.1 The student will read and write six-digit numerals and identify the place value for each digit.

3.2 The student will round a whole number, 9,999 or less, to the nearest ten, hundred, and thousand.

3.3 The student will compare two whole numbers between 0 and 9,999, using symbols (>, <, or =) and words (*greater than, less than*, or *equal to*).

3.4 The student will recognize and use the inverse relationships between addition/subtraction and multiplication/division to complete basic fact sentences. Students will use these relationships to solve problems such as 5 + 3 = 8 and 8 – 3 = ____.

3.5 The student will
a) divide regions and sets to represent a fraction; and
b) name and write the fractions represented by a given model (area/region, length/measurement, and set). Fractions (including mixed numbers) will include halves, thirds, fourths, eighths, and tenths.

3.6 The student will compare the numerical value of two fractions having like and unlike denominators, using concrete or pictorial models involving areas/regions, lengths/measurements, and sets.

3.7 The student will read and write decimals expressed as tenths and hundredths, using concrete materials and models.

Computation and Estimation

3.8 The student will solve problems involving the sum or difference of two whole numbers, each 9,999 or less, with or without regrouping, using various computational methods, including calculators, paper and pencil, mental computation, and estimation.

3.9 The student will recall the multiplication and division facts through the nines table.

3.10 The student will represent multiplication and division, using area and set models, and create and solve problems that involve multiplication of two whole numbers, one factor 99 or less and the second factor 5 or less.

3.11 The student will add and subtract with proper fractions having like denominators of 10 or less, using concrete materials and pictorial models representing areas/regions, lengths/measurements, and sets.

3.12 The student will add and subtract with decimals expressed as tenths, using concrete materials, pictorial representations, and paper and pencil.

Measurement

3.13 The student will determine by counting the value of a collection of bills and coins whose total value is $5.00 or less, compare the value of the coins or bills, and make change.

3.14 The student will estimate and then use actual measuring devices with metric and U.S. Customary units to measure
a) length — inches, feet, yards, centimeters, and meters;
b) liquid volume — cups, pints, quarts, gallons, and liters; and
c) weight/mass — ounces, pounds, grams, and kilograms.

3.15 The student will tell time to the nearest five-minute interval and to the nearest minute, using analog and digital clocks.

3.16 The student will identify equivalent periods of time, including relationships among days, months, and years, as well as minutes and hours.

3.17 The student will read temperature to the nearest degree from a Celsius thermometer and a Fahrenheit thermometer. Real thermometers and physical models of thermometers will be used.

Geometry

3.18 The student will analyze two-dimensional (plane) and three-dimensional (solid) geometric figures (circle, square, rectangle, triangle, cube, rectangular solid [prism], square pyramid, sphere, cone, and cylinder) and identify relevant properties, including the number of corners, square corners, edges, and the number and shape of faces, using concrete models.

3.19 The student will identify and draw representations of line segments and angles, using a ruler or straightedge.

3.20 The student, given appropriate drawings or models, will identify and describe congruent and symmetrical, two-dimensional (plane) figures, using tracing procedures.

Probability and Statistics

3.21 The student, given grid paper, will
a) collect and organize data on a given topic of his/her choice, using observations, measurements, surveys, or experiments; and
b) construct a line plot, a picture graph, or a bar graph to represent the results. Each graph will include an appropriate title and key.

3.22 The student will read and interpret data represented in line plots, bar graphs, and picture graphs and write a sentence analyzing the data.

3.23 The student will investigate and describe the concept of probability as chance and list possible results of a given situation.

Patterns, Functions, and Algebra

3.24 The student will recognize and describe a variety of patterns formed using concrete objects, numbers, tables, and pictures, and extend the pattern, using the same or different forms (concrete objects, numbers, tables, and pictures).

3.25 The student will
a) investigate and create patterns involving numbers, operations (addition and multiplication), and relations that model the identity and commutative properties for addition and multiplication; and
b) demonstrate an understanding of equality by recognizing that the equal sign (=) links equivalent quantities, such as $4 \bullet 3 = 2 \bullet 6$.