Grade Five

The fifth-grade standards place emphasis on number sense with whole numbers, fractions, and decimals. This focus includes concepts of prime and composite numbers, identifying even and odd numbers, and solving problems using order of operations for positive whole numbers. Students will develop proficiency in the use of fractions and decimals to solve problems. Students will collect, display, and analyze data in a variety of ways and solve probability problems, using a sample space or tree diagram. Students also will solve problems involving volume, area, and perimeter. Students will be introduced to variable expressions and open sentences, and will model one-step linear equations in one variable, using addition and subtraction. Students will investigate and recognize the distributive property. All of these skills assist in the development of the algebraic concepts needed for success in the middle grades. 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

Focus: Prime and Composite Numbers and Rounding Decimals

5.1 The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.

5.2 The student will
a) recognize and name fractions in their equivalent decimal form and vice versa; and
b) compare and order fractions and decimals in a given set from least to greatest and greatest to least.

5.3 The student will
a) identify and describe the characteristics of prime and composite numbers; and
b) identify and describe the characteristics of even and odd numbers.

Computation and Estimation

Focus: Multistep Applications and Order of Operations
5.4 The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division with and without remainders of whole numbers.

5.5 The student will
a) find the sum, difference, product, and quotient of two numbers expressed as decimals through thousandths (divisors with only one nonzero digit); and
b) create and solve single-step and multistep practical problems involving decimals.

5.6 The student will solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers and express answers in simplest form.

5.7 The student will evaluate whole number numerical expressions, using the order of operations limited to parentheses, addition, subtraction, multiplication, and division.

Measurement

Focus: Perimeter, Area, Volume, and Equivalent Measures
5.8 The student will
a) find perimeter, area, and volume in standard units of measure;
b) differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation;
c) identify equivalent measurements within the metric system;
d) estimate and then measure to solve problems, using U.S. Customary and metric units; and
e) choose an appropriate unit of measure for a given situation involving measurement using U.S. Customary and metric units.

5.9 The student will identify and describe the diameter, radius, chord, and circumference of a circle.

5.10 The student will determine an amount of elapsed time in hours and minutes within a 24-hour period.

5.11 The student will measure right, acute, obtuse, and straight angles.

Geometry

Focus: Classification and Subdividing
5.12 The student will classify
a) angles as right, acute, obtuse, or straight; and
b) triangles as right, acute, obtuse, equilateral, scalene, or isosceles.

5.13 The student, using plane figures (square, rectangle, triangle, parallelogram, rhombus, and trapezoid), will
a) develop definitions of these plane figures; and
b) investigate and describe the results of combining and subdividing plane figures.

Probability and Statistics

Focus: Outcomes and Measures of Center
5.14 The student will make predictions and determine the probability of an outcome by constructing a sample space.

5.15 The student, given a problem situation, will collect, organize, and interpret data in a variety of forms, using stem-and-leaf plots and line graphs.

5.16 The student will
a) describe mean, median, and mode as measures of center;
b) describe mean as fair share;
c) find the mean, median, mode, and range of a set of data; and
d) describe the range of a set of data as a measure of variation.

Patterns, Functions, and Algebra

Focus: Equations and Properties
5.17 The student will describe the relationship found in a number pattern and express the relationship.

5.18 The student will
a) investigate and describe the concept of variable;
b) write an open sentence to represent a given mathematical relationship, using a variable;
c) model one-step linear equations in one variable, using addition and subtraction; and
d) create a problem situation based on a given open sentence, using a single variable.

5.19 The student will investigate and recognize the distributive property of multiplication over
addition.