

## 2007 Maine Learning Results: Grade 3

- A. **NUMBER:** Students use numbers in everyday and mathematical contexts to quantify or describe phenomena, develop concepts of operations with different types of numbers, use the structure and properties of numbers with operations to solve problems, and perform mathematical computations. Students develop number sense related to magnitude, estimation, and the effects of mathematical operations on different types of numbers. It is expected that students use numbers flexibly, using forms of numbers that best match a situation. Students compute efficiently and accurately. Estimation should always be used when computing with numbers or solving problems.

### Whole Number: Gr3

- 1 Students understand and use number notation and place value to 10,000 in numerals.**
- Read and write numbers up to 10,000 in numerals and words.
  - Recognize the place values of digits in numbers up to 10,000.
  - Compare and order numbers with up to four digits.
- 2 Students understand and use procedures to add and subtract whole numbers with up to four digits.**
- Display an understanding of the base ten place value system.
  - Use an operation appropriate to a given situation.
- 3 Students understand and apply meanings of multiplication and division.**
- Multiply single-digit numbers and divide using single-digit divisors and up to two-digit dividends (division facts only, but remainders may be present).
  - Use an operation appropriate to a given situation.
  - Recognize and use models for multiplication and division situations.
  - Use multiple strategies for multiplication and division.

### Rational Number: Gr 3

- 4 Students recognize, name, compare, illustrate, and use simple fractions.**
- Recognize, name, and illustrate fractions with denominators from two to ten.
  - Recognize, name, and illustrate parts of a whole.
  - Compare and order fractions with like numerators or with like denominators.

### Real Number: Gr 3-5

*Although no performance indicators are stated, students are expected to have instructional experiences in which they use only rational numbers.*

- B. **DATA:** Students make measurements and collect, display, evaluate, analyze, and compute with data to describe or model phenomena and to make decisions based on data. Students compute statistics to summarize data sets and use concepts of probability to make predictions and describe the uncertainty inherent in data collection and measurement. It is expected that when working with measurements students:
- understand that most measurements are approximations and that taking repeated measurements reveals this variability;
  - understand that a number without a unit is not a measurement, and that an appropriate unit must always be attached to a number to provide a measurement;
  - understand that the precision and accuracy of a measurement depends on selecting the appropriate tools and units; and
  - use estimation comparing measures to benchmarks appropriate to the type of measure and units.

### **Measurement and Approximation: Gr3**

#### **1 Students understand and use measurement of time and temperature.**

- a. Select appropriate tools and units for these measures.
- b. Solve and justify problems with these measures.

### **Data Analysis: Gr3**

#### **2 Students read, construct, and interpret bar graphs.**

### **Probability: Gr3-6**

*Although no performance indicators are stated, students are expected to have experiences with probability in these grades, but it is not expected that the knowledge will be secure.*

**C. GEOMETRY:** Students use measurement and observation to describe objects based on their sizes and shapes; model or construct two-dimensional and three-dimensional objects; solve problems involving geometric properties; compute areas and volumes based on object properties and dimensions; and perform transformations on geometric figures. When making or calculating measures students use estimation to check the reasonableness of results.

### **Geometric Figures: Gr3**

- 1 Students identify, describe, and classify familiar two-dimensional shapes.**
  - a. Describe and classify two-dimensional shapes according to the number of vertices and by number, length and shape of sides.
  - b. Know how to put shapes together and take them apart to form other shapes.
  - c. Identify edges, vertices, and right angles in two-dimensional shapes.
  - d. Tell whether a given angle is greater or smaller than a right angle.

### **Geometric Measurement: Gr3**

- 2 Students understand how to find the distance around a figure.**
  - a. Calculate and measure the distance around a figure whose perimeter is comprised of straight edges.

### **Transformations: Gr3**

*Although no performance indicators are stated, students are expected to have experiences with symmetry, transformations, and congruency in grade three, but it is not expected that the knowledge will be secure.*

D. **ALGEBRA:** Students use symbols to represent or model quantities, patterns, and relationships and use symbolic manipulation to evaluate expressions and solve equations. Students solve problems using symbols, tables, graphs, and verbal rules choosing the most effective representation and converting among representations.

### **Symbols and Expressions: Gr3**

- 1** Students use equivalent expressions to aid computation such as knowing that  $43 + 56$  is the same as  $40 + 3 + 50 + 6$ .

### **Equations and Inequalities: Gr3**

- 2** Students find the unknown in simple equations (or open sentences) in the context of numbers and operations as described in Standard 2.1: Number \* for this grade level such as:

$$3 + 5 = [ ] + 3$$

$$3 + 9 = [ ] + 10$$

$$[ ] + ( ) = 10.$$

\* Standard 2.1 referenced here in the language of Me. Dept. of Ed. Reg. 131 refers to Standard A of this document.

### **Functions and Relations: Gr3**

- 3** Students understand arithmetic relationships among positive whole numbers.
- Use the inverse relationships between addition and subtraction and between multiplication and division and the commutative laws of multiplication and addition to solve problems.
  - Be able to show that for whole numbers subtraction and division are not commutative and show that multiplication and addition are commutative.