

**Bethlehem Lutheran School  
Math Grade 4**

In recognizing the need for understanding and mastering mathematical computations and concepts, the philosophy of the mathematics program is to involve each student in a learning program that blends mathematical skills with practical applications to their daily Christian lives.

**State Standard 1**

*Students develop number sense and use of numbers and number relationships in problem-solving situations and communicate the reasoning used in solving these problems.*

**Classroom objectives**

The student will:

- 1.1 Demonstrate meanings for whole numbers and commonly used fractions and decimals; represent equivalent forms of the same number through the use of physical models, drawings, calculators, and computers.
- 1.2 Read and write whole numbers and know place-value concepts and numeration through their relationships to counting, ordering, and grouping.
- 1.3 Use numbers to count, to measure, to label, and to indicate location.
- 1.4 Develop, test, and explain conjectures about properties of whole numbers and commonly used fractions and decimals.
- 1.5 Use number sense to estimate and justify the reasonableness of solutions to problems involving whole numbers and commonly used fractions and decimals.

**State Standard 2**

*Students use algebraic methods to explore, model, and describe patterns and functions involving numbers, shapes, data, and graphs in problem-solving situations and communicate the reasoning used in solving these problems.*

**Classroom objectives**

The student will:

- 2.1 Reproduce, extend, create, and describe patterns and sequences using a variety of materials.

- 2.2 Describe patterns and other relationships using tables, graphs, and open sentences.
- 2.3 Recognize when a pattern exists and use that information to solve a problem.
- 2.4 Observe and explain how a change in one quality can produce a change in another.

**State Standard 3**

*Students use data collection and analysis, statistics, and probability in problem-solving situations and communicate the reasoning used in solving these problems.*

**Classroom objectives**

The student will:

- 3.1 Construct, read, and interpret displays of data including tables, charts, pictographs, and bar graphs.
- 3.2 Interpret data using the concepts of largest, smallest, most often, and middles.
- 3.3 Generate, analyze, and make predictions based on data obtained from surveys and chance devices.

**State Standard 4**

*Students use geometric concepts, properties, and relationships in problem-solving situations and communicate the reasoning used in solving these problems.*

**Classroom objectives**

The student will:

- 4.1 Recognize shapes and their relationships (i.e. symmetry and congruence) using a variety of materials (i.e. pasta, boxes, and pattern blocks).
- 4.2 Identify, describe, draw, compare, classify, and build physical models of geometric figures.
- 4.3 Relate geometric ideas to measurement and number sense.

- 4.4 Solve problems using geometric relationships and spatial reasoning such as using rectangular coordinates and to locating objects.
- 4.5 Recognize geometry in their world, i.e. art and nature.

### **State Standard 5**

*Students use a variety of tools and techniques to measure, apply the results in problem-solving situations, and communicate the reasoning used in solving these problems.*

#### **Classroom objectives**

The student will:

- 5.1 Know, use, describe, and estimate measures of length, perimeter, capacity, weight, time, and temperature.
- 5.2 Compare and order objects according to measurable attributes ( longest to shortest and lightest to heaviest).
- 5.3 Demonstrate the process of measuring and explain the concepts related to units of measurement.
- 5.4 Use the approximate measures of familiar objects (width of your finger, the temperature of a room, the weight of a gallon of milk, etc.) to develop a sense of measurement.
- 5.5 Select and use appropriate standard and non-standard units of measurements in problem-solving situations.

### **Standard 6**

*Students link concepts and procedures as they develop and use computational techniques, including estimation, mental arithmetic, paper-and-pencil, calculators, and computers in problem-solving situations and communicate the reasoning used in solving these problems.*

#### **Classroom objectives**

The student will:

- 6.1 Demonstrate conceptual meanings for the four basic arithmetic operations of addition, subtraction, multiplication, and division.
- 6.2 Add and subtract commonly-used fraction and decimals using physical models (i.e.  $\frac{1}{3}$ ,  $\frac{3}{4}$ , 0.5, 0.75).

- 6.3 Demonstrate understanding of, and proficiency with, basic addition, subtraction, multiplication, and division facts without the use of a calculator.
- 6.4 Construct, use, and explain procedures to compute and estimate with whole numbers.
- 6.5 Select and use appropriate methods for computing with whole numbers in problem-solving situations from among mental arithmetic, estimation, paper-and-pencil, and computer methods.