

# FLINT RIVER ACADEMY MATH STANDARDS

## THIRD GRADE

### *Numbers and Operations*

Students will use decimal fractions and common fractions to represent parts of a whole. They will also understand the four arithmetic operations for whole numbers and use them in basic calculations, and apply them in problem solving situations.

**1. Students will further develop their understanding of whole numbers and ways of representing them.**

- a. Identify place values from tenths through ten thousands.
- b. Understand the relative sizes of digits in place value notation (10 times, 100 times,  $1/10$  of a single digit whole number) and ways to represent them.

**2. Students will further develop their skills of addition and subtraction and apply them in problem solving.**

- a. Use the properties of addition and subtraction to compute and verify the results of computation.
- b. Use mental math and estimation strategies to add and subtract.
- c. Solve problems requiring addition and subtraction.

**3. Students will further develop their understanding of multiplication of whole numbers and develop the ability to apply it in problem solving.**

- a. Describe the relationship between addition and multiplication, i.e., multiplication is defined as repeated addition.
- b. Know the multiplication facts with understanding and fluency to  $10 \times 10$ .
- c. Use arrays and area models to develop understanding of the distributive property and to determine partial products for multiplication of 2- or 3-digit numbers by a 1- digit number.
- d. Understand the effect on the product when multiplying by multiples of 10.
- e. Apply the identity, commutative and associative properties of multiplication and verify the results.
- f. Use mental math and estimation strategies to multiply.
- g. Solve problems requiring multiplication.

**4. Students will understand the meaning of division and develop the ability to apply it in problem solving.**

- a. Understand the relationship between division and multiplication and between division and subtraction.
- b. Recognize that division may be two situations: the first is determining how many equal parts of a given size or amount may be taken away from the whole as in repeated subtraction, and the second is determining the size of the parts when the whole is separated into a given number of equal parts as in a sharing model.
- c. Recognize problem-solving situations in which division may be applied and write corresponding mathematical expressions.
- d. Explain the meaning of a remainder in division in different circumstances.
- e. Divide a 2 and 3-digit number by a 1-digit divisor.
- f. Solve problems requiring division.

# FLINT RIVER ACADEMY MATH STANDARDS

## **5. Students will understand the meaning of decimal fractions and common fractions in simple cases and apply them in problem-solving situations.**

- a. Understand a decimal fraction (i.e., 0.1) and a common fraction (i.e.,  $1/10$ ) represent parts of a whole.
- b. Understand the fraction  $a/b$  represents  $a$  equal sized parts of a whole that is divided into  $b$  equal sized parts.
- c. Understand a one place decimal fraction represents tenths, i.e.,  $0.3=3/10$ .
- d. Know and use decimal fractions and common fractions to represent the size parts created by equal divisions of a whole.
- e. Understand the concept of addition and subtraction of decimal fractions and common fractions with like denominators.
- f. Model addition and subtraction of decimal fractions and common fractions.
- g. Solve problems involving fractions.

### ***Measurement***

**Students will understand and measure time and length. They will also model and calculate perimeter and area of simple geometric figures.**

**1. Students will further develop their understanding of the concept of time by determining elapsed time of a full, half and quarter-hour.**

**2. Students will measure length choosing appropriate units and tools.**

- a. Use the units of kilometer (km) and mile (mi.) to discuss the measure of long distances.
- b. Measure to the nearest  $\frac{1}{4}$  inch,  $\frac{1}{2}$  inch, and millimeter (mm) in addition to previously learned inch, foot, yard, centimeter, and meter.
- c. Estimate length and represent it using appropriate units.
- d. Compare one unit to another within a single system of measurement.

**3. Students will understand and measure the perimeter of simple geometric figures (squares and rectangles).**

- a. Understand the meaning of the linear unit and measurement in perimeter.
- b. Understand the concept of perimeter as being the boundary of a simple geometric figure.
- c. Determine the perimeter of a simple geometric figure by measuring and summing the lengths of the sides.

**4. Students will understand and measure the area of simple geometric figures. (squares and rectangles).**

- a. Understand the meaning of the square unit and measurement in area.
- b. Model (by tiling) the area of a simple geometric figure using square units (square inch, square foot, etc.).
- c. Determine the area of squares and rectangles by counting, addition, and multiplication with models.

### ***Geometry***

# FLINT RIVER ACADEMY MATH STANDARDS

Students will further develop their understanding of characteristics of previously studied geometric figures.

**1. Students will further develop their understanding of geometric figures by drawing them. They will also state and explain their properties.**

- Draw and classify previously learned fundamental geometric figures and scalene, isosceles and equilateral triangles.
- Identify and explain the properties of fundamental geometric figures.
- Examine and compare angles of fundamental geometric figures.
- Identify the center, diameter, and radius of a circle.

## ***Algebra***

Students will understand how to express relationships as mathematical expressions.

**1. Students will use mathematical expressions to represent relationships between quantities and interpret given expressions.**

- Describe and extend numeric and geometric patterns.
- Describe and explain a quantitative relationship represented by a formula (such as the perimeter of a geometric figure).
- Use a symbol, such as  $\square$  and  $\Delta$ , to represent an unknown and find the value of the unknown in a number sentence.

## ***Data Analysis***

Students will gather, organize, and display data and interpret graphs.

**1. Students will create and interpret simple tables and graphs.**

- Solve problems by organizing and displaying data in bar graphs and tables.
- Construct and interpret bar graphs using scale increments of 1, 2, 5, and 10.
- Develop and evaluate mathematical arguments and proofs.
- Select and use various types of reasoning and methods of proof.

## ***Mathematical Reasoning***

Each topic studied in this course should be developed with careful thought toward helping every student achieve the following process standards.

**1. Students will solve problems (using appropriate technology).**

- Build new mathematical knowledge through problem solving.
- Solve problems that arise in mathematics and in other contexts.
- Apply and adapt a variety of appropriate strategies to solve problems.
- Monitor and reflect on the process of mathematical problem solving.

**2. Students will reason and evaluate mathematical arguments.**

- Recognize reasoning and proof as fundamental aspects of mathematics.
- Make and investigate mathematical conjectures.
- Develop and evaluate mathematical arguments and proofs.
- Select and use various types of reasoning and methods of proof.

**3. Students will communicate mathematically.**

# FLINT RIVER ACADEMY MATH STANDARDS

- a. Organize and consolidate their mathematical thinking through communication.
- b. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.
- c. Analyze and evaluate the mathematical thinking and strategies of others.
- d. Use the language of mathematics to express mathematical ideas precisely.

## **4. Students will make connections among mathematical ideas and to other disciplines.**

- a. Recognize and use connections among mathematical ideas.
- b. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole.
- c. Recognize and apply mathematics in contexts outside of mathematics.

## **5. Students will represent mathematics in multiple ways.**

- a. Create and use representations to organize, record, and communicate mathematical ideas.
- b. Select, apply, and translate among mathematical representations to solve problems.
- c. Use representations to model and interpret physical, social, and mathematical phenomena.

### *Terms / Symbols:*

whole number, decimal point, place value of  $\frac{1}{10}$  (tenth), numerator, denominator, second, sign of equality, sign of inequality,  $\div$ ,  $\times$ , decimal fraction, common fraction, elapsed time, scalene triangle, isosceles triangle, equilateral triangle, bar graph, mile,

### *Concepts/Skills to Maintain*

Comparison of numbers  
Addition & subtraction of multi-digit numbers  
Length and time  
Geometric shapes  
Money  
Area models (arrays) of multiplication