FLINT RIVER ACADEMY MATH STANDARDS

SECOND GRADE

Numbers and Operations

Students will further develop their understanding of numbers - including fractions - and how to represent them. The students will understand and apply addition, subtraction and multiplication through concrete manipulation and perform basic calculations.

1. Students will use multiple representation of numbers to connect symbols to quantities.

a. Represent numbers using a variety of models, diagrams, and number sentences (e.g., 4703 represented as 4,000 + 700 + 3, and units, 47 hundreds + 3, or 4,500 + 203).
b. Understand the relative magnitudes of numbers using 10 as a unit, 100 as a unit, or 1000 as a unit. Represent 2-digit numbers with drawings of tens and ones and 3-digit numbers with drawings of hundreds, tens, and ones.
c. Use money as a medium of exchange. Count back change and use decimal notation and the dollar and cent symbols to represent a collection of coins and currency.

2. Students will build fluency with multi-digit addition and subtraction.

a. Correctly add and subtract two whole numbers up to three digits each with regrouping.
b. Understand and use the inverse relation between addition and subtraction to solve problems and check solutions.
c. Use mental math strategies such as benchmark numbers to solve problems.
d. Use basic properties of addition (commutative, associative, and identity) to simplify problems (e.g. 98 + 17 by taking two from 17 and adding it to the 98 to make 100 and replacing the original problem by the sum 100 + 15).
e. Estimate to determine if solutions are reasonable for addition and subtraction.

3. Students will understand multiplication, multiply numbers, and verify results.

a. Understand multiplication as repeated addition.
b. Use repeated addition, arrays, and counting by multiples (skip counting) to correctly multiply 1-digit numbers and construct the multiplication table.
c. Use the multiplication table (grid) to determine a product of two numbers.
d. Use repeated subtraction, equal sharing, and forming equal groups to divide large collections of objects and determine factors for multiplication.

4. Students will understand and compare fractions.

a. Model, identify, label, and compare fractions (thirds, sixths, eighths, tenths) as a representation of equal parts of a whole or of a set.
b. Know that when all fractional parts are included, such as three thirds, the result is equal to the whole.

5. Students will represent and interpret quantities and relationships using mathematical expressions including equality and inequality signs (=, >, <).

a. Include the use of boxes or ___ to represent a missing value.

b. Represent problem solving situations where addition, subtraction or multiplication may be applied using mathematical expressions.

Measurement

Students will understand length, time, and temperature and choose an appropriate tool to measure them.

1. Students will know the standard units of inch, foot, yard, and metric units of centimeter and meter and measure length to the nearest inch or centimeter.

a. Compare the relationship of one unit to another by measuring objects twice using different units each time.
b. Estimate lengths, and then measure to determine if estimations were reasonable.
c. Determine an appropriate tool and unit for measuring.

2. Students will tell time to the nearest five minutes and know relationships of time such as the number of minutes in an hour and hours in a day.

3. Students will estimate, then measure, temperature (Fahrenheit) and determine if estimations were reasonable.

Geometry

Students will understand basic and compound geometric shapes together with the elements from which they are composed.

1. Students will describe and classify plane figures (triangles, square, rectangle, trapezoid, quadrilateral, pentagon, hexagon, and irregular polygonal shapes) according to the number of edges and vertices and the sizes of angles (right angle, obtuse, acute).

2. Students will describe and classify solid geometric figures (prisms, cylinders, cones, and spheres) according to such things as the number of edges and vertices and the number and shape of faces and angles.

a. Recognize the (plane) shapes of the faces of a geometric solid and count the of faces of each type.
b. Recognize the shape of an angle as a right angle, an obtuse or acute angle.

3. Students will describe the change in attributes as two and three-dimensional shapes are cut and rearranged.

Data Analysis and Probability

Students will pose questions, collect, organize, and interpret data about themselves and their surroundings.

1. Students will create simple tables and graphs and interpret their meaning.

a. Organize and display data using picture graphs, Venn diagrams, bar graphs, and simple charts/tables to record results.

b. Know how to interpret picture graphs, Venn diagrams, and bar graphs.

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).

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

2. Students will reason and evaluate mathematical arguments.

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

3. Students will communicate mathematically.

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:

place value, thousands, sum, difference, product, multiply, regroup, array, numerator, denominator, inch, foot, yard, centimeter, meter, quadrilateral, right angle, obtuse, acute, edge, face, vertex/vertices, prism, plane, >, <, =, ≠, +, -, x, minute, hour, Venn diagram

Concepts/Skill to Maintain

Fluency with single digit addition/subtraction facts to 18
Fair trades with coins or bills

FLINT RIVER ACADEMY MATH STANDARDS

Duration and sequence of events
Number patterns-skip count, odd/even
Fact families
Fractions: halves, fourths
Tally marks
Picture graphs
Estimation: rounding to nearest ten
Telling time
Measurement – estimating, comparing, and ordering
Basic geometric figures and spatial relationships