

FLINT RIVER ACADEMY MATH STANDARDS

FIRST GRADE

Numbers and Operations

Students will understand how to represent numbers, and be able to add and subtract small numbers.

1. Students will estimate, model, compare, order, and represent whole numbers up to 100.

- a. Represent numbers less than 100 using a variety of models, diagrams, and number sentences. Represent numbers larger than 10 in terms of tens and ones using counters and pictures.
- b. Correctly count and represent the number of objects in a set using numerals.
- c. Compare small sets using the terms greater than, less than, and equal to ($>$, $<$, $=$).
- d. Understand the magnitude and order of numbers up to 100 by making ordered sequences and representing them on a number line.
- e. Exchange equivalent quantities of coins by making fair trades involving combinations of pennies, nickels, dimes, and quarters and count out a combination needed to purchase items less than a dollar.
- f. Identify bills (\$1, \$5, \$10, \$20) by name and value and exchange equivalent quantities by making fair trades involving combinations of bills and count out a combination of bills needed to purchase items less than twenty dollars.

2. Understand place value notation for the numbers between 1 and 100.

- a. Determine to which multiple of ten a given number is nearest using tools such as a sequential number line or hundreds chart to assist in estimating.
- b. Represent collections of less than 30 objects with 2-digit numbers and understand the meaning of place value.
- c. Decompose numbers between 11 and 19 as one ten and the appropriate number of ones.

3. Students will add and subtract numbers less than 100 as well as understand and use the inverse relationship between addition and subtraction.

- a. Identify one more than, one less than, 10 more than, and 10 less than a given number.
- b. Skip-count by 2's, 5's, and 10's forward and backwards – to and from numbers up to 100.
- c. Compose/decompose numbers up to 10 --“break numbers apart”, e.g., 8 is represented as $4 + 4$, $3 + 5$, $5 + 2 + 1$, and $10 - 2$).
- d. Understand a variety of situations to which subtraction may apply: taking away from a set, comparing two sets, and determining how many more or how many less.
- e. Understand addition and subtraction number combinations using strategies such as counting on, counting back, doubles and making tens.
- f. Know the single-digit addition facts to 18 and corresponding subtraction facts with understanding and fluency. (Use strategies such as relating to facts already known, applying the commutative property, and grouping facts into families.)

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- g. Apply addition and subtraction to 2 digit numbers without regrouping (e.g. $15 + 4$, $80 - 60$, $56 + 10$, $100 - 30$, $52 + 5$).
- h. Solve and create word problems involving addition and subtraction to 100 without regrouping. Use words, pictures and concrete models to interpret story problems and reflect the combining of sets as addition and taking away or comparing elements of sets as subtraction.

4. Students will count collections of up to 100 objects by dividing them into equal parts and represent the results using words, pictures, or diagrams.

- a. Use informal strategies to share objects equally between two to five people.
- b. Build number patterns, including concepts of even and odd, using various concrete representations. (Examples of concrete representations include a hundreds chart, ten grid frame, place value chart, number line, counters, or other objects.).
- c. Identify, label and relate fractions (halves, fourths) as equal parts of a whole using pictures and models.

Measurement

Students will measure basic quantitative attributes of concrete objects.

1. Students will compare and/or order the length, weight, or capacity of two or more objects by using direct comparison or a nonstandard unit.

- a. Directly compare length, weight, and capacity of concrete objects.
- b. Estimate and measure using a non-standard unit that is smaller than the object to be measured.
- c. Measure with a tool by creating a “ruled” stick, tape, or container by marking off ten segments of the repeated single unit.

2. Students will develop an understanding of the measurement of time.

- a. Tell time to the nearest hour and half hour and understand the movement of the minute hand and how it relates to the hour hand.
- b. Begin to understand the relationship of calendar time by knowing the number of days in a week and months in a year.
- c. Compare and/or order the sequence or duration of events (e.g., shorter/longer and before/after).

Geometry

Students will understand the concepts of basic geometric shapes and spatial relationships of concrete objects.

1. Students will study and create various two and three-dimensional figures and identify basic figures (squares, circles, triangles, and rectangles) within them.

- a. Build, draw, name, and describe triangles, rectangles, pentagons, and hexagons.
- b. Build, represent, name, and describe cylinders, cones, and rectangular prisms (objects that have the shape of a box).
- c. Create pictures and designs using shapes, including overlapping shapes.

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2. Students will compare, contrast, and/or classify geometric shapes by the common attributes of position, shape, size, number of sides, and number of corners.

3. Students will arrange and describe objects in space by proximity, position, and direction (near, far, below, above, up, down, behind, in front of, next to, and left or right of).

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 them.

- a. Interpret tally marks, picture graphs and bar graphs.
- b. Organize and record data using objects, pictures, tally marks, and picture 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.

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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—ones, tens, hundreds, greater than, less than, equal to, fewer than, more than, sum/add, difference/subtract, coins—penny, nickel, dime, quarter, compare/contrast, length, weight, estimate, hexagon, cylinder, cone, rectangular prism, $<$, $>$, $=$, $+$, $-$, even, odd, tally mark

Concepts/Skill to Maintain

Number words
Ordinal numbers
Equivalence
Basic geometric shapes
Spatial relationships – positional words
Calendar time and daily schedule
Estimating—using 10 as a benchmark
Name and value of coins
Measurement –comparing and ordering