

# 4TH GRADE MATH SCOPE AND SEQUENCE

## EARLY FIRST QUARTER

### **Number, Number Sense and Operations**

- A. Use place value structure of the base-ten number system to read, write, represent and compare whole numbers and decimals.
- E. Recognize and classify numbers as prime or composite and list factors.
- F. Count money and make change using both coins and paper bills.
- G. Model and use commutative and associative properties for addition and multiplication.
- H. Use relationships between operations, such as subtraction as the inverse of addition and division as the inverse of multiplication.
- I. Demonstrate fluency in multiplication facts with factors through 10 and corresponding divisions.
- J. Estimate the results of whole number computations using a variety of strategies, and judge the reasonableness.

### **Measurement**

- E. Tell time to the nearest minute

### **Mathematical Processes**

- A. Apply and justify the use of a variety of problem solving strategies.
- B. Use an organized approach and appropriate strategies to solve multi-step problems.
- C. Interpret results in the context of the problem being solved.
- D. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world.
- E. Link concepts to procedures and to symbolic notation.
- F. Recognize relationships among different topics within mathematics.
- G. Use reasoning skills to determine and explain the reasonableness of a solution with respect to the problem situation.
- H. Recognize basic valid and invalid arguments, and use examples and counter examples, models, number relationships, and logic to support or refute.
- I. Represent problem situations in a variety of forms (physical model, diagram, in words or symbols), and recognize when some ways of representing a problem may be more helpful than others.
- J. Read, interpret, discuss and write about mathematical ideas and concepts using both everyday and mathematical language.
- K. Use mathematical language to explain and justify mathematical ideas, strategies and solutions.

## LATE FIRST QUARTER

### **Number, Number Sense and Operations**

- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.

### **Geometry and Spatial Sense**

- A. Provide rationale for groupings and comparisons of two dimensional figures and three-dimensional objects.
- B. Describe and identify points, lines and planes in the environment.
- C. Describe and identify intersecting, parallel and perpendicular lines or segments in the environment.
- D. Identify and draw right, obtuse, acute and straight angles.
- E. Use attributes to describe, classify and sketch plane figures and build solid objects.
- F. Develop definitions of classes of shapes.
- H. Identify and describe line and rotational symmetry in two-dimensional shapes and designs.

### **Data Analysis and Probability**

- E. Describe data using mode, median and range.

### **Mathematical Processes**

- A through K

## EARLY SECOND QUARTER

### **Number, Number Sense and Operations**

- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.

### **Measurement**

- A. Select appropriate units for perimeter, area, weight, volume (capacity), time and temperature, using:
  - objects of uniform size;
  - U.S. customary units; e.g., mile, square inch, cubic inch, second, degree Fahrenheit, and other units as appropriate;
  - metric units; e.g., millimeter, kilometer, square centimeter, kilogram, cubic centimeter, degree Celsius, and other units as appropriate.
- B. Know that the number of units is inversely related to the size of the unit for any item being measured.
- C. Develop common referents for units of measure for length, weight, volume (capacity) and time to make comparisons and estimates.
- D. Identify appropriate tools and apply counting techniques for measuring side lengths, perimeter and area of squares, rectangles, and simple irregular two-dimensional shapes, volume of rectangular prisms, and time and temperature.

### **Mathematical Processes**

- A through K

## LATE SECOND QUARTER

### **Number, Number Sense and Operations**

- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.

### **Geometry and Spatial Sense**

- G. Find and name locations in coordinate systems.
- I. Describe, identify and model reflections, rotations and translations, using physical materials.
- J. Describe a motion or series of transformations that show two shapes are congruent.

### **Patterns, Functions and Algebra**

- A. Analyze and extend patterns, and describe the rule in words.
- B. Use patterns to make predictions, identify relationships, and solve problems.

### **Mathematical Processes**

- A. Apply and justify the use of a variety of problem solving strategies.
- B. Use an organized approach and appropriate strategies to solve multi-step problems.
- C. Interpret results in the context of the problem being solved.
- D. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world.
- E. Link concepts to procedures and to symbolic notation.
- F. Recognize relationships among different topics within mathematics.
- G. Use reasoning skills to determine and explain the reasonableness of a solution with respect to the problem situation.
- H. Recognize basic valid and invalid arguments, and use examples and counter examples, models, number relationships, and logic to support or refute.
- I. Represent problem situations in a variety of forms (physical model, diagram, in words or symbols), and recognize when some ways of representing a problem may be more helpful than others.
- J. Read, interpret, discuss and write about mathematical ideas and concepts using both everyday and mathematical language.
- K. Use mathematical language to explain and justify mathematical ideas, strategies and solutions.

# 4TH GRADE MATH SCOPE AND SEQUENCE

## EARLY THIRD QUARTER

### **Number, Number Sense and Operations**

- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.

### **Patterns, Functions and Algebra**

- C. Write and solve open sentences and explain strategies.
- D. Represent an unknown quantity as a variable using a symbol, including letters.
- E. Use variables to create and solve equations representing problem situations.
- F. Construct and use a table of values to solve problems associated with mathematical relationships.
- G. Describe how a change in one variable affects the value of a related variable.

### **Mathematical Processes**

- A. Apply and justify the use of a variety of problem solving strategies.
- B. Use an organized approach and appropriate strategies to solve multi-step problems.
- C. Interpret results in the context of the problem being solved.
- D. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world.
- E. Link concepts to procedures and to symbolic notation.
- F. Recognize relationships among different topics within mathematics.
- G. Use reasoning skills to determine and explain the reasonableness of a solution with respect to the problem situation.
- H. Recognize basic valid and invalid arguments, and use examples and counter examples, models, number relationships, and logic to support or refute.
- I. Represent problem situations in a variety of forms (physical model, diagram, in words or symbols), and recognize when some ways of representing a problem may be more helpful than others.
- J. Read, interpret, discuss and write about mathematical ideas and concepts using both everyday and mathematical language.
- K. Use mathematical language to explain and justify mathematical ideas, strategies and solutions.

## LATE THIRD QUARTER

### **Number, Number Sense and Operations**

- B. Recognize and generate equivalent representations for whole numbers, fractions and decimals.
- C. Represent commonly used fractions and mixed numbers using words and physical models.
- D. Use models, points of reference and equivalent forms of commonly used fractions to judge the size of fractions and to compare, describe and order them.
- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.
- M. Add and subtract commonly used fractions with like denominators and decimals, using models and paper and pencil.

### **Mathematical Processes**

- A. Apply and justify the use of a variety of problem solving strategies.
- B. Use an organized approach and appropriate strategies to solve multi-step problems.
- C. Interpret results in the context of the problem being solved.
- D. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world.
- E. Link concepts to procedures and to symbolic notation.
- F. Recognize relationships among different topics within mathematics.
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- J. Read, interpret, discuss and write about mathematical ideas and concepts using both everyday and mathematical language.
- K. Use mathematical language to explain and justify mathematical ideas, strategies and solutions.

## EARLY FOURTH QUARTER

### **Number, Number Sense and Operations**

- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.

### **Data Analysis and Probability**

- A. Gather and organize data from surveys and classroom experiments, including data collected over a period of time.
- B. Read and interpret tables, charts, graphs (bar, picture, line, line plot), and timelines as sources of information, identify main idea, draw conclusions, and make predictions.
- C. Construct charts, tables and graphs to represent data, including picture graphs, bar graphs, line graphs, line plots and Venn diagrams.
- D. Read, interpret and construct graphs in which icons represent more than a single unit or intervals greater than one; e.g., each  $\_ = 10$  bicycles or the intervals on an axis are multiples of 10.
- F. Conduct a simple probability experiment and draw conclusions about the likelihood of possible outcomes.
- G. Identify and represent possible outcomes, such as arrangements of a set of up to four members and possible combinations from several sets, each containing 2 or 3 members.
- H. Use the set of possible outcomes to describe and predict events.

### **Mathematical Processes**

A through K

## LATE FOURTH QUARTER

### **YEARLY REVIEW:**

#### **Number, Number Sense and Operations**

- I. Demonstrate fluency in multiplication facts with factors through 10 and corresponding divisions.
- K. Analyze and solve multi-step problems involving addition, subtraction, multiplication and division of whole numbers.
- L. Use a variety of methods and appropriate tools (mental math, paper and pencil, calculators) for computing with whole numbers.

#### **Patterns, Functions and Algebra**

- C. Write and solve open sentences and explain strategies.

#### **Data Analysis and Probability**

- B. Read and interpret tables, charts, graphs (bar, picture, line, line plot), and timelines as sources of information, identify main idea, draw conclusions, and make predictions.

#### **Mathematical Processes**

- A. Apply and justify the use of a variety of problem solving strategies.
- B. Use an organized approach and appropriate strategies to solve multi-step problems.
- C. Interpret results in the context of the problem being solved.
- D. Use mathematical strategies to solve problems that relate to other curriculum areas and the real world.
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