

ROBERTSON COUNTY BOARD OF EDUCATION

MASTERY GUIDE

SIXTH GRADE

MATH

FIRST NINE WEEKS

Numbers and Operations

- 6.1.1a. Recognize the place value of a given digit.
- 6.1.1b. Read, write, and represent whole numbers and decimals in expanded notation.
- 6.1.1e. Connect whole numbers, fractions, decimals, percents, and integers on the number line.
- 6.1.1j. Develop the concept of prime and composite numbers.
- 6.1.1m. Develop meaning for number theory concepts (i.e., divisibility, factors, multiples).

- 6.1.2a. Understand the meaning and effects of arithmetic operations on fractions and decimals.
- 6.1.2b. Apply the associative and commutative properties of addition and multiplication to simplify computations with integers, fractions, and decimals.
- 6.1.2c. Use the distributive property to simplify computations with integers, fractions, and decimals.
- 6.1.2d. Apply order of operations when computing with whole numbers and decimals.
- 6.1.2e. Understand and use the inverse relationship of addition and subtraction and multiplication and division to simplify computations and solve problems.

SECOND NINE WEEKS

Fractions and Decimals

- 6.1.1c. Develop understanding of equivalent number representations (i.e., fractions, decimals, percents).
- 6.1.1d. Compare fractions, decimals, percents, and integers using the appropriate symbol (i.e., $<$, $>$, $=$).
- 6.1.1f. Develop meaning for percents greater than 100 and less than one.

Solve Problems, Compute Fluently, Make Reasonable Estimates

- 6.1.3a. Select and use appropriate methods and tools for computing with whole numbers, fractions, decimals, and percents in problem-solving situations (e.g., mental computation, estimation, calculators, computers, paper and pencil).
- 6.1.3b. Analyze procedures for computing with **fractions, decimals**, and integers.
- 6.1.3c. Solve one-step real-world problems involving whole numbers, fractions, and decimals.
- 6.1.3d. Use strategies to estimate the results of computations involving whole numbers, fractions, and decimals in real-world situations.
- 6.1.3e. Judge the reasonableness of the results of rational number estimates and computations.
- 6.1.3f. Recognize when an estimate is more appropriate than an exact answer is a variety of problem situations.

THIRD NINE WEEKS

Geometry

- 6.3.1a. Describe, classify, and understand relationships among types of two-dimensional figures.
- 6.3.1b. Compare and classify angles as acute, obtuse, right, and straight.
- 6.3.1c. Use appropriate mathematical language to describe characteristics of lines (e.g., parallel, perpendicular, intersecting).
- 6.3.1d. Compare and classify quadrilaterals using their defining properties.
- 6.3.1e. Describe similarity and congruence.

- 6.3.2a. Plot a given set of points in Quadrant I of a coordinate system.

- 6.3.3a. Investigate, predict, and describe the results of transformations of two-dimensional figures (e.g., slides, flips, turns).
- 6.3.3b. Describe line and rotational symmetry in two-dimensional figures.
- 6.3.3c. Describe a motion or a series of motions that will show that two shapes are congruent.

- 6.3.4a. Draw two- and three-dimensional geometric figures with specified properties (e.g., side lengths, angle measure).
- 6.3.4b. Build a three-dimensional object from a two-dimensional representation (net) of that object and vice versa.
- 6.3.4c. Use visualization and spatial reasoning to solve real-world problems.

Measurement

- 6.4.1a. Understand both metric and customary systems of measurement.
- 6.4.1b. Understand relationships among units and convert from one unit to another within the same system.
- 6.4.1c. Understand, select, and use units of appropriate size and type to measure angles, perimeter, area, surface area, and volume.

- 6.4.2a. Use a variety of strategies to estimate length, perimeter, circumference, area, and volume.
- 6.4.2b. Use a variety of manipulatives to develop formulas to determine the circumference of circles.
- 6.4.2c. Use formulas to determine the area of triangles and parallelograms.
- 6.4.2d. Use a variety of manipulatives to develop formulas to determine the area of trapezoids and circles.
- 6.4.2e. Explore surface area and volume of selected prisms and cylinders using models and manipulatives.
- 6.4.2g. Use scales to read maps.
- 6.4.2h. Recognize the need for measurement precision.

FOURTH NINE WEEKS

Ratios and Proportion

- 6.4.2f. Solve problems involving measurement using ratio and proportion.
- 6.1.1g. Develop meaning for ratios using real-world models and/or situations.
- 6.1.1h. Use a variety of representations for ratios (e.g., 3 to 5, $\frac{3}{5}$; 3:5).
- 6.1.1i. Develop and apply strategies to determine if two ratios form a proportion.

Algebraic Concepts / Integers

- 6.2.1a. Represent, analyze, and extend geometric and numerical patterns.
- 6.2.1b. Use tables and graphs to generalize patterns in data.
- 6.2.1c. Apply function rules to complete tables.
- 6.1.1k. Develop meaning for integers using real-world connections.
- 6.1.1l. Use concrete, pictorial, and symbolic representations for integers.
- 6.2.2a. Develop an initial conceptual understanding of different uses of variables.
- 6.2.2b. Represent mathematical statements and real-world situations using symbols.
- 6.2.2c. Evaluate algebraic expressions for a given value of the variable.
- 6.2.2d. Find missing addends or factors represented as variables in simple equations.
- 6.2.2e. Model algebraic expressions using manipulatives, technology, and pencil and paper.
- 6.2.4a. Describe how change in one quantity or variable results in changes in another.
- 6.1.3b. Analyze procedures for computing with fractions, decimals, and **integers**.

Data Analysis and Probability

- 6.5.1a. Formulate questions, design studies, and collect real-world data.
- 6.5.1b. Understand how data-collection methods affect the nature of the data set.
- 6.5.1c. Examine various representations of data to evaluate how accurately the data is depicted.
- 6.5.1d. Construct, interpret, and use single-bar and single-line graphs to answer questions and solve real-world problems.
- 6.5.2a. Find, use, and interpret measure of center and spread (e.g., mean, median, mode, interquartile range).
- 6.5.2b. Discuss and understand the relationship between data sets and their graphical representations.
- 6.5.3a. Make conjectures and predictions based on data.
- 6.5.3b. Explain the importance of sample size in investigations.
- 6.5.3c. Conduct a survey using random sampling.
- 6.5.3d. Determine whether or not a sample is biased.
- 6.5.3e. Make conjectures to formulate new questions for future studies.
- 6.2.3a. Model simple real-world problems using graphs.
- 6.5.4a. Model situations by devising and carrying out experiments and simulations.
- 6.5.4b. Make and test conjectures about the results of experiments and simulations.
- 6.5.4c. Determine all possible outcomes of a simple event.

