Fifth Grade Mathematics

The Gilmer County Charter School System's mathematics program is built upon the Georgia Reveal Mathematics Curriculum. The mathematics standards set a rigorous definition of college and career readiness by demanding that students develop a depth of understanding and ability to apply mathematics to real-life situations, as college students and employees regularly do. In prekindergarten through grade 8 mathematics, the standards lay a solid foundation in whole numbers, addition, subtraction, multiplication, division, fractions, and decimals. Taken together, these elements support a student's ability to learn and apply more demanding mathematics concepts and procedures in middle and high school.

Gilmer County's mathematics programs call on students to practice applying mathematical ways of thinking to real world issues and challenges; they require students to think and reason mathematically.

Children mature mathematically at different paces, throughout each grade level, and demonstrate various levels of implementation of the practices. These behaviors develop over time and often emerge during certain learning activities and through the study of specific, critical mathematics topics and standards.

Students of mathematics have daily opportunities to develop how to think and reason mathematically. They develop behaviors of mathematically proficient students who

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with Mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

What Your Child will Learn

Unit 1: Math is…

- Throughout the first weeks of school, the unit will focus on who our students are as learners and mathematicians.
- Engage students in mathematical tasks and make observations of students.
- Build a math community.

Unit 2: Volume

- Students explore volume by using various methods

Unit 3: Place Value and Number Relationships

- Students explore and expand on their knowledge of place value.
- Students read, write, round and compare decimals

Unit 4: Add and Subtract Decimals

- Students use multiple strategies to add and subtract decimals
- Students estimate and represent decimals in many ways

Unit 5: Multiply Multi-Digit Whole Numbers

- Students work with patterns of whole numbers (powers of 10)
- Students use area models and partial products to multiply multi-digit numbers

Unit 6: Divide Whole Numbers

- Students use a variety of strategies to divide multi-digit whole numbers

Unit 7: Add and Subtract Fractions

- Students estimate sums and differences of fractions
- Students begin adding and subtracting fractions with like and unlike denominators.

Unit 8: Multiply Fractions

- Students multiply fractions in a variety of ways.
- Students multiply whole numbers and mixed numbers by fractions.

Unit 9: Divide Fractions

- Students represent fractions as division.
- Students divide whole numbers by unit fractions

Unit 10: Measurement and Data

- Students convert and use a variety of measurement conversions

Unit 11: Geometry

- Students work with triangles and quadrilaterals
- Students begin to become familiar with the coordinate system

Unit 12: Algebraic Thinking

- Students write expressions based off of various equations

Fifth Grade: Parent Video Library

OVERVIEW

This library provides a collection of video resources to support students and families. It is designed to:

- help families understand the skills and concepts students are learning;
- provide students with access to content after the lesson to further develop or reinforce skills and concepts

Place Value and Decimals

Place Value with decimals

Thousandths on a number line

Decimals in expanded form

Expressing decimals in multiple forms

Regrouping decimals

Comparing decimals

Ordering decimals

Ordering decimals through thousandths

Rounding decimals

Operations

Estimating decimal addition

Adding decimals

Adding decimals (2)

Estimating decimal subtraction

Strategies for subtracting decimals

Subtracting decimals

Subtracting decimals (2)

Multiplication and Division

Multiply 2-digit by 1-digit factors using partial products

Connect the standard algorithm for multiplication to partial products

Divide using partial quotients with no remainder

Divide using partial quotients with a remainder

Fractions

Fractions as division

Solve problems using data from line plots

Add fractions with like denominators

Subtract fractions with like denominators

Add mixed numbers with like denominators

Subtract mixed numbers with like denominators

Add mixed numbers

Subtract mixed numbers

Interpret multiplication of fractions as scaling

Multiply fractions by whole numbers on a number line

Represent multiplication of a fraction by a whole number

Multiplying fractions and whole numbers

Represent multiplication of a fraction by a fraction with an area model

Represent multiplication of a fraction by a fraction with a number line

Multiply 2 fractions

Solve problems with the multiplication of fractions

Measurement and Data

Measuring Volume

Measuring volume as area times length

Volume in unit cubes with decomposition

Volume through decomposition

Fifth Grade: How to Support Your Child

PLACE VALUE AND DECIMALS

VOCABULARY

- **Decimal:** a number that uses place value and a decimal point to show values less than one, such as tenths and hundredths
- **Place Value:** the value of a digit in a number
- **Rounding:** to find the nearest ten, hundred, or thousand (and so on) (For example, 391 rounds up to 400 and 331 rounds down to 300)
- **Digit:** a symbol used to show a number
- **Power of 10:** when one of the factors is a multiple of ten, you can use place value patterns and basic facts to find the product

ACTIVITIES

- Use number cubes or spinners to create decimal numbers and have the student identify the place value and value of different digits in that number.
- Roll or pick numbers to create 3 decimal numbers. Order the decimals smallest to greatest. Then round those decimal numbers to different place values.
- Find the batting averages or other statistics in the sports section of a newspaper and discuss what those numbers mean and how we use those decimal numbers.
- Find decimals at the grocery store (weights, prices, unit prices) and discuss what those numbers mean and how we can use those numbers.
- Choose a four-digit number. Multiply and divide by powers of 10 (10, 100, 1,000, etc.) by moving the decimal point left or right as appropriate.

FRACTION COMPUTATION

VOCABULARY

- **Denominator:** the number below the line in the fraction; the denominator represents the number of equal pieces the whole is broken into
- **Mixed Number:** a number that is made up of a whole number and a fraction
- **Numerator:** the number above the line in a fraction; the numerator represents how many pieces of the whole, or how many parts of a set, that are discussed
- **Equivalent Fractions:** two or more fractions with the same value (Example: 1/2 = 2/4)

ACTIVITIES

- Create or pick numbers to make fractions. Add, subtract, or simplify the fractions that you find.
- Find examples of fractions around the house or neighborhood. Add, subtract, multiply, divide or simplify the fractions that you find.
- Use measuring cups when baking or cooking. Discuss doubling a recipe and what impacts that has on the fraction calculations.

WHOLE NUMBER AND DECIMAL COMPUTATION

VOCABULARY

- **Product:** the result (answer) of multiplying a set of numbers together
- **Factor:** a number that is multiplied by another (factor x factor = product)
- **Quotient:** the result (answer) of dividing two numbers
- **Estimate:** to find a number close to an exact amount
- **Operations:** Addition, Subtraction, Multiplication, Division

ACTIVITIES

- Practice basic addition, subtraction, multiplication and division facts.
- Roll or pick numbers to create two whole numbers and multiply (up to 2-digit by 4-digit)
- Roll or pick numbers to create two whole numbers and divide (up to 2-digit by 4-digit)
- Recognize decimals in the real world (sports, grocery store) and estimate sums, differences, products and quotients of those decimals in the context of the situation.

MEASUREMENT AND DATA

VOCABULARY

- **Volume:** the amount of space that a three-dimensional figure contains; volume is expressed in cubic units, (how many small cubes would fit inside a solid figure)
- **Three-Dimensional Figure:** a geometric figure that can be measured in three directions, such as length, height and width
- **Line Plot:** a number line long enough to encompass all numbers in the sample, showing a dot or mark over the position corresponding to each number
- **Mass:** a measure of how much matter is in an object
- **Capacity:** how much liquid a container can hold (see volume)

- **Rectangular Prism:** a prism with two identical, rectangular bases
- **Rectangle:** a quadrilateral with four right angles and two pairs of opposite equal parallel sides
- **Right Prism:** a three-dimensional prism with two identical, parallel bases; all other faces are rectangles
- **Base:** a side of a polygon or a face of a solid figure by which the figure is measured or named

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ACTIVITIES

- Make flash cards of different geometric figures and their properties.
- Identify different plane and solid figures in your environment.
- Find the volume of real-world objects in your home.
- Make nets for different solid figures using graph paper. Compare nets that work to nets that do not fold correctly to make the figures.
- Compare the estimated volume of a carton or bottle of liquid (such as 1/2 gallon juice or milk or two liter bottle of lemonade) in cubic inches or centimeters to its stated volume in ounces or milliliters.

GEOMETRY

VOCABULARY

- **Ordered Pair:** a pair of numbers where order is important, for example, (4,6) is different to (6,4); often used to indicate on a coordinate plane, graph or map
- **Coordinate Plane:** a plane containing two perpendicular axes (x and y) intersecting at a point called the origin (0,0)
- **Two-Dimensional:** a figure that can be measured in two directions, such as length and width
- **Angles:** the figure formed when two rays or line segments share the same endpoint
- **Point:** an exact position or location
- **Line:** a straight path extending in both directions with no endpoints
- **Line Segment:** a part of a line that includes two points, called endpoints, and all the points between them
- **Perpendicular Lines:** lines that intersect to form right angles
- **Parallel Lines:** lines in a plane that never intersect
- **Base:** a side of a polygon or a face of a solid figure by which the figure is measured or named
- **Quadrilateral:** a polygon with four sides
- **Parallelogram:** a quadrilateral (4-sided figure) that has both pairs of opposite sides equal and parallel (Example: all rhombi, [plural for rhombus], squares and rectangles are parallelograms)
- **Regular Polygons:** a polygon that has all equal sides or equal angles
- **Irregular Polygons:** a polygon that does not have all equal sides or all equal angles
- **Rectangle:** a quadrilateral with four right angles and two pairs of opposite equal parallel sides
- **Square:** a quadrilateral with four equal sides and four right angles, opposite sides that are parallel, two diagonals that bisect at right angles, and four lines of symmetry
- **Triangle:** a polygon with three angles and three sides
- **Rhombus**: a parallelogram with four equal sides and equal opposite angles
- **Trapezoid:** a quadrilateral with one pair of parallel sides

ACTIVITIES

- Name two-dimensional figures and find examples at home.

- Draw different polygons within a piece of triangle grid paper, or use combinations of triangles to create other polygons.
- Make flash cards of different geometric figures and their properties.
- Identify, describe, and different household objects as two-dimensional figures.
- Use a compass or a computer to draw geometric figures.

NUMERICAL EXPRESSIONS AND PATTERNS

VOCABULARY

- **Ordered pairs**: a pair of numbers where order is important, (4,6) is different to (6,4); often used to indicate on a coordinate plane, graph, or map
- **Coordinates**: shown as pairs of letters and/or numbers, e.g. (2,4); used to show position on a coordinate plane or map
- **Patterns**: a sequence of shapes or numbers that follow a logical rule
- **Function**: a mathematical relationship between two values; the second value depends on (is a function of) the first one
- **Expression**: a mathematical combination of numbers, variables, and operations
- **Equation**: a number sentence with an equal sign (Example: 5 x 4 = 20)

ACTIVITIES

- Make up numbers, roll numbers with dice, or find numbers (on labels) and compare them.
- Create rules (ex. n = 3) and have your student extend the number pattern (3, 6, __, _).
- Create a number pattern and have your student write the rule.
- Create an input/output machine (function table) for a given rule and have the student fill in the missing inputs and outputs.
- Create an input/output machine (function table) for an unknown rule and have the student fill in the missing inputs and outputs and write the rule.
- Find numbers and write them in expanded form.
- Draw pictures and make models of numbers.
- Practice addition, subtraction, multiplication and division facts.