Fourth 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: Generalize Place-Value Structure

- Students further their understanding of multi-digit whole numbers.
- Students round, compare, and read/write numbers

Unit 3: Addition and Subtraction Strategies and Algorithms

- Students use multiple strategies to add and subtract multi-digit numbers.
- Students solve multi-step problems involving addition and subtraction.

Unit 4: Multiplication as Comparison

- Students being to become familiar with multiplication as a comparison.
- Students solve multiplication and division problems through comparisons.

Unit 5: Numbers and Number Patterns
- Students explore factors and multiples through patterns.
- Students explore the idea of prime and composite numbers.

Unit 6: Multiplication Strategies with Multi-Digit Numbers
- Students multiply multi-digit whole numbers through various strategies.
- Students apply this knowledge using the distributive property in multi-step problems.

Unit 7: Division Strategies with Multi-Digit Dividends
- Students build their understanding of division through various strategies.
- Students make connections and deeper understanding of remainders.

Unit 8: Fraction Equivalence
- Students generate and compare equivalent fractions.
- Students use a variety of strategies to compare fractions

Unit 9: Addition and Subtraction Meanings and Strategies with Fractions
- Students add and subtract fractions with like denominators.
- Students represent fractions in a variety of ways.

Unit 10: Addition and Subtraction Strategies with Mixed Numbers
- Students add and subtract mixed numbers
- Students solve multi-step problems involving mixed numbers.

Unit 11: Decimal Fractions

- Students build their understanding of decimals through decimal notation, comparing, and using decimals within money

Unit 12: Units of Measurement and Data

- Student solve a variety of problems involving measurement and data sources.
- Students work with area, perimeter, time, weight, etc…

Unit 13: Geometric Figures

- Students build understanding of geometric figures by classifying geometric figures.
- Students work with angles, symmetry, parallel and perpendicular lines, etc…

Fourth 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 Number Relationships

Represent numbers in expanded form

Read and write numbers in word form and standard form

Compare numbers

Round whole numbers to the nearest hundred

Round whole numbers to the nearest thousand

Decompose numbers in other ways

Addition and Subtraction

Add using partial sums

Add using adjusting

Subtract using partial differences

Connect standard algorithm for addition to other representations and strategies

Connect standard algorithm for subtraction to other representations and strategies

Add multi-digit numbers using the standard algorithm

Subtract multi-digit numbers using the standard algorithm

Multiplication and Division

Multiply whole numbers by 10

Undestand the difference between additive and multiplicative comparison

Solve problems with multiplicative comparison

Finding factors of a number

Fractions

Finding common denominators

Common denominators: 1/4 and 5/6

Common denominators: 3/5 and 7/2

Comparing fractions: tape diagram

Comparing fractions: number lines

Comparing fractions: fraction models

Decomposing fractions

Decomposing a mixed number

Adding fractions with like denominators

Subtracting fractions with like denominators

Mixed number addition with regrouping

Decimals

Writing a number as a fraction and a decimal

Fractions and decimals with decimal grids

Fractions and decimals on number lines

Rewriting fractions as decimals

Decimals in word form

Decimal place value

Identifying tenths on a number line

Identifying hundredths on a number line

Comparing decimals visually

Comparing decimals on a number line

Comparing decimals represented in different ways

Comparing decimals

Measurement and Data

Perimeter of a shape

Fourth Grade: How to Support Your Child

WHOLE NUMBERS

VOCABULARY

- **Place Value**: the value of a digit based on its position in a number.
- **Digit**: a symbol used to show a number
- **Estimate**: an approximate calculation that is close to the exact number based on rounding
- **Compare**: tell how a number is related to another number using >, <, =, or different
- **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)
- **Expanded Form**: writing a number as the sum of the values in each digit
- **Regrouping**: to exchange amounts of equal value to rename a number

ACTIVITIES

- Make up numbers, roll numbers with dice, or find numbers (on labels) and compare them.
- Find numbers and write them in expanded form.
- Make numbers and tell which place value (and/or value) each digit represents.
- Place large numbers on a number line.
- Collect objects (i.e. Cheerios) and estimate how many.
- Draw pictures and make models of numbers.
- Practice addition and subtraction facts.

MULTIPLICATION AND DIVISION

VOCABULARY

- **Place Value:** the value of a digit in a number
- **Digit:** a symbol used to show a number
- **Estimate:** an approximate calculation that is close to the exact number based on rounding
- **Compare:** tell how a number is related to another number using >, <, =, or different
- **Rounding:** to find the nearest ten, hundred, or thousand (and so on) (For example, 391 rounds up to 400 and 331 rounds up to 300.)
- **Expanded Form:** writing a number as the sum of the values in each digit
- **Regrouping:** to exchange amounts of equal value to rename a number
- **Factor:** a number that is multiplied by another (factor x factor = product)
- **Multiple:** the product of a given whole number and another whole number
- **Array:** an arrangement of objects in rows and columns
- **Identity Property:** any number times 1 is that number
- **Commutative Property:** changing the order of the factors does not change the product (5 x 7 is the same as 7 x 5)
- **Associative Property:** the way in which 3 numbers are grouped when they are multiplied doesn't change the product (2 x 3) x 4 = 2 x (3 x 4)
- **Zero Property:** any number times 0 is 0
- **Product:** the answer to a multiplication problem
- **Remainder:** the amount left over when a number cannot be divided equally
- **Divisor:** the number that divides the dividend
- **Dividend:** a number being divided
- **Quotient:** the answer after you divide one number by another

ACTIVITIES

- Make arrays out of household items (e.g., pennies, beans, blocks).
- Select multiplication or division facts to illustrate or write a word problem.
- Hunt for multiple sets of objects in the home. Use repeated addition and multiplication to find the totals.
- Sort coins according to type, count the number of coins and then multiply to find the total value of pennies (x 1), nickels (x 5), dimes (x 10) and quarters (x 25).
- Roll 2 number cubes. Find the products of the factors.
- Count quantities of items by 2's, 3's, 5's, and 10's.
- Roll 2 number cubes to determine the factors. Make an array to find the product.

- Use a calculator to solve word problems using multiplication and division. For example, Callie wants to buy 20 apples that cost $ .19 each. What is the total cost of her purchase? Michael has 332 quarters. He wants to put them into groups of 4. How many groups will he make?
- Act out division problems with counters. For example, Brad has 12 rabbits. He puts the same number of rabbits into each of 4 cages. How many rabbits does Brad put in each cage?
- Roll 2 number cubes and write the fact families. For example, for rolls of 4 and 6, write: 4 X 6 = 24, 6 X 4 = 24, 24 ÷ 6 = 4, 24 ÷ 4 = 6.
- Ask your child to find the missing factor. For example, 5 X what number = 75?
- Practice multiplication and division facts.

FRACTIONS

VOCABULARY

- **Denominator**: the number below the bar in a fraction that tells how many equal parts are in the whole
- **Compare**: tell how a number is related to another number using <, >, or =
- **Numerator**: the number above the bar in a fraction that tells how many parts of the whole
- **Unit Fraction**: one piece of the whole represented as 1/a
- **Equivalent**: (=) having the same value
- **Mixed Number**: a number that is made up of a whole number and a fraction.

ACTIVITIES

- Draw different shapes. Divide them into different fractions.
- Create numbers to use in fractions. Draw these fractions as parts of a whole or set.
- Use measuring cups when baking or cooking.

DECIMALS

VOCABULARY

- **Place Value:** the value of a digit in a number
- **Digit:** a symbol used to show a number
- **Compare:** tell how a number is related to another number using <, >, or =
- **Expanded Form:** writing a number as the sum of the values in each digit
- **Equivalent:** (=) having the same value
- **Decimal:** a number system (based on 10) with one or more digits to the right of the decimal point
- **Decimal Point:** a symbol that separates dollars and cents in money, and the ones place from the tenths place in decimal numbers

ACTIVITIES

- Use centimeter paper to draw decimals.
- Relate dimes to tenths and pennies to hundredths and makeup decimals using dimes and pennies.
- Use a menu to compare money.
- Roll dice to make decimal numbers and compare them.
- Write decimal numbers in expanded form.
- Write decimal numbers in word form.
- Identify decimals in a newspaper.

MEASUREMENT AND DATA

VOCABULARY

- **Perimeter:** the distance around an object
- **Capacity:** the greatest amount a container can hold
- **Area:** the measure, in square units, of the inside of a plane figure
- **Line Plot:** a graph that shows the frequency of data along a number line
- **Volume:** the number of cubic units that fits inside a solid figure
- **Angles:** the figure formed when two rays or line segments share the same endpoint
- **Elapsed Time:** the amount of time that passes between two times
- **Protractor:** a tool used to measure angles

ACTIVITIES

- Use measurement tools when baking or cooking.
- Compare items by length or weight.
- Practice scheduling events to determine elapsed time.
- Use string to measure your wrist, neck, and waist. Then make comparisons.
- Read an analog clock throughout the day.
- Use a stopwatch to keep track on how much T.V is watched throughout the week and how much time is spent on homework, and compare the two amounts of time.
- Take an object and estimate the weight. Then use a scale to determine the exact weight, and compare the two amounts.
- Use a ruler to measure objects around the house in inches or centimeters.
- Explore the area and volume of a cereal box.
- Identify real world angles as acute, right, or obtuse.
- Draw shapes. Identify their angles as obtuse, acute, and right angles.
- Draw pictures with intersecting lines, perpendicular lines, and parallel lines.
- Use a ruler to find a perimeter of plane figures.

GEOMETRY

VOCABULARY

- **Point:** an exact position or location
- **Angles:** the figure formed when two rays or line segments share the same endpoint
- **Line:** a straight path extending in both directions with no endpoints
- **Perpendicular Lines:** lines that intersect to form right angles
- **Line Segments:** a part of a line that includes two points, called endpoints, and all the points between them
- **Parallel Lines:** lines in a plane that never intersect
- **Ray**: a part of a line, with one endpoint, that continues without end in one direction
- **Two-Dimensional Figure:** a closed plane figure with length and width
- **Symmetry:** when one half of a figure looks like the mirror image of the other half

ACTIVITIES

- Name two-dimensional figures and find examples at home.
- Identify, describe, and classify different household objects as two-dimensional figures.
- Identify real world angles as acute, right, or obtuse.
- Draw shapes. Identify their angles as obtuse, acute, and right angles.
- Draw pictures with intersecting lines, perpendicular lines, and parallel lines.
- Use tangrams to make two-dimensional figures.