Grade 4 GT
Essential Curriculum

Standards for Mathematical Practice emphasized throughout the year:

- Make sense of problems and persevere in solving them
- Reason abstractly and quantitatively
- Construct viable arguments and critique the reasoning of others
- Model with mathematics
- Use appropriate tools strategically
- Attend to precision
- Look for and make use of structure
- Look for and express regularity in repeated reasoning

Operations and Algebraic Thinking

- Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. (5.OA.1)

- Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7, without having to calculate the indicated solution. (5.OA.2)

- Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. (5.OA.3)

Expression and Equations

- Write and evaluate numerical expressions without involving whole-number exponents. (6.EE.1)

- Write, read, and evaluate expressions in which letters stand for numbers. (6.EE.2)

Number and Operations in Base Ten

- Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. (5.NBT.1)

- Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5.NBT.2)

- Read, write, and compare decimals to thousandths. (5.NBT.3)

- Use place value understanding to round decimals to any place. (5.NBT.4)

- Fluently multiply multi-digit whole numbers using the standard algorithm. (5.NBT.5)

- Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. (5.NBT.6)

- Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (5.NBT.7)

Number and Operations – Fractions

- Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions to produce a sum or difference of fractions with like denominators. (5.NF.1)

- Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. (5.NF.2)

- Interpret a fraction as division of the numerator by the denominator. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem. (5.NF.3)

- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. (5.NF.4)

- Interpret multiplication as scaling (resizing), by comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number and explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number. (5.NF.5)

- Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. (5.NF.6)

- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions by creating story context and/or visual models/equations. (5.NF.7)

The Number System

- Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. (6.NS.1)

- Fluently divide multi-digit numbers using the standard algorithm. (6.NS.2)

- Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. (6.NS.3)

- Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. (6.NS.4)

Measurement and Data

- Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. (5.MD.1)

- Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. (5.MD.2)

- Recognize volume as an attribute of solid figures and understand concepts of volume measurement. (5.MD.3)

- Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft., and improvised units. (5.MD.4)

- Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. (5.MD.5)

Geometry

- Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). (5.G.1)

- Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5.G.2)

- Understand that attributes belonging to a category of two- dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. (5.G.3)

- Classify two-dimensional figures in a hierarchy based on properties. (5.G.4)

- Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. (6.G.1)

- Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. (6.G.2)

Statistics and Probability

- Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. (6.SP.1)

- Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. (6.SP.2)

- Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. (6.SP.3)

- Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (6.SP.4)

- Summarize numerical data sets in relation to their context. (6.SP.5)