

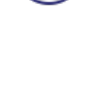


# Maths - USA

COMMON CORE - GRADE 5



Experience Level: **ELEMENTARY**



Number of Classes: **VARIABLE**



Age Range: **9 - 10 YEARS**

01

## Operations and Algebraic Thinking

- Write and interpret numerical expressions.
  - Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
  - Write simple expressions that record calculations with numbers.
- Analyze patterns and relationships.
  - Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms.



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## Number and Operations in Base Ten

- Understand the place value system.
  - 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.
- 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.
- Read, write, and compare decimals to thousandths.
  - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form.
  - Compare two decimals to thousandths based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols.
- Use place value understanding to round decimals to any place.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.
  - Fluently multiply multi-digit whole numbers.
  - Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.
  - Add, subtract, multiply, and divide decimals to hundredths



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## Number and Operations - Fractions

- Use equivalent fractions as a strategy to add and subtract fractions.
  - Add and subtract fractions with unlike denominators (including mixed numbers).
- Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators.
- Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
  - Interpret a fraction as division of the numerator by the denominator ( $a/b = a \div b$ ). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers.
- Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction..
  - Interpret the product  $(a/b) \times q$  as a parts of a partition of  $q$  into  $b$  equal part.
  - Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths..
- 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.
  - Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number



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## Number and Operations - Fractions (Contd.)

- Solve real world problems involving multiplication of fractions and mixed numbers.
- Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
  - Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.
  - Interpret division of a whole number by a unit fraction, and compute such quotients.
- Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem.

04

## Measurement and Data

- Convert like measurement units within a given measurement system.
  - 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.
- Represent and interpret data.
  - Make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ ,  $1/4$ ,  $1/8$ ).
- Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
  - Recognize volume as an attribute of solid figures



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## Measurement and Data (Contd.)

- A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume.
- A solid figure which can be packed without gaps or overlaps using  $n$  unit cubes is said to have a volume of  $n$  cubic units.
- Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
- Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
  - Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base.
- Apply the formulas  $V = l \times w \times h$  and  $V = b \times h$  for rectangular prisms to find volumes of right rectangular prisms
- Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts.



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## Geometry

- Graph points on the coordinate plane to solve real-world and mathematical problems.
  - 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.
  - 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.
- Classify two-dimensional figures into categories based on their properties.
  - Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
  - Classify two-dimensional figures in a hierarchy based on properties.



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