

Grade 6

Adopted 2023

Grade 6

Number Concepts & Computations

Rational Numbers

- A. Use fractions, decimals, integers, and absolute values to represent real-world situations. **6.NCC.A**
1. Explain positive and negative integers as being opposite values or directions and the meaning of 0 in a real-world context. **6.NCC.1**
 2. Find and plot rational numbers on horizontal and vertical number lines in real-world and mathematical problems. **6.NCC.2**
 3. Compare rational numbers, using inequalities ($<$, $>$, $\leq$, $\geq$, $\neq$) and order on a number line. **6.NCC.3**
 4. Interpret the absolute value of numbers for positive or negative quantities in a real-world context. **6.NCC.4**
 5. Convert between fractions, decimals, and percents in real-world and mathematical problems. **6.NCC.5**

Rational Number Operations

- B. Extend previous knowledge of operations to decimals and fractions, involving positive rational numbers. **6.NCC.B**
6. Interpret and represent quotients of fractions.
 - Fractions include all forms of fractions.**6.NCC.6**
 7. Solve problems involving the division of fractions in real-world and mathematical problems.
 - Fractions include all forms of fractions.**6.NCC.7**
 8. Divide multi-digit numbers fluently in real-world and mathematical problems. **6.NCC.8**
 9. Use any standard algorithm to fluently add and subtract multi-digit decimals and fractions in real-world and mathematical problems. **6.NCC.9**
 10. Use any standard algorithm to fluently multiply and divide multi-digit decimals and fractions in real-world and mathematical problems. **6.NCC.10**

Common Factors and Multiples

- C. Use factors and multiples to solve problems. 6.NCC.C
 - 11. Solve real-world and mathematical problems with the greatest common factor of two whole numbers less than or equal to 100. 6.NCC.11
 - 12. Solve real-world and mathematical problems with the least common multiple of two whole numbers less than or equal to 12. 6.NCC.12
 - 13. Use the distributive property and the greatest common factor to rewrite the sum of two whole numbers, 1 through 100. 6.NCC.13
-

Proportional Relationships

Ratio & Rates

- A. Understand ratio concepts and use proportional reasoning to solve problems. 6.PR.A
 - 1. Use precise ratio language and notation to describe a ratio as a relationship between two quantities. 6.PR.1
 - 2. Calculate unit rates to include unit pricing and constant speed. 6.PR.2
 - 3. Give examples of unit rates as a ratio that compares two quantities with different units of measure, limited to non-complex fractions. 6.PR.3
 - 4. Create various representations to compare ratios and find missing values to solve real-world and mathematical problems. 6.PR.4
 - 5. Find a percent of a quantity as a rate per 100 and solve problems involving finding the whole when given a part and the percent. 6.PR.5
-

Algebra

Expressions

- B. Extend their understanding of arithmetic to algebraic expressions. 6.ALG.B
 - 1. Read and write expressions in real-world or mathematical problems in which letters stand for numbers. 6.ALG.1
 - 2. Use mathematical terms to identify parts of an expression, including the names of operations, terms, factors, coefficients, variables, and constants. 6.ALG.2
 - 3. Write and evaluate expressions for given values of variables, using order of operations, including expressions with whole number exponents. 6.ALG.3
 - 4. Generate equivalent expressions by applying the associative, commutative, distributive, and identity properties. 6.ALG.4
 - 5. Identify when two expressions are equivalent by using properties of operations including like terms. 6.ALG.5

Equations & Inequalities

- C. Focus on reasoning about and solving equations and inequalities. 6.ALG.C
 - 6. Use substitution to determine if a given value in a specified set makes an equation or inequality true. Include the following inequality symbols: $<, >, \leq, \geq, \neq$ 6.ALG.6
 - 7. Write and solve one-step equations in real-world and mathematical problems, involving positive rational numbers and zero. 6.ALG.7
 - 8. Write, solve, and graph one-step inequalities in real-world and mathematical problems. 6.ALG.8
-

Geometry & Measurement

Area, Volume, & Surface Area

- A. Solve problems involving area, volume, and surface area. 6.GM.A
 - 1. Find the area of triangles, quadrilaterals, and polygons by composing or decomposing to solve real-world and mathematical problems. 6.GM.1
 - 2. Apply the formulas $V = lwh$ and $V = Bh$ to find the volume of right rectangular prisms with fractional edge lengths to solve real-world and mathematical problems, including solving for an unknown dimension. 6.GM.2
 - 3. Construct nets of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid, using the nets to find the surface area of these prisms. 6.GM.3

Coordinate Plane System

- B. Graph points in all four quadrants. 6.GM.B
 - 4. Find and graph pairs of rational numbers in all four quadrants of the coordinate plane in real-world and mathematical problems. 6.GM.4
 - 5. Draw polygons in the coordinate plane when given coordinates for the vertices. 6.GM.5
 - 6. Use coordinates to calculate vertical and horizontal distances between points with the same x-coordinate or the same y-coordinate to solve real-world and mathematical problems. 6.GM.6

Conversions

- C. Apply measurement knowledge to solve real-world problems. 6.GM.C
 - 7. Convert measurements within and between the metric and customary measurement systems to solve real-world and mathematical problems. 6.GM.7
-

Statistics & Probability

Statistical & Nonstatistical

- A. Recognize that data collected to answer a statistical question can be analyzed by their distributions. 6.SP.A
 - 1. Identify the difference between statistical and non-statistical questions and write simple statistical questions that allow variable responses. 6.SP.1

Measures of Center

- B. Explore mean, median, and mode. 6.SP.B
 - 2. Calculate and interpret any measure of center (mean, median, and mode) of a numerical data set. 6.SP.2
 - 3. Determine which measure of center (mean or median) is more appropriate to describe the center of data and justify the choice. 6.SP.3
 - 4. Describe how the mean or median is affected by outliers of a numerical data set. 6.SP.4

Measures of Variation

- C. Explore range and interquartile range. 6.SP.C
 - 5. Calculate and interpret the measure of variation [range and interquartile range (IQR)] of a numerical data set. 6.SP.5
 - 6. Determine which measure of variation (range or interquartile range) is more appropriate to describe the shape; justify the choice. 6.SP.6

Numerical Data

- D. Summarize and describe distributions. 6.SP.D
 - 7. Represent numerical data on a number line, histogram, and box plot. 6.SP.7
 - 8. Calculate the relative frequency of an interval of data values when given a histogram. 6.SP.8
 - 9. Interpret a box plot to answer statistical questions about a data set. 6.SP.9