

Grade 7

Adopted 2022

Nebraska Mathematical Processes

1. Make sense of problems and persevere in solving them. [MP.1](#)
2. Reason quantitatively and abstractly and consider the reasoning of others. [MP.2](#)
3. Create and use representations to organize, record, and communicate mathematical ideas. [MP.3](#)
4. Analyze mathematical relationships to connect mathematical ideas. [MP.4](#)
5. Explain and justify mathematical ideas using precise mathematical language in written or oral communication. [MP.5](#)

Grade 7

Number

1. Solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas. [7.CS.1](#)
1. Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system. [7.N.1](#)
2. Operations: Students will compute with rational numbers accurately. [7.N.2](#)
 - a. Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers). [7.N.2.A](#)
 - b. Apply properties of operations (commutative, associative, distributive, identity, inverse, zero) as strategies for problem solving with rational numbers. [7.N.2.B](#)

Ratios And Proportions

2. Students will understand ratio concepts and use ratio reasoning to solve problems. **7.CS.2**
 1. Proportional Relationships: Students will understand the concept of proportions, use language to describe the relationship between two quantities, and use proportions to solve authentic situations. **7.R.1**
 - a. Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table). **7.R.1.A**
 - b. Represent and solve authentic problems with proportions. **7.R.1.B**
 - c. Use proportional relationships to solve authentic percent problems (e.g., percent change, sales tax, mark-up, discount, tip). **7.R.1.C**
 - d. Solve authentic problems involving scale drawings. **7.R.1.D**
-

Algebra

3. Solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas. **7.CS.3**
 1. Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities. **7.A.1**
 - a. Use factoring and properties of operations to create equivalent algebraic expressions (e.g., $2x + 6 = 2(x + 3)$). **7.A.1.A**
 - b. Given the value of the variable(s), evaluate algebraic expressions, which may include absolute value. **7.A.1.B**
 - c. Solve one- and two-step equations involving rational numbers. **7.A.1.C**
 - d. Solve equations using the distributive property and combining like terms. **7.A.1.D**
 - e. Solve one- and two-step inequalities involving integers and represent solutions on a number line. **7.A.1.E**
 2. Applications: Students will solve authentic problems with algebraic expressions, equations, and inequalities. **7.A.2**
 - a. Write one- and two-step equations involving rational numbers from words, tables, and authentic situations. **7.A.2.A**
 - b. Write one- and two-step inequalities to represent authentic situations involving integers. **7.A.2.B**
-

Geometry

4. Solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas. 7.CS.4
 1. Attributes: Students will identify angle relationships and apply properties to determine angle measures. 7.G.1
 - a. Apply properties of adjacent, complementary, supplementary, linear pair, and vertical angles to find missing angle measures. 7.G.1.A
 2. Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane. 7.G.2
 - a. Draw polygons in the coordinate plane given coordinates for the vertices. 7.G.2.A
 - b. Calculate vertical and horizontal distances in the coordinate plane to find perimeter and area of rectangles. 7.G.2.B
 3. Measurement: Students will identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume. 7.G.3
 - a. Solve authentic problems involving perimeter and area of composite shapes made from triangles and quadrilaterals. 7.G.3.A
 - b. Determine surface area and volume of composite rectangular and triangular prisms. 7.G.3.B
 - c. Determine the area and circumference of circles both on and off the coordinate plane using 3.14 for the value of Pi. 7.G.3.C

Data

5. Solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas. 7.CS.5
 1. Data Collection and Statistical Methods: Students will formulate statistical investigative questions, collect data, and organize data. 7.D.1
 - a. Create an investigative question and collect data. 7.D.1.A
 - b. Generate conclusions about a population based on a random sample. 7.D.1.B
 - c. Identify and critique biases in various data representations. 7.D.1.C
 2. Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results. 7.D.2
 3. Probability: Students will interpret and apply concepts of probability. 7.D.3
 - a. Find theoretical and experimental probabilities for compound independent and dependent events. 7.D.3.A
 - b. Identify complementary events and calculate their probabilities. 7.D.3.B