Unit Title	Standards	Resources
Unit 1: Number Systems	7.NS.4 Understand and apply the concepts of comparing and ordering to rational numbers. a. Interpret statements using less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), and equal to (=) as relative locations on the number line. b. Use concepts of equality and inequality to write and explain real-world and mathematical situations. 7.NS.1 Extend prior knowledge of operations with positive rational numbers to add and to subtract all rational numbers and represent the sum or difference on a number line. a. Understand that the additive inverse of a number is its opposite and their sum is equal to zero. b. Understand that the sum of two rational numbers (□ + □) represents a distance from *p* on the number line equal to |*q*| where the direction is indicated by the sign of *q*. c. Translate between the subtraction of rational numbers and addition using the additive inverse, □ − □ = □ + (−□). d. Demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference. e. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to add and subtract rational numbers. 7.NS.5 Extend prior knowledge to translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Exclude the conversion of repeating decimal numbers to fractions.	Chapters 4, 5

	7.NS.1.d 7.NS.2 Extend prior knowledge of operations with positive rational numbers to multiply and to divide all rational numbers. a. Understand that the multiplicative inverse of a number is its reciprocal and their product is equal to one. b. Understand sign rules for multiplying rational numbers. c. Understand sign rules for dividing rational numbers and that a quotient of integers (with a non-zero divisor) is a rational number. d. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to multiply and divide rational numbers. e. Understand that some rational numbers can be written as integers and all rational numbers can be written as fractions or decimal numbers that terminate or repeat. 7.NS.3 Apply the concepts of all four operations with rational numbers to solve real-world and mathematical problems.	
Unit 2: Expressions and Equations	7.NS.3 7.EEI.1 Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients. 7.EEI.2 Recognize that algebraic expressions may have a variety of equivalent forms and determine an appropriate form for a given real-world situation. 7.EEI.3 Extend previous understanding of Order of Operations to solve multi-step real-world and mathematical problems involving rational numbers. Include fraction bars as a grouping symbol.	Chapters 6, 7

	7.EEI.4 Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations. a. Write and fluently solve linear equations of the form $ax + b = c$ and $a(x + b) = c$ where a, b, and c are rational numbers. b. Write and solve multi-step linear equations that include the use of the distributive property and combining like terms. Exclude equations that contain variables on both sides. c. Write and solve two-step linear inequalities. Graph the solution set on a number line and interpret its meaning. d. Identify and justify the steps for solving multi-step linear equations and two-step linear inequalities. 7.EEI.3 7.EEI.4.a, b 7.EEI.5 Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property) to simplify numerical expressions that include whole-number exponents.	
Unit 3: Geometry A	7.GM.2 Construct triangles and special quadrilaterals using a variety of tools (e.g., freehand, ruler and protractor, technology). a. Construct triangles given all measurements of either angles or sides. b. Decide if the measurements determine a unique triangle, more than one triangle, or no triangle. c. Construct special quadrilaterals (i.e., kite, trapezoid, isosceles trapezoid, rhombus, parallelogram, rectangle) given specific parameters about angles or sides. 7.GM.5 Write equations to solve problems involving the relationships between angles formed by two intersecting lines, including supplementary,	Chapters 9, 10

	complementary, vertical, and adjacent.	
Unit 4: Geometry B	7.GM.1 Determine the scale factor and translate between scale models and actual measurements (e.g., lengths, area) of real-world objects and geometric figures using proportional reasoning. 7.GM.4 Investigate the concept of circles. a. Demonstrate an understanding of the proportional relationships between diameter, radius, and circumference of a circle. b. Understand that the constant of proportionality between the circumference and diameter is equivalent to π. c. Explore the relationship between circumference and area using a visual model. d. Use the formulas for circumference and area of circles appropriately to solve real-world and mathematical problems. 7.GM.3 Describe two-dimensional cross-sections of three-dimensional figures, specifically right rectangular prisms and right rectangular pyramids. 7.GM.6 Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations. a. Understand that the concept of area is applied to two-dimensional figures such as triangles, quadrilaterals, and polygons. b. Understand that the concepts of volume and surface area are applied to three- dimensional figures such as cubes, right rectangular prisms, and right triangular prisms. c. Decompose cubes, right rectangular prisms, and right triangular prisms into rectangles and triangles to derive the formulas for volume and surface area.	Chapters 11, 12, 13

	d. Use the formulas for area, volume, and surface area appropriately.	
Unit 5: Ratios and Proportional Relationships	7.RP.1 Compute unit rates, including those involving complex fractions, with like or different units. 7.RP.2 Identify and model proportional relationships given multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations. b. Recognize or compute the constant of proportionality. c. Understand that the constant of proportionality is the unit rate. 7.RP.3 Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning (e.g., multi-step dimensional analysis, percent increase/decrease, tax). 7.RP.1 7.RP.2.a, b, c, d 7.RP.3 7.RP.1 Compute unit rates, including those involving complex fractions, with like or different units. 7.RP.2 Identify and model proportional relationships given multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations. a. Determine when two quantities are in a proportional relationship. b. Recognize or compute the constant of proportionality. c. Understand that the constant of proportionality is the unit rate. d. Use equations to model proportional relationships. e. Investigate the graph of a proportional relationship and explain the meaning of specific points (e.g., origin, unit rate) in the context of the situation.	Chapters 1, 2, 3

	7.RP.3 Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning (e.g., multi-step dimensional analysis, percent increase/decrease, tax). 7.RP.1 7.RP.2.a, b, c 7.RP.3	
Unit 6: Statistics	7.DSP.1 Investigate concepts of random sampling. a. Understand that a sample is a subset of a population and both possess the same characteristics. b. Differentiate between random and non-random sampling. c. Understand that generalizations from a sample are valid only if the sample is representative of the population. d. Understand that random sampling is used to gather a representative sample and supports valid inferences about the population. 7.DSP.2 Draw inferences about a population by collecting multiple random samples of the same size to investigate variability in estimates of the characteristic of interest. 7.DSP.4 Compare the numerical measures of center (mean, median, mode) and variability (range, interquartile range, mean absolute deviation) from two random samples to draw inferences about the populations. 7.DSP.2 7.DSP.3 Visually compare the centers, spreads, and overlap of two displays of data (i.e., dot plots, histograms, box plots) that are graphed on the same scale and draw inferences about this data. 7.DSP.4	Chapters 14, 15
UNIT 7: Probability	7.DSP.5 Investigate the concept of probability of chance events.	Chapters 16, 17

	a. Determine probabilities of simple events. b. Understand that probability measures likelihood of a chance event occurring. c. Understand that the probability of a chance event is a number between 0 and 1. d. Understand that a probability closer to 1 indicates a likely chance event. e. Understand that a probability close to $\frac{1}{2}$ indicates that a chance event is neither likely nor unlikely. f. Understand that a probability closer to 0 indicates an unlikely chance event. 7.DSP.6 Investigate the relationship between theoretical and experimental probabilities for simple events. a. Determine approximate outcomes using theoretical probability. b. Perform experiments that model theoretical probability. c. Compare theoretical and experimental probabilities. 7.DSP.7 Apply the concepts of theoretical and experimental probabilities for simple events. a. Differentiate between uniform and non-uniform probability models (distributions). b. Develop both uniform and non-uniform probability models. c. Perform experiments to test the validity of probability models. 7.DSP.8 Extend the concepts of simple events to investigate compound	

	events. a. Understand that the probability of a compound event is between 0 and 1. b. Identify the outcomes in a sample space using organized lists, tables, and tree diagrams. c. Determine probabilities of compound events using organized lists, tables, and tree diagrams. d. Design and use simulations to collect data and determine probabilities. e. Compare theoretical and experimental probabilities for compound events.	