Unit	Topic	Lesson	Lesson Objectives

Number Sense

Integers, Decimals, and Fractions

Adding Integers

Apply properties of operations to add integers.

Describe real-world contexts for adding integers.

Use visual representations to add integers.

Subtracting Integers

Describe real-world contexts for subtracting integers.

Use additive inverse and properties of operations to subtract integers.

Use visual representations to subtract integers.

Multiplying Integers

Apply properties of operations and rules of signed numbers to multiply integers.

Describe real-world contexts for multiplying integers.

Use visual representations to multiply integers.

Dividing Integers

Apply properties of operations and rules of signed numbers to divide integers.

Describe real-world contexts for dividing integers.

Use visual representations to divide integers.

Adding and Subtracting Decimals

Apply properties of operations to add and subtract decimals.

Describe real-world contexts for adding and subtracting decimals.

Estimate sums and differences of decimals.

Use visual representations to add and subtract decimals.

Estimating and Finding Decimal Products

Find decimal products and use estimation to place the decimal point in a product.

Multiplying Fractions

Apply properties of operations to multiply fractions.

Describe real-world contexts for multiplying fractions.

Estimate products of fractions.

Use the rules of signed numbers and visuals to multiply fractions.

Unit	Topic	Lesson	Lesson Objectives

Dividing Fractions

Apply properties of operations to divide fractions.

Describe real-world contexts for dividing fractions.

Estimate quotients of fractions.

Use the rules of signed numbers to divide fractions.

Solving Equations with Rational Numbers

Identify the least common denominator of fractions to combine like terms and solve equations.

Solve one-variable linear equations with rational numbers using properties of equality.

Expressions

Expressions

Writing and Evaluating Expressions

Evaluate algebraic expressions containing one operation.

Write algebraic expressions containing one operation.

Expressions with More Than One Operation

Use the order of operations to evaluate algebraic expressions containing more than one operation.

Write algebraic expressions containing more than one operation.

Expressions with and without Parentheses

Use the order of operations to evaluate algebraic expressions containing more than one operation, with and without parentheses.

Write algebraic expressions containing more than one operation, with and without parentheses.

Equivalent Expressions

Generate equivalent expressions using the commutative and associative properties.

Use substitution to determine if two expressions are equivalent.

Using the Distributive Property

Identify and justify distributed expressions.

Use the distributive property to simplify expressions.

Absolute Value

Compare and order magnitudes using absolute value.

Define absolute value.

Find the absolute value of an integer.

Represent and compare real-world quantities using absolute value.

Unit	Topic	Lesson	Lesson Objectives

Equations and Inequalities

   Equations and Inequalities

     Addition and Subtraction Equations

       Solve one-step addition and subtraction equations in the real world and interpret the results.

       Solve one-step addition and subtraction equations.

     Multiplication and Division Equations

       Solve one-step multiplication and division equations.

       Write and solve one-step multiplication and division equations in the real world and interpret the results.

     Solving Two-Step Equations

       Solve two-step equations in the real world and interpret the results.

       Solve two-step equations.

     Combining Like Terms to Solve Equations

       Determine and apply properties of equality when solving an equation.

       Identify and combine like terms to solve one-variable linear equations.

     Addition and Subtraction Inequalities

       Solve one-step addition and subtraction inequalities in the real world and interpret the results.

       Solve one-step addition and subtraction inequalities.

     Multiplication and Division Inequalities

       Solve one-step multiplication and division inequalities in the real world and interpret the results.

       Solve one-step multiplication and division inequalities.

     Solving Two-Step Inequalities

       Solve two-step inequalities in the real world and interpret the results.

       Solve two-step inequalities.

Ratios, Proportional Relationships, and Percents

   Ratios and Proportional Relationships

     Equivalent Ratios

       Analyze patterns in a table of equivalent ratios.

       Find missing values in a table using ratio reasoning.

     Ratios in Real-World Situations

       Compare ratios in real-world contexts.

     Unit Rates

       Use a given unit rate and proportional reasoning to complete a table.

       Use a given unit rate and proportional reasoning to solve problems.

       Use appropriate language to describe ratios and unit rates.

Unit	Topic	Lesson	Lesson Objectives

Proportions

Solve proportion problems by using equivalent fractions.

Solve proportion problems involving complex fractions.

Write a proportion to represent a given relationship.

Scale Factor

Use a given scale factor to find an unknown length on a reduction or enlargement.

Use a given scale factor to find an unknown length on an original.

Determining a Scale Factor

Identify a scale factor from given dimensions and use it to calculate unknown dimensions.

Solving Scale Problems Using Proportions

Use proportional relationships to solve problems involving scale drawings.

Percents

Finding a Percent of a Number

Find the percent of a number when the percent is more than 100.

Solve problems by finding the percent of a number, including amounts of gratuity and tax, by using diagrams and expressions.

Finding a Total Amount

Find the total amount, including discounts, understanding that it is a process of subtracting from the original amount.

Solve for the total amount in gratuity, tax, or commission problems by using diagrams and expressions, understanding that it is a process of adding to the original amount.

Percent Increase and Decrease

Find the percent change by using the ratio of the change in quantity to the original amount.

Use percent increase and decrease to solve real-world problems.

Number Properties

Exponents and Scientific Notation

Prime Numbers and Prime Factorization

Identify a number as prime or composite.

List the factors of a number.

Represent a number as the product of its prime factors, using exponents to show repeated factors.

Factors and Multiples

Apply greatest common factors and least common multiples to solve real-world problems.

Determine the greatest common factor of two numbers.

Determine the least common multiple of two numbers.

Unit	Topic	Lesson	Lesson Objectives

Powers and Exponents

Evaluate powers using fractional and negative bases.

Express a power of a positive integer base in expanded form.

Express expanded form in exponential form.

Zero and Negative Exponents

Determine patterns of exponent values from a table.

Evaluate powers of zero and negative exponents.

Simplify expressions of zero and negative exponents.

Introduction to Scientific Notation

Convert very small or very large numbers between scientific notation and standard notation.

Order and estimate products and quotients of numbers written in scientific notation.

Analytic Geometry

Linear Functions

Graphing on the Coordinate Plane

Create graphs from a table or situation and use them to solve problems.

Identify and graph points in the coordinate plane, describing their relationship to axes and quadrants.

Tables, Graphs, and Equations

Generate different representations of the same two-variable data.

Recognize that tabular and graphical representations may be partial representations.

Translate tables and graphs into equations.

Introduction to Functions

Determine if a real-world situation describes a functional relationship.

Identify functions from tables, graphs, and equations.

Constructing Linear Functions

Analyze linear functions to find the rate of change and initial value.

Interpret the rate of change and initial value of a linear function in terms of the situation it models.

Rate of Change and Introduction to Slope

Compare positive slopes in a real-world situation.

Determine the positive slope of a line from a table and a graph.

Exploring Slope

Determine the value of the slope of a line from a table or a graph.

Recognize the difference between positive slope, negative slope, no slope, and zero slope.

Unit	Topic	Lesson	Lesson Objectives

Proportional Relationships

Compare proportional and nonproportional linear functions in the form of a table, graph, and equation.

Determine whether a linear function is a direct variation.

Solve problems involving direct variation.

Slope-Intercept Form

Analyze a graph to determine slope and y-intercept.

Graph a linear function using the slope and y-intercept.

Write a linear equation in slope-intercept form given the slope and y-intercept.

Geometry Basics

Angle Relationships and Transformations

Angle Relationships

Determine congruence in vertical angle relationships.

Find missing angle measures using angle relationships.

Identify vertical, adjacent, complementary, and supplementary angles.

Name an angle.

Transversals

Determine angle relationships created by a transversal line intersecting two nonparallel lines.

Find unknown angle measures created by a transversal intersecting two or more nonparallel lines.

Parallel Lines Cut by a Transversal

Determine if two lines cut by a transversal are parallel.

Find missing measurements using angle relationships in a diagram of a transversal crossing parallel lines.

Identify interior angles, exterior angles, alternate interior angles, and alternate exterior angles when a transversal crosses parallel lines.

Overview of Transformations

Identify types of transformations.

Relate the result of a transformation to the original figure.

Translations

Describe a translation using coordinates.

Identify and describe a translation on the coordinate plane.

Translate figures on the coordinate plane given as an ordered pair and verbal expression.

Reflections

Describe a reflected figure using the line of reflection and coordinates.

Identify and describe a reflection on the coordinate plane.

Reflect figures on the coordinate plane given the line of reflection.

Unit	Topic	Lesson	Lesson Objectives

Rotations in the Coordinate Plane

Describe the rotation of a figure using coordinates.

Rotate figures on the coordinate plane given the degree and direction.

Congruence and Transformations

Describe a sequence of transformations that shows that a given pre-image is congruent to a transformed figure.

Counting and Probability

Counting and Probability

Understanding Probability

Describe the probability of an event as a number between 0 and 1, which represents the likelihood of the event.

Identify an event with a given probability as impossible, unlikely, likely, or certain.

Use the fact that the sum of the probabilities of all possible outcomes is 1 to find the probabilities of complementary events.

Experimental vs. Theoretical Probability

Compare experimental results to theoretical probabilities and make conjectures about the results.

Explain possible sources of discrepancy between the theoretical and experimental probability of an event.

Probability of Compound Events

Find probabilities of dependent compound events using organized lists, tables, or tree diagrams.

Find probabilities of independent compound events using organized lists, tables, or tree diagrams.

Combinations

Find possible outcomes.

Solve or identify solutions to problems involving combinations.

Sampling Methods

Compare a random sample to a biased sample in a variety of real-world contexts to determine validity.

Identify and explain the process for choosing a random sample.

Inferences and Predictions

Examine sample size and the effect on a prediction using the results of a simulation.

Make an inference about the whole population based on a sample by using proportional reasoning.

Statistics

Analyzing Data Representation and Scatterplots

Summarizing Data Sets with Statistics

Compare two data sets with the same measure of center but different measures of spread.

Find the mean, median, range, and interquartile range of a data set.

Unit	Topic	Lesson	Lesson Objectives

Box Plots

Create a box plot to represent a set of data, given the summary statistics.

Interpret a box plot.

Comparing Measures of Center and Variability

Analyze two numerical data distributions with similar variation by calculating and comparing the measures of center to the measure of variability.

Compare the measures of center of two sets of data using a multiple of the measure of variability, expressed as a ratio.

Draw an informal comparative inference about two sets of data.

Constructing Scatterplots

Analyze a scatterplot.

Classify dependent and independent variables.

Create a scatterplot using a table of values.

Drawing Trend Lines

Draw a line of best fit in scatterplots and identify its purpose.

Use a graphing calculator to graph scatterplots and draw the trend line.

Using Equations to Represent Trend Lines

Create the linear equation of the trend line.

Find and interpret the slope of a trend line.

Square Roots and Right Triangles

Pythagorean Theorem and Irrational Numbers

Exploring the Pythagorean Theorem

Apply the Pythagorean theorem using Pythagorean triples as the side lengths.

Identify sets of Pythagorean triples.

Recognize perfect squares.

Use Pythagorean triples to determine if a triangle is a right triangle.

Estimating and Comparing Square Roots

Estimate square roots without using technology.

Make comparative statements involving square roots.

Plot the estimated values of square roots on a number line.

Finding the Hypotenuse in Right Triangles

Approximate the length of the hypotenuse of a right triangle to solve real-world problems.

Use the Pythagorean theorem to find the length of the hypotenuse of a right triangle.

Unknown Leg Lengths in Right Triangles

Approximate the length of a leg of a right triangle to solve real-world problems.

Given the length of one leg and the hypotenuse of a right triangle, use the Pythagorean theorem to find the length of the other leg.

Unit	Topic	Lesson	Lesson Objectives

Finding Distance in the Coordinate Plane

Apply the Pythagorean theorem to find the distance between two points on the coordinate plane.

Generate and use the distance formula to find the distance between two points on the coordinate plane.

Exploring Real Numbers

Classify numbers as rational or irrational numbers, and decimals as terminating or repeating.

Determine sums and products of rational and irrational numbers.

Express a repeating decimal with bar notation, and convert it to a fraction.

Two-Dimensional Geometry

Perimeter, Area, and Constructions

Finding Area on a Coordinate Plane

Calculate the area of a rectangle drawn in the coordinate plane.

Find lengths of sides for rectangles drawn in the coordinate plane.

Area of Triangles

Calculate the area of triangles using the formula $A = \frac{1}{2}bh$.

Solve real-world problems involving the area of triangles.

Area of Special Quadrilaterals

Find the area of special quadrilaterals.

Solve real-world problems involving the area of special quadrilaterals.

Constructing Triangles

Construct triangles from given parameters.

Identify whether given parameters create a unique triangle, more than one triangle, or no triangle.

Constructing Geometric Figures

Construct geometric figures from triangles.

Describe the characteristics of polygons.

Three-Dimensional Geometry

Solid Figures

Surface Area of Prisms

Calculate surface areas of rectangular and triangular prisms.

Surface Area and Volume of Cylinders

Solve mathematical and real-world problems involving the volume and surface area of cylinders.

Surface Area of Pyramids

Calculate surface area of rectangular and square pyramids.

Volume of Prisms

Calculate volumes of rectangular and triangular prisms.

Unit	Topic	Lesson	Lesson Objectives

Volume of Pyramids

    Calculate volumes of rectangular and square pyramids.

Introduction to the Volume of a Cone

    Apply the formula to find the volume of a cone.

    Connect the volume of a cone to the volume of a cylinder.

    Recognize and identify parts of a cone.

Introduction to the Volume of a Sphere

    Apply the formula to find the volume of a sphere.

    Connect the volume of a sphere to the volume of a cylinder.

    Identify the parts of a sphere.