Unit	Lesson	Lesson Objectives
Arithmetic		
	Multi-Digit Arithmetic: Comparing the Four Operations	
		Correctly use place value in the standard algorithms for the four basic mathematical operations.
		Relate and/or contrast the standard algorithms for the pairings of +/- ×/÷ ±/×÷, and use their relationships to check answers.
		Real-World Application: Solve one-step real-world problems using any of the four operations and whole numbers.
	Interpreting and Simplifying Multistep Expressions	
		Evaluate expressions with multiple operations, including parentheses and brackets.
		Order the operations for solving a multistep problem.
		Real-World Application: Solve real-world problems involving multistep operations, including identifying expressions that model the problem.
	Using a Calculator Appropriately and Strategically	
		Assess the reasonableness of calculator output using mental computation, estimation strategies, and rounding.
		Use a calculator to evaluate whole-number expressions without variables, including clearing the calculator.
		Use order of operations in the calculator entries of multistep problems.
		Real-World Application: Use a calculator to solve real-world problems.
	Multistep Word Problems	
		Identify key information for solving two-step word problems involving whole numbers and any of the four operations, including question, problem type, and order of operations needed.
		Use estimation to determine if a solution is reasonable.
		Real-World Application: Solve real-world problems with two operations involving whole numbers.
	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.
	Multiplying Decimals	
		Multiply decimals to the hundredths place.
		Use rounding to estimate a product before computing as a means of developing a sense of the size of the product, including the position of the decimal point in the product.
		Real-World Application: Solve real-world problems involving multiplication of decimals, especially those involving a decimal part of a decimal.
	Dividing Decimals	
		Divide decimals by decimals.
		Divide whole numbers by decimals.
		Use estimation to determine reasonableness.

Unit	Lesson	Lesson Objectives
	Adding and Subtracting Fractions	
		Describe real-world contexts for adding and subtracting fractions.
		Estimate sums and differences of fractions.
		Use visual representations to add and subtract fractions.
	Fraction Multiplication and Division	
		Solve real-world problems using fraction multiplication or division.
	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.
	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.
	Simple Interest	
		Apply the simple interest formula in the context of a word problem.
		Calculate simple interest, principal, time, and total using the simple interest formula.
	Fraction-Decimal-Percent Equivalents	
		Find equivalent forms of fractions, decimals, and percents.
	Comparing Rational Numbers	
		Define rational numbers and classify numbers.
		Graph rational numbers on a number line.
		Use a number line to compare rational numbers in a real-world context.
	Ordering Rational Numbers	
		Order rational numbers using a number line.
		Write and interpret statements of comparison for rational numbers in real-world contexts.
Quantitative Reasoning, Algebra, and Statistics: Part One		
	Solving Problems Involving Rational Numbers	
		Solve real-world and mathematical problems involving addition, subtraction, multiplication, and division with rational numbers.
	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.
	Converting Measurements between Systems	
		Convert measurement units between the customary and metric systems.

Unit	Lesson	Lesson Objectives
	Solving Speed Problems	
		Compare speeds.
		Find distance given time and speed.
		Find time given distance and speed.
	Equivalent Ratios in Measurement	
		Analyze patterns of equivalent ratios in measurement.
		Identify equivalent ratios in measurements.
	Solving Scale Problems Using Proportions	
		Use proportional relationships to solve problems involving scale drawings.
	Writing and Evaluating Expressions	
		Evaluate expressions for real-world situations.
		Write expressions to represent real-world situations.
	Expanding Expressions	
		Identify equivalent expressions.
		Use the distributive property to expand and simplify algebraic expressions.
	Evaluating Expressions with Exponents	
		Evaluate expressions using substitution of the variables.
		Simplify expressions using the rules of 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.
	Writing Equations	
		Write equations from words.
		Write equations to represent real-world situations.
	Writing and Solving Equations in Two Variables	
		Determine a two-variable linear equation that represents a scenario, identifying constraints on the variables in terms of the context.
		Solve for an unknown quantity in a two-variable linear equation, given one of the values.
	Solving Multistep Equations with Variables on Both Sides	
		Build a process for solving multistep linear equations with variables on both sides.
		Solve multistep linear equations with variables on both sides and verify the solutions.
	Solving Mixture Problems	
		Use a table to organize information given in mixture problems.
		Write and solve one-variable linear equations to model and solve mixture problems.

Unit	Lesson	Lesson Objectives
	Writing and Graphing Equations in Two Variables	
		Construct a table of values and a graph for a two-variable linear equation that models a situation, pointing out solutions that are viable or not viable based on
		Interpret graphs and rates by examining the quantities represented by each axis.
		Write a two-variable linear equation to model a quantitative relationship, describing the constraints of the model based on the context.
	Slope-Intercept Form of a Line	
		Analyze how a change in a parameter of a linear function affects its graph or the scenario it represents.
		Identify the slope and *y* -intercept of a linear function, and use them to graph the function.
		Write a linear function, in slope-intercept form, for a given relationship.
	Writing Inequalities	
		Write inequalities from words, and vice-versa.
		Write inequalities to represent real-world situations.
	Graphing Inequalities	
		Graph an inequality.
		Write an inequality from a graph.
	Solving One-Variable Inequalities	
		Explain the steps used to solve a multistep one-variable linear inequality.
		Graph the solution sets of one-variable linear inequalities.
		Solve multistep one-variable linear inequalities.
	Modeling with Two-Variable Linear Inequalities	
		Create a two-variable linear inequality to model a problem.
		Graph the solutions to a two-variable linear inequality.
		Interpret the solutions of a two-variable linear inequality in a modeling context.
	Equations of Parallel and Perpendicular Lines	
		Determine the slope of a line that is parallel or perpendicular to a given line.
		Given two lines, verify mathematically that the lines are parallel or perpendicular.
		Write the equation of a line that contains a given point and is parallel or perpendicular to a given line.
Quantitative Reasoning, Algebra, and Statistics: Part Two		
	Solving Systems of Linear Equations: Graphing	
		Analyze a system of linear equations to determine if it has one solution, no solution, or infinitely many solutions.
		Use technology to find or approximate the solution of a system of linear equations graphically.
	Solving Systems of Linear Equations: Substitution	
		Interpret the solution of a system of linear equations in a modeling context.
		Solve a system of linear equations using substitution.

Unit	Lesson	Lesson Objectives
	Solving Systems: Introduction to Linear Combinations	
		Interpret the solution of a system of linear equations in a modeling context.
		Solve systems of linear equations using linear combinations, limiting the systems to those that do not require multiples of both equations.
		Verify that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
	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.
	Exponential Functions with Radical Bases	
		Determine the key aspects of an exponential function having a radical base by rewriting it using the properties of exponents.
		Simplify and evaluate exponential expressions having whole number bases and fractional exponents.
		Transform expressions in radical form to exponential form and vice versa.
	Circumference	
		Solve problems involving the circumference of a circle.
	Area of Polygons	
		Solve problems involving areas of triangles and quadrilaterals.
	Area of a Circle	
		Describe the relationship between the circumference and area of a circle.
		Solve problems involving the area of a circle.
	Perimeter and Area of Irregular Figures	
		Use a grid to estimate the perimeter and area of irregular figures without decomposing them.
	Volume of Prisms	
		Calculate volumes of rectangular and triangular prisms.
	Area of Composite Figures	
		Solve problems involving the area of composite figures.
	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.
	Volume of Composite Figures	
		Calculate volumes of composite figures.

Unit	Lesson	Lesson Objectives
	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.
	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.
	Conditional Probability	
		Calculate conditional probabilities using formulas and Venn diagrams.
		Calculate probabilities of compound events.
		Use calculations to determine if two events are independent.
	Sets and Venn Diagrams	
		Identify and represent elements of sets and subsets, including the empty and universal sets.
		Represent and interpret the union and intersection of sets using set notation and Venn diagrams.
	Measures of Center	
		Calculate the mean and median for a set of data using technology when appropriate.
		Compare the mean and median of a set of data that is symmetrical and for a set of data that is not symmetrical, determining which is a better measure of center for a given data set.
		Create a dot plot or histogram for a set of data.
		Discuss the effect of outliers on measures of center.
	Box Plots	
		Analyze box plots for symmetry and outliers.
		Compare box plots.
		Create and interpret box plots.
Advanced Algebra and Functions: Part One		
	Solving Equations	
		Create multistep equations in one variable and use them to solve problems.
		Simplify and solve multistep equations
	Linear Functions	
		Determine if a function is linear.
		Represent a linear relationship numerically, algebraically, and graphically.
	Two-Variable Linear Inequalities	
		Graph two-variable linear inequalities.
		Interpret the solution set of a two-variable linear inequality.
		Write a linear inequality to model a relationship between two quantities.

Unit	Lesson	Lesson Objectives
	Solving Linear Systems Graphically	
		Classify systems of two-variable equations as dependent, independent, consistent, or inconsistent.
		Solve systems of two-variable linear equations graphically.
		Solve systems of two-variable linear inequalities.
	Solving Linear Systems by Elimination	
		Solve systems of two-variable linear equations using elimination.
	Solving Linear Systems by Substitution	
		Solve systems of two-variable linear equations using substitution.
	Slopes of Parallel and Perpendicular Lines	
		Complete the steps to prove the slope criteria for parallel and perpendicular lines using coordinate geometry.
		Determine if two lines are parallel or perpendicular.
		Use slope criteria to find additional points on a line parallel or perpendicular to a given line.
	Applications of Slope and the Distance Formula	
		Apply the distance and slope formulas to identify geometric figures and points that lie on those figures, in the coordinate plane.
		Use the distance formula to compute perimeters and areas of polygons in the coordinate plane.
	Introduction to Polynomials	
		Classify a polynomial by degree and number of terms.
		Identify a polynomial and its equivalent forms.
	Factoring Polynomials Completely	
		Analyze polynomial expressions to factor them completely.
	Graphing Polynomial Functions	
		Graph polynomial functions using key features.
	Solving Polynomial Equations using Technology	
		Use technology to solve or approximate solutions of one-variable polynomial equations.
	Quadratic Functions	
		Find the line of symmetry and vertex of a parabola given its function rule.
		Identify a quadratic function from the function rule.
		Use key attributes of a quadratic function to solve word problems.
	Quadratic Inequalities	
		Create quadratic inequalities in one variable and use them to solve problems.
		Find real solutions of quadratic inequalities algebraically and graphically.
	Completing The Square	
		Find complex solutions to quadratic equations by completing the square.
		Recognize the pattern of a perfect-square trinomial as the square of a binomial.
		Use the square root property to solve equations.

Unit	Lesson	Lesson Objectives
	Modeling with Quadratic Equations	
		Write and solve quadratic equations to model real-world scenarios, estimating where appropriate and identifying solutions that are not viable in terms of the context.
	Solving Quadratic Equations: Factoring	
		Solve problems by rewriting quadratic equations in standard form and factoring, pointing out the solutions that are viable or not viable in a modeling context.
		Write a quadratic equation that models a scenario.
	Solving Quadratic Equations: Quadratic Formula	
		Determine the number of real zeros of a quadratic function by finding the values of a , b , and c , and then calculating the discriminant.
		Solve a quadratic equation using the quadratic formula.
	Solving Linear-Quadratic Systems	
		Solve a system of equations consisting of a line and a parabola algebraically and graphically, using technology where appropriate.
	Modeling with Quadratic Equations	
		Use quadratic equations to model and solve real-world problems.
Advanced Algebra and Functions: Part Two		
	Simplifying Rational Expressions	
		Simplify rational expressions using laws of integer exponents.
	Rational Equations	
		Determine the reasonableness of a solution to a rational equation.
		Solve rational equations and determine extraneous solutions.
		Use rational equations to model and solve real-world problems.
	Graphing Rational Functions	
		Determine the horizontal asymptotes of a rational function.
		Graph rational functions that have only vertical or horizontal asymptotes.
	Graphing Radical Functions	
		Determine the domain and range of square root and cube root functions.
		Relate transformations to the graphs of square root and cube root functions to their parent function.
	Simplifying Nonperfect Roots	
		Simplify nonperfect roots without rationalizing.
	Radical Equations and Extraneous Roots	
		Model and solve mathematical and real-world problems using radical equations, and determine extraneous roots.
	Graphing Exponential Functions	
		Determine the domain and range of exponential functions.
		Graph exponential functions.
		Identify exponential functions.

Unit	Lesson	Lesson Objectives
	Graphing Logarithmic Functions	
		Determine the domain and range of logarithmic functions.
		Identify and analyze the graphs of logarithmic functions.
		Identify logarithmic functions.
	Solving Exponential and Logarithmic Equations	
		Solve exponential and logarithmic equations using inverses, properties, and algorithms.
	Modeling with Exponential and Logarithmic Equations	
		Model and solve real-world problems using exponential and logarithmic functions.
	Perimeter and Area of Rhombi, Trapezoids, and Kites	
		Calculate the perimeter of a rhombus, trapezoid, or kite given the coordinates of the vertices.
		Solve problems involving the area of a rhombus, trapezoid, and kite given the coordinates of the vertices.
		Solve problems involving the area of a rhombus, trapezoid, and kite.
	Volume of Cylinders, Cones, and Spheres	
		Solve mathematical and real-world problems involving the volume of right and oblique cones.
		Solve mathematical and real-world problems involving the volume of right and oblique cylinders.
		Solve mathematical and real-world problems involving the volume of spheres.
		Write expressions to represent the volumes or unknown measures of cylinders and cones.
Advanced Algebra and Functions: Part Three		
	Reflections	
		Describe the properties of and write rules for reflections.
		Determine the image or pre-image of a figure after a given reflection.
		Develop the definition of a reflection using constructions.
	Translations	
		Determine the image or pre-image of a figure after a given translation.
		Develop the definition of a translation using constructions.
		Write the rule that describes a given translation.
	Rotations	
		Describe the properties of and write rules for rotations.
		Determine the image or pre-image of a figure after a given rotation.
		Develop the definition of a rotation using constructions.
	Dilations	
		Calculate and interpret the scale factor for dilations of figures.
		Determine the unknown measures of an image or pre-image of a dilated figure given the scale factor.
		Verify experimentally the properties of dilations given a center and a scale factor.

Unit	Lesson	Lesson Objectives
	Pythagorean Theorem in Three Dimensions	
		Identify diagonals and right triangles within cubes.
		Solve for unknown side lengths of right triangles within a cube.
	Lines Cut by a Transversal	
		Complete the steps to prove angle relationships given parallel lines cut by a transversal.
		Solve for angle measures when parallel lines are cut by a transversal.
	Using Triangle Congruence Theorems	
		Complete the steps to prove angles, segments, and triangles are congruent using triangle congruence theorems and CPCTC.
		Identify the triangle congruency theorem that can be used to prove two triangles congruent.
	Using Triangle Similarity Theorems	
		Complete the steps to prove theorems involving similar triangles.
		Solve for unknown measures of similar triangles using the side-splitter theorem and its converse.
		Solve for unknown measures of similar triangles using the triangle midsegment theorem.
	Equation of a Circle	
		Determine if a given point lies on a circle.
		Determine the equation of a circle.
		Identify the center and radius from the equation of a circle, including equations given in general form.
	Special Right Triangles	
		Complete the steps to prove special right triangle theorems.
		Determine unknown measures of 30°-60°-90° triangles.
		Determine unknown measures of 45°-45°-90° triangles.
		Solve real-world problems involving special right triangles.
	Law of Sines	
		Apply the law of sines to solve real-world problems.
		Complete the steps to prove the law of sines.
		Solve mathematical problems using the law of sines.
	Law of Cosines	
		Apply the law of cosines to solve real-world problems.
		Complete the steps to prove the law of cosines.
		Solve mathematical problems using the law of cosines.
	Radian Measure	
		Convert between degree and radian measure.
		Use the definition of radian measure to calculate arc lengths, radii, and angle measures.

Unit	Lesson	Lesson Objectives
	Evaluating the Six Trigonometric Functions	
		Evaluate the six trigonometric functions for angles in degrees or radians based on one or more given trigonometric function values.
		Evaluate the six trigonometric functions for angles in degrees or radians given a point on the terminal ray.
	Graphing Sine and Cosine	
		Analyze key features of sine and cosine functions from equations and graphs.
	Graphing Cosecant and Secant Functions	
		Analyze key features of secant and cosecant functions from equations and graphs.
	Graphing Tangent and Cotangent	
		Analyze key features of tangent and cotangent functions from equations and graphs.
	Modeling with Periodic Functions	
		Model and solve real-world problems using periodic functions.