Unit	Lesson	Lesson Objectives
Heart of Algebra		
	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.
	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.
	Solving Real-World Multistep Equations	
		Verify the solution to real-world linear equations.
		Write and solve multistep linear equations that represent real-world problems.
	Inequalities in One Variable	
		Create two-step one-variable linear inequalities to model and solve problems, pointing out solutions that are viable or not viable in the context.
		Explain the steps used to solve a two-step one-variable linear inequality.
		Solve two-step one-variable linear inequalities, and state the solution in set or interval notation or graph it on a number line.
	Writing Linear Equations	
		Use linear models to solve problems.
		Write two-variable linear equations in different forms using varying pieces of information about the relationships.
	Solving Systems of Linear Inequalities	
		Determine a system of two-variable linear inequalities given a solution set.
		Graph a system of two-variable linear inequalities.
		Identify solutions of a system of two-variable linear inequalities.
	Modeling with Systems of Linear Inequalities	
		Create a system of two-variable linear inequalities to model a problem.
		Graph the solutions to a system of two-variable linear inequalities.
		Interpret the solutions to a system of two-variable linear inequalities in a modeling context.
	Writing and Solving Systems	
		Create systems of equations from mathematical problems.
		Solve systems of two linear equations.
	Analyzing Solutions	
		Identify equations that have one solution, infinitely many solutions, and no solution.
		Solve equations that have one solution, infinitely many solutions, and no solution.
		Write equations that have infinitely many solutions and no solution.
	Using Substitution to Solve Systems	
		Use substitution to solve a linear system.
	Using Addition to Solve Systems	
		Use the linear combination method to solve linear systems.
	Multiplying One Equation to Solve Systems	
		Solve a system using the linear combination method after multiplying one equation.
		Write equations of a linear system in standard form from a real-world scenario.

Expressions in One Variable

Evaluate one-variable expressions.
Identify parts of an expression.
Interpret expressions that represent a quantity in terms of its context.
Write expressions to represent scenarios.

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.

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.

Problem Solving and Data Analysis

Scale Drawings and Area

Compute areas of figures from scale drawings.

Applications of Unit Rates

Apply unit rates to solve for an unknown in real-world problems.
Determine a unit rate from a real-world context.
Use unit rates to make comparisons.

Percent Error

Find percent error by using the ratio of the amount of change to the actual value.

Markups and Markdowns

Solve real-world problems involving a markup or markdown relating each as adding or subtracting from the original.

Finding an Original Amount

Find the original amount in real-world percent problems involving gratuity, tax, commission, markup, discount, or markdown using diagrams and expressions.

Converting Measurements between Systems

Convert measurement units between the customary and metric systems.

Density and Design Problems

Solve problems involving density of an area.
Use geometric concepts to solve design problems.

Using Equations to Represent Trend Lines

Create the linear equation of the trend line.
Find and interpret the slope of a trend line.

Making Predictions

Analyze data to determine interpolations and extrapolations.
Substitute x- and y-values into the data to create predictions of a real-world scenario.
Use a calculator to graph a scatterplot and create line of best fit.

Graphing in a Variety of Contexts

Construct and analyze graphs given two components of a linear function.
Estimate y-intercepts on a graph.

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.

Analyzing Graphs

Use the graph of a function to determine the key aspects, using interval notation where applicable.

Linear Growth vs. Exponential Growth

Use tables and graphs to compare the growth of an exponential function vs. a linear function over equal intervals.
Use tables and graphs to show that exponential functions grow by equal factors over equal intervals.

Probability and Two-Way Tables

Compute conditional probabilities from data displayed in a two-way table.
Construct a two-way table.
Use a two-way table to determine if two events are independent.

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.

Statistical Inferences

Make inferences about a population from a sample.

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.

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.

Standard Deviation

Analyze a normal distribution curve to determine statistical measures.
Analyze histograms for skewness and symmetry.
Calculate variance and standard deviation for a given data set.

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.

Passport to Advanced Math

Exponential Growth Functions

Graph an exponential growth function, and state the domain and range.
Identify an exponential growth function given tables, graphs, and function rules, determining the rate of change.
State the domain and range of an exponential growth function.
Write an exponential growth function to model a real-world problem, pointing out constraints in the modeling context.

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.

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.

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.

Using Properties of Operations

Apply the associative and commutative properties of operations to simplify expressions.
Apply the distributive property to rewrite and evaluate expressions.

Adding and Subtracting Polynomials

Add and subtract polynomials, determining the degree and number of terms of the sum or difference.
Find and evaluate polynomial sums or differences that model real-world situations.

Multiplying Polynomials and Simplifying Expressions

Interpret the structure of an expression involving addition, subtraction, and multiplication of polynomials in order to write it as a single polynomial in standard form.
Multiply a binomial by a trinomial algebraically and by using geometric models.

Radical Equations

Identify and solve radical equations.
Identify extraneous solutions.

Rational Equations

Solve rational equations and determine extraneous solutions.
Use rational equations to model and solve real-world problems.

Solving Linear-Quadratic Systems

Solve a system of equations consisting of a line and a parabola algebraically and graphically, using technology where appropriate.

Simplifying Rational Expressions

Simplify rational expressions using laws of integer exponents.

Simplifying Expressions

Evaluate expressions using the order of operations and the field properties of real numbers.
Identify parts of an algebraic expression
Simplify expressions using the order of operations and the field properties of real numbers.

Exponential Decay Functions

Graph an exponential decay function, and state the domain and range.
Identify an exponential decay function given tables, graphs, and function rules, determining the rate of change.
Relate exponential growth and decay functions using laws of exponents and reflections over the y-axis.
Write an exponential decay function to model a real-world problem, pointing out constraints in the modeling context.

The Fundamental Theorem of Algebra

Apply the fundamental theorem of algebra to determine the number of roots of a polynomial function.
Use the complex conjugate theorem to factor and solve polynomial equations.

Graphing Polynomial Functions

Graph polynomial functions using key features.

Piecewise Defined Functions

Determine the domain, range, and continuity of piecewise defined functions.
Evaluate piecewise defined functions.
Graph piecewise defined functions.

Step Functions

Evaluate a step function.
Graph a step function.
Interpret a step function in terms of the problem it models.
State the domain and range of step functions.

Function Notation

Identify the input and output of a functional relationship, pointing out constraints on the domain and range.
Interpret function notation that models a real-world situation.
Use function notation to represent a functional relationship.

Literal Equations

Rearrange a literal equation to highlight a quantity of interest and use it to solve problems.