Algebra 1

This course covers the topics shown below.
Students navigate learning paths based on their level of readiness.

Curriculum

- Arithmetic Readiness (65 topics)

  - Factors, Multiples, and Equivalent Fractions (7 topics)
    - Factors
    - Greatest common factor of 2 numbers
    - Least common multiple of 2 numbers
    - Least common multiple of 3 numbers
    - Equivalent fractions
    - Simplifying a fraction
    - Division involving zero

  - Addition and Subtraction with Fractions (4 topics)
    - Finding the LCD of two fractions
    - Addition or subtraction of fractions with the same denominator
    - Introduction to addition or subtraction of fractions with different denominators
    - Addition or subtraction of fractions with different denominators

  - Multiplication and Division with Fractions (7 topics)
    - Product of a unit fraction and a whole number
    - Product of a fraction and a whole number: Problem type 1
    - Introduction to fraction multiplication
    - Fraction multiplication
    - Product of a fraction and a whole number: Problem type 2
    - The reciprocal of a number
    - Division involving a whole number and a fraction

  - Mixed Numbers (2 topics)
    - Writing an improper fraction as a mixed number
    - Writing a mixed number as an improper fraction

  - Rounding, Ordering, and the Number Line (11 topics)
    - Rounding to tens or hundreds
    - Rounding to hundreds or thousands
    - Decimal place value: Tenths and hundredths
    - Rounding decimals
    - Fractional position on a number line
    - Plotting fractions on a number line
    - Using a common denominator to order fractions
    - Introduction to ordering decimals
    - Ordering decimals
    - Using a calculator to convert a fraction to a rounded decimal
    - Ordering fractions and decimals

  - Addition and Subtraction with Decimals (6 topics)
    - Addition of aligned decimals
    - Decimal subtraction: Basic
    - Decimal subtraction: Advanced
    - Word problem with addition of 3 or 4 decimals and whole numbers
    - Word problem with addition or subtraction of 2 decimals
    - Word problem with subtraction of a whole number and a decimal: Regrouping with zeros

  - Multiplication and Division with Decimals (5 topics)
    - Multiplication of a decimal by a power of ten
    - Multiplying a decimal by a whole number
    - Word problem with multiple decimal operations: Problem type 1
    - Division of a decimal by a power of ten
    - Division of a decimal by a whole number

  - Converting Between Fractions and Decimals (3 topics)
    - Converting a fraction to a terminating decimal: Basic
    - Converting a fraction to a repeating decimal: Basic
    - Converting a decimal to a proper fraction in simplest form: Basic

- Ratios and Unit Rates (3 topics)
    - Solving a word problem on proportions using a unit rate
    - Finding missing values in a table of equivalent ratios
    - Using a table of equivalent ratios to find a missing quantity in a ratio

- Percents, Decimals, and Fractions (6 topics)
    - Introduction to converting a percentage to a decimal
    - Introduction to converting a decimal to a percentage
    - Converting between percentages and decimals
    - Converting a fraction to a percentage: Denominator of 4, 5, or 10
    - Converting a fraction to a percentage: Denominator of 20, 25, or 50
    - Using a calculator to convert a fraction to a rounded percentage

- Introduction to Percent Applications (5 topics)
    - Finding a percentage of a whole number
    - Finding a percentage of a whole number without a calculator: Basic
    - Finding a percentage of a total amount: Real-world situations
    - Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
    - Writing a ratio as a percentage

- Units of Measurement (6 topics)
    - U.S. Customary length conversion with whole number values
    - U.S. Customary length conversions involving rounding decimals
    - U.S. Customary volume conversion with whole number values
    - U.S. Customary weight conversions with whole number values
    - Time unit conversion with whole number values
    - Converting between metric and U.S. Customary unit systems

- Real Numbers (71 topics)

    - Plotting and Ordering (9 topics)
        - Plotting integers on a number line
        - Plotting rational numbers on a number line
        - Ordering integers
        - Writing a signed number for a real-world situation
        - Square root of a perfect square
        - Using a calculator to approximate a square root
        - Ordering real numbers
        - Absolute value of a number
        - Finding all numbers with a given absolute value

    - Operations with Signed Numbers (13 topics)
        - Integer addition: Problem type 1
        - Integer addition: Problem type 2
        - Integer subtraction: Problem type 1
        - Integer subtraction: Problem type 2
        - Integer subtraction: Problem type 3
        - Addition and subtraction with 3 integers
        - Operations with absolute value: Problem type 1
        - Computing the distance between two integers on a number line
        - Integer multiplication and division
        - Multiplication of 3 or 4 integers
        - Signed fraction addition or subtraction: Basic
        - Signed fraction multiplication: Basic
        - Signed decimal addition and subtraction

    - Exponents and Order of Operations (8 topics)
        - Writing expressions using exponents
        - Introduction to exponents
        - Order of operations with whole numbers
        - Order of operations with whole numbers and exponents: Basic
        - Exponents and fractions
        - Exponents and integers: Problem type 1
        - Exponents and signed fractions
        - Order of operations with integers

    - Evaluating Expressions (7 topics)
        - Evaluating an algebraic expression: Whole number addition or subtraction
        - Evaluating an algebraic expression: Whole number multiplication or division
        - Evaluating an algebraic expression: Whole numbers with two operations
        - Evaluating a formula
        - Evaluating an algebraic expression: Whole numbers with one operation and an exponent
        - Evaluating a linear expression: Integer multiplication with addition or subtraction
        - Evaluating a quadratic expression: Integers

- Venn Diagrams and Sets of Real Numbers (7 topics)
  - Identifying numbers as integers or non-integers
  - Identifying rational decimal numbers
  - Identifying true statements about rational and irrational numbers
  - Identifying numbers as rational or irrational
  - Interpreting a Venn diagram of 2 sets
  - Constructing a Venn diagram to classify real numbers
  - Constructing a Venn diagram to describe relationships between sets of real numbers

- Properties of Operations (12 topics)
  - Combining like terms: Whole number coefficients
  - Combining like terms: Integer coefficients
  - Combining like terms: Decimal coefficients
  - Multiplying a constant and a linear monomial
  - Distributive property: Whole number coefficients
  - Distributive property: Integer coefficients
  - Distributive property: Fractional coefficients
  - Factoring a linear binomial
  - Identifying parts in an algebraic expression
  - Identifying equivalent algebraic expressions
  - Using distribution and combining like terms to simplify: Univariate
  - Combining like terms in a quadratic expression

- One-Step Linear Equations (12 topics)
  - Identifying solutions to a one-step linear equation: Problem type 1
  - Identifying solutions to a one-step linear equation: Problem type 2
  - Additive property of equality with whole numbers
  - Additive property of equality with decimals
  - Additive property of equality with integers
  - Additive property of equality with signed fractions
  - Multiplicative property of equality with whole numbers
  - Multiplicative property of equality with whole numbers: Fractional answers
  - Multiplicative property of equality with fractions
  - Multiplicative property of equality with decimals
  - Multiplicative property of equality with integers
  - Multiplicative property of equality with signed fractions

- Geometry (3 topics)
  - Perimeter of a square or a rectangle
  - Writing algebraic expressions for the perimeter of a figure
  - Area of a square or a rectangle

- Linear Equations (52 topics)

  - Multi-Step Linear Equations (18 topics)
    - Identifying solutions to a linear equation in one variable: Two-step equations
    - Using two steps to solve an equation with whole numbers
    - Additive property of equality with a negative coefficient
    - Solving a two-step equation with integers
    - Introduction to using substitution to solve a linear equation
    - Introduction to solving an equation with parentheses
    - Solving a multi-step equation given in fractional form
    - Identifying properties used to solve a linear equation
    - Introduction to solving an equation with variables on the same side
    - Solving a linear equation with several occurrences of the variable: Variables on the same side
    - Introduction to solving a linear equation with a variable on each side
    - Solving a linear equation with several occurrences of the variable: Variables on both sides
    - Solving a linear equation with several occurrences of the variable: Variables on the same side and distribution
    - Solving a linear equation with several occurrences of the variable: Variables on both sides and distribution
    - Solving a linear equation with several occurrences of the variable: Variables on both sides and two distributions
    - Clearing fractions in an equation
    - Solving a two-step equation with signed fractions
    - Solving equations with zero, one, or infinitely many solutions

  - Absolute Value Equations (3 topics)
    - Introduction to solving an absolute value equation
    - Solving an absolute value equation: Problem type 1
    - Solving an absolute value equation: Problem type 2

  - Writing Expressions and Equations (6 topics)
    - Writing a one-step expression for a real-world situation
    - Translating a phrase into a one-step expression
    - Translating a phrase into a two-step expression
    - Translating a sentence into a one-step equation

- Writing an equation to represent a proportional relationship
- Translating a sentence into a multi-step equation

- **Applications of Linear Equations (5 topics)**
  - Writing an equation of the form Ax + B = C to solve a word problem
  - Solving a decimal word problem using a linear equation of the form Ax + B = C
  - Solving a word problem with two unknowns using a linear equation
  - Writing an equation to represent a real-world problem: Variable on both sides
  - Solving a one-step word problem using the formula d = rt

- **Applications Involving Geometry (3 topics)**
  - Finding side lengths of squares given an area and a perimeter
  - Finding side lengths of rectangles given one dimension and an area or a perimeter
  - Finding the dimensions of a rectangle given its perimeter and a relationship between sides

- **Solving for a Variable and Dimensional Analysis (6 topics)**
  - Solving for a variable in terms of other variables using addition or subtraction: Basic
  - Solving for a variable in terms of other variables using multiplication or division: Basic
  - Solving for a variable in terms of other variables using addition or subtraction with division
  - Solving for a variable inside parentheses in terms of other variables
  - U.S. Customary length conversions involving dimensional analysis
  - Converting between compound units: Basic

- **Proportions (3 topics)**
  - Solving a proportion of the form x/a=b/c: Basic
  - Solving a proportion of the form x/a = b/c
  - Word problem on proportions: Problem type 1

- **More on Percents (8 topics)**
  - Applying the percent equation: Problem type 1
  - Finding the multiplier to give a final amount after a percentage increase or decrease
  - Finding the final amount given the original amount and a percentage increase or decrease
  - Finding the sale price given the original price and percent discount
  - Finding the percentage increase or decrease: Basic
  - Finding the percentage increase or decrease: Advanced
  - Finding the absolute error and percent error of a measurement
  - Introduction to compound interest

- Linear Inequalities (29 topics)

  - **Writing and Graphing Inequalities (6 topics)**
    - Translating a sentence by using an inequality symbol
    - Translating a sentence into a one-step inequality
    - Introduction to identifying solutions to an inequality
    - Writing an inequality for a real-world situation
    - Graphing a linear inequality on the number line
    - Writing an inequality given a graph on the number line

  - **One-Step Linear Inequalities (6 topics)**
    - Identifying solutions to a one-step linear inequality
    - Additive property of inequality with whole numbers
    - Additive property of inequality with integers
    - Multiplicative property of inequality with whole numbers
    - Multiplicative property of inequality with integers
    - Multiplicative property of inequality with signed fractions

  - **Multi-Step Linear Inequalities (8 topics)**
    - Identifying solutions to a two-step linear inequality in one variable
    - Solving a two-step linear inequality with whole numbers
    - Solving a two-step linear inequality: Problem type 1
    - Solving a two-step linear inequality: Problem type 2
    - Solving a two-step linear inequality with a fractional coefficient
    - Solving a linear inequality with multiple occurrences of the variable: Problem type 1
    - Solving a linear inequality with multiple occurrences of the variable: Problem type 2
    - Solving inequalities with no solution or all real numbers as solutions

  - **Applications (3 topics)**
    - Solving a word problem using a one-step linear inequality
    - Solving a word problem using a two-step linear inequality
    - Solving a decimal word problem using a two-step linear inequality

  - **Compound Inequalities (2 topics)**
    - Graphing a compound inequality on the number line
    - Solving a compound linear inequality: Graph solution, basic

- Absolute Value Inequalities (4 topics)
  - Solving an absolute value inequality: Problem type 1
  - Writing an absolute value inequality given a graph on the number line
  - Solving an absolute value inequality: Problem type 3
  - Solving an absolute value inequality: Problem type 4

- Functions and Lines (114 topics)

  - Ordered Pairs (3 topics)
    - Reading a point in the coordinate plane
    - Plotting a point in the coordinate plane
    - Finding distances between points that share a common coordinate given the graph

  - Tables and Graphs of Lines (14 topics)
    - Function tables with two-step rules
    - Table for a linear equation
    - Writing a function rule given a table of ordered pairs: One-step rules
    - Identifying solutions to a linear equation in two variables
    - Finding a solution to a linear equation in two variables
    - Graphing a linear equation of the form y = mx
    - Graphing a line given its equation in slope-intercept form: Integer slope
    - Graphing a line given its equation in slope-intercept form: Fractional slope
    - Graphing a line given its equation in standard form
    - Graphing a vertical or horizontal line
    - Finding x- and y-intercepts given the graph of a line on a grid
    - Finding x- and y-intercepts of a line given the equation: Basic
    - Graphing a line by first finding its x- and y-intercepts
    - Interpreting a line graph

  - Slope (7 topics)
    - Finding slope given the graph of a line in quadrant 1 that models a real-world situation
    - Classifying slopes given graphs of lines
    - Finding slope given the graph of a line on a grid
    - Finding slope given two points on the line
    - Finding the slope of horizontal and vertical lines
    - Graphing a line given its slope and y-intercept
    - Graphing a line through a given point with a given slope

  - Direct Variation (4 topics)
    - Identifying direct variation equations
    - Identifying direct variation from ordered pairs and writing equations
    - Writing a direct variation equation
    - Word problem on direct variation

  - Equations of Lines (16 topics)
    - Identifying linear functions given ordered pairs
    - Finding the slope and y-intercept of a line given its equation in the form y = mx + b
    - Finding the slope and y-intercept of a line given its equation in the form Ax + By = C
    - Graphing a line by first finding its slope and y-intercept
    - Writing an equation of a line given its slope and y-intercept
    - Finding the slope, y-intercept, and equation for a linear function given a table of values
    - Writing an equation in slope-intercept form given the slope and a point
    - Finding the slope and a point on a line given its equation in point-slope form
    - Writing an equation in point-slope form given the slope and a point
    - Writing an equation of a line given the y-intercept and another point
    - Writing the equation of the line through two given points
    - Comparing linear functions to the parent function y=x
    - Finding slopes of lines parallel and perpendicular to a line given in slope-intercept form
    - Finding slopes of lines parallel and perpendicular to a line given in the form Ax + By = C
    - Identifying parallel and perpendicular lines from equations
    - Writing equations of lines parallel and perpendicular to a given line through a point

  - Applications of Linear Equations with Two Variables (15 topics)
    - Finding outputs of a one-step function that models a real-world situation: Two variable equation
    - Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
    - Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
    - Writing and evaluating a function that models a real-world situation: Basic
    - Writing and evaluating a function that models a real-world situation: Advanced
    - Writing an equation and drawing its graph to model a real-world situation: Basic
    - Writing an equation and drawing its graph to model a real-world situation: Advanced
    - Finding the intercepts and rate of change given a graph of a linear function
    - Finding the initial amount and rate of change given a table for a linear function
    - Combining functions to write a new function that models a real-world situation
    - Comparing properties of linear functions given in different forms

- Interpreting the parameters of a linear function that models a real-world situation
- Application problem with a linear function: Finding a coordinate given the slope and a point
- Application problem with a linear function: Finding a coordinate given two points
- Solving a linear equation by graphing

- **Scatter Plots and Lines of Best Fit (9 topics)**
  - Constructing a scatter plot
  - Sketching the line of best fit
  - Scatter plots and correlation
  - Predictions from the line of best fit
  - Approximating the equation of a line of best fit and making predictions
  - Computing residuals
  - Interpreting residual plots
  - Linear relationship and the correlation coefficient
  - Identifying correlation and causation

- **Introduction to Functions (10 topics)**
  - Identifying functions from relations
  - Vertical line test
  - Domain and range from ordered pairs
  - Table for a linear function
  - Evaluating functions: Linear and quadratic or cubic
  - Evaluating a piecewise-defined function
  - Finding outputs of a one-step function that models a real-world situation: Function notation
  - Finding outputs of a two-step function with decimals that models a real-world situation: Function notation
  - Finding inputs and outputs of a two-step function that models a real-world situation: Function notation
  - Domain and range of a linear function that models a real-world situation

- **Arithmetic Sequences (9 topics)**
  - Finding the first terms of an arithmetic sequence using an explicit rule
  - Finding the next terms of an arithmetic sequence with whole numbers
  - Finding the next terms of an arithmetic sequence with integers
  - Finding the first terms of a sequence using a recursive rule
  - Identifying arithmetic sequences and finding the common difference
  - Finding a specified term of an arithmetic sequence given the first terms
  - Finding a specified term of an arithmetic sequence given the common difference and first term
  - Writing an explicit rule for an arithmetic sequence
  - Writing a recursive rule for an arithmetic sequence

- **Graphs of Functions (19 topics)**
  - Finding an output of a function from its graph
  - Domain and range from the graph of a discrete relation
  - Finding domain and range from a linear graph in context
  - Finding where a function is increasing, decreasing, or constant given the graph
  - Choosing a graph to fit a narrative: Basic
  - Choosing a graph to fit a narrative: Advanced
  - Graphing an integer function and finding its range for a given domain
  - Graphing a function of the form $f(x) = ax + b$: Integer slope
  - Graphing an absolute value equation of the form $y = A|x|$
  - Graphing an absolute value equation in the plane: Basic
  - Graphing a parabola of the form $y = ax^2$
  - Graphing a parabola of the form $y = ax^2 + c$
  - Graphing a function of the form $f(x) = ax^2$
  - Graphing a parabola of the form $y = (x-h)^2 + k$
  - Graphing a piecewise-defined function: Problem type 1
  - Graphing a piecewise-defined function: Problem type 2
  - Finding the average rate of change of a function given its equation
  - Finding the average rate of change of a function given its graph
  - Word problem involving average rate of change

- **Transformations (8 topics)**
  - Translating the graph of a parabola: One step
  - Translating the graph of a parabola: Two steps
  - How the leading coefficient affects the shape of a parabola
  - Graphing quadratic functions of the form $y=ax^2$ and $y=(bx)^2$ by transforming the parent graph $y=x^2$
  - Translating the graph of an absolute value function: One step
  - Translating the graph of an absolute value function: Two steps
  - How the leading coefficient affects the graph of an absolute value function
  - Writing an equation for a function after a vertical translation

- Linear Systems (24 topics)

  - **Systems of Linear Equations (12 topics)**

- Identifying solutions to a system of linear equations
- Identifying the solution of systems of linear equations from graphs
- Classifying systems of linear equations from graphs
- Graphically solving a system of linear equations both of the form y=mx+b
- Graphically solving a system of linear equations
- Using a graphing calculator to solve a system of linear equations: Basic
- Solving a system of linear equations of the form y = mx + b
- Solving a system of linear equations using substitution
- Solving a system of linear equations using elimination with addition
- Solving a system of linear equations using elimination with multiplication and addition
- Solving systems of linear equations with 0, 1, or infinitely many solutions
- Identifying the operations used to create equivalent systems of equations

- **Applications (6 topics)**
  - Interpreting the graphs of two functions
  - Solving a word problem involving a sum and another basic relationship using a system of linear equations
  - Writing and solving a system of two linear equations given a table of values
  - Solving a word problem using a system of linear equations of the form y = mx + b
  - Solving a value mixture problem using a system of linear equations
  - Solving a distance, rate, time problem using a system of linear equations

- **Linear Inequalities with Two Variables (4 topics)**
  - Identifying solutions to a linear inequality in two variables
  - Graphing a linear inequality in the plane: Vertical or horizontal line
  - Graphing a linear inequality in the plane: Slope-intercept form
  - Graphing a linear inequality in the plane: Standard form

- **Systems of Linear Inequalities (2 topics)**
  - Graphing a system of two linear inequalities: Basic
  - Graphing a system of two linear inequalities: Advanced

- Exponents and Exponential Functions (60 topics)

  - **Product, Power, and Quotient Rules (13 topics)**
    - Introduction to the product rule of exponents
    - Product rule with positive exponents: Univariate
    - Product rule with positive exponents: Multivariate
    - Introduction to the power of a power rule of exponents
    - Introduction to the power of a product rule of exponents
    - Power rules with positive exponents: Multivariate products
    - Power rules with positive exponents: Multivariate quotients
    - Simplifying a ratio of multivariate monomials: Basic
    - Introduction to the quotient rule of exponents
    - Simplifying a ratio of univariate monomials
    - Quotient of expressions involving exponents
    - Simplifying a ratio of multivariate monomials: Advanced
    - Power and quotient rules with positive exponents

  - **Negative Exponents (11 topics)**
    - Evaluating expressions with exponents of zero
    - Evaluating an expression with a negative exponent: Whole number base
    - Evaluating an expression with a negative exponent: Positive fraction base
    - Evaluating an expression with a negative exponent: Negative integer base
    - Rewriting an algebraic expression without a negative exponent
    - Introduction to the product rule with negative exponents
    - Quotient rule with negative exponents: Problem type 1
    - Quotient rule with negative exponents: Problem type 2
    - Power of a power rule with negative exponents
    - Power rules with negative exponents
    - Power and quotient rules with negative exponents: Problem type 1

  - **Introduction to Radicals (5 topics)**
    - Square roots of perfect squares with signs
    - Cube root of an integer
    - Introduction to square root addition or subtraction
    - Introduction to square root multiplication
    - Classifying sums and products as rational or irrational

  - **Rational Exponents (6 topics)**
    - Converting between radical form and exponent form
    - Rational exponents: Unit fraction exponents and whole number bases
    - Rational exponents: Non-unit fraction exponent with a whole number base
    - Rational exponents: Product rule
    - Rational exponents: Quotient rule

- Rational exponents: Power of a power rule

- Graphs of Exponential Functions (6 topics)
  - Table for an exponential function
  - Graphing an exponential function: $f(x) = a^x$
  - Graphing an exponential function and its asymptote: $f(x) = b^x$
  - Graphing an exponential function: $f(x) = a(b)^x$
  - Translating the graph of an exponential function
  - Finding domain and range from the graph of an exponential function

- Applications (9 topics)
  - Using a calculator to evaluate exponential expressions
  - Evaluating an exponential function that models a real-world situation
  - Finding a final amount in a word problem on exponential growth or decay
  - Finding the initial amount and rate of change given an exponential function
  - Writing an equation that models exponential growth or decay
  - Writing an exponential function rule given a table of ordered pairs
  - Finding the final amount in a word problem on compound interest
  - Solving an exponential equation by finding common bases: Linear exponents
  - Comparing linear, polynomial, and exponential functions

- Geometric Sequences (10 topics)
  - Finding the first terms of a geometric sequence using an explicit rule
  - Finding the next terms of a geometric sequence with whole numbers
  - Finding the next terms of a geometric sequence with signed numbers
  - Identifying arithmetic and geometric sequences
  - Identifying geometric sequences and finding the common ratio
  - Finding a specified term of a geometric sequence given the first terms
  - Finding a specified term of a geometric sequence given the common ratio and first term
  - Arithmetic and geometric sequences: Identifying and writing an explicit rule
  - Writing recursive rules for arithmetic and geometric sequences
  - Identifying linear, quadratic, and exponential functions given ordered pairs

- Polynomials and Factoring (25 topics)

  - Polynomial Addition and Subtraction (1 topics)
    - Simplifying a sum or difference of two univariate polynomials

  - Polynomial Multiplication (8 topics)
    - Multiplying a univariate polynomial by a monomial with a positive coefficient
    - Multiplying binomials with leading coefficients of 1
    - Multiplying binomials with leading coefficients greater than 1
    - Multiplying binomials in two variables
    - Multiplying conjugate binomials: Univariate
    - Squaring a binomial: Univariate
    - Multiplying binomials with negative coefficients
    - Multiplication involving binomials and trinomials in one variable

  - Factoring Using the GCF (2 topics)
    - Introduction to the GCF of two monomials
    - Factoring out a monomial from a polynomial: Univariate

  - Factoring by Grouping (2 topics)
    - Factoring a univariate polynomial by grouping: Problem type 1
    - Factoring a univariate polynomial by grouping: Problem type 2

  - Factoring Quadratic Trinomials (5 topics)
    - Factoring a quadratic with leading coefficient 1
    - Factoring out a constant before factoring a quadratic
    - Factoring a quadratic with leading coefficient greater than 1: Problem type 1
    - Factoring a quadratic with leading coefficient greater than 1: Problem type 2
    - Factoring a quadratic with a negative leading coefficient

  - Factoring Special Products (5 topics)
    - Factoring a perfect square trinomial with leading coefficient 1
    - Factoring a perfect square trinomial with leading coefficient greater than 1
    - Factoring a difference of squares in one variable: Basic
    - Factoring a difference of squares in one variable: Advanced
    - Factoring a polynomial involving a GCF and a difference of squares: Univariate

  - Polynomial Division (2 topics)
    - Polynomial long division: Problem type 1
    - Closure properties of integers and polynomials

- Quadratic Functions and Equations (32 topics)

  - Solving Quadratic Equations by Factoring (5 topics)
    - Solving an equation written in factored form
    - Finding the roots of a quadratic equation of the form $ax^2 + bx = 0$
    - Finding the roots of a quadratic equation with leading coefficient 1
    - Finding the roots of a quadratic equation with leading coefficient greater than 1
    - Solving a word problem using a quadratic equation with rational roots

  - Quadratic Functions (15 topics)
    - Finding the vertex, intercepts, and axis of symmetry from the graph of a parabola
    - Graphing a parabola of the form $y = a(x-h)^2 + k$
    - Completing the square
    - Graphing a parabola of the form $y = x^2 + bx + c$
    - Graphing a parabola of the form $y = ax^2 + bx + c$: Integer coefficients
    - Finding the zeros of a quadratic function given its equation
    - Writing a quadratic function given its zeros
    - Finding the x-intercept(s) and the vertex of a parabola
    - Using a graphing calculator to find the x-intercept(s) and vertex of a quadratic function
    - Rewriting a quadratic function to find its vertex and sketch its graph
    - Finding the maximum or minimum of a quadratic function
    - Word problem involving the maximum or minimum of a quadratic function
    - Domain and range from the graph of a parabola
    - Solving a quadratic equation by graphing
    - Comparing properties of quadratic functions given in different forms

  - Square Root Property (3 topics)
    - Solving an equation of the form $x^2 = a$ using the square root property
    - Solving a quadratic equation using the square root property: Decimal answers, basic
    - Solving a quadratic equation using the square root property: Decimal answers, advanced

  - Completing the Square and the Quadratic Formula (3 topics)
    - Solving a quadratic equation by completing the square: Decimal answers
    - Applying the quadratic formula: Decimal answers
    - Solving a word problem using a quadratic equation with irrational roots

  - Nonlinear Systems (2 topics)
    - Graphically solving a system of linear and quadratic equations
    - Solving a system of linear and quadratic equations

  - Composition and Inverse Functions (4 topics)
    - Introduction to the composition of two functions
    - Composition of two functions: Basic
    - Inverse functions: Linear, discrete
    - Finding, evaluating, and interpreting an inverse function for a given linear relationship

- Data Analysis and Probability (22 topics)

  - Frequency Tables (6 topics)
    - Constructing a frequency distribution for grouped data
    - Constructing a two-way frequency table: Basic
    - Constructing a two-way frequency table: Advanced
    - Computing a percentage from a table of values
    - Making an inference using a two-way frequency table
    - Calculating relative frequencies in a contingency table

  - Graphs of Data (6 topics)
    - Constructing a line plot
    - Constructing a bar graph for non-numerical data
    - Interpreting a bar graph
    - Interpreting a double bar graph
    - Constructing a frequency distribution and a histogram
    - Interpreting a stem-and-leaf plot

  - Measures of Center and Spread (6 topics)
    - Mode of a data set
    - Range of a data set
    - Mean of a data set
    - Mean and median of a data set
    - How changing a value affects the mean and median
    - Choosing the best measure to describe data

  - Comparing Data (4 topics)

- Using back-to-back stem-and-leaf plots to compare data sets
- Five-number summary and interquartile range
- Constructing a box-and-whisker plot
- Using box-and-whisker plots to compare data sets