

All Things Algebra® ALGEBRA 1 CURRICULUM

Unit 1: Algebra Basics

- Real Number System
- Properties of Real Numbers
- Order of Operations & Absolute Value
- Evaluating Expressions
- Simplifying Expressions
- Matrices
- Combining Like Terms
- Simplify Expressions (Distribute/Combine)
- Translating Expressions/Equations/Inequalities
- Solving Two-Step Equations
- Solving & Graphing Two-Step Inequalities
- Translate & Solve

Unit 2: Multi-Step Equations & Inequalities

- Multi-Step Equations
- Variables on Both Sides
- Infinite & No Solution Equations
- Algebraic Proportions
- Absolute Value Equations
- Multi-Variable (Literal Equations)
- Word Problems
- Multi-Step Inequalities
- Compound Inequalities
- Absolute Value Inequalities

Unit 3: Relations & Functions

- Relations, Domain, Range
- Functions vs. Relations
- Continuous Relations, Domain, Range
- Functions
- Real World Graphs
- Graphing Functions
- Function Tables
- Function Notation
- Zeros of Functions
- Analyzing Graphs
- Arithmetic Sequences

Unit 4a: Linear Equations

- Slope from a Graph & Slope Formula
- Slope-Intercept Form vs. Standard Form
- Graphing Linear Equations (Slope-Intercept Form)
- Graphing Linear Equations (X- and Y-Intercepts)
- Vertical and Horizontal Lines
- Writing Linear Equations given Point & Slope
- Writing Linear Equations given Two Points
- Linear Equation Word Problems
- Parallel & Perpendicular Lines
- Writing Parallel or Perpendicular Lines
- Scatter Plots
- Line of Best Fit
- Linear Regression

<p>Unit 4b: Direct & Inverse Variation</p>	<p>Unit 6: Exponents & Exponential Functions</p>
<ul style="list-style-type: none"> • Direct Variation • Inverse Variation • Applications of Direct & Inverse Variation 	<ul style="list-style-type: none"> • Monomials: Add, Subtract, Multiply (Product Rule) • Product Rule & Geometric Applications • Quotient Rule • Negative Exponents • Scientific Notation • Graphing Exponential Functions • Exponential Growth & Decay • Geometric Sequences • Simplifying Radicals: Square and Cube Roots • Monomial Square Roots
<p>Unit 5: Systems of Equations & Inequalities</p>	
<ul style="list-style-type: none"> • Solving Systems of Equations by Graphing • Solving Systems of Equations by Substitution • Solving Systems of Equations by Elimination • Comparing Methods to Solving Systems • Word Problems • Solving Systems by Matrices • Linear Inequalities • Systems of Linear Inequalities • Systems of Linear Inequalities Word Problems 	
<p>Unit 7: Polynomials & Factoring</p>	<p>Unit 8: Quadratic Equations</p>
<ul style="list-style-type: none"> • Intro to Polynomials: Classify, Add, Subtract • Multiplying Polynomials • Dividing Polynomials by a Monomial • Factoring Polynomials: GCF • Factoring Polynomials: Difference of Squares • Factoring Polynomials: Trinomials ($x^2 + bx + c$) • Factoring Polynomials: Trinomials ($ax^2 + bx + c$) • Factoring Polynomials: Four Terms • Dividing Polynomials by a Binomial 	<ul style="list-style-type: none"> • Intro to Quadratic Equations: Axis of Symmetry, Vertex, Minimum, Maximum, Parabolas • Graphing Quadratic Equations • Vertex Form of a Quadratic Equations • Transformations • Quadratic Roots • Solving Quadratic Equations by Factoring • Solving Quadratic Equations by Square Roots • Solving Quadratic Equations by Completing the Square • Solving Quadratic Equations by the Quadratic Formula • Methods Comparison: Choosing the Best Method • Area and Consecutive Integer Problems • Projectile Motion • Linear vs. Quadratic Modes

Unit 9: Linear, Quadratic, & Exponential Functions	Unit 10: Radical Expressions & Equations
<ul style="list-style-type: none"> • Identify Linear, Quadratic, & Exponential Functions (Given Equations, Graphs, and Tables) • Writing Linear, Quadratic, & Exponential Functions (Given Graphs and Tables) • Linear, Quadratic, & Exponential Applications • Linear, Quadratic, & Exponential Regression • Piecewise Functions • Piecewise Function Applications • Step Functions • Nonlinear Systems (Linear, Quadratic, & Exponential) - Solve by Graphing • Nonlinear Systems (Linear & Quadratic) - Solve Algebraically 	<ul style="list-style-type: none"> • Simplifying Radicals (Square & Cube Roots) • Simplifying Radicals with Variables • Adding & Subtracting Radicals • Multiplying Radicals • Dividing Radicals (includes Rationalizing the Denominator) • Dividing Radicals with Binomials (Conjugates) • Solving Radical Equations (Linear) • Solving Radical Equations (Quadratic)
Unit 11: Rational Expressions & Equations	Unit 12: Statistics
<ul style="list-style-type: none"> • Simplifying Rational Expressions • Multiplying Rational Expressions • Dividing Rational Expressions • Adding & Subtracting Rational Expressions • Application of Rational Expressions • Rational Equations 	<ul style="list-style-type: none"> • Statistics Overview: Measures of Center • Box-and- Whisker Plots, Stem-and-Leaf Plots, Histograms • Statistics on the Calculator • Measures of Dispersion • Normal Distribution • Z-Scores