All Things Algebra® PRE-ALGEBRA CURRICULUM

Unit 1: The Real Numbers

- Integers, Absolute Value, & Integer Operations
- Simplifying Fractions, Mixed vs. Improper Forms
- Adding & Subtracting Fractions
- Multiplying & Dividing Fractions
- Fractions, Decimals, and Percent Conversion
- Exponents, Zero Exponents, Negative Exponents
- Perfect Squares, Perfect Cubes
- Square Roots & Cube Roots
- Scientific Notation
- Comparing & Ordering Number Forms
- Order of Operations
- Evaluating Expressions
- The Real Number System
- Properties of Real Numbers

Unit 2: Algebraic Expressions

- Translating Expressions
- Combining Like Terms
- Distributive Property
- Simplifying Expressions (Distribute & Combine)
- Factoring Expressions
- Simplify vs. Factor
- *Multiplying Monomials (Product Rule)
- *Dividing Monomials (Quotient Rule)
- *Powers of Monomials (Power Rule)
- Multiplying & Dividing with Scientific Notation
- Adding & Subtracting with Scientific Notation
- Adding & Subtracting Polynomials

*includes negative exponents

Unit 3: Equations & Inequalities

- One-Step Equations
- Rational Equations
- Two-Step Equations
- Multi-Step Equations
- Variables on Both Sides
- Special Cases: No Solution/Infinite Solution
- Solve by Clearing Fractions
- Translating Equations
- Applications
- Writing & Graphing Inequalities
- One- and Two-Step Inequalities
- Translating Inequalities
- Multi-Step Inequalities

Unit 4: Ratio, Proportion, & Percent

- Ratio, Rates, Unit Rates
- Proportional vs. Nonproportional Relationships
- Solving Proportions
- Proportion Word Problems
- Scale Drawings and Models
- Similar Figures
- Indirect Measurement
- Percent Proportion
- Percent Equation
- Discount, Mark-Up, Sales Tax, Tip
- Percent of Change
- Simple Interest

Unit 5: Functions, Graphs, & Linear Equations

- Relations vs. Functions
- Domain and Range
- Graphing Linear Functions by Table
- Slope (from a graph & the slope formula)
- Slope-Intercept Form
- Writing Linear Equations Given a Graph
- Standard Form
- Linear vs. Nonlinear Functions
- Slope-Intercept Form Applications
- Proportional Relationships (Direct Variation)

Unit 6: Systems of Equations

- Systems of Equations: Solve by Graphing
- Systems of Equations: Solve by Substitution
- Systems of Equations: Solve by Elimination
- Special Cases: No Solution/Infinite Solution
- Systems of Equations: Applications

Unit 7: Introduction to Geometry

- Types of Angles & Basic Angle Relationships
- Parallel Lines Cut by a Transversal
- Classifying Triangles
- Triangle Sum Theorem
- Pythagorean Theorem & Converse
- Pythagorean Theorem Word Problems
- Quadrilaterals
- Congruent Polygons
- Reflections
- Translations
- Rotation
- Dilations

Unit 8: Measurement (Area & Volume)

- Perimeter & Area of Plane Figures
- Area and Circumference of Circles
- Area of and Perimeter of Composite Figures
- 3D Figures & Slicing 3D Figures
- Volume of Prisms & Cylinders
- Volume of Pyramids & Cones
- Surface Area of Prisms & Cylinders
- Surface Area of Pyramids & Cones
- Volume & Surface Area of Spheres
- Perimeter & Area of Similar Figures
- Volume & Surface Area of Similar Solids
- Effects of Changing Dimensions

Unit 9: Probability & Statistics

- Counting Principle & Tree Diagrams
- Simple Probability
- Compound Probability: Independent Events
- Compound Probability: Dependent Events
- Theoretical vs. Experimental Probability
- Measures of Central Tendency
- Mean Absolute Deviation
- Box-and-Whisker Plots
- Scatter Plots
- Line of Best Fit
- Two-Way Tables
- Relative Frequency