

## Pre-AP Algebra

Our Mathematics Pre-AP Algebra course focuses on formalizing and exploring the behavior of functions. The course will review linear functions, delve deeply into quadratic functions, and examine the shape and movement of absolute value, exponential, and root functions. Pre-AP Algebra 1 develops procedural fluency and deep conceptual understanding of these skills

Algebra 1 emphasizes the following areas of focus:

- Gain an understanding of the properties of real numbers.
- Formalize the language of functions.
- Explore the behavior of functions numerically, graphically, analytically, and verbally.
- Use technology to discover relationships, test conjectures, and solve problems.
- Write expressions, equations, and inequalities from physical models.
- Communicate mathematics understanding formally and informally.

Algebra 1 course is organized into units of study. Each unit addresses the following big ideas:  
Linear Functions and Linear Equations

- Direct Variation
- Slope and Rate of Change
- Linear Functions
- Linear Equations
- Scatterplots and Lines of Fit
- Linear Inequalities

Systems of Linear Equations and Inequalities

- Graphical and Numerical Solution Techniques
- Algebraic Solution Techniques
- Systems of Linear Inequalities
- Modeling with Systems of Equations and Inequalities

Quadratic Equations and Functions

- Modeling with Quadratic Functions
- Algebraic Forms of a Quadratic Function
- The Graph of a Quadratic Function
- Solving Quadratic Equations

Exponent Properties and Exponential Functions

- Exponent Rules and Properties

- Roots of Real Numbers
- Exponential Growth and Decay

### Assessment for Learning

Each unit includes a variety of opportunities for meaningful feedback:

- Short, open-ended formative assessment problems for each lesson to show the targeted content and skills, related to the lesson's learning objectives, that students should master in throughout the lesson.
- Two online learning checkpoints per unit that feature multiple-choice and technology-enhanced questions modeled closely after the types of questions students encounter on the SAT tests and AP Exams. Learning checkpoints require students to examine graphs, data, mathematical expressions, and short texts—often set in authentic contexts—to respond to a targeted set of questions that measure student understanding of concepts and skills from the unit.
- One performance task per unit that engages students in sustained problem solving and asks them to synthesize skills and concepts from across the unit to answer questions about a novel context.
- A final exam that allows students to demonstrate their mastery of the skills learned throughout the course.