This course begins an expanded, two-year Algebra I sequence designed for students who are not yet prepared for the academic challenges of the traditional one-year Algebra I curriculum.

Focusing on review of pre-algebra skills and introductory algebra content, the first year curriculum allows students to deepen their understanding of real numbers in their various forms and then extend their knowledge to linear equations in one and two variables.

The two course sequence features ample opportunity for students to hone their computational skills by working through practice problem sets before moving on to formal assessment.

This course is built to state standards.

Length: Two Semesters

Unit 1: Introduction to Problem Solving

- Building Basic Word Problems
- A Four-Step Approach
- Too Much or Too Little Information
- Draw a Diagram
- Use a Model or Act it Out
- Make a List
- Build a Chart and Find a Pattern
- Guess and Check
- Work Backward
- Solve a Simpler Problem
- Building Equations
- Deductive Reasoning
- Inductive Reasoning
- Logic Puzzles
- Reasonable Answers
- Introduction to Problem Solving Wrap-Up
- Diagnostic

Unit 2: Integers

- Whole Numbers
- Number Lines and Inequalities
- Rounding Whole Numbers
- Operations and Numerical Expressions
- Properties of Operations
- The Operations on a Number Line
- Reverse Operations
- Negative Numbers

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- Absolute Value
- Adding Integers
- Subtracting Integers
- Multiplying Integers
- Dividing Integers
- Wrap-Up
- Diagnostic

Unit 3: The Language of Algebra

- What is a Variable?
- Finding and Naming Variables
- Units and Reasonable Values
- Graphs Tables and Equations
- Solving Problems with Tables and Graphs
- Variable Expressions
- Simplifying and Evaluating Expressions
- Mathematical Sentences
- Solving Mathematical Sentences
- Some Guidelines for Problem Solving
- Wrap-Up
- Diagnostic

Unit 4: Fractions and Decimals

- Fraction Fundamentals
- Introduction to Fraction Arithmetic
- Equivalent Fractions
- Simplifying Fractions
- Mixed Numbers
- Dividing Fractions
- Adding and Subtracting Fractions
- Decimals and Percents
- The Set of Rational Numbers
- Applications of Percentages
- Converting Units
- Wrap-Up
- Diagnostic

Unit 5: Exponents

- Definitions and Examples of Exponents
- Exponents and the Order of Operations
- Laws of Exponents
- Scientific Notation
- Exponents in Geometry
- Square Roots
- Radical Notation

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- Wrap-Up
- Diagnostic

Unit 6: Algebra I-A Semester 1 Wrap-Up

Unit 7: Solving Equations with Four Basic Operations

- Solving Equations Graphically
- Solving Equations with Larger Numbers
- Solving x + a = b
- Solving with a Number Line
- Solving Inequalities
- Variations of Equations and Inequalities
- Solving ax = b
- The Lightning Problem
- Solving x/a = b
- Inequalities
- Solving Equations with Four Basic Operations Wrap-Up
- Diagnostic

Unit 8: Solving Equations with Roots, Powers, or Multiple Steps

- Solving ax + b = c
- Collecting Like Terms
- Using the Distributive Property
- Variables on Both Sides of the Equation
- The Profit Problem
- Solving |x| = b
- Solving x² = b
- Solving √x = b
- Inequalities and Absolute Value
- Inequalities and x²
- Inequalities and <rt>√x</rt>
- Multistep and Compound Inequalities
- Solving Equations with Roots, Powers, or Multiple Steps Wrap-Up
- Diagnostic

Unit 9: Functions

- When One Thing Depends on Another
- Function Notation
- Input-Output Machines
- Functions and Tables
- Functions and Graphs
- Functions and Formulas
- How Many Outputs?
- Functions and Relations
- Domain and Range

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- Functions Wrap-Up
- Diagnostic

Unit 10: Introduction to Set Theory

- What Is a Set?
- Set Notation
- Set Operations
- Set Relationships
- Introduction to Set Theory Wrap-Up
- Diagnostic

Unit 11: Linear Equations

- Cartesian Coordinate Systems
- Lines in the xy-plane
- Slope
- Parallel and Perpendicular Lines
- Slope and Equations
- Slope-Intercept Form
- Point-Slope Form
- Linear Inequalities
- Properties of Lines
- Linear Equations Wrap-Up
- Diagnostic

Unit 12: Algebra I-A Semester 2 Wrap-Up

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