Foundations in Algebra builds students' command of linear, quadratic, and exponential relationships. Students learn through discovery and application, developing the skills they need to break down complex challenges and demonstrate their knowledge in new situations.

Course topics include problem solving with basic equations and formulas; measurement; an introduction to functions and problem solving; linear equations and systems of linear equations; exponents and exponential functions; quadratic equations and functions; transformations of functions, bivariate data, and regression.

This course supports all students as they develop computational fluency, deepen conceptual understanding, and apply South Carolina College and Career Ready (SCCCR) Mathematical Process Standards. Students begin each lesson by discovering new concepts through guided instruction, and then confirm their understanding in an interactive, feedback-rich environment. Modeling activities equip students with tools for analyzing a variety of real-world scenarios and mathematical ideas. Journaling activities allow students to reason abstractly and quantitatively, construct arguments, critique reasoning, and communicate precisely. Performance tasks prepare students to synthesize their knowledge in novel, real-world scenarios and require that they make sense of multifaceted problems and persevere in solving them. Throughout the course, students are evaluated through a diversity of assessments specifically designed to prepare them for the content, form, and depth of the South Carolina End-of-Course Examination Program.

This course is built for the South Carolina College and Career Ready (SCCCR) Foundations in Algebra standards.

Length: Two Semesters

Unit 1: Solving Basic Equations

- Rational and Irrational Numbers
- Variable Expressions
- Solving Mathematical Sentences
- Solving x + a = b
- Solving ax = b
- Solving x/a = b
- Inequalities
- Solving x² = b
- Solving √x = b
- Solving Basic Equations Wrap-Up

Unit 2: Solving Equations and Inequalities

- Solving ax + b = c

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- Collecting Like Terms
- Using the Distributive Property
- Variables on Both Sides of the Equation
- Solving Linear Inequalities
- Literal Equations
- Measurement and Units
- Performance Task: Problem Solving with Inequalities
- Solving Equations and Inequalities Wrap-Up

Unit 3: Functions

- When One Thing Depends on Another
- Function Notation
- Domain and Range
- Identifying Functions
- Graphs of Functions
- Linear and Nonlinear Functions
- Functions Wrap-Up

Unit 4: Linear Equations

- Patterns and Lines
- Slope
- Slope-Intercept Equation of a Line
- Point-Slope Equation of a Line
- Linear Inequalities
- Linear Equations Wrap-Up

Unit 5: Semester 1 Exam

Unit 6: Systems of Linear Equations

- Two-Variable Systems: Graphing
- Two-Variable Systems: Substitution
- Two-Variable Systems: Elimination
- Systems of Linear Equations Wrap-Up

Unit 7: Exponents and Exponential Functions

- Exponents
- Exponential Functions
- Graphs of Exponential Functions
- Exponential and Linear Growth
- Exponents and Exponential Functions Wrap-Up

Unit 8: Quadratic Equations and Functions

- Solving Quadratic Equations
- Completing the Square
- The Quadratic Formula
- Graphs of Quadratic Functions

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- Linear, Quadratic, and Exponential Functions
- Performance Task: Pricing for Profit
- Quadratic Equations and Functions Wrap-Up

Unit 9: Undoing Functions and Moving Them Around

- Parent Functions
- Shifting Functions
- Stretching and Compressing Functions
- Transformations of Parent Functions
- Undoing Functions and Moving Them Around Wrap-Up

Unit 10: Probability and Statistics

- What Is Probability?
- Counting Principles
- Data Gathering and Inferential Statistics
- Scatterplots
- Correlation Coefficients
- Linear Regression
- Bivariate Data Wrap-Up

Unit 11: Semester 2 Exam

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