

Algebra 1: Foundations and Applications

Outcome:

- Proficiency in solving linear equations, inequalities, and systems.
- Understanding and application of exponential functions and polynomials.
- Competency in factoring and working with quadratic functions and equations.
- Ability to apply algebraic concepts to real-world problem-solving.

Unit 1: Introduction to Algebra (Weeks 1-4)

Week 1: Understanding Algebraic Expressions

- Introduction to variables and constants
- Evaluating expressions
- Simplifying algebraic expressions

Week 2: Solving Basic Equations

- Solving one-step and two-step equations
- Applications of equations in real-life scenarios

Week 3: Inequalities and Their Solutions

- Understanding and graphing inequalities
- Solving inequalities and compound inequalities

Week 4: Introduction to Functions

- Defining functions
- Function notation and evaluation
- Function graphs and mapping diagram

Unit 2: Linear Equations and Systems (Weeks 5-9)

Week 5: Linear Equations in Two Variables

- Graphing linear equations
- Writing equations given a graph
- Slope and y-intercept

Week 6: Systems of Equations

- Solving systems of equations graphically
- Solving systems of equations algebraically (substitution and elimination)
- Applications of systems of equations

Week 7: Inequalities in Two Variables

- Graphing linear inequalities in two variables
- Systems of inequalities and their solutions

Week 8: Introduction to Linear Modeling

- Analyzing and interpreting linear models
- Applications of linear equations and inequalities in real-world situations

Week 9: Review and Midterm Assessment

Unit 3: Exponents and Polynomials (Weeks 10-14)

Week 10: Exponents and Exponential Functions

- Laws of exponents
- Exponential growth and decay
- Scientific notation

Week 11: Polynomial Expressions and Operations

- Polynomial basics: degree, leading coefficient, terms
- Adding, subtracting, multiplying polynomials
- Special products: factoring and the distributive property

Week 12: Factoring Polynomials

- Factoring quadratic expressions
- Factoring special forms: perfect squares, the difference of squares
- Factoring by grouping

Week 13: Rational Expressions and Equations

- Simplifying and multiplying rational expressions
- Dividing rational expressions
- Solving rational equations

Week 14: Review and Formative Assessment

Unit 4: Quadratic Functions and Equations (Weeks 15-18)

Week 15: Quadratic Functions and Their Graphs

- Understanding quadratic functions
- Graphing quadratic functions
- Maximum and minimum values

Week 16: Solving Quadratic Equations

- Factoring quadratic equations
- Using the quadratic formula
- Completing the square

Week 17: Applications of Quadratic Functions



- Modeling real-world situations with quadratic functions
- Quadratic inequalities

Week 18: Final Review and Cumulative Assessment*