Algebra 1 Curriculum

Chapter 1: Connections to algebra

- Variables
- Exponents and Powers
- Order of Operations
- Equations and Inequalities
- Problem Solving Methods
- Tables and Graphs
- Introduction to Functions

Chapter 2: Properties of Real Numbers

- Adding, subtracting, multiplying, dividing real numbers
- Adding and subtracting matrices
- Distributive property
- Probability and odds

Chapter 3: Solving Linear Equations

- Solving linear equations using addition, subtraction, multiplication and division
- Solving multi-step equations
- Solving decimal equations
- Formulas and functions
- Rates, ratios, percentages

Chapter 4: Graphing Linear Equations and Functions

- Coordinates and scatterplots
- Graphing linear equations
- Graphing using intercepts
- Slope
- Direct variation
- Graph using slope-intercept form
- Solving linear equations using graphs
- Functions and Relations

Chapter 5: Writing Linear Equations

- Writing linear equations given different information
- Fitting a line to data
- Point-slope form
- Standard form of a line
- Predicting with linear models

Chapter 6: Solving and Graphing Linear Inequalities:

- Solving 1 step, and multi-step linear inequalities
- Solving compound inequalities

- Solving absolute value equations and inequalities
- Graphing linear inequalities in two variables
- Box and Whisker plots, Stem and Leaf plots and mean, median, mode

Chapter 7: Systems of Linear Equations and Inequalities

- Solving linear systems by graphing, substitution, and linear combinations
- Applications and special types of linear systems
- Solving systems of linear inequalities

Chapter 8: Exponents and Exponential Functions

- Multiplication and division properties of exponents
- Zero and negative exponents
- Scientific Notation
- Exponential growth and decay

Chapter 9: Quadratic Equations and Functions

- Solving quadratic equations by finding square roots, by graphing, by the quadratic formula
- Simplifying radicals
- Graphing quadratic functions and quadratic inequalities
- Applications of the discriminant
- Comparing linear, exponential, and quadratic models

Chapter 10: Polynomials and Factoring

- Add, subtract, multiply polynomials
- Special products of polynomials
- Solving polynomials in factored form
- Factoring
- Factoring special products
- Factoring using distributive property

Chapter 11: Rational Equations and Functions

- Ratio, proportions, percentages
- Direct and inverse variation
- Simplifying rational expressions
- Adding, subtracting, multiplying, and dividing rational expressions
- Dividing polynomials
- Rational Equations and Functions

Chapter 12: Radicals and Connections to Geometry

- Functions involving square roots
- Operations with radicals
- Solving radical equations
- Completing the square

- Pythagorean Theorem and its converse
- Distance and Midpoint formulas
- Trig Ratios
- Local reasoning and proofs