

Algebra I

Instructors:

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This college prep course covers both manipulative algebra skills and theory, with the emphasis on manipulative skills. Algebra 1 will cover topics including the real number system, order of operations, solving equations and inequalities, graphing equations and inequalities, solving systems of equations, and modeling with functions.

Graduation Standards (the number of the standard is referenced in the performance indicators listed in each unit):

Standard 1: Reason and model quantitatively, using units and number systems to solve problems.

Standard 2: Interpret, represent, create and solve algebraic expressions.

Standard 3: Interpret, analyze, construct, and solve linear, quadratic, and trigonometric functions.

Standard 5: Interpret, infer, and apply statistics and probability to analyze data and reach and justify conclusions.

Unit 1	Introduction Unit
Summary	In this unit, students will use variables to represent data. They will learn to write expressions and equations. They will also evaluate and simplify variable expressions using properties of real numbers.
Performance Indicators Assessed in Unit	HS.M.1A Compute with accuracy in the real number system HS.M.2A Use structure and order of operations to manipulate expression S1: F. Compute within the real number system.
Unit 2	Linear Equations
Summary	In this unit students develop the properties of solving equations. They apply the Addition, Subtraction, Multiplication, and Division properties of equations to solve problems. Students will be able to apply equations in one variable to real-world problems. Students will also be able to use units to understand problems, and define appropriate quantities with appropriate accuracy.
Performance Indicators Assessed in Unit	HS.M.2B: Write and solve equations and inequalities in one variable.

Unit 3	Modeling Functions
Summary	In this unit students will define a function, and function notation. They will identify common algebraic functions based on their graphs and general equations. Students will also determine a function's domain and range, increasing/decreasing intervals, relative maxima and minima, and end behavior. They will understand the basic properties of linear, quadratic, and exponential functions, and be able to identify each type graphically.
Performance Indicators Assessed in Unit	HS.M.2C - Represents equations or inequalities graphically HS.M.3A - Understands, graphs and applies parent functions.
Unit 4	Linear Functions
Summary	In this unit students will identify and interpret key features of linear functions in all their forms. They will graph linear functions in their different forms. Students will also create and analyze linear functions that model real-world data.
Performance Indicators Assessed in Unit	HS.M.2D - Solving Linear Equations HS.M.3B- Analyzing linear functions
Unit 5	Equations of Linear Functions
Summary	In this unit students will be able to identify different forms, and change between all forms of linear equations. They will be able to calculate slope algebraically and relate it to real-world situations. They will be able to create inverse linear functions both algebraically and graphically. They will be able to compare and contrast a linear relationship represented graphically and algebraically.
Performance Indicators Assessed in Unit	HS.M.2E - Write linear equations in various forms and graphs. HS.M.3B - Applying Linear Functions
Unit 6	Linear Inequalities
Summary	In this unit students will develop the properties of solving inequalities. They apply the Addition, Subtraction, Multiplication and Division properties of inequalities to solve problems, and can graph their solutions on a number line. In this unit students will be able to solve compound inequalities and graph their solutions. Students will be able to solve absolute value equations and inequalities in one variable and graph their solution on a number line. Students will be able to graph inequalities into variables on a coordinate plane. This unit will have a strong emphasis on the application of inequalities and absolute value.
Performance Indicators Assessed in Unit	HS.M.2.B - Write and solve equations and inequalities in one variable. HS.M.2C - Represents equations or inequalities graphically.

Unit 7	Systems of Linear Equations and Inequalities
Summary	<p>In this unit students will be introduced to systems of linear equations and inequalities. They learn how to solve by graphing systems of equations and inequalities, and classify the systems as consistent or inconsistent, dependent or independent. Students also learn how to apply algebraic methods including, substitution, elimination, using addition and subtraction, and elimination using multiplication. Students will create equations and inequalities that model real-world data, and determine which method is best to solve the system.</p>
Performance Indicators Assessed in Unit	<p>HS.M.2F - Solves systems of linear equations of inequalities.</p>