

Algebra I Course Overview

Unit	Major Concepts	Skills	Summative Assessments
Number Systems and Mathematical Thinking	Number groups Multiple ways to approach a problem	Identify what number belongs in which number groups, such as natural, whole, integer, rational, irrational, real, and imaginary numbers Find many ways to calculate the same problem	Pool border project Module 1 assessment
Linear Functions & Inequalities	Constant rate of change Meaning of intercepts Undoing operations to solve Interpret inequalities from context	Compute slope Write the equation of a line Graph a line Solve linear equations Model real-world situations with linear functions Solve and graph linear inequalities Model real-world situations with inequalities	Module 1 assessment River Project
Polynomials	Combining like terms Distributive property Factoring is rewriting as multiplication	Add, subtract, multiply, divide, and factor polynomials	CLT game Module 1 assessment Module 2 assessment
Functions and Transformation	How to identify transformations from a graph How to identify transformations in function notation Represent functions in multiple ways	Transform a function given the function notation Write a function given the transformations	DESMOS art project Graph game Module 1 assessment
Systems of Equations	Solutions to systems make each equation true How to solve systems in multiple ways	Solve systems algebraically and graphically Model real-world situations with systems of equations Solve systems of inequalities	Real-world application problem project Module 1 assessment
Functions and Mathematical Properties	Input/output relationships Domain and range Multiple representations for functions Distributive, associative, and commutative properties	Identify if a relation is a function Create a rule for a linear relationship from a table of values Evaluate a function using algebraic, numeric, and graphical representations Use function notation to evaluate functions Graph a piecewise function Apply mathematical properties to solve	Module 2 assessment

		equations	
Quadratic Functions	Zero property of multiplication Graphs of parabolas and their meaning in context	Solve quadratics by factoring, completing the square and the quadratic formula Graph a parabola Find the vertex of a parabola algebraically Model real-world situations with quadratic functions	Catapult and trebuchet project Module 2 assessment
Exponential Functions/Transformations	Changing the rate of change Properties of exponents Meaning of growth and decay	Graph exponential functions Simplify expressions with exponents Evaluate exponential functions Model real-world situations with exponential functions	Growth and decay of bacteria project Module 3 assessment
Radicals	Radicals are exponents of $\frac{1}{2}$ power	Add, subtract, multiply, divide radicals Simplify radicals	Module 3 assessment
Statistics	Symmetric vs. skewed data Categorical vs. numerical data One variable vs. two variable data Measures of center and spread	Construct a boxplot, histogram, and dot plot Analyze data by shape, center, and spread Categorize data as categorical or numerical Create a bivariate frequency table Construct a line of best-fit Analyze a best-fit function using residuals and correlation	Student lead lecture project
Dimensional Analysis	US vs. Metric systems	Converting metric to metric Converting US to US Converting metric to US Converting US to metric	Slime making project River Project
Review/Test Taking	All topics from the year with emphasis on test-taking strategies	All skills from past units with emphasis on exam questions and types	Algebra Regents - June