

ALGEBRA I

Weeks	Expectation/Key Concept	GaDOE Learning Plan	NOTES for NEXT YEAR
UNIT 3 - Investigating Rational and Irrational Numbers			
Students will investigate rational and irrational numbers and rewrite expressions involving roots. Standards Addressed: A.NR.5.1, A.NR.5.2			
Semester 1 August 29-September 6 (6 days) Semester 2 January 3 - January 10 (6 days)	Radicals (square and cube roots)	Equivalent Radical Expressions: Length and Perimeter	
	Reduce	Equivalent Radical Expressions: Length and Area	
	Operations: addition, subtraction & multiplication	Classify Rational and Irrational Numbers	
	Sum or Product of rational and irrational numbers	Evaluating Statements about Rational and Irrational Numbers	
UNIT 1 - Modeling Linear Functions			
Students will construct and interpret arithmetic sequences as functions, algebraically and graphically, to model and explain real-life phenomena. Standards Addressed: A.FGR.2.1, A.FGR.2.2, A.FGR.2.3, A.FGR.2.4, A.FGR.2.5			
Semester 1 August 4-18 (11 days) Semester 2 January 11 - 25 (10 days)	Arithmetic Sequences	Exploring Patterns	
	Linear Functions	Exploring Growth Rates	
	Graph- by hand, calculator using verbal descriptions, tables or equations	Detention Hall Buy Out	
	Characteristics: domain, range, intercepts, intervals of increasing & decreasing, intervals where the function is positive & negative, maximum & minimum	Time Graphs	
	Domain & Range in context- set & interval notation	Characteristics of Linear Functions	
	Build & Evaluate Linear Functions- interpret domain & possible solutions	Domain & Range	
	Difference in Linear and Non-linear Functions- USE graphing calculators	Parent Functions	
	Parent Functions by Name (linear, quadratic, exponential, absolute value, square root and cube root)		
	General characteristics by looking at the graphs		
	Linear Expressions*		
	Solve linear equations*		
	Literal Equations*		
	Explore the concept of slope*		
	Function notation & evaluate (state says this should be with unit 4/Quadratics)		
Compare different types of linear function (equations, graphs tables) (state says this should be with unit 4/Quadratics)			
*Use as a pre-unit 1 for 2023-2024			
UNIT 2 - Analyzing Linear Inequalities			
Students will create, analyze, graph, and solve linear inequalities in two variables. Standards Addressed: A.PAR.4.1, A.PAR.4.2, A.PAR.4.3			
Semester 1 August 21-28 (6 days) Semester 2 January 26 - February 2 (6 days)	Create and solve linear inequalities in two variables (in context)	Graphing Linear Inequalities in Two Variables (Part 1)	
	Graph linear inequalities in two variables	Graphing Linear Inequalities in Two Variables (Part 2)	
	Solutions of linear inequalities	Representing Inequalities Graphically	
	Systems of Linear Inequalities by graphing	Solutions to Systems of Linear Inequalities in Two Variables	
	Real life application problems		
	Solve Linear Inequalities in one variable		
Unit 4 - Modeling and Analyzing Quadratic Functions			
Students will analyze and quadratic functions with real number solutions a models of real-life phenomena. Standards Addressed: A.PAR.6.1, A.PAR.6.2, A.PAR.6.3, A.PAR.6.4, A.FGR.7.1, A.FGR.7.2, A.FGR.7.3, A.FGR.7.4, A.FGR.7.5, A.FGR.7.6, A.FGR.7.7, A.FGR.7.8, A.FGR.7.9			
Semester 1 September 7-27 (15 days) Semester 2 February 5- March 1 (18 days)	Quadratic Expression (terms, factors, leading coefficient, constant, degree)	A New Kind of Pattern	
	Operations (addition, subtraction, & multiplication) not greater than degree 2	Characteristics of Quadratic Functions	
	Monomial times binomial, binomial times binomial	Investigating Forms	
	Compare & examine different forms- vertex, standard and factored	Multiplying Binomials and Factoring Trinomials	
	Solve quadratic equations	Transforming Quadratic Equations	
	square roots, factoring, completing the square, quadratic formula	Graphing Transformations	
	Real solutions only	Seeing Structure in Expressions	
	Possible solutions in context	Protein Bar Toss	
	Build & Evaluate Quadratic Functions- interpret domain & possible solutions	Sorting Equations and Identities (FAL)	
	Transformations of Quadratic Functions	Tracking a Dive	
	Graph- by hand, calculator using verbal descriptions, tables or equations	Henley's Chocolates	
	Characteristics: domain, range, intercepts, intervals of increasing & decreasing,	A Sales Competition	
	intervals where the function is positive and negative	Beyond Factoring	
	maximum & minimum over specific interval & end behavior	Georgia's Peaches	
Domain & Range in context- set & interval notation			
Projectile motion			

Maximum & minimum in context
Average rate of change- from graph or table
Compare with Linear

UNIT 5 - Modeling and Analyzing Exponential Expressions and Equations

Students will interpret exponential expressions, one variable exponential equations in context, and understand parameters of two variable exponential equations.
Standards Addressed: A.PAR.8.1, A.PAR.8.2, A.PAR.8.3, A.PAR.8.4

Semester 1 September 28th - October 11th (8 days)	Exponential Expression (terms, factors, leading coefficient, constant, degree)	Paper Folding
	Create & solve exponential equations in one variable	Multiplying Cells
Semester 2 March 4 - March 14 (8 days)	Like bases or easily made into like bases	The Marvel of Medicine
	Create & graph exponential equations in two variables	How Long Will it Take?
	Growth & decay, compound interest	Growing by Leaps and Bounds
	Interpret domain & possible solutions	

UNIT 6 - Algebra: Concepts and Connections

Students will construct and analyze the graph of an exponential function to explain a contextual situation for which the graph serves as a model; compare exponential with linear and quadratic functions.

Standards Addressed: A.FGR.9.1, A.FGR.9.2, A.FGR.9.3, A.FGR.9.4, A.FGR.9.5

Semester 1 October 12 -25 (10 days)	• Build & Evaluate Exponential Functions- interpret domain	Reasoning About Exponential Graphs
	• Graph- by hand, calculator using verbal descriptions, tables or equations	Having Kittens (FAL)
Semester 2 March 15 - March 29 (11 days)	◦ Characteristics: domain, range, intercepts, intervals of increasing & decreasing, maximum & minimum over specific interval & end behavior, Interval where the function is positive and negative	3-Act Task: Penny a Day
	• Transformations of Exponential Functions	Community Service, Sequences and Functions
	• Geometric sequences	Representing Linear and Exponential Growth (FAL)
	Compare with Linear and Quadratic	Comparing Linear, Quadratic, and Exponential Models Graphically

UNIT 7 - Investigating Data

Students will explore statistical problems using univariate and bivariate quantitative data and answer statistical, investigative questions using the four-step statistical problem-solving process.

Standards Addressed: A.DSR.10.1, A.DSR.10.2, A.DSR.10.3, A.DSR.10.4, A.DSR.10.5, A.DSR.10.6, A.DSR.10.7

Semester 1 October 26 - November 8 (10 days)	• Measures of center including median & mean	The Basketball Star
	• Measures of spread include the range, interquartile range & standard deviation as an extension of MAD	Variation in Math Classes
Semester 2 April 8 - April 19 (10 days)	• Univariate and Bivariate data	Strength of Relationships
	• Shape, center and variability of data	Classroom Mathematics Award
	◦ 1.5 IQR rule	If the Shoe Fits!
	• Scatter Plots & associations of data	Spaghetti Regression
	• Line of best fit & correlation coefficient	Sports Analysis
	• Observing graphs distinguish between linear, quadratic, & exponential	Equal Salaries for Equal Work
	• Correlation & Causation	Test Scores and Watching Television
MAD		

UNIT 8 - Algebraic Connections to Geometric Concepts

Students will solve problems involving distance, midpoint, slope, area, and perimeter to model and explain real-life phenomena.

Standards Addressed: A.GSR.3.1, A.GSR.3.2

Semester 1 November 9 -17 (7 days)	• Slope, parallel lines, and perpendicular lines in application problems	Home Design
	• Area and perimeter of special parallelograms and triangles	Design Challenges
Semester 2 April 22 - April 30 (7 days)	Distance, midpoint & slope of a line segment to solve real world problems	City Design
		Enhancing the City Design

Semester 2 EOC TESTING May 9

UNIT 9 REVIEW/CAPSTONE

Semester 1 November 27 - December 13 (13 days)		Capstone Project Information
Semester 2 May 1 - May 17 (12 days)		

General Information - New Standard Changes

[GMAS Blueprint](#)

[Transition Year Notes](#)

[Georgia's K-12 Mathematics Standards Explanation of Changes and Improvements](#)

[Mathematical Modeling Framework](#)

[K-12 Statistical Reasoning Framework](#)