



**Georgia's K-12
Mathematics Standards
Curriculum Map**

2026 – 2027

**ENHANCED ADVANCED ALGEBRA &
AP PRECALCULUS:
CONCEPTS AND CONNECTIONS**

FCS ENHANCED ADV ALG & AP PRECALCULUS: C&C CURRICULUM MAP

Georgia's Enhanced Adv Alg & AP Precalculus: Concepts and Connections Mathematics Standards						
Semester 1			Semester 2			
Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Modeling Polynomial and Piecewise Functions	Modeling Rational Functions	Modeling with Radical, Exponential, Logarithmic Functions, and Series	Modeling Trigonometry, the Unit Circle and Polar Functions	Functions Involving Parameters, Conics, Vectors, Matrices	Investigating Descriptive and Inferential Statistics	Culminating Capstone Unit
20 Days	26 Days	39 Days	41 Days	21 Days	15 Days	10 Days
<u>Unit Dates</u> 8/5/2026 – 9/2/2026	<u>Unit Dates</u> 9/3/2026 - 10/14/2026	<u>Unit Dates</u> 10/15/2026 – 12/16/2026	<u>Unit Dates</u> 1/5/2027 – 3/10/2027	<u>Unit Dates</u> 3/11/2027 – 4/16/2027	<u>Unit Dates</u> 4/19/2027 – 5/7/2027	<u>Unit Dates</u> 5/10/2027 - 5/21/2027
Learning Expectations & Objectives	Learning Expectations & Objectives	Learning Expectations & Objectives	Learning Expectations & Objectives	Learning Expectations & Objectives	Learning Expectations & Objectives	Learning Expectations & Objectives
AA.FGR.5.1 AA.FGR.5.5 AA.FGR.5.6 AA.FGR.5.7 AA.FGR.5.4 AA.FGR.5.10 AP.1.1 AP.1.2 AP.1.3 AP.1.4 AA.FGR.5.2 AA.FGR.5.3 AA.FGR.5.8 AA.FGR.5.9 AA.FGR.5.11 AP.1.5 AP.1.6 PC.FGR.2.1 PC.FGR.2.2 PC.FGR.2.3	AA.FGR.8.1 AA.FGR.8.2 PC.FGR.2.9 AA.FGR.8.3 AA.FGR.8.4 AP.1.7 AP.1.8 AP.1.9 AP.1.10 AP.1.11 AP.1.12 AP.1.13 AP.1.14	AA.FGR.4.1 AA.FGR.4.2 AA.FGR.4.3 AA.FGR.4.4 AA.FGR.4.5 PC.PAR.7.1 PC.PAR.7.2 AP.2.1 AP.2.2 PC.PAR.7.3 PC.PAR.7.4 PC.PAR.7.5 PC.PAR.7.6 PC.PAR.7.7 AA.FGR.3.2 AP.2.3 AP.2.4 AA.FGR.3.6 AP.2.5 AP.2.6 AP.2.7 AP.2.8 AA.FGR.3.1 AA.FGR.3.3 AP.2.9 AP.2.10 AP.2.11 AP.2.12 AP.2.13 AA.FGR.3.4 AA.FGR.3.5 AA.FGR.3.7 AP.2.14 AP.2.15	AA.GSR.7.1 AP.3.1 AA.GSR.7.2 AP.3.2 AP.3.3 AP.3.4 AP.3.5 AP.3.6 AP.3.7 AP.3.8 AP.3.9 AP.3.10 AP.3.11 AP.3.12 PC.AGR.4.3 AP.3.13 AP.3.14 AP.3.15 PC.GSR.5.4 PC.GSR.5.5	AP.4.1 AP.4.2 AP.4.3 AP.4.4 AP.4.5 PC.AGR.6.5 PC.AGR.6.6 AP.4.6 AP.4.7 AP.4.8 AP.4.9 AA.PAR.6.1 AP.4.10 AP.4.11 AP.4.12 AA.PAR.6.2 AA.PAR.6.3 AP.4.13 AP.4.14 AA.PAR.6.4	AA.DSR.2.1 AA.DSR.2.2 AA.DSR.2.3 AA.DSR.2.4 AA.DSR.2.5 AA.DSR.2.6 AA.DSR.2.7 AA.DSR.2.8	All Standards

Unit 1: Modeling Polynomial and Piecewise Functions

20 Days

Unit Dates: 8/5/2026 - 9/2/2026

AA.FGR.5: Extend exploration of quadratic solutions to include real and non-real numbers and explore how these numbers behave under familiar operations and within real-world situations; create polynomial expressions, solve polynomial equations, graph polynomial functions, and model real-world phenomena.

PC.FGR.2: Analyze the behaviors of piecewise-defined functions to model contextual mathematical problems.

AP.1: Develop an understanding of three key function concepts while exploring polynomial and rational functions. The first concept is covariation, or how output values change in tandem with changing input values. The second concept is rates of change, including the average rate of change, the rate of change at a point, and changing rates of change.

AA.FGR.5.1: Graph and analyze quadratic functions in contextual situations and include analysis of data sets with regressions.

AA.FGR.5.5: Write and solve quadratic equations and inequalities with real coefficients and use the solution to explain a contextual situation.

AA.FGR.5.6: Solve systems of quadratic and linear functions to determine points of intersection.

AA.FGR.5.7: Create and analyze quadratic equations to represent relationships between quantities as a model for contextual situations.

AA.FGR.5.4: Use the structure of an expression to factor quadratics.

AA.FGR.5.10: Use the structure of an expression to factor polynomials, including the sum of cubes, the difference of cubes, and higher-order polynomials that may be expressed as a quadratic within a quadratic.

AP.1.1A: Describe how the input and output values of a function vary together by comparing function values.

AP.1.1B: Construct a graph representing two quantities that vary with respect to each other in a contextual scenario.

AP.1.2A: Compare the rates of change at two points using average rates of change near the points.

AP.1.2B: Describe how two quantities vary together at different points and over different intervals of a function.

AP.1.3A: Determine the average rates of change for sequences and functions, including linear, quadratic, and other function types.

AP.1.3B: Determine the change in the average rates of change for linear, quadratic, and other function types.

AP.1.4A: Identify key characteristics of polynomial functions related to rates of change.

AA.FGR.5.2: Define complex numbers i such that $i^2 = -1$ and show that every complex number has the form $a + bi$ where a and b are real numbers that the complex conjugate is $a - bi$.

AA.FGR.5.3: Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, multiply complex numbers.

AA.FGR.5.8: Identify the number of zeros that exist for any polynomial based upon the greatest degree of the polynomial and the end behavior of the polynomial by observing the sign of the leading coefficient.

- AA.FGR.5.9:** Identify zeros of polynomial functions using technology or pre-factored polynomials and use the zeros to construct a graph of the function defined by the polynomial function. Analyze and identify key features of these polynomial functions.
- AA.FGR.5.11:** Using all the zeros of a polynomial function, list all the factors, and multiply to write a multiple of the polynomial function in standard form.
- AP.1.5A:** Identify key characteristics of a polynomial function related to its zeros when suitable factorizations are available or with technology.
- AP.1.5B:** Determine if a polynomial function is even or odd.
- AP.1.6A:** Describe end behaviors of polynomial functions.
- PC.FGR.2.1:** Graph piecewise-defined functions, including step functions and absolute value functions.
- PC.FGR.2.2:** Describe characteristics by interpreting the algebraic form and graph of a piecewise-defined function.
- PC.FGR.2.3:** Represent the limit of a function using both the informal definition and the graphical interpretation.

Unit 2: Modeling Rational Functions

26 Days

Unit Dates: 9/3/2026 - 10/14/2026

AA.FGR.8: Analyze the behaviors of rational functions to model applicable mathematical problems.

AP.1: Develop an understanding of three key function concepts while exploring polynomial and rational functions. The first concept is covariation, or how output values change in tandem with changing input values. The second concept is rates of change, including the average rate of change, the rate of change at a point, and changing rates of change.

AA.FGR.8.1: Rewrite simple rational expressions in equivalent forms.

AA.FGR.8.2: Add, subtract, multiply, and divide rational expressions, including problems in context, and express rational expressions in irreducible form.

PC.FGR.2.9: Perform partial fraction decomposition of rational functions using non-repeated linear factors.

AA.FGR.8.3: Graph rational functions, identifying key characteristics.

AA.FGR.8.4: Solve simple rational equations in one variable and give examples showing how extraneous solutions may arise.

AP.1.7A: Describe end behaviors of rational functions.

AP.1.8A: Determine the zeros of rational functions.

AP.1.9A: Determine vertical asymptotes of graphs of rational functions.

AP.1.10A: Determine holes in graphs of rational functions.

AP.1.11A: Rewrite polynomial and rational expressions in equivalent forms.

AP.1.11B: Determine the quotient of two polynomial functions using long division.

AP.1.11C: Rewrite the repeated product of binomials using the binomial theorem.

AP.1.12A: Construct a function that is an additive and/or multiplicative transformation of another function.

AP.1.13A: Identify an appropriate function type to construct a function model for a given scenario.

AP.1.13B: Describe assumptions and restrictions related to building a function model.

AP.1.14A: Construct a linear, quadratic, cubic, quartic, polynomial of degree n , or related piecewise-defined function model.

AP.1.14B: Construct a rational function model based on a context.

AP.1.14C: Apply a function model to answer questions about a data set or contextual scenario.

Unit 3: Modeling with Radical, Exponential, Logarithmic Functions and Series.

39 Days

Unit Dates: 10/15/2026 - 12/16/2026

AA.FGR.3: Explore and analyze structures and patterns for exponential and logarithmic functions and use exponential and logarithmic expressions, equations, and functions to model real-life phenomena.

AA.FGR.4: Explore and analyze structures and patterns for radical functions and use radical expressions, equations, and functions to model real-life phenomena.

PC.PAR.7: Demonstrate how sequences and series apply to mathematical models in real-life situations.

AP.2: Developing an understanding of exponential and logarithmic functions. When an aspect of a phenomenon changes proportionally to the existing amount, exponential and logarithmic models are employed to harness the information.

Exponential functions are key to modeling population growth, radioactive decay, interest rates, and the amount of medication in a patient. Logarithmic functions are useful in modeling sound intensity and frequency, the magnitude of earthquakes, the pH scale in chemistry, and the working memory in humans.

AA.FGR.4.1: Rewrite radical expressions as expressions with rational exponents. Extend the properties of integer exponents to rational exponents.

AA.FGR.4.2: Solve radical equations in one variable and give examples showing how extraneous solutions may arise.

AC.FGR.4.3: Analyze and graph radical functions.

AA.FGR.4.4: Create, interpret, and solve radical equations with one unknown value and use them to solve problems that model real-world situations.

AA.FGR.4.5: Create, interpret, and solve radical equations in two or more variables to represent relationships between quantities.

PC.PAR.7.1: Demonstrate that sequences are functions whose domain is the set of natural numbers.

PC.PAR.7.2: Represent sequences graphically, numerically, and symbolically.

AP.2.1A: Express arithmetic sequences found in mathematical and contextual scenarios as functions of the whole numbers.

AP.2.1B: Express geometric sequences found in mathematical and contextual scenarios as functions of the whole numbers.

AP.2.2A: Construct functions of the real numbers that are comparable to arithmetic and geometric sequences.

AP.2.2B: Describe similarities and differences between linear and exponential functions.

PC.PAR.7.3: Determine the limit of a sequence if it exists.

PC.PAR.7.4: Demonstrate that a series is the sum of the sequence and represent series graphically, numerically, and symbolically.

PC.PAR.7.5: Describe the behavior of a series in terms of the limit of its partial sums.

PC.PAR.7.6: Derive and use the sum formula of a finite geometric series to solve contextual problems to model real-life situations.

- PC.PAR.7.7:** Derive and use the sum formula of an infinite geometric series to solve contextual problems to model real-life situations.
- AA.FGR.3.2:** Analyze, graph, and compare exponential and logarithmic functions.
- AP.2.3A:** Identify key characteristics of exponential functions.
- AP.2.4A:** Rewrite exponential expressions in equivalent forms.
- AP.2.5A:** Construct a model for situations involving proportional output values over equal-length input-value intervals.
- AA.FGR.3.6:** Create, interpret, and solve exponential equations to represent relationships between quantities and analyze the relationships numerically with tables, algebraically, and graphically.
- AP.2.5B:** Apply exponential models to answer questions about a data set or contextual scenario.
- AP.2.6A:** Construct linear, quadratic, and exponential models based on a data set.
- AP.2.6B:** Validate a model constructed from a data set.
- AP.2.7A:** Evaluate the composition of two or more functions for given values.
- AP.2.7B:** Construct a representation of the composition of two or more functions.
- AP.2.7C:** Rewrite a given function as a composition of two or more functions.
- AP.2.8A:** Determine the input-output pairs of the inverse of a function.
- AP.2.8B:** Determine the inverse of a function on an invertible domain.
- AA.FGR.3.1:** Find the inverse of exponential and logarithmic functions using equations, tables, and graphs, limiting the domain of inverses where necessary to maintain functionality, and prove by composition or verify by inspection that one function is the inverse of another.
- AA.FGR.3.3:** Use the definition of a logarithm, logarithmic properties, and the inverse relationship between exponential and logarithmic functions to solve problems in context.
- AP.2.9A:** Evaluate logarithmic expressions.
- AP.2.10A:** Construct representations of the inverse of an exponential function with an initial value of 1.
- AP.2.11A:** Identify key characteristics of logarithmic functions.
- AP.2.12A:** Rewrite logarithmic expressions in equivalent forms.
- AP.2.13A:** Solve exponential and logarithmic equations and inequalities.
- AP.2.13B:** Construct the inverse function for exponential and logarithmic functions.

- AA.FGR.3.4:** Create exponential equations and use logarithms to solve contextual problems for which only one variable is unknown.
- AA.FGR.3.5:** Create and interpret logarithmic equations in one variable and use them to solve problems.
- AA.FGR.3.7:** Create, interpret, and solve logarithmic equations in two or more variables to represent relationships between quantities.
- AP.2.14A:** Construct a logarithmic function model.
- AP.2.15A:** Determine if an exponential model is appropriate by examining a semi-log plot of a data set.
- AP.2.15B:** Construct the linearization of exponential data.

Unit 4: Modeling Trigonometry, the Unit Circle, and Polar Functions

41 Days

Unit Dates: 1/5/2027 - 3/10/2027

AA.GSR.7: Develop an introductory understanding of the unit circle; solve trigonometric equations using the unit circle.

AP.3: Explore trigonometric functions and their relation to the angles and arcs of a circle. Since their output values repeat with every full revolution around the circle, trigonometric functions are ideal for modeling periodic, or repeated pattern phenomena. Furthermore, periodicity is found in human inventions and social phenomena. Polar functions, which are also explored in this unit, have deep ties to trigonometric functions as they are both based on the circle. Polar functions are defined on the polar coordinate system that uses the circular concepts of radii and angles to describe location instead of rectangular concepts of left-right and up-down, which students have worked with previously. Trigonometry serves as the bridge between the two systems.

AA.GSR.7.1: Define the three basic trigonometric ratios in terms of x , y , and r using the unit circle centered at the origin of the coordinate plane.

AP.3.1A: Construct graphs of periodic relationships based on verbal representations.

AP.3.1B: Describe key characteristics of a periodic function based on a verbal representation.

AA.GSR.7.2: Apply understanding of the angle measures and coordinates of the unit circle to solve practical, real-life problems involving trigonometric equations.

AP.3.2A: Determine the sine, cosine, and tangent of an angle using the unit circle.

AP.3.3A: Determine coordinates of points on a circle centered at the origin.

AP.3.4A: Construct representations of the sine and cosine functions using the unit circle.

AP.3.5A: Identify key characteristics of the sine and cosine functions.

AP.3.6A: Identify the amplitude, vertical shift, period, and phase shift of a sinusoidal function.

AP.3.7A: Construct sinusoidal function models of periodic phenomena.

AP.3.8A: Construct representations of the tangent function using the unit circle.

AP.3.8B: Describe key characteristics of the tangent function.

AP.3.8C: Describe additive and multiplicative transformations involving the tangent function.

AP.3.9A: Construct analytical and graphical representations of the inverse of the sine, cosine, and tangent functions over a restricted domain.

AP.3.10A: Solve equations and inequalities involving trigonometric functions.

AP.3.11A: Identify key characteristics of functions that involve quotients of the sine and cosine functions.

- AP.3.12A:** Rewrite trigonometric expressions in equivalent forms with the Pythagorean identity.
- AP.3.12B:** Rewrite trigonometric expressions in equivalent forms with sine and cosine sum identities.
- AP.3.12C:** Solve equations using equivalent analytic representations of trigonometric functions.
- PC.AGR.4.3:** Solve trigonometric equations arising in modeling contexts. Include complex problems.
- AP.3.13A:** Determine the location of a point in the plane using both rectangular and polar coordinates.
- AP.3.14A:** Construct graphs of polar functions.
- AP.3.15A:** Describe characteristics of the graph of a polar function.
- PC.GSR.5.4:** Classify special polar equations and apply to contextual situations.
- PC.GSR.5.5:** Graph equations in the polar coordinate plane with and without the technology.

Unit 5: Functions Involving Parameters, Conic Sections, Vectors and Matrices

21 Days

Unit Dates: 3/11/2027 - 4/16/2027

AA.PAR.6: Represent data with matrices, perform mathematical operations, and solve systems of linear equations leading to real-world linear programming applications data.

AP.4: Explore function types that expand their understanding of the function concept. Parametric functions have multiple dependent variables' values paired with a single input variable or parameter. Modeling scenarios with parametric functions allows students to explore change in terms of components. Another major function type in this unit involves matrices mapping a set of input vectors to output vectors. The ability to instantaneously map large quantities of vectors is the basis for vector-based computer graphics.

AP.4.1A: Construct a graph or table of values for a parametric function represented analytically.

AP.4.2A: Identify key characteristics of a parametric planar motion function that are related to position.

AP.4.3A: Identify key characteristics of a parametric planar motion function that are related to direction and rate of change.

AP.4.4A: Express motion around a circle or along a line segment parametrically.

AP.4.5A: Construct a graph of an equation involving two variables.

AP.4.5B: Determine how the two quantities related in an implicitly defined function vary together.

PC.AGR.6.5: Sketch the graph of a curve represented parametrically, indicating the direction of motion.

PC.AGR.6.6: Apply parametric equations to contextual problems.

AP.4.6A: Represent conic sections with horizontal or vertical symmetry analytically.

AP.4.7A: Represent a curve in the plane parametrically.

AP.4.7B: Represent conic sections parametrically.

AP.4.8A: Identify characteristics of a vector.

AP.4.8B: Determine sums and products involving vectors.

AP.4.8C: Determine a unit vector for a given vector.

AP.4.8D: Determine angle measures between vectors and magnitudes of vectors involved in vector addition.

AP.4.9A: Represent planar motion in terms of vector-valued functions.

AA.PAR.6.1:

AP.4.10A:	Use matrices to represent data, and perform mathematical operations with matrices and scalars, demonstrating that some properties of real numbers hold for matrices, but that others do not.
AP.4.11A:	Determine the product of two matrices.
AP.4.11B:	Determine the inverse of a 2×2 matrix.
AP.4.12A:	Apply the value of the determinant to invertibility and vectors.
AP.4.13A:	Determine the output vectors of a linear transformation using a 2×2 matrix.
AP.4.13B:	Determine the association between a linear transformation and a matrix.
AA.PAR.6.2:	Determine the composition of two linear transformations.
AA.PAR.6.3:	Rewrite a system of linear equations using a matrix representation.
AP.4.13C:	Use the inverse of an invertible matrix to solve systems of linear equations.
AP.4.14A:	Determine the inverse of a linear transformation.
AP.4.14B:	Construct a model of a scenario involving transitions between two states using matrices.
AA.PAR.6.4:	Apply matrix models to predict future and past states for n transition steps.
	Utilize linear programming to represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret data points as solutions or non-solutions under the established constraints in real-world problems.

Unit 6: Investigating Descriptive and Inferential Statistics

15 Days

Unit Dates: 4/19/2027 - 5/7/2027

AA.DSR.2: Communicate descriptive and inferential statistics by collecting, critiquing, analyzing, and interpreting real-world data.:

AA.MM.1: Apply mathematics to real-life situations; model real-life phenomena using mathematics.:

- AA.DSR.2.1:** Recognize the purposes and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each. Distinguish between primary and secondary data and how it affects the types of conclusions that can be drawn.
- AA.DSR.2.2:** When collecting and considering data, critically evaluate ethics, privacy, potential bias, and confounding variables along with their implications for interpretation in answering a statistical investigative question. Implement strategies for organizing and preparing big data sets.
- AA.DSR.2.3:** Distinguish between population distributions, sample data distributions, and sampling distributions. Use sample statistics to make inferences about population parameters based on a random sample from that population and to communicate conclusions using appropriate statistical language.
- AA.DSR.2.4:** Calculate and interpret z-scores as a measure of relative standing and as a method of standardizing units.
- AA.DSR.2.5:** Given a normally distributed population, estimate percentages using the Empirical Rule, z-scores, and technology.
- AA.DSR.2.6:** Model sample-to-sample variability in sampling distributions of a statistic using simulations taken from a given population.
- AA.DSR.2.7:** Given a margin of error, develop and compare confidence intervals of different models to make conclusions about reliability.
- AA.DSR.2.8:** Summarize and evaluate reports based on data for appropriateness of study design, analysis methods, and statistical measures used.

Unit 7: Culminating Capstone Unit

10 Days

Unit Dates: 5/10/2027 - 5/21/2027

ALL Standards Addressed in this Unit

The capstone unit applies content that has already been learned in previous interdisciplinary PBLs and units throughout the school year. The capstone unit is an interdisciplinary unit that allows students to create a presentation, report, or demonstration that could include their models used to answer an overarching driving question. (e.g., Students can present their solution(s), findings, project, or answer to the driving question to a larger audience during the culminating capstone unit.)