Algebra 2 Year at a Glance

Scope and Sequence 2024 - 2025
Please Note: All standards in the state course description are designed to be learned by the end of the course. This guide represents a recommended timeline and sequence to be used voluntarily by teachers for planning purposes. Specific question regarding when content will be addressed in a specific course are best answered by the individual teacher.
Course Resources
Publisher Resource: **Supplemental Resources:** Khan Academy (does not support Internet Explorer) Illustrative Mathematics (does not support Internet Explorer)
In Algebra, instructional time will emphasize five areas: (1) extending arithmetic operations with algebraic expressions to include radical and rational expressions and polynomial division; (2) graphing and analyzing functions including polynomials, absolute value, radical, rational, exponential and logarithmic; (3) building functions using compositions, inverses and transformations; (4) extending systems of equations and inequalities to include non-linear expressions and (5) developing understanding of the complex number system, including complex numbers as roots of polynomial equations.

Algebra 2 Year at a Glance

Quarter 1 (August 12 – October 11)

Module 1 Properties of Functions

Students will identify various types of functions, including one-to-one, discrete and continuous, as well as linear and nonlinear. Students will identify and explain key features of graphs including extrema and end behavior as well as lines of symmetry. They will sketch and compare graphs of functions as well as translate, dilate, and reflect graphs of functions.

Module 2 Linear Equations, Inequalities, and Systems

Students will solve absolute value equations and inequalities, systems of equations and systems of inequalities. Students will write equations of linear functions in standard, slope-intercept, and point-slope form.

Module 3 Quadratic Functions

Students will find and interpret the average rate of change of a quadratic function, estimate solutions quadratic equations by graphing and perform operations with complex numbers. Students will solve quadratic equations and use the discriminate to determine the number and type of roots of a quadratic equation.

Quarter 2 (October 15 – December 20)

Module 3 Quadratic Functions

Students will find and interpret the average rate of change of a quadratic function, estimate solutions quadratic equations by graphing and perform operations with complex numbers. Students will solve quadratic equations and use the discriminate to determine the number and type of roots of a quadratic equation.

Module 4 Polynomials and Polynomial Functions

Students will graph power and polynomial functions. Students will identify key features of graphs including zeros and extrema. They will add, subtract, multiply and divide polynomials.

Module 5 Polynomial Equations

Students will solve polynomial equations to find zeros. Students will apply the remainder and factor theorem to determine whether a binomial is a factor of a polynomial. Students will use the fundamental Theorem of Algebra.

Algebra 2 Year at a Glance

Quarter 3 (January 6 – March 13)
Module 6 Inverse and Radical Functions Students will perform operations on functions including composition of functions. Students will verify mathematically that two relations are inverse as well as write expressions with rational exponents. Students will graph square root and cube root functions and solve radical equations algebraically and by graphing. **Module 7 Exponential Functions** Students will graph and solve exponential growth and decay functions. They will understand the natural base e and use it to solve problems. Students will understand and use geometric sequences and model data by using different types of functions.
Quarter 4 (March 24 – May 30)
Module 8 Logarithmic Functions Students will write, evaluate, and graph logarithms. Students will simplify and solve logarithmic equations, including equations that use common logarithms and natural logarithms. They will write and solve exponential growth and decay equation using logarithms. **Module 9 Rational Functions** Students will add, subtract, multiply and divide rational expressions. Students will graph and analyze reciprocal and rational functions as well as recognize and solve direct, joint, and inverse variation equations. They will solve rational equations algebraically and by graphing.