



Algebra 2 Honors Year at a Glance

Scope and Sequence 2023-2024

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 six areas: (1) developing understanding of the complex number system, including complex numbers as roots of polynomial equations; (2) extending arithmetic operations with algebraic expressions to include polynomial division, radical and rational expressions; (3) graphing and analyzing functions including polynomials, absolute value, radical, rational, exponential and logarithmic; (4) extending systems of equations and inequalities to include non-linear expressions; (5) building functions using compositions, inverses and transformations and (6) developing understanding of probability concepts.



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Quarter 1 (August 10 – October 13)

Module 1 Properties of Functions

Students will identify various functions, including one-to-one, continuous, discrete, linear and non-linear as well as key features of graphs, including extrema, end behavior, and lines of symmetry. Students will sketch and compare graphs of functions including absolute value functions and graphs of translations, dilations, and reflections of functions.

Module 2 Linear Equations, Inequalities, and Systems

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

Module 3 Quadratic Functions

Students will find and interpret average rate of change of a quadratic function and perform operations with complex numbers. They will find the solutions of quadratic equations by graphing, factoring, and completing the square. Students will use the discriminant to determine the number and type of roots of a quadratic equation. They will solve systems of two quadratic equations and systems of nonlinear relations.

Quarter 2 (October 17 – December 21)

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Module 4 Polynomials and Polynomial Functions

Students will graph power and polynomial functions. They will add, subtract, multiply, and divide polynomials and find the zeros of a polynomial function.

Module 5 Polynomial Equations

Students will solve polynomial equations by graphing, factoring and in quadratic form. They will recognize that a binomial is a zero of a polynomial using the remainder theorem, factor theorem, and the fundamental theorem of algebra.

Module 6 Inverse and Radical Functions



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Students will perform operations on functions including the composition of functions. They will verify mathematically two relations or functions are inverses as well as write expression with rational exponents. Students will graph square root and cube root functions and perform operations with radical expressions. They will solve radical equations by graphing and algebraically.

Quarter 3 (January 8 – March 8)

Module 7 Exponential Functions

Students will graph exponential growth and decay functions. They will solve exponential equations and 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.

Module 8 Logarithmic Functions

Students will write, graph, and evaluate logarithms. They will simplify logarithmic expressions and solve logarithmic and exponential equations that include common logarithms as well as natural logarithms. They will write and solve exponential growth and decay problems.

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 both algebraically and by graphing.

Quarter 4 (March 19 – May 24)

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 both algebraically and by graphing.

Module 10 Probability

Students will describe events using subsets and solve problems involving complementary, compound, and independent events. Students will solve problems involving conditional probability, mutually exclusive and non-



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mutually exclusive events as well as problems that involve conditional probability.

Module 11 Matrices

Students will organize data into matrices, state the dimensions of a matrix and identify elements by their position. Students will add, subtract, and multiply matrices. They will also solve systems of equations by using determinants. They will find the inverse of a matrix and solve a system of equations by using inverses.