2018-2019 Curriculum Map: Algebra 3

Unit(s)	Standards	Timeframe	Assessments	Unit Objectives/Big Ideas
Review of the Real Number System Linear Equations, Inequalities, and Applications	SS.5.AIII.1 SS.5.AIII.2 SS.5.AIII.3 SS.5.AIII.4	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests	• Operations on real numbers • Exponents, roots, and order of operations • Properties of real numbers • Linear equations in one variable • Formulas • Applications of linear equations • Linear inequalities in one variable • Set operations and compound inequalities • Absolute value equations and inequalities
Graphs, Linear Equations, and Functions	SS.5.AIII.1 SS.5.AIII.2 SS.5.AIII.3 SS.5.AIII.4	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests	• The rectangular coordinate system • The slope of a line • Linear equations in two variables • Linear inequalities in two variables • Introduction to functions
Systems and Matrices	MO.1.AIII.1 MO.1.AIII.2 MO.1.AIII.3 MO.1.AIII.4 MO.1.AIII.5 MO.1.AIII.6 MO.1.AIII.7 MO.1.AIII.8 MO.1.AIII.9	5 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests **ACT Interim Assessment 1: Week 9**	• Systems of linear equations in two variables • Solve linear systems by graphing, substitution, and elimination • Properties of matrices • Add, subtract, and multiply matrices • Solve systems of linear equations by matrix methods
Exponents, Polynomials, and Polynomial Functions	FOP.3.AIII.1 FOP.3.AIII.2 FOP.3.AIII.5 IF.4.AIII.2 SS.5.AIII.2 SS.5.AIII.3 SS.5.AIII.4	5 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests	• Compose functions • Verify, by composition, that one function is the inverse of another • Combine standard function types using arithmetic operations • Analyze and interpret polynomial functions numerically, graphically, and algebraically • Identify key characteristics such as intercepts, end behavior, domain and range, relative and absolute maximum and minimums, as well as intervals over which the function increases and decreases • Add, subtract, multiply, and divide functions

Factoring	Review of Algebra 2	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes **ACT Interim Assessment 2: Week 18**	• Greatest common factors • Factoring by grouping • Factoring trinomials • Special factoring • Solving equations by factoring
Rational Expressions and Functions	IF.4.AIII.1	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests	• Graph rational functions identifying zeros and asymptotes when suitable factorizations are available; show end behavior • Rational expressions and functions, multiply and divide • Adding and subtracting rational expressions • Complex fractions • Equations with rational expressions and graphs • Applications of rational expressions
Roots, Radicals, and Root Functions	CS.2.AIII.1 FOP.3.AIII.7 FOP.3.AIII.8 IF.4.AIII.3	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests	• Find the conjugate of a complex number • Graph transformations of square root, cube root, and cubic functions • Determine numerically, graphically, and algebraically if a function is even, odd, or neither • Analyze and interpret exponential functions numerically, graphically, and algebraically, identifying key characteristics such as asymptotes, end behavior, point discontinuities, intercepts, domain and range, etc. • Radical expressions and graphs • Rational exponents • Add, subtract, multiply, and divide radical expressions • Complex numbers
Quadratic Equations and Inequalities Additional Graphs of Functions and Relations	FOP.3.AIII.7 FOP.3.AIII.8	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests **ACT Interim Assessment 3: Week 27**	• Graph transformations of step functions • Determine numerically, graphically, and algebraically, if a function is even, odd, or neither • Square root property and completing the square • Quadratic formula • Quadratic and rational inequalities • Review of operations and composition • Graphs of quadratic equations • Symmetry; increasing and decreasing functions • Piecewise linear functions

Inverse, Exponential, and Logarithmic Functions Polynomial and Rational Functions	FOP.3.AIII.3 FOP.3.AIII.4 FOP.3.AIII.5 FOP.3.AIII.6 IF.4.AIII.4 IF.4.AIII.5 IF.4.AIII.6	5 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests **ACT Aspire: Week 32**	● Read values of an inverse function from a graph or a table, given that the function has an inverse ● Produce an invertible function from a non-invertible function by restricting the domain ● Combine standard function types using arithmetic operations ● Explore the relationship between exponents and logarithms; use this relationship to solve problems involving logarithms and exponents ● Analyze and interpret exponential and logarithmic functions ● Build functions to model real-world applications ● Synthetic division ● Zeros of polynomial functions ● Graphs and applications of polynomial and rational functions
Conic Sections and Nonlinear Systems	CS.2.AIII.2 CS.2.AIII.3 CS.2.AIII.4 CS.2.AIII.5	3 weeks	Daily Assignments Verbal Feedback Activities Class Discussions Quizzes Tests	● Derive the equations of ellipses and hyperbolas ● Complete the square in order to generate equivalent form of an equation for a conic section ● Identify, graph, write, and analyze equations of each type of conic section ● Solve systems of equations and inequalities involving conics and other types of equations, with and without technology ● The hyperbola and functions defined by radicals ● Nonlinear systems of equations