

## Unit 1

## Functions Unit

Duration		3 weeks	Assessed
Priority Standard(s)	A2.IF.A.1	Identify and interpret key characteristics of functions represented graphically, with tables, and with algebraic symbolism to solve problems.	
	A2.IF.A.2	Translate between equivalent forms of functions.	
Supporting Standard(s)	A2.BF.A.1	Create new functions by applying the four arithmetic operations and composition of functions (modifying the domain and range as necessary).	
	A1.IF.A.1	Understand that a function from one set (domain) to another set (range) assigns to each element of the domain exactly one element of the range. a. Represent a function using function notation. b. Understand that the graph of a function labeled $f$ is the set of all ordered pairs $(x,y)$ that satisfy the equation $y=f(x)$ .	
		A1.IF.A.2	Use function notation to evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of context.
	A.1.APR.A.1	Add, subtract, and multiply polynomials, and understand that polynomials follow the same general rules of arithmetic and are closed under these operations.	

**Unit 2**

**Absolute Value Functions Unit**

<b>Duration</b>	<b>2.5 weeks</b>		<b>Assessed</b>
<b>Priority Standard(s)</b>	A2.REI.A.1	Create and solve equations and inequalities, including those that involve absolute value.	
<b>Supporting Standard(s)</b>	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	
	A1.REI.C7	Graph the solution to a linear inequality in two variables.	

**Unit 3**

**Square Root Functions Unit**

Duration	3 weeks		Assessed
<b>Priority Standard(s)</b>	A2.NQ.A.3	Add, subtract, multiply, and divide radical expressions.	
	A2.NQ.A.4	Solve equations involving rational exponents and/or radicals and identify situations where extraneous solutions may result.	
<b>Supporting Standard(s)</b>	A2.BF.A.1	Create new functions by applying the four arithmetic operations and composition of functions (modifying the domain and range as necessary).	
	A2.BF.A.2	Derive inverses of functions, and compose the inverse with the original function to show that the functions are inverses.	
	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	

## Unit 4

## Quadratic Functions Unit

Duration	4 weeks		Assessed
Priority Standard(s)	A2.FM.A.1	Create functions and use them to solve applications of quadratic and exponential function modeling problems.	
	A1.REI.A.2	Solve problems involving quadratic equations a. Use the method of completing the square to create an equivalent quadratic equation b. Derive the quadratic formula. c. Analyze different methods of solving quadratic equations.	
Supporting Standard(s)	A1.SSE.A.3	Choose and produce equivalent forms of a quadratic expression or equations to reveal and explain properties. a. Find the zeros of a quadratic function by rewriting it in factored form. b. Find the maximum or minimum value of a quadratic function by completing the square.	
	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	

## Unit 5

## Complex Numbers Unit

Duration		1.5 weeks	Assessed
Priority Standard(s)	A2.NQ.B.5	Represent complex numbers.	
	A2.NQ.B.6	Add, subtract, multiply, and divide complex numbers.	
Supporting Standard(s)	A2.APR.A.1	Extend the knowledge of factoring to include factors with complex coefficients.	
	A2.NQ.B.7	Know and apply the Fundamental Theorem of Algebra.	

## Unit 6

## Higher-Index Radical Functions Unit

Duration		3 weeks	Assessed
Priority Standard(s)	A2.NQ.A.2	Create and recognize equivalent expressions involving radical and exponential forms of expressions.	
	A2.NQ.A.4	Solve equations involving rational exponents and/or radicals and identify situations where extraneous solutions may result.	
Supporting Standard(s)	A2.NQ.A.1	Extend the system of powers and roots to include rational exponents.	
	A2.NQ.A.3	Add, subtract, multiply, and divide radical expressions.	
	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	

## Unit 7

## Polynomial Functions Unit

Duration		4 weeks	Assessed
Priority Standard(s)	A2.APR.A.2	Understand the Remainder Theorem and use it to solve problems.	
	A2.APR.A.5	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to sketch the function defined by the polynomial.	
Supporting Standard(s)	A2.APR.A.1	Extend the knowledge of factoring to include factors with complex coefficients.	
	A2.APR.A.3	Find the least common multiple of two or more polynomials.	
	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	
	A1.APR.A.1	Add, subtract, and multiply polynomials, and understand that polynomials follow the same general rules of arithmetic and are closed under these operations.	

## Unit 8

**Exponential and Logarithmic Functions Unit**

<b>Duration</b>	<b>3.5 weeks</b>		<b>Assessed</b>
<b>Priority Standard(s)</b>	A2.SSE.A.2	Use the inverse relationship between exponents and logarithms to solve exponential and logarithmic equations.	
	A2.SSE.A.3	Use properties of logarithms to solve equations or find equivalent expressions.	
<b>Supporting Standard(s)</b>	A2.SSE.A.1	Develop the definition of logarithms based on properties of exponents.	
	A2.SSE.A.4	Understand why logarithmic scales are used, and use them to solve problems.	
	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	
	A2.FM.A.1	Create functions and use them to solve applications of quadratic and exponential function modeling problems.	



## Unit 9

**Rational Functions Unit**

<b>Duration</b>	<b>2.5 weeks</b>		<b>Assessed</b>
<b>Priority Standard(s)</b>	A2.APR.A.4	Add, subtract, multiply, and divide rational expressions.	
	A2.REI.A.2	Solve rational equations where numerators and denominators are polynomials and where extraneous solutions may result.	
<b>Supporting Standard(s)</b>	A2.BF.A.3	Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflection, and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions.	

**Unit 10**

**Probability and Statistics Unit**

<b>Duration</b>		<b>3 weeks</b>	<b>Assessed</b>
<b>Priority Standard(s)</b>	A2.DS.B.8	Know and use the characteristics of normally distributed data sets; predict what percentage of the data will be above or below a given value that is a multiple of standard deviations above or below the mean.	
	A2.DS.A.4	Use data from a sample to estimate characteristics of the population and recognize the meaning of the margin of error in these estimates.	
<b>Supporting Standard(s)</b>	A2.DS.B.9	Fit a data set to a distribution using its mean and standard deviation to determine whether the data is approximately normally distributed.	
	A2.DS.A.1	Analyze how random sampling could be used to make inferences about population parameters.	
	A1.DS.A.2	Use statistics to appropriate to the shape of the data distribution to compare center and spread of two or more different data sets.	
	A1.DS.A.3	Interpret differences in shape, center, and spread of two or more different data sets.	