

Algebra 1 Scope and Sequence 2017-2018

Unit 1: [Linear Equations and Inequalities](#)

Unit 2: [Introduction to Functions](#)

Unit 3: [Linear Functions](#)

Unit 4: [Systems of Equations and Inequalities](#)

Unit 5: [Exponents and Radicals](#)

Unit 6: [Polynomials](#)

Unit 7: [Quadratic Functions](#)

Unit 8: [Exponential Functions](#)

Unit 9: [Statistics](#)

Unit 10: [After the EOC for Middle School Courses](#)

[After the EOC for High School Courses](#)

Topics on Assessments:

Mid Qtr 1:

Week of September 5th

Variables and Expressions, Simple Equations, Rates, Ratios, and Proportions, Precision and Accuracy, and Literal Equations.

End of Qtr 1:

Week of October 9th

Linear Inequalities, Absolute Value Equations and Inequalities, Unit 2, Identifying Linear Functions, Rate of Change

Mid Qtr 2:

Week of November 6th

Direct Variation, Slope-Intercept Form, & Point-Slope Form, Transforming Linear Funcs, Solving Systems of Linear Eqs by Graphing & Sub. (Special Systems), Solving Systems of Linear Eqs by Elimination

Semester Exam:

Week of December 18th

Unit 1, Unit 2, Unit 3, Unit 4, and Unit 5

***High School:** This is only for students that did not receive an A for both the 1st & 2nd Qtr

***Middle School:** This is mandatory for ALL students to take.

Mid Qtr 3:

Week of February 5th

Unit 6

End of Qtr 3:

Week of March 12th

Unit 7 and Geometric Sequences

End of Qtr 4:

Week of March 12th

Unit 10 ***Middle School and High School will have a different assessment**

***If you stick to the lower number for each units pacing, you could fit everything in before the EOC.**

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	20-24 days
Domain(s):			Unit 1: Linear Equations and Inequalities		
Florida Math Standards (MAFS)					
Standard (Student Friendly):		Standard:	Standard:		
Variables and Expressions HMH Lesson 1-1 Suggested: 1-2 days		A-SSE.1.1	Interpret expressions that represent a quantity in terms of its context. ★ A. Interpret parts of an expression, such as terms, factors, and coefficients. B. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret as the product of $P(1+r)^n$ and a factor not depending on P .		
Simple Equations HMH Lessons 1-2, 1-3, 1-4, 1-5 Suggested: 4 days		A-REI.1.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.		
		A-CED.1.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions. ★		
		A-REI.2.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.		
Rates, Ratios, and Proportions HMH Lessons 1-8, 1-9 Suggested: 2 days		N-Q.1.1 *Supporting Standard	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. ★		
		A-REI.2.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.		
Precision and Accuracy HMH Lesson 1-10 Suggested: 1 day		N-Q.1.3 *Supporting Standard	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. ★		
Literal Equations HMH Lesson 1-6 Suggested: 2 days		A-CED.1.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law $V = IR$ to highlight resistance R . ★		
Linear Inequalities HMH Lesson 2-1, 2-2, 2-3, 2-4, 2-5, 2-6 Suggested: 8 days		A-REI.2.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.		
		A-CED.1.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions. ★		
Absolute Value Equations and Inequalities HMH Lessons 1-7, 2-7 Suggested: 2 days		A-CED.1.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions. ★		
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">How is an equation analogous to a balance?How can you check the reasonableness of your solution?			<ul style="list-style-type: none">Translate between words and algebraic expressions.Evaluate algebraic expressions.		

<ul style="list-style-type: none"> How do inequalities relate to equations? 	<ul style="list-style-type: none"> Write, solve, and model one and two step equations in one variable. Apply the Distributive Property. Write and solve multi-step equations with variables on both side of the equation. Validate solutions to equations. Write and solve proportions. Apply proportions to real-world problems. Use proportions to solve problems involving geometric figures. Use proportions and similar figures to measure objects indirectly. Analyze and compare measurements for precision and accuracy. Choose an appropriate level of accuracy when reporting measurements. Solve an equation in two or more variables for one of the variables. Write, solve, and graph solutions to multi-step inequalities with variables on both side of the inequality symbol. Solve and graph compound inequalities in one variable. Validate solutions to inequalities. Interpret and solve absolute value problems.
Essential Vocabulary:	Assessments:
<p>Variable, Constant, Numerical expression, Algebraic expression, Evaluate, Equation, Solution of an Equation, Identity, Ratio, Rate, Scale, Unit Rate, Conversion factor, Proportion, Cross Products, Scale Drawing, Scale Model, Dimensional Analysis, Similar , Corresponding Sides/Angles, Indirect Measurement, Scale Factor, Formula, Literal Equation, Inequality , Solution of an inequality, Compound inequality, Intersection, Union</p>	<ul style="list-style-type: none"> Engage New York CPALMS <ul style="list-style-type: none"> Formative Assessments for each Standard Interim Assessments PARCC Practice Test 2014 PARCC Practice Test 2017 <ul style="list-style-type: none"> Answer Key
Resources (with embedded links):	
<ul style="list-style-type: none"> HMH book lessons 1-1, 1-2, 1-3, 1-4, 1-5, 1-8, 1-9, 1-10, 1-6, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 1-7, and 2-7. Khan Academy: <ul style="list-style-type: none"> Introduction to Algebra One-Variable Linear Equations One-variable Linear Inequalities Algebra Nation: <ul style="list-style-type: none"> Section 1: Topics 1-4 Section 2: Topics 1-9 iXL Lessons: <ul style="list-style-type: none"> I.1-I.8 J.1-J.11 C.1-C.7 K.1-K.15 E.4 L.1-L.4 DD.1-DD.5 	

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	8-10 days
Domain(s):			Unit 2: Introduction to Functions		
Florida Math Standards (MAFS)					
Standard (Student Friendly):	Standard:	Standard:			
Graphing Relationships HMH Lesson 3-1 Suggested: 1 day	F-IF.2.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. ★			
Relations and Functions HMH Lesson 3-2 Suggested: 2 days	F-IF.1.1	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x . The graph of f is the graph of the equation $y = f(x)$.			
Writing Functions HMH Lesson 3-3 Suggested: 2 days	F-IF.1.2	Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.			
	F-BF.1.1	Write a function that describes a relationship between two quantities. ★ a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model. c. Compose functions. For example, if $T(y)$ is the temperature in the atmosphere as a function of height, and $h(t)$ is the height of a weather balloon as a function of time, then $T(h(t))$ is the temperature at the location of the weather balloon as a function of time.			
Graphing Functions HMH Lesson 3-4 Suggested: 3 days	F-IF.2.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function $h(n)$ gives the number of person-hours it takes to assemble engines in a factory, then the positive integers would be an appropriate domain for the function. ★			
Essential Questions:		Knowledge: Students will....			
How can functions be used to describe real-world situations, model predictions, and solve problems?		<ul style="list-style-type: none">● Match simple graphs with situations.● Graph a relationship.● Identify functions.● Find the domain and range of relations and functions. (Linear and Nonlinear)● Identify independent and dependent variables.● Write an equation in function notation and evaluate a function for a given input values.● Graph functions given a limited domain or of all real numbers.			
Essential Vocabulary:		Assessments:			
Continuous Graph , Discrete graph , Relation, Domain , Range , Function , Independent variable , Dependent variable , Function rule, Function notation		<ul style="list-style-type: none">● Engage New York● CPALMS<ul style="list-style-type: none">○ Formative Assessments for each Standard○ Interim Assessments● PARCC Practice Test 2014● PARCC Practice Test 2017			

- [Answer Key](#)

Resources (with embedded links):

- [HMH](#) book lessons 3-1, 3-2, 3-3, 3-4
- Khan Academy:
 - [Functions](#)
- Algebra Nation:
 - Section 3: Topics 1-11
 - Section 4: Topics 2-4
- iXL Lessons:
 - Q.1-Q.9
 - S.12

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	14 to 18 days
Domain(s):			Unit 3: Linear Functions		
Florida Math Standards (MAFS)					
Standard (Student Friendly):		Standard:	Standard:		
Identifying Linear Functions HMH Lesson 4-1 Suggested: 1 day		A-REI.4.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).		
Rate of Change HMH Lesson 4-3 Suggested: 1 days		F-IF.2.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. ★		
Direction Variation Slope-Intercept Form Point-Slope Form HMH Lessons 4-4, 4-5, 4-6, 4-7 Suggested: 8 days		A-CED.1.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. ★		
		F-LE.2.5	Interpret the parameters in a linear or exponential function in terms of a context. ★		
Slopes of Parallel and Perpendicular Lines HMH Lessons 4-8, 4-9 Suggested: 2 days *Will <u>NOT</u> be on Mid or End of Qtr Assessment.		G-GPE.2.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point). *Middle School needs to teach this because these students missed the pre-requisite in Pre-Algebra. Focus more on identifying if equations are parallel or perpendicular, not really writing equations. High School students should have some foundation and <u>could</u> skip.		
Transforming Linear Functions (EXT Absolute Value Functions) HMH Lesson 4-10 Suggested: 2 days		F-BF.2.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.		
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">Why is slope a foundational topic?What information does the equation of a line give you?			<ul style="list-style-type: none">Identify and graph linear functions that represent real-world situations and give their domain and range.Find slope by using the slope formula.Identify, write, and graph direct variation.Identify and graph linear equations using slope-intercept form.Compare and contrast different forms of equations based on their corresponding graph.Express an equation in a variety of forms (e.g. standard form, slope-intercept form, point-slope).Graph equations using different methods. (eg slope-intercept form, intercepts, etc.)Identify and graph parallel and perpendicular		

	<p>lines.</p> <ul style="list-style-type: none"> • Write equation to describe lines parallel or perpendicular to a given line. • Describe how changing slope and y-intercept affect the graph of a linear function.
Essential Vocabulary:	Assessments:
<p>Linear function, Linear equation, y-intercept, x-intercept, Rate of change, Rise, Run, Slope, Direct variation, Constant of variation, Slope-Intercept form, Point-slope form, Parallel lines, Perpendicular lines, Family of functions, Parent function, Transformation, Translation, Rotation, Reflection</p>	<ul style="list-style-type: none"> • Engage New York • CPALMS <ul style="list-style-type: none"> ◦ Formative Assessments for each Standard ◦ Interim Assessments • PARCC Practice Test 2014 • PARCC Practice Test 2017 <ul style="list-style-type: none"> ◦ Answer Key
Resources (with embedded links):	
<ul style="list-style-type: none"> • HMH book lessons 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-9, 4-10 • Khan Academy Lessons: <ul style="list-style-type: none"> ◦ Functions ◦ Linear Equations and Functions Word Problems • Algebra Nation: <ul style="list-style-type: none"> ◦ Section 3: Topics 1-2, 11 ◦ Section 4: Topics 2-4 ◦ Section 6: Topics 7-8 ◦ Section 7: Topic 7 • iXL Lessons: <ul style="list-style-type: none"> ◦ S.1-S.25 	

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	14 to 17 days
Domain(s):			Unit 4: Systems of Equations and Inequalities		
Florida Math Standards (MAFS)					
Standard (Student Friendly):	Standard:	Standard:			
Solving Systems of Linear Equations by Graphing and Substitution (Special Systems) HMH Lessons 5-1, 5-2, 5-4 Suggested: 8 days	A-REI.3.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.			
	A-CED.1.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. ★			
Solving Systems of Linear Equations by Elimination HMH Lesson 5-3 Suggested: 2 or 3 days	A-REI.3.5	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.			
	A-CED.1.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. ★			
Solving Linear Inequalities Systems of Linear Inequalities HMH Lessons 5-5, 5-6 Suggested: 4 or 5 days	A-REI.4.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.			
	A-CED.1.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. ★			
Essential Questions:		Knowledge: Students will....			
<ul style="list-style-type: none">What is the significance of a solutions to a system of equations?Can systems of equations model real-world situations?		<ul style="list-style-type: none">Solve linear system of equations using multiple methods (graphing, substitution, and elimination).Classify systems of linear equations and determine the number of solutions.Graph and solve linear system of inequalities in two variables.Validate solutions and judge the reasonability of the solution.			
Essential Vocabulary:		Assessments:			
System of linear equations, Solution of a system of linear equations, Consistent system, Inconsistent system, Independent system, Dependent system, Linear inequality, Solution of a linear inequality, System of linear inequalities, Solution of a system of linear inequalities		<ul style="list-style-type: none">Engage New YorkCPALMS<ul style="list-style-type: none">Formative Assessments for each StandardInterim AssessmentsPARCC Practice Test 2014PARCC Practice Test 2017<ul style="list-style-type: none">Answer Key			

Resources (with embedded links):

- [HMH](#) book lessons 5-1, 5-2, 5-3, 5-4, 5-5, 5-6
- Khan Academy Lessons:
 - [Systems of Linear Equations](#)
 - [Two-Variable Linear Inequalities](#)
- Algebra Nation:
 - Section 3: Topic 5
 - Section 4: Topics 2-10
- iXL Lessons:
 - U.1-U.15
 - T.5-T.6

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	9 to 11 days
Domain(s):			Unit 5: Exponents and Radicals		
Florida Math Standards (MAFS)					
Standard (Student Friendly):		Standard:	Standard:		
Exponents & Radicals HMH Lessons 6-1, 6-2 Suggested: 5 days		N-RN.1.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. <i>For example, we define to be the cube root of 5 because we want = to hold, so must equal 5.</i>		
Rewrite Radical & Exponent Expressions HMH Lessons 6-1, 6-2 Suggested: 2 days		N-RN.1.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.		
Sets, Elements, and Subsets Extension 6-5(Page 431) Suggested: 2 days		N-RN.2.3	Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.		
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">How do radical expressions expand mathematical possibilities?What is the connection between exponents and radicals?			<ul style="list-style-type: none">Simplify and evaluate using the properties of exponents (including radical exponents).Simplify and re-write radical expressions.Solve radical equations.Identify sets and operations under which they are closed.		
Essential Vocabulary:			Assessments:		
Base , Index , Radical , Radicand , Like/Unlike Radicals, Set, Element, Subset, Closure			<ul style="list-style-type: none">Engage New YorkCPALMS<ul style="list-style-type: none">Formative Assessments for each StandardInterim AssessmentsPARCC Practice Test 2014PARCC Practice Test 2017<ul style="list-style-type: none">Answer Key		
Resources (with embedded links):					
<ul style="list-style-type: none">The book doesn't completely cover this Unit. Make sure to pay close attention to what the standards state to cover them. Algebra Nation does a little better with this Unit.HMH book lessons 6-1, 6-2, Extension 6-5(Page 431)Khan Academy Lessons:<ul style="list-style-type: none">Expressions with Rational Exponents and RadicalsRational and irrational numberAlgebra Nation:<ul style="list-style-type: none">Section 1: Topics 6-8iXL Lessons:<ul style="list-style-type: none">EE.1-EE.7					

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	16-20 days
Domain(s):			Unit 6: Polynomials		
Florida Math Standards (MAFS)					
Standard (Student Friendly):		Standard:	Standard:		
Operations with Polynomials HMH Lessons 6-3, 6-4, 6-5, 6-6 Suggested: 8 days		A-APR.1.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.		
		A-SSE.1.1	Interpret expressions that represent a quantity in terms of its context. ★ A. Interpret parts of an expression, such as terms, factors, and coefficients. B. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret as the product of $P(1+r)^n$ and a factor not depending on P .		
Factoring Polynomials (Zeros, Maximums, Minimums) HMH Lessons 7-1, 7-2, 7-3, 7-4, 7-5, 7-6 Suggested: 8 to 10 days		A-SSE.1.1	Interpret expressions that represent a quantity in terms of its context. ★ A. Interpret parts of an expression, such as terms, factors, and coefficients. B. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret as the product of $P(1+r)^n$ and a factor not depending on P .		
		A-SSE.1.2	Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.		
		A-SSE.2.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. ★ a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions. For example the expression can be rewritten as \approx to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.		
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">Why do different approaches yield valid solutions?			<ul style="list-style-type: none">Assign appropriate nomenclature to a polynomial.Add and subtract polynomial expressions.Multiply polynomial expressions.Find special products of binomials.Write the prime factorization of numbersFactor polynomials by using GCF.Factor quadratic trinomials.Factor the difference of two squares and perfect-square trinomials.Choose an appropriate method for factoring a polynomials.Combine methods for factoring a polynomial.		
Essential Vocabulary:			Assessments:		

<p>Monomial, Degree of a monomial, Polynomial, Degree of a polynomial, Standard form of a polynomial, Leading coefficient, Quadratic, Cubic, Binomial, Trinomial, Perfect-square trinomial, Difference of two squares, Prime factorization, Greatest common factor (GCF)</p>	<ul style="list-style-type: none"> • Engage New York • CPALMS <ul style="list-style-type: none"> ◦ Formative Assessments for each Standard ◦ Interim Assessments • PARCC Practice Test 2014 • PARCC Practice Test 2017 <ul style="list-style-type: none"> ◦ Answer Key
Resources (with embedded links):	
<ul style="list-style-type: none"> • HMH book lessons 6-3, 6-4, 6-5, 6-6, 7-1, 7-2, 7-3, 7-4, 7-5, 7-6 • Khan Academy Lessons: <ul style="list-style-type: none"> ◦ Introduction to Polynomials ◦ Polynomials Factorization • Algebra Nation: <ul style="list-style-type: none"> ◦ Section 1: Topic 1 ◦ Section 3: Topics 3-6 ◦ Section 5: Topics 2,3, 10 ◦ Section 7: Topics 4-5 • iXL Lessons: <ul style="list-style-type: none"> ◦ Z.1-Z.10 ◦ AA.1-AA.8 	

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	13-20 days
Domain(s):			Unit 7: Quadratic Functions		
Florida Math Standards (MAFS)					
Standard (Student Friendly):	Standard:	Standard:			
Identifying, Graphing, and Characteristics of Quadratic Functions HMH Lessons 8-1, 8-2, 8-3, 8-4 Suggested: 5 to 6 days	F-IF.3.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★ A. Graph linear and quadratic functions and show intercepts, maxima, and minima. B. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. C. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. D. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. E. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude, and using phase shift.			
	F-IF.3.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = \dots$, $y = \dots$, $y = \dots$, $y = \dots$, and classify them as representing exponential growth or decay.			
Solving Quadratic Equations by Graphing HMH Lesson 8-5 Suggested: 1 day	A-REI.4.11	Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. ★			
Solving Quadratic Equations in One Variable HMH Lessons 8-6, 8-7, 8-8, 8-9 Suggested: 6 or 7 days	A-REI.2.4	Solve quadratic equations in one variable. A. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. B. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b .			
Polynomial Functions and Equations HMH Lesson 8-Extension pg. 600 Suggested: 1 day	A-APR.2.3	Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.			
Essential Questions:		Knowledge: Students will....			
<ul style="list-style-type: none">How can we determine the shape and tendency of a function using standard form?How are the real solutions of a quadratic equation related to the graph of the related quadratic function?		<ul style="list-style-type: none">Identify quadratic functions and determine whether they have a minimum or maximum.Graph a quadratic equation using critical characteristics and give its domain and range.Graph quadratic functions in standard form.Transform quadratic functions.			

	<ul style="list-style-type: none"> Find the axis of symmetry and the vertex of a parabola. Solve quadratic functions by graphing, use the quadratic formula, completing the square, finding zeros, and square roots. Determine the number of solutions using the discriminant of a quadratic function. Solve systems of equations in two variables in which one equation is linear and the other is quadratic.
Essential Vocabulary:	Assessments:
Quadratic function, Parabola , Vertex, Minimum, Maximum, Axis of a function, Axis of symmetry , Quadratic equation, Completing the square, Quadratic Formula, Discriminant, Nonlinear system of equations	<ul style="list-style-type: none"> Engage New York CPALMS <ul style="list-style-type: none"> Formative Assessments for each Standard Interim Assessments PARCC Practice Test 2014 PARCC Practice Test 2017 <ul style="list-style-type: none"> Answer Key
Resources (with embedded links):	
<ul style="list-style-type: none"> HMH book lessons 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, 8-8, 8-9, 8-10 Khan Academy Lessons: <ul style="list-style-type: none"> Quadratic Equations and Functions Algebra Nation: <ul style="list-style-type: none"> Section 3: Topics 3-6, 10 Section 4: Topic 6 Section 5: Topics 3-10 Section 6: Topics 2-6, 9 Section 7: Topics 4-5 Section 8: Topics 2-3 iXL Lessons: <ul style="list-style-type: none"> BB.1-BB.13 	

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	10-12 days
Domain(s):			Unit 8: Exponential Functions		
Florida Math Standards (MAFS)					
Standard (Student Friendly):		Standard:	Standard:		
Geometric Sequences HMH Lesson 9-1 Suggested: 2 days		F-IF.1.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.		
Exponential Functions HMH Lesson 9-2 Suggested: 2 days		F-IF.3.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. ★ A. Graph linear and quadratic functions and show intercepts, maxima, and minima. B. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. C. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. D. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. X E. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude, and using phase shift.		
		F-IF.3.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. b. Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as $y = \dots$, $y = \dots$, $y = \dots$, $y = \dots$, and classify them as representing exponential growth or decay.		
Exponential Growth and Decay HMH Lesson 9-3 Suggested: 2 days		F-LE.1.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table). ★		
		F-LE.2.5	Interpret the parameters in a linear or exponential function in terms of a context. ★		
Linear, Quadratic, and Exponential Models HMH Lesson 9-4 Suggested: 2 days		F-LE.1.1	Distinguish between situations that can be modeled with linear functions and with exponential functions. ★ A. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. B. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. C. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.		
Compare Functions HMH Lesson 9-5 Suggested: 2 days		F-IF.3.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.		
		F-LE.1.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. ★		
Essential Questions:			Knowledge: Students will....		

<ul style="list-style-type: none"> What are the applications of exponential numbers? 	<ul style="list-style-type: none"> Recognize and extend geometric sequences. Find the nth term of a geometric sequence. Evaluate exponential functions. Identify and graph exponential functions. Solve problems involving exponential growth and decay. Compare linear, quadratic, and exponential models. Given a set of data, decide which type of function models the data and write an equation to describe the function. Compare functions in different representations. Estimate and compare rates of change.
Essential Vocabulary:	Assessments:
Geometric Sequence, Common ratio, Exponential function, Exponential growth, Compound interest, Exponential decay, half-life, Average rate of change	<ul style="list-style-type: none"> Engage New York CPALMS <ul style="list-style-type: none"> Formative Assessments for each Standard Interim Assessments PARCC Practice Test 2014 PARCC Practice Test 2017 <ul style="list-style-type: none"> Answer Key
Resources (with embedded links):	
<ul style="list-style-type: none"> HMH book lessons 9-1, 9-2, 9-3, 9-4, 9-5 Khan Academy Lessons: <ul style="list-style-type: none"> Sequences Introductions to Exponential Functions Algebra Nation: <ul style="list-style-type: none"> Section 3: Topic 10 Section 4: Topics 1-6, 9 Section 5: Topic 10 Section 6: Topics 1-6 Section 7: Topics 1-9 Section 8: Topics 2-3 iXL Lessons: <ul style="list-style-type: none"> CC.1-CC.15 P.3 	

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	14-18 days
Domain(s):			Unit 9: Statistics		
Florida Math Standards (MAFS)					
Standard (Student Friendly):	Standard:	Standard:			
Dot Plots, Histograms, and Box Plots HMH Lessons 10-1, 10-2, Extension 10-3 Suggested: 2 days	S-ID.1.1	Represent data with plots on the real number line (dot plots, histograms, and box plots). ★			
Data Distributions HMH Lesson Extension 10-3 Suggested: 4 days	S-ID.1.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. ★			
	S-ID.1.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). ★			
Misleading Graphs and Statistics HMH Lesson 10-4 Suggested: 1 day	S-ID.2.6	Evaluate reports based on data. ★			
Two-Way Frequency Tables HMH Lesson 10-2 Suggested: 3 days	S-ID.2.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies.) Recognize possible associations and trends in the data.			
Scatter Plots, Trend Lines, and Line of Best Fit HMH Lesson 3-5 Suggested: 2 days	S-ID.2.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. ★ A. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, and exponential models. B. Informally assess the fit of a function by plotting and analyzing residuals. C. Fit a linear function for a scatter plot that suggests a linear association.			
	S-ID.3.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. ★			
	S-ID.3.8	Compute (using technology) and interpret the correlation coefficient of a linear fit. ★			
	S-ID.3.9	Distinguish between correlation and causation. ★			
Arithmetic Sequences HMH Lesson 3-6 Suggested: 2 days	F-IF.1.3	Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by $f(0) = f(1) = 1$, $f(n+1) = f(n) + f(n-1)$ for $n \geq 1$.			
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">How can collecting and analyzing data help you make decisions or predictions?How can you make and interpret different			<ul style="list-style-type: none">Represent data using a dot plot, a histogram, or a box plot.Identify similarities and differences in		

representations of data?	<p>shape, center, and spread when given two or more data sets.</p> <ul style="list-style-type: none"> • Predict the effect that an outlier will have on the shape, center, and spread of a data set. • Interpret similarities and differences in shape, center, and spread when given two or more data sets within the real-world context given. • Use their understanding of normal distribution and the empirical rule to answer questions about data sets. • Create or complete a two-way frequency table to summarize categorical data. • Determine if associations/trends are appropriate for the data. • Interpret data displayed in a two-way frequency table. • Calculate joint, marginal, and conditional relative frequencies. • Represent data on a scatter plot. • Create a residual plot and determine whether a function is an appropriate fit for the data. • Determine the fit of a function by analyzing the correlation coefficient. • Recognize and extend an arithmetic sequence. • Find a given term of an arithmetic sequence.
Essential Vocabulary:	Assessments:
Bivariate, Box-and-whisker plot, Frequency, Histogram, Interquartile Range IQR, Measure of central tendency, outlier, population quartile, Random of a set of data, Arithmetic sequence, common difference	<ul style="list-style-type: none"> • Engage New York • CPALMS <ul style="list-style-type: none"> ◦ Formative Assessments for each Standard ◦ Interim Assessments • PARCC Practice Test 2014 • PARCC Practice Test 2017 <ul style="list-style-type: none"> ◦ Answer Key
Resources (with embedded links):	
<ul style="list-style-type: none"> • The textbook doesn't do a great job for this Unit, Algebra Nation does a much better job. • HMH book lessons 10-1, 10-2, Extension 10-3, 10-4, 3-5, 3-6 • Khan Academy Lessons: <ul style="list-style-type: none"> ◦ Sequences • Algebra Nation: <ul style="list-style-type: none"> ◦ Section 4: Topics 2-4 ◦ Section 9: Topics 1-9 ◦ Section 10: Topics 1-7 • iXL Lessons: <ul style="list-style-type: none"> ◦ N.1-N.5 ◦ KK.1-KK.15 ◦ P.2 	

After the EOC for Middle School Courses

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	
Domain(s):			Unit 10: After the EOC/Geometry Pre-reqs		
Florida Math Standards (MAFS)					
Standard (Student Friendly):	Standard:	Standard:			
Pythagorean Theorem & its Converse	8.G.2.6	Explain a proof of the Pythagorean Theorem and its converse.			
Application of the Pythagorean Theorem	8.G.2.7	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.			
	8.G.2.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.			
Angle Relationships in Parallel Lines Angle Relationships in Triangles	8.G.1.5	<i>Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i>			
Volume	8.G.3.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.			
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">What is the relationship among the lengths of the sides of a right triangle?How do you explain a proof of the Pythagorean Theorem and its converse?How can the formulas for the volume of cones, cylinders, and spheres be used in real-world and mathematical problems?How are parallel lines and transversals used to determine angle relationships?			<ul style="list-style-type: none">Use the Pythagorean Theorem to determine if the given triangle is a right triangle.Explain a proof of the Pythagorean Theorem and its Converse.Apply the Pythagorean Theorem to find an unknown side length of a right triangle.Draw a diagram and use the Pythagorean Theorem to solve real world problems involving right triangles.Draw a diagram to find right triangles in a three-dimensional figure and use the Pythagorean Theorem to calculate various dimensions.Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world problems in two and three dimensions.Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.Informally prove that the sum of any triangle's interior angles will be the same measure as a straight angle (180 degrees).		

	<ul style="list-style-type: none"> • Informally prove that the sum of any polygon's exterior angles will be 360 degrees. • Make conjectures regarding the relationships and measurements of the angles created when two parallel lines are cut by a transversal. • Use exploration and deductive reasoning to determine relationships that exists between interior and exterior sums of triangles. • Use exploration and deductive reasoning to determine relationships that exists between angles created when parallel lines are cut by a transversal. • Use exploration and deductive reasoning to determine relationships that exists between the angle-angle criterion for similarity of triangles. • State the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. • Describe the similarity between finding the volume of a cylinder and the volume of a right prism. • Solve real world problems involving the volume of cylinders, cones, and spheres.
Essential Vocabulary:	Assessments:
Pythagorean Theorem, Converse of the Pythagorean Theorem, Right Triangle, Leg, Hypotenuse, Parallel Lines, Transversal, Alternate Interior Angles, Alternate Exterior Angles, Same-Side Interior Angles, Same-Side Exterior Angles, Congruent Angles, Supplementary Angles, Triangle Sum Theorem, Exterior Angle Sum Theorem	<ul style="list-style-type: none"> • Engage New York • CPALMS <ul style="list-style-type: none"> ◦ Formative Assessments for each Standard ◦ Interim Assessments
Resources (with embedded links):	
<ul style="list-style-type: none"> • Pre-Algebra Test Item Specs • Khan Academy Lessons: <ul style="list-style-type: none"> ◦ Geometry • iXL Lessons: 	

After the EOC for High School Courses

Content Area:	Mathematics	Course:	Algebra 1	Pacing:	
Domain(s):			Unit 10: After the EOC/Geometry Pre-reqs		
Florida Math Standards (MAFS)					
Standard (Student Friendly):		Standard:	Standard:		
Operations with Radicals		N-RN.1.1	Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. <i>For example, we define to be the cube root of 5 because we want = to hold, so must equal 5.</i>		
		N-RN.1.2	Rewrite expressions involving radicals and rational exponents using the properties of exponents.		
Equations with Variables on Both Sides		A-REI.1.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.		
		A-CED.1.1	Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions. ★		
		A-REI.2.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.		
Essential Questions:			Knowledge: Students will....		
<ul style="list-style-type: none">What rules must be followed with performing operations with radicals?What differs between solving an equation with a variable on one side and solving an equation with variables on both sides?			<ul style="list-style-type: none">Simplify and evaluate using the properties of exponents (including radical exponents).Simplify and re-write radical expressions.Solve radical equations.Rationalize the denominator when performing operations with radicals.Solve equations involving operations with radicalsSolve equations with variables on both sides will accuracy and fluency, including those using the distributive propertyValidate solutions to equations.		
Essential Vocabulary:			Assessments:		
Base , Index , Radical , Radicand , Like/Unlike Radicals, Rationalize the denominator, Variable , Constant , Numerical expression, Algebraic expression , Evaluate , Equation , Solution of an Equation			<ul style="list-style-type: none">Engage New YorkCPALMS<ul style="list-style-type: none">Formative Assessments for each StandardInterim Assessments		
Resources (with embedded links):					
<ul style="list-style-type: none">					

