



## Algebra 2 Pacing Guide 2020-2021

4.0 Target	3.0 Target	2.0 Target	Pacing & Unit Dates
<b>Unit #1: Quadratic Relations and Equations</b>			
N/A	<b>SHS.LT.Q.1: Apply transformations to multiple representations of functions.</b>	Identify transformations of different functions.	<b>18 DAYS</b> <b>Unit Dates:</b> <b>August 15 - September 16</b> <b>Benchmark Dates:</b> <b>September 9 - 16</b> <b>Trimester #1</b>
N/A	<b>SHS.LT.Q.2: Describe, in words and/or function notation, the transformation from one function to another in terms of vertical shifts/shrinks/stretches and horizontal shifts/shrinks/stretches.</b>	Partially describe the transformation from one function to another in terms of vertical shifts/shrinks/stretches and horizontal shifts/shrinks/stretches.	
Identify and apply interval notation to describe when a polynomial function is increasing, decreasing, positive, and negative.	<b>SHS.LT.Q.3: Determine when a polynomial function is increasing, decreasing, positive, and negative using interval notation.</b>	Identify the interval when a polynomial function is increasing, decreasing, positive, and negative.	
Use knowledge of the quadratic formula to identify complex solutions when simplifying an algebraic expression.	<b>SHS.LT.Q.4: Solve quadratic equations and inequalities using zero-product property, quadratic formula, and square root method.</b>	Identify and use various methods to solve quadratic equations and inequalities.	
N/A	<b>SHS.LT.Q.5: Graph quadratic functions, identifying zeros when suitable factorizations are available, and showing end behavior.</b>	Graph vertex, zeroes, or end behavior of quadratic functions.	
N/A	<b>SHS.LT.Q.6: Apply graphical, tabular, and algebraic relationships between a function (linear, quadratic, square root and piecewise) and its inverse.</b>	Understand the graphical, tabular, or algebraic relationship between a linear function and its inverse.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of linear functions.</b>	Demonstrate ability to partially retain content knowledge of linear functions.	
N/A	<b>SHS.LT.Q.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #2: Polynomial Functions and Equations</b>			
N/A	<b>SHS.LT.PFE.1: Build polynomial functions from linear and quadratic functions.</b>	Write a polynomial, linear, or quadratic function.	<b>21 DAYS</b> <b>Unit Dates:</b> <b>September 17 - October 23</b> <b>Benchmark Dates:</b> <b>October 16 - 23</b> <b>Trimester #1</b>
Solve real world application problem using knowledge of dividing polynomials.	<b>SHS.LT.PFE.2: Factor polynomials using various factor techniques and divide polynomials.</b>	Factoring and dividing polynomials using one technique.	
Solve abstract polynomial equations and inequalities of unknown lengths of geometric figures.	<b>SHS.LT.PFE.3: Solve polynomial equations and inequalities using zero-product property, quadratic formula, and square root method.</b>	Solve basic polynomial equations and inequalities.	
Compare two polynomial functions in different forms and determine key differences.	<b>SHS.LT.PFE.4: Interpret key features of polynomial functions including zeros and end behavior.</b>	Interpret key features when given possible answers.	
N/A	<b>SHS.LT.PFE.5: Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.</b>	Graph polynomial functions when given zeros and key features.	
Write equations of polynomial functions given imaginary and rational roots.	<b>SHS.LT.PFE.6: Write equations of polynomial functions.</b>	Write equations of polynomial functions given a graph with real zeros.	
N/A	<b>SHS.LT.PFE.7: Use technology to analyze key features of polynomial functions.</b>	Use technology to find key features of polynomial functions.	
N/A	<b>SHS.LT.PFE.8: Perform the operations of addition, subtraction, and multiplication on complex numbers.</b>	Add, subtract, or multiply basic complex numbers.	
Use technology to generate the appropriate regression model for a complex situation and to make predictions.	<b>SHS.LT.PFE.9: Use technology to generate the appropriate regression model and to make predictions.</b>	Use technology to generate regression equations.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of transformations of quadratic functions.</b>	Demonstrate ability to partially retain content knowledge of transformations of quadratic functions.	
N/A	<b>SHS.LT.PFE.P.10: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #3: Rational Functions and Equations</b>			
Perform operations on rational expression when solving measures of geometric figures.	<b>SHS.LT.RFE.1: Add, subtract, multiply, and divide rational expressions.</b>	Add, subtract, multiply, or divide rational expressions.	<b>16 DAYS</b> <b>Unit Dates:</b>
Create and solve rational equations when given a real world task.	<b>SHS.LT.RFE.2: Create rational equations in one variable, and use them to solve problems.</b>	Create rational expressions in one variable.	
N/A	<b>SHS.LT.RFE.3: Identify key features of rational functions, including zeros, asymptotes, point(s) of discontinuity, domain.</b>	Identify basic key features of rational functions.	
N/A	<b>SHS.LT.RFE.4: Graph transformations of the function <math>f(x) = 1/x</math> using vertical and horizontal stretches and shifts.</b>	Match a given graph to a rational function equation.	

N/A	<b>SHS.LT.RFE.5: Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.</b>	Graph rational functions in quotient form.	<b>October 24 - November 14</b>  <b>Benchmark Dates:</b> <b>November 7 - November 14</b>  <b>Trimester #2</b>
N/A	<b>SHS.LT.RFE.6: Rewrite rational functions in different forms.</b>	Rewrite rational functions in one form.	
Solve and analyze an application problem involving rational equations.	<b>SHS.LT.RFE.7: Solve rational equations (and exposure to inequalities) and identify extraneous solutions.</b>	Solve basic rational equations.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of polyomial functions.</b>	Demonstrate ability to partially retain content knowledge of polyomial functions.	
N/A	<b>SHS.LT.RFE.P.8: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #4: Radical Functions and Equations</b>			
Apply knowledge of rewriting expressions involving radical and rational exponents in a complex problem.	<b>SHS.LT.RDFE.1: Rewrite expressions involving radicals and rational exponents using the properties of exponents.</b>	Rewrite basic expressions involving radicals or rational exponents.	<b>14 DAYS</b>  <b>Unit Dates:</b> <b>November 15 - December 13</b>  <b>Benchmark Dates:</b> <b>November 7 - December 13</b>  <b>Trimester #2</b>
N/A	<b>SHS.LT.RDFE.2: Identify key features of square root and cube root functions, including points of inflection, endpoints, domain, and range.</b>	Identify some key features of square root and cube root functions.	
N/A	<b>SHS.LT.RDFE.3: Graph square root and cube root functions, showing key features (points of inflection, endpoints, domain, and range.)</b>	Graph simple square root and cube root functions.	
Write an equation of a square root and cube root function given a geometric figure.	<b>SHS.LT.RDFE.4: Write equations of square root and cube root functions.</b>	Write equations of square root or cube root functions.	
Prove equivalent square root equations abstractly.	<b>SHS.LT.RDFE.5: Solve square root and cube root equations and inequalities and identify extraneous solutions.</b>	Solve square root and cube root functions.	
N/A	<b>SHS.LT.RDFE.6: Write equations for the inverse of square root and cube root functions.</b>	Develop steps in writing equations for the inverse of square root and cube root functions.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of rational functions.</b>	Demonstrate ability to partially retain content knowledge of rational functions.	
N/A	<b>SHS.LT.RDFE.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #5: Exponential Functions and Equations</b>			
Create an exponential equation and use it to solve problems comparing interest as a function of time.	<b>SHS.LT.EFE.1: Create exponential equations and inequalities and use them to solve problems. (including compound and continuous interest formulas).</b>	Solve exponential equations when given.	<b>9 DAYS</b>  <b>Unit Dates:</b> <b>December 14 - January 10</b>  <b>Benchmark Dates:</b> <b>January 6 - January 10</b>  <b>Trimester #2</b>
Use applied interdisciplinary knowledge regarding half life to interpret expressions for exponential functions.	<b>SHS.LT.EFE.2: Use properties of exponents to interpret expressions for exponential functions.</b>	Use some properties of exponents to interpret expressions.	
N/A	<b>SHS.LT.EFE.3: Identify key features of graphs and tables of exponential, including zeros, asymptotes, domain, and range.</b>	Identify some key features of graphs of exponential functions.	
N/A	<b>SHS.LT.EFE.4: Graph exponential functions, including key features (zeros, end behavior, asymptotes).</b>	Graph exponential including some key features.	
Evaluate, compare, and contrast exponential functions.	<b>SHS.LT.EFE.5: Evaluate exponential expressions.</b>	Evaluate basic exponential expressions.	
Solve complex exponential equations.	<b>SHS.LT.EFE.6: Solve exponential equations.</b>	Solve exponential equations without extraneous solutions.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of radical functions.</b>	Demonstrate ability to partially retain content knowledge of radical functions.	
N/A	<b>SHS.LT.EFE.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #6: Exponential and Logarithmic Functions and Equations</b>			
Create an exponential equation and use it to solve problems comparing interest as a function of time.	<b>SHS.LT.ELFE.1: Create exponential equations and inequalities and use them to solve problems (including compound and continuous interest formulas).</b>	Solve exponential equations when given.	<b>11 DAYS</b>  <b>Unit Dates:</b> <b>January 11 - January 29</b>  <b>Benchmark Dates:</b> <b>January 22 - January 29</b>  <b>Trimester #2</b>
N/A	<b>SHS.LT.ELFE.2: Identify key features of graphs and tables of exponential and logarithmic functions, including zeros, asymptotes, domain, and range.</b>	Identify some key features of graphs of exponential and logarithmic functions.	
N/A	<b>SHS.LT.ELFE.3: Graph exponential and logarithmic functions, including key features (zeros, end behavior, asymptotes).</b>	Graph exponential and logarithmic functions including some key features.	
Evaluate, compare, and contrast exponential and logarithmic functions.	<b>SHS.LT.ELFE.4: Evaluate exponential and logarithmic expressions.</b>	Evaluate basic exponential and logarithmic expressions.	
N/A	<b>SHS.LT.ELFE.5: Write equations for the inverses of exponential and logarithmic functions.</b>	Consistently set up equations to find inverses.	
Apply multiple properties of logarithms to simplify complex expressions.	<b>SHS.LT.ELFE.6: Apply properties of logarithms.</b>	Choose expressions that represent properties of logarithms.	
N/A	<b>SHS.LT.ELFE.7: Solve exponential and logarithmic equations.</b>	Solve exponential and logarithmic equations without extraneous solutions.	

N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of transformations of quadratic functions.</b>	Demonstrate ability to partially retain content knowledge of transformations of quadratic functions.	
N/A	<b>SHS.LT.ELFE.P.8: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #7: Sequences and Series</b>			
N/A	<b>SHS.LT.SS.1: Recognize that sequences are functions whose domain is a subset of integers</b>	Recognize that sequences are functions in basic arithmetic functions.	<b>12 DAYS</b>  <b>Unit Dates:</b> <b>January 30 - February 14</b>  <b>Benchmark Dates:</b> <b>February 7 - February 14</b>  <b>Trimester #2</b>
Find explicit and recursive rules when given a complex real-world situation.	<b>SHS.LT.SS.2: Find explicit and recursive rules, and find terms for arithmetic sequences.</b>	Find explicit or recursive rules but not in a real-world context.	
N/A	<b>SHS.LT.SS.3: Find explicit and recursive rules, and find terms for geometric sequences.</b>	Find explicit or recursive rules but not in a real-world context.	
Find sums of complex arithmetic series when given a real-world situation.	<b>SHS.LT.SS.4: Find sums of arithmetic series.</b>	Find sums of simple arithmetic series.	
N/A	<b>SHS.LT.SS.5: Find sums of geometric series.</b>	Find sums of simple geometric series.	
N/A	<b>SHS.LT.SS.6: Determine if an infinite series converges or diverges, and evaluate.</b>	Determine if an infinite series converges or diverges.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of exponential and logarithmic functions.</b>	Demonstrate ability to partially retain content knowledge of exponential and logarithmic functions.	
N/A	<b>SHS.LT.SS.P.7: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #8: Statistics and the Normal Distribution</b>			
N/A	<b>SHS.LT.SND.1: Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.</b>	Recognize the differences among sample surveys, experiments, and observational studies.	<b>12 DAYS</b>  <b>Unit Dates:</b> <b>February 15 - March 6</b>  <b>Benchmark Dates:</b> <b>March 3 - March 6</b>  <b>Trimester #3</b>
N/A	<b>SHS.LT.SND.2: Understand statistics as a process for making inferences about population parameters based on a random sample from that population.</b>	Understand statistics as a process for making inferences about some population parameters (less than, more than, OR between).	
N/A	<b>SHS.LT.SND.3: Decide if a specified model is consistent with results from a given data-generating process.</b>	Produce a conclusion from a data-generating process.	
Use confidence interval to work backwards to determine the sample size	<b>SHS.LT.SND.4: Use data from a sample survey to estimate a population mean or proportion; develop an understanding of margin of error through the use of simulation models for random sampling.</b>	Use data from a sample survey to estimate a population mean or proportion.	
Use the mean and standard deviation of data set to solve for the probability of a population	<b>SHS.LT.SND.5: Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages.</b>	Choose the correct mean and standard deviation of a data set to fit a normal distribution.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of sequences and series.</b>	Demonstrate ability to partially retain content knowledge of sequences and series.	
N/A	<b>SHS.LT.SS.P.6: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #9: Unit Circle and Trigonometric Functions</b>			
N/A	<b>SHS.LT.TF.1: Sketch angles and coterminal angles in standard position showing direction.</b>	Sketch basic angles and coterminal angles in standard position showing direction.	<b>10 DAYS</b>  <b>Unit Test:</b> <b>March 6 - April 1</b>  <b>Benchmark Dates:</b> <b>March 19 - April 1</b>  <b>Trimester #3</b>
N/A	<b>SHS.LT.TF.2: Locate ordered pairs on the unit circle using radian and degree measure for angles with reference angles of <math>\pi/6</math>, <math>\pi/4</math>, <math>\pi/3</math>, <math>30^\circ</math>, <math>45^\circ</math>, <math>60^\circ</math> and quadrantal angles.</b>	Locate ordered pairs on the unit circle using radian or degree measure for angles with reference angles of $\pi/6$ , $\pi/4$ , $\pi/3$ , $30^\circ$ , $45^\circ$ , $60^\circ$ and quadrantal angles.	
N/A	<b>SHS.LT.TF.3: Evaluate trigonometric functions for angles with reference angles of <math>\pi/6</math>, <math>\pi/4</math>, <math>\pi/3</math>, 30 degrees, 45 degrees, 60 degrees, and quadrantal angles.</b>	Choose the correct features for a given trigonometric function.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of statistics.</b>	Demonstrate ability to partially retain content knowledge of statistics.	
N/A	<b>SHS.LT.TF.P4: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	
<b>Unit #10: Graphs of Trigonometric Functions</b>			
N/A	<b>SHS.LT.GTF.1: To evaluate trigonometric functions of any angle given another trigonometric value of that same angle.</b>	Demonstrate the ability to evaluate trigonometric functions of one angle to another given angle of the same value	<b>13 DAYS</b>  <b>Unit Test:</b> <b>April 2 - April 8</b>  <b>Benchmark Dates:</b> <b>April 2 - April 8</b>
N/A	<b>SHS.LT.GTF.2: Identify key features of graphs of sine and cosine functions, including amplitude, period, phase shift, vertical shift, domain, and range.</b>	Identify key features of graphs of sine or cosine functions, including amplitude, period, phase shift, vertical shift, domain, or range.	
N/A	<b>SHS.LT.GTF.3: Graph sine and cosine functions identifying amplitude, period, phase shift, and vertical shift.</b>	Identify key features of graphs of sine and cosine functions.	
N/A	<b>SHS.LT.GTF.4: Write equations of sine and cosine functions.</b>	Choose the correct equation of sine and cosine functions.	

April 21 - April 28

Trimester #3

Write an equation of a trig function that represents a complex real-world phenomena including all key features.	<b>SHS.LT.GTF.5: Use sine and cosine functions to model real-world phenomenon.</b>	Use sine or cosine functions to model real-world phenomenon.
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of trigonometric functions.</b>	Demonstrate ability to partially retain content knowledge of trigonometric functions.
N/A	<b>SHS.LT.GTF.P.6: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.

**Unit #11: Probability Concepts and Independence**

Interpret and solve the probability of a complex geometric figure.	<b>SHS.LT.P.1: Create, analyze, and interpret diagrams, and use them to determine probabilities, including conditional probabilities.</b>	Create, analyze, or interpret diagrams, and use them to determine probabilities.	<p><b>13 DAYS</b></p> <p><b>Unit Dates:</b> April 29 - May 29</p> <p><b>Benchmark Dates:</b> May 14 - May 22</p> <p><b>Trimester #3</b></p>
Calculate complex probabilities.	<b>SHS.LT.P.2: Apply permutations and combinations to calculate probabilities.</b>	Apply simple permutations or combinations to calculate probabilities.	
N/A	<b>SHS.LT.P.3: Use probability to determine and justify if two events are independent.</b>	Use probability to determine if two events are independent.	
N/A	<b>SHS.LT.0: Demonstrate ability to retain content knowledge of graphing trigonometric functions.</b>	Demonstrate ability to partially retain content knowledge of graphing trigonometric functions.	
N/A	<b>SHS.LT.P.P.4: Demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.</b>	Partially demonstrates ability to be precise when solving problems and/or when communicating mathematical thinking.	