

Algebra II Scope and Sequence Aligned to SATEC Resources—DRAFT (4/06)

Quadratic Functions (7–8 weeks)

This unit includes equations, inequalities, and systems. There should be an emphasis on the connection between the 5 representations: graph, table, problem situation, pictorial, symbolic. Within this unit, connections to foundations for functions and how all functions have same traits should be made.

Objective	TEKS	TEKS Clarification	TAKS Objective	SATEC Lesson / Resources ¹	SATEC Correlated Assessments	Dana Center Assessments	Resources / Text
Identify and sketch the quadratic function.	2A.4A	Revisit data activity from Foundations for Functions and reinforce common function characteristics.	Objectives 1, 2, 5	Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply		Introduction to Quadratics
Describe limitations of domain and range of quadratic functions.	2A.6A	Revisit data to extend the discussion of quadratic functions to include writing equations, graphing and translating functions, and analyzing parameter changes in the context of situations; look at the roots, solutions, and zeroes and connect them to x-intercepts, discuss concavity, min/max, and from this write a function rule when given the vertex and a point.		Over Da Watta!	Over Da Watta!: Reflect and Apply		
Recognize a situation that can be modeled by a quadratic function and relate representations of quadratic functions.	2A.6B	Solve quadratic equations using the most efficient algebraic method (factoring and quadratic formula).		Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply		
Sketch the parent quadratic function, investigate, describe and predict the effects of parameter changes in applied and mathematical situations.	2A.7B, 2A.4B	Emphasize the connection		Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply Changing Lots		Algebra II Institute Part I: 1.1, 2.1 Algebra II Institute Part A: II 1.1
Use the method of completing	2A.5E						

¹ The SATEC Resources and Coordinated Assessments are available on the Mathematics TEKS Toolkit at www.mathtekstoolkit.org/instruction/scope/alg2scope/satec.php. The Dana Center Assessments are on the toolkit at www.mathtekstoolkit.org/instruction/alg2.php.

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the square to write a quadratic function in the form $y = a(x-h)^2 + k$.		to between min/max and domain/range.					
Connect between the two forms of a quadratic function. $y = ax^2 + bx + c$ and $y = a(x-h)^2 + k$.	2A.7A	Discuss the relationship of min/max with respect to concavity. Add, subtract, and multiply complex numbers for the purpose of determining a quadratic function from its roots.		Introduction to Quadratics Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply	Sink Hole!	
Analyze situations and formulate quadratic equations or inequalities to model the problem.	2A.8A	Write quadratic functions from roots, a graph, tables, or by completing the square. Determine the independent and dependent variables and analyze the possible domain and range values appropriate for the given situation.		Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply	Fixed Area Fixed Perimeter	
Analyze the possible domain and range values for a quadratic function and for a problem situation.	2A.6A, 2A.1A	Use technology such as graphing calculators and/or computers to link multiple representations.		Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply	Comparing Volumes	
Solve quadratic equations and inequalities using algebraic methods (factoring and quadratic formula) and technology.	2A.8B, 2A.8D			Mathematics in the Shadows	Mathematics in the Shadows: Reflect and Apply Discriminant Exploration	Triangle Problem Motion Under Gravity Toricelli's Law	
Compare and translate between algebraic and graphical solutions to quadratic equations.	2A.8C			Over Da Watta!	Over Da Watta!: Reflect and Apply Changing Lots Discriminant Exploration	Doing What Mathematicians Do Parabolic Path	
Use complex numbers to	2A.2B				Discriminant		

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describe the roots of a quadratic equation.		
Determine a quadratic function from its roots or its graph.	2A.6C	
For a given application, identify the mathematical domain and range and the domain and range for the situation.	2A.1A	
Collect and organize data, make scatterplots, fit the curve to a function, interpret the results, and model, predict, and make decisions.	2A.1B	
Recognize that functions can be denoted in many forms: $y =$, $d =$, $y =$, and $f(x) =$ and determine which form is the most appropriate for a given situation.	(moved to Alg 1)	
Perceive functions and equations as means for analyzing and understanding relationships and as a tool for expressing generalizations.	BU A3	
Use a variety of representations, tools, and technology and model situations to solve problems.	BU A5	

	Exploration		
Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply		Introduction to Quadratics
Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply		
Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply		
			Introduction to Quadratics
Over Da Watta!	Over Da Watta!: Reflect and Apply Changing Lots		

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Use math processes throughout, including problem solving, computation, communication, connections, reasoning, multiple representations, modeling, and justification.	BU A6			Over Da Watta! Mathematics in the Shadows	Over Da Watta!: Reflect and Apply Mathematics in the Shadows: Reflect and Apply		
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