

Mathematical Models with Applications Curriculum Bundle #9

Title	Suggested Dates
Finish Solving Quadratics (approx 1.5 weeks)/ Parent Functions (approx 1.5 weeks)	February 22 – March 12 (15 days)

Big Idea/Enduring Understanding	Guiding Questions
Quadratic functions can be used to model real world situations that do not have a constant rate of change, but do have a constant second difference.	<ol style="list-style-type: none"> How many different methods can you use to find the solution(s) of a quadratic equation? How do you choose which method to use in a particular situation? How are factoring a quadratic equation and using the quadratic formula to solve a quadratic equation alike and different?
Coefficients of variables and constants added to a function change the graph of that function in very specific ways – some stretch and shrink a graph and some translate it to another place on the coordinate plane..	<ol style="list-style-type: none"> How do coefficients of variables and constants added to a function effect the graph of the function?

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)
<p>M.1 The student uses a variety of strategies and approaches to solve both routine and nonroutine problems.</p> <p>M.1B use multiple approaches (algebraic, graphical, and geometric methods) to solve problems from a variety of disciplines;</p>	<ul style="list-style-type: none"> • Focus on graphing and factoring • Solve application problems • Use all terms: roots, solutions, zeros, x-intercepts • Properties of parent functions (relate graph to equation to type of function) • Predict the effects of changes to coefficients and constants on the graph of linear, quadratic, absolute value, and exponential functions • Graph quadratics – focus on transformations 	<p><i>Solving Quadratics:</i> <u>A&M Curriculum</u> Fall Section 7.1, 8.1 Spring Section 9.1 – 9.5</p> <p>Region IV/Comap <u>Modeling with Mathematics – A Bridge to Algebra II</u> Sections 5.5 – 5.9 p. 280 – 293B</p> <p>Pearson <u>Mathematical Models with Applications</u> Section 3 gateway review p. 407 – 410 (skip #22 – 27)</p> <p><i>Parent Functions:</i> <u>A&M Curriculum</u> Fall Section 9.2-9.4, 9.8, 9.10 (note: linear 9.2, absolute value 9.4, exponential 9.8, and power regression 9.10only)</p>

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<p>M.3 The student develops and implements a plan for collecting and analyzing data in order to make decisions.</p> <p>M.3C determine the appropriateness of a model for making predictions from a given set of data.</p>	<p>Including but not limited to</p> <ul style="list-style-type: none"> • Determine which type of function (linear, quadratic, absolute value, exponential) would best fit a situation 	
<p>M.3 The student develops and implements a plan for collecting and analyzing data in order to make decisions.</p> <p>M.3A formulate a meaningful question, determine the data needed to answer the question, gather the appropriate data, analyze the data, and draw reasonable conclusions;</p>	<ul style="list-style-type: none"> • Ongoing skill 	<p>Strategy: Have students write questions in groups for you to “put on the test” – must provide answer key/rubric with work shown</p>