

## Algebra II Curriculum Bundle #1

<b>Title</b>	<b>Suggested Dates</b>
Systems of Equations	August 25 – September 11 (13 Days)



<b>Big Idea/Enduring Understanding</b>	<b>Guiding Questions</b>
Functions can be represented by graphs, tables, and symbols.	<ol style="list-style-type: none"> <li>1. What is a function?</li> <li>2. What methods can be used to find the domain and range of functions?</li> <li>3. What conclusions can be drawn from a function or equation?</li> <li>4. How can models of a function be used to make predictions in a real world situation?</li> </ol>
No matter how you choose to solve a system of linear equations, your result will always be one of three solutions – no solution, infinitely many solutions, or one intersection point.	<ol style="list-style-type: none"> <li>1. What are the three possible types of solutions to a system of equations?</li> <li>2. How many different ways can you solve a system of equations?</li> <li>3. How do you choose which method to use?</li> <li>4. What do all the points in a feasible region represent?</li> <li>5. What does the solution to a system represent in a real life situation?</li> <li>6. Is the slope the ratio of vertical change to the horizontal change?- explain</li> <li>7. How many different ways can the equation of a line be written?</li> </ol>

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.

<b>Knowledge &amp; Skills with Student Expectations</b>	<b>District Specificity/Examples</b>	<b>Suggested Resources</b> (See note above)	
<p><b>2A.3 Foundations for Functions. The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.</b></p> <p>2A.3A The student analyzes situations and formulates systems of equations in two or more unknowns or inequalities in two unknowns to solve problems.</p> <p><i>NOTE: This is the first time systems of inequalities with three variables are introduced.</i></p>	<ul style="list-style-type: none"> <li>• Write and solve systems of equations with two or three variables to solve application problems.</li> <li>• Application – linear programming</li> </ul>	<p><b>Texas Algebra II</b> Holt, Rinehart, &amp; Winston</p> <p>Section 3-4 Linear Programming pg. 205 – 211</p> <p><b>Discovering Advanced Algebra, An Investigative Approach</b> Key Curriculum Press</p>	<p><b>Laying the Foundation, Connecting Algebra 2 to Advanced Placement Mathematics</b> Advanced Placement Strategies, Inc.</p> <p>Characteristics of Discontinuous Piecewise Functions pg. 78-81</p>

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<p>NOTE: Review definition of functions, domain and range, slope and graphing of lines as necessary.</p>		<p>Section 3.2 Revisiting Slope pg. 121 – 127</p> <p>Section 3.6 Linear Systems pg. 151 – 157</p> <p>Section 6.5 Systems of Linear Inequalities pg. 336 – 343</p> <p>Section 6.6 Linear Programming pg. 344 – 350</p>	
<p><b>2A.3 Foundations for Functions. The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.</b></p> <p>2A.3B The student uses algebraic methods, graphs, tables, or matrices, to solve systems of equations or inequalities.</p> <p>NOTE: Matrices will be taught in next bundle.</p>	<ul style="list-style-type: none"> <li>• Choose the methods to solve the system based on the numerical values; use the calculator for big numbers.</li> <li>• The elimination method to solve a system in which there is no solution, one solution, and infinitely many solutions</li> <li>• The substitution method to solve a system in which there is no solution, one solution, and infinitely many solutions</li> <li>• Analyze the graphs of a system of equations/inequalities and identify the solution(s) with and without a graphing calculator</li> </ul>	<p><b>Texas Algebra II</b> Holt, Rinehart, &amp; Winston</p> <p>Section 3-1 Using Graphs and Tables to Solve Linear Systems pg. 182 – 189</p> <p>Section 3-2 Using Algebraic Methods to Solve Linear Systems pg. 190 – 198</p> <p>Section 3-3 Solving Systems of linear Inequalities pg. 199 – 204</p> <p><b>Discovering Advanced Algebra, An Investigative Approach</b> Key Curriculum Press</p> <p>Section 3.7 Substitution and Elimination pg. 157 – 163</p>	<p><b>Laying the Foundation, Connecting Algebra 2 to Advanced Placement Mathematics</b> Advanced Placement Strategies, Inc.</p> <p>Exploring Inequalities pg. 82-87</p> <p>Systems of linear Equations pg. 88 – 92</p> <p>Piecewise Functions pg. 94-105</p> <p>Solve Equations Graphically – Is there a Solution pg. 166 – 169</p>

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<p><b>2A.3 Foundations for Functions. The student formulates systems of equations and inequalities from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situations.</b></p> <p>2A.3C The student interprets and determines the reasonableness of solutions to systems of equations or inequalities for given contexts.</p>	<ul style="list-style-type: none"> <li>• Read, interpret, and analyze the solution to a system of equations to determine if it is a reasonable solution to an application problem situation.</li> </ul>	<p><b>Texas Algebra II</b> Holt, Rinehart, &amp; Winston</p> <p>Section 3-1 Using Graphs and Tables to Solve Linear Systems pg. 182 – 189</p> <p>Section 3-2 Using Algebraic Methods to Solve Linear Systems pg. 190 – 198</p> <p>Section 3-3 Solving Systems of linear Inequalities pg. 199 – 204</p> <p><b>Discovering Advanced Algebra, An Investigative Approach</b> Key Curriculum Press</p> <p>Section 3.7 Substitution and Elimination p. 157 – 163</p>	<p><b>Laying the Foundation, Connecting Algebra 2 to Advanced Placement Mathematics</b> Advanced Placement Strategies, Inc.</p> <p>Systems of linear Equations pg. 88 – 92</p> <p>Solve Equations Graphically – Is there a Solution pg. 166 – 169</p>
<p><b>2A.1 Foundations for Functions. The student uses properties and attributes of functions and applies functions to problem situations.</b></p> <p>2A.1B The student collects data, makes and interprets scatterplots, fits a graph of the function to the data, interprets the results, and proceeds to model, predict, and make decisions and critical judgments.</p>	<ul style="list-style-type: none"> <li>• Interpret scatter plots of data and determine the parent function:</li> <li>• Linear</li> <li>• Exponential (optional)</li> <li>• Use a variety of resources to collect data (experiment, internet, news, graphing technology)</li> <li>• Organizing data that demonstrates a positive linear correlation, a negative linear correlation, and no correlation with and without a graphing calculator.</li> <li>• Use data to create a model, then make predictions</li> <li>• Interpret correlation (r-value); what does it mean?</li> </ul>	<p><b>Texas Algebra II</b> Holt, Rinehart, &amp; Winston</p> <p>Section 2-7 Curve Fitting With Linear Models pg. 142 – 149</p> <p><b>Discovering Advanced Algebra, An Investigative Approach</b> Key Curriculum Press</p> <p>Section 3.3 Fitting a Line to Data pg. 128 – 134</p> <p>Section 4.1 Interpreting Graph pg. 172 – 177</p>	<p><b>Laying the Foundation, Connecting Algebra 2 to Advanced Placement Mathematics</b> Advanced Placement Strategies, Inc.</p> <p>Collecting Linear and Quadratic Data Pg. 144 – 150</p> <p><b>NCTM: Navigating through Data Analysis</b> “What Can You Know-How Can You Show” p. 45-55, 114-115</p>