


## Algebra Curriculum Bundle #4

<b>Title</b>		<b>Suggested Dates</b>
Writing Linear Functions		October 26 – November 13 (14 days)

<b>Big Idea/Enduring Understanding</b>	<b>Guiding Questions</b>
Linear functions represent situations with a constant rate of change.	<ol style="list-style-type: none"> <li>1. What naturally occurring situations can be represented by a linear function?</li> <li>2. How are the domain and range of a function related to the independent and dependent variables?</li> <li>3. How do the domain and range relate to the viewing window on the graphing calculator?</li> <li>4. How does a change the independent variable affect the dependent variable?</li> <li>5. How can the rate-of-change be found from a table, a graph, an equation, and a verbal description?</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>A.1 The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways.</b></p> <p>A.1D The student <b>represents</b> relationships among quantities <b>using</b> concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities.</p> <p><i>Note: Focus on Linear – repeated in bundle 9 for quadratic</i></p>	<ul style="list-style-type: none"> <li>• <b>Make connections between various representations, including how an ordered pair in the table matches a point on the graph and how it relates to the equation.</b></li> <li>• <b>Describe and/or generate various views of a function from another view of that function.</b></li> <li>• <b>Match one representation (ex. Table) of a function with other representations (ex. Graph) for the same function.</b></li> <li>• <b>Relate domain (x) to horizontal axis and range (y) to vertical axis.</b></li> </ul>	<p><b>Holt:</b> Section 4.4, 4.4 lab</p> <p><b>Discovering:</b> Section 3.3 – 3.5</p>	<p><a href="#"><b>Dana Center</b></a> Hull Pressure Stacking Paper Cups The Contractor Grocery Carts</p>

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<p><b>A.3 The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations.</b></p> <p>A.3B The student <b>looks</b> for patterns and <b>represents</b> generalizations algebraically.</p>	<ul style="list-style-type: none"> <li>• Patterns appear in the form of pictures, tables, verbal descriptions, graphs</li> <li>• Generalize the pattern and represent with variables</li> <li>• Generating the <i>n</i>th term for sequences</li> </ul>	<p><b>Holt:</b> Section 4.6</p> <p><b>Discovering:</b> Section 3.1, 4.7</p> <p><b>NCTM Navigating Books:</b> Tiles in a Row Activity; pg 52</p>	<p><a href="#">Dana Center</a> Mosaics</p> <p><b>LTF:</b> Writing Equations using Sequences</p>
<p><b>A.5 Linear Functions. The student understands that linear functions can be represented in different ways and translates among their various representations.</b></p> <p>A.5A The student determines whether or not given situations can be represented by linear functions.</p> <p><a href="#">Note: repeated in with graphing linear in bundle 6</a></p>	<ul style="list-style-type: none"> <li>• Determine from a verbal description whether there is a constant rate of change.</li> <li>• Determine from graphs, tables, and symbolic representations whether the rate of change is constant.</li> </ul>	<p><b>Holt:</b> Section 5.1</p> <p><b>Discovering:</b> Section 3.3</p>	<p><a href="#">Dana Center</a> Which is Linear?</p>
<p><b>A.1 The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways.</b></p> <p>A.1C The student <b>describes</b> functional relationships for given problem situations and <b>writes</b> equations or inequalities to answer questions arising from the situations.</p>	<ul style="list-style-type: none"> <li>• Generate tables of values, find a pattern in the data, and develop an equation or inequality that fits the data from a problem situation.</li> <li>• Represent data in different ways, including: graphs, tables, mappings, equations, verbal descriptions, concrete models, pictures</li> <li>• Generate tables of values from patterns found in geometric figures and write equations representing the functions in problem situations.</li> <li>• Describe the functional relationship for given problem situations verbally.</li> </ul>	<p><b>Holt:</b> Section 4.3</p> <p><b>Discovering:</b> Section 3.4, 4.7</p>	<p><a href="#">Dana Center</a> Which Plan is Best? CDs for the Band</p> <p><b>A&amp;M:</b> Fall Section 5.5 – 5.6</p>
<p><b>A.7 The student formulates equations and inequalities based on linear functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.</b></p> <p>A.7A The student <b>analyzes</b> situations involving linear functions and <b>formulates</b> linear equations or inequalities to <b>solve</b> problems.</p>	<ul style="list-style-type: none"> <li>• Use different representations of linear functions to create a problem situation</li> <li>• Representative equations or inequalities for problem situations.</li> <li>• Solve the problem algebraically or graphically</li> </ul>	<p><b>Holt:</b> Section 4.3, 5.1</p> <p><b>Discovering:</b> Section 3.4, 3.5, 3.7, 4.7</p>	<p><a href="#">Dana Center</a> First Aid Supplies Math-a-thon</p>

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<p><b>A.5 The student understands that linear functions can be represented in different ways and translates among their various representations.</b></p> <p>A.5C The student <b>uses, translates, and makes connections</b> among algebraic, tabular, graphical, or verbal descriptions of linear functions.</p>	<ul style="list-style-type: none"> <li>• Be able to connect among all representations of linear functions including real world situations. (with and without a graphing calculator)</li> <li>• 4 corner model</li> </ul>	<p><b>Holt:</b> Section 5.1</p> <p><b>Discovering:</b> Section 3.4, 3.5</p>	<p><a href="#">Dana Center</a> Stretched Spring</p>
<p><b>A.4 Foundations for Functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations.</b></p> <p>A.4C The student connects equation notation with function notation, such as <math>y = x + 1</math> and <math>f(x) = x + 1</math></p>	<ul style="list-style-type: none"> <li>• Compare advantages/disadvantages of both notations and when to use them.</li> </ul>	<p>Incorporate with other resources</p>	