

## Algebra Curriculum Bundle # 5

<b>Title</b>	<b>Suggested Dates</b>
Slope and Intercepts of Linear Functions	November 16 – December 4 (12 days)



Big Idea/Enduring Understanding	Guiding Questions
The rate-of-change and the intercepts can tell you a lot about a set of data and can help to write an equation to model and/or graph the data.	<ol style="list-style-type: none"> <li>1. What do the slope and y-intercept represent in the context of the problem situation?</li> <li>2. How are changes in the slope and y-intercept reflected in a table, a graph, an equation, and a verbal description?</li> <li>3. How can the slope and y-intercept be used to write the equation of line?</li> <li>4. How can a point and a slope be used to write the equation of a line?</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.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)	
<p><b>A.6 The student understands the meaning of the slope and intercepts of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations.</b></p> <p>A.6B The student <b>interprets</b> the meaning of slope and intercepts in situations <b>using</b> data, symbolic representations, or graphs.</p> <p><i>Note: do all representations here, but repeated in bundle 6 for more focus on graphing</i></p>	<ul style="list-style-type: none"> <li>• <b>Connect the slope to rate of change and the intercepts to the context of a problem situation.</b></li> <li>• <b>State the rate of change/slope in terms of the units used in the problem situation. Ex. 1 mile/4 hours</b></li> <li>• <b>Relate the rate of change and its explanation in the different forms of a linear function.</b></li> </ul>	<p><b>Holt:</b> Section 5.3, 5.4, 5.3 lab</p> <p><b>Discovering:</b> Section 3.2, 4.1 – 4.3</p>	<p><b><a href="#">Dana Center</a></b> The Submarine T-Shirts</p> <p><b>LTF:</b> Rate of Change Slope – Investigation Calculating Average Rates of Change</p> <p><b>A&amp;M:</b> Fall Section 6.2 – 6.4; 7.2</p>

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<p><b>A.6 The student understands the meaning of the slope and intercepts of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations.</b></p> <p>A.6A The student <b>develops</b> the concept of slope as rate of change and <b>determines</b> slopes from graphs, tables, and algebraic representations.</p> <p>Note: do all representations here, but repeated in bundle 6 for more focus on graphing</p>	<ul style="list-style-type: none"> <li>• Use the pattern of finite differences in a table of values to develop the numerical concept of determining slope—include undefined and zero slope.</li> <li>• Determine the rate of change in a problem or problem situation by finding the ratio of the difference of y and difference of x.</li> <li>• Relate and make connections between the rate of change in a pattern, table of values, expression, and/or situation to the slope of a graph.</li> </ul>	<p><b>Holt:</b> Section 5.3, 5.4, 5.3 lab</p> <p><b>Discovering:</b> Section 4.1 – 4.3</p> <p><b>South Carolina Dept of Ed:</b> <a href="#">“Slinky Slope” Activity</a></p>	<p><a href="#">Dana Center</a> Pool Problem Speeding Cars</p> <p><b>A&amp;M:</b> Fall Section 6.2 – 6.4</p>
<p><b>A.6 The student understands the meaning of the slope and intercepts of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations.</b></p> <p>A.6E The student <b>determines</b> the intercepts of the graphs of linear functions from graphs, tables, and algebraic representations.</p>	<ul style="list-style-type: none"> <li>• Find the y-intercepts of linear functions, given a graph, table, or algebraic equation.</li> <li>• Find the x-intercepts of linear functions given a graph or table</li> <li>• Find solutions given an algebraic equation.</li> <li>• Connect the solution of an algebraic equation to its x-intercepts shown in a table or on a graph and vice versa</li> </ul>	<p><b>Holt:</b> Section 5.2</p> <p><b>Discovering:</b> Section 3.2</p>	<p><b>A&amp;M:</b> Fall Section 7.1</p>
<p><b>A.6 The student understands the meaning of the slope and intercepts of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations.</b></p> <p>A.6G The student relates direct variation to linear functions and solves problems involving proportional change.</p>	<ul style="list-style-type: none"> <li>• Relate tables, models, symbols, graphs and verbal representations to direct variation and proportional situations.</li> <li>• Understand the significance of the intercept in direct variation situations</li> <li>• Relate changes in the table, model, graph, symbolic representation, and/or data to corresponding changes in the problem situation.</li> </ul>	<p><b>Holt:</b> Section 5.5</p> <p><b>Discovering:</b> Section 2.4</p>	<p><a href="#">Dana Center</a> Speeding Cars</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.5B The student <b>determines</b> the domain and range for linear functions in given situations.</p>	<ul style="list-style-type: none"> <li>• Differentiate between the domain and range of the function.</li> <li>• Identify the reasonable domain and range for the real world situations such as:             <ul style="list-style-type: none"> <li>• Earning a salary and/or commission</li> <li>• Speed</li> <li>• Temperature</li> </ul> </li> <li>• Find domain and range from a graph, table, equation, or problem situation.</li> <li>• Differentiate between continuous and discrete data</li> </ul>	<p>Incorporate into other resources</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.1E The student <b>interprets and makes decisions</b>, predictions, and critical judgments from functional relationships.</p> <p>Note: Focus on Linear – repeated for quadratics in bundle 8</p>	<ul style="list-style-type: none"> <li>• Relate functional relationships to real world situations</li> <li>• Extend data in a table, from a concrete model using equations, or from analyzing the graph.</li> <li>• Answer questions and make predictions based on the representations: verbal, tabular, graphical, model, and/or symbolic</li> <li>• Determine choices, options, or draw conclusions from different representations, of the problem situation.</li> <li>• Including linear relationships perimeters of squares and equilateral triangles, circumference, constant rate of change, and similar figures</li> </ul>	<p>Incorporate into other resources</p>	<p><b>LTF:</b> Connecting Table, Graph and Function Notation</p> <p><b>A&amp;M:</b> Fall Section 7.6</p>