

**Mathematics**  
**Algebra 1: Part 1**  
**Unit 4: Graphing Linear Equations and Functions**

<b>Essential Understandings</b>	<ul style="list-style-type: none"> <li>▪ Graphing linear equations and functions is a major skill necessary for Algebra I.</li> </ul>
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>▪ How do you plot points on a coordinate plane?</li> <li>▪ How do you graph points using a table?</li> <li>▪ What are intercepts of lines and how do you use them?</li> <li>▪ What is slope?</li> <li>▪ How do you graph using the slope-intercept form of an equation?</li> <li>▪ What are functions?</li> </ul>
<b>Essential Knowledge</b>	<ul style="list-style-type: none"> <li>▪ The coordinate plane is made up of four quadrants.</li> <li>▪ Intercepts of lines are where they cross each axis.</li> <li>▪ Slope is rise divided by run.</li> <li>▪ Slope-intercept form of an equation is <math>y=mx + b</math>.</li> <li>▪ Functions are relations where each input gives exactly one output.</li> </ul>
<b>Vocabulary</b>	<ul style="list-style-type: none"> <li>▪ <u>Terms:</u> <ul style="list-style-type: none"> <li>○ ordered pairs, linear equations, slope, x-intercept, y-intercept, slope intercept form, coordinate plane</li> </ul> </li> </ul>
<b>Essential Skills</b>	<ul style="list-style-type: none"> <li>▪ Plot points in a coordinate plane.</li> <li>▪ Graph points using a table.</li> <li>▪ Find the intercepts of a line.</li> <li>▪ Find slope of a line.</li> <li>▪ Graph equations using the slope-intercept form.</li> <li>▪ Identify whether relationships are functions or not.</li> </ul>

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<b>Related Maine Learning Results</b>	<p><u>Mathematics</u>  D. Algebra  Equations and Inequalities  D2.Students solve families of equations and inequalities.</p> <ol style="list-style-type: none"> <li>a. Solve systems of linear equations and inequalities in two unknowns and interpret their graphs.</li> <li>b. Solve quadratic equations graphically, by factoring in cases where factoring is efficient, and by applying the quadratic formula.</li> <li>c. Solve simple rational equations.</li> <li>d. Solve absolute value equations and inequalities and interpret the results.</li> <li>e. Apply the understanding that the solution(s) to equations of the form <math>f(x) = g(x)</math> are x-value(s) of the point(s) of intersection of the graphs of <math>f(x)</math> and <math>g(x)</math> and common outputs in table of values.</li> <li>f. Explain why the coordinates of the point of intersection of the lines represented by a system of equations is its solution and apply this understanding to solving problems.</li> </ol> <p>D3.Students understand and apply ideas of logarithms.</p> <ol style="list-style-type: none"> <li>a. Use and interpret logarithmic scales.</li> <li>b. Solve equations in the form of <math>x + b^y</math> using the equivalent form <math>y = \log_b x</math>.</li> </ol>
<b>Sample Lessons And Activities</b>	<ul style="list-style-type: none"> <li>▪ Students will orally respond to questions.</li> <li>▪ Students will utilize worksheets and in their notes to demonstrate individual understanding of the concepts.</li> </ul>
<b>Sample Classroom Assessment Methods</b>	<ul style="list-style-type: none"> <li>▪ Evaluate homework</li> <li>▪ Quizzes</li> <li>▪ Chapter test</li> </ul>
<b>Sample Resources</b>	<ul style="list-style-type: none"> <li>▪ <u>Publications:</u> <ul style="list-style-type: none"> <li>○ <u>Algebra 1</u> - McDougall Littell</li> </ul> </li> </ul>