

Mathematics
Algebra 1: Academic
Unit 4: Graphing Linear Equations and Functions

Essential Understandings	<ul style="list-style-type: none"> ▪ Graphing linear equations and functions is a major skill necessary for Algebra I.
Essential Questions	<ul style="list-style-type: none"> ▪ What are functions? ▪ How do you plot points on a coordinate plane? ▪ What is slope? ▪ What are intercepts of a linear function? ▪ How do you graph using a table? ▪ How do you graph using intercepts? ▪ How do you graph using the slope-intercept form of an equation?
Essential Knowledge	<ul style="list-style-type: none"> ▪ Functions are relations where each input gives exactly one output. ▪ The coordinate plane is made of four quadrants. ▪ Intercepts of lines are where they cross each axis. ▪ Slope is rise divided run, given a graph. ▪ Slope is change in y over change in x, given 2 points. ▪ Slope-intercept form of an equation is $y = mx + b$.
Vocabulary	<ul style="list-style-type: none"> ▪ <u>Terms:</u> <ul style="list-style-type: none"> ○ functions, function form, vertical line test, ordered pairs, linear equations, slope, rise, run, change in y, change in x, x-intercept, y-intercept, slope- intercept form, coordinate plane.
Essential Skills	<ul style="list-style-type: none"> ▪ Identify whether relationships are functions or not. ▪ Plot points in a coordinate plane. ▪ Graph functions using a table. ▪ Find the intercepts of a line. ▪ Find slope of a line. ▪ Graph equations using x-intercept and y-intercepts. ▪ Graph equations using the slope-intercept form.
Related Maine Learning Results	<p><u>Mathematics</u> D. Algebra Functions and Relations D4.Students understand and interpret the characteristics of functions using graphs, tables, and algebraic techniques.</p> <ol style="list-style-type: none"> a. Recognize the graphs and sketch graphs of the basic functions. b. Apply functions from these families to problem situations. c. Use concepts such as domain, range, zeros, intercepts, and maximum and minimum values.
Sample Lessons And Activities	<ul style="list-style-type: none"> ▪ Students will orally respond to questions. ▪ Students will utilize worksheets and in their notes to demonstrate individual understanding of the concepts.

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Sample Classroom Assessment Methods	<ul style="list-style-type: none">▪ Quizzes▪ Take-home worksheets▪ Tests
Sample Resources	<ul style="list-style-type: none">▪ <u>Publications:</u><ul style="list-style-type: none">○ <u>Algebra</u> -Foerster