

# Algebra 1B Unit 01: Linear Functions

Content Area: **Math**  
Course(s): **Algebra I B**  
Time Period: **Semester 1**  
Length: **4 Cycles**  
Status: **Published**

## Unit Introduction

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## Standards

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MA.F-BF.B.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$ , $kf(x)$ , $f(kx)$ , and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
MA.A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
MA.A-CED.A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
MA.A-CED.A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.
MA.A-CED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
MA.A-REI.D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).
MA.A-REI.D.11	Explain why the $x$ -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.
MA.A-REI.D.12	Graph the solutions to a linear inequality in two variables as a half plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

## Essential Questions

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- What does the slope of a line indicate about the line?
- What information does the equation of a line give you?

## Content

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- Application Problems
- Point-Slope Form
- Rate of Change and Slope

- Review Coordinate Plane/Independent & Dependent Variables
- Slope-Intercept Form
- Standard Form/ X- and Y-Intercepts

## Skills

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- Complete Application Problems Involving Linear Equations, Linear Inequalities, and Distance  
Application Problems
- Describing Transformations
- Find X- and Y-Intercepts
- Finding Rate of Change Using a Table
- Finding Slope Using a Graph
- Finding Slope Using Points
- Finding Slopes of Horizontal and Vertical Lines
- Graphing a Horizontal Translation
- Graphing a Line Using Intercepts
- Graphing a Linear Equation
- Graphing a Vertical Translation
- Graphing Horizontal and Vertical Lines
- Graphing Using Point-Slope Form
- Identifying Slope and Y-Intercept
- Modeling a Function
- Transforming to Standard Form
- Use graphing calculators and technology where appropriate
- Use relevant vocabulary, notations, and symbols when appropriate
- Using a Table to Write an Equation
- Using Standard Form as a Model
- Using Two Points to Write an Equation
- Writing an Equation from a Graph
- Writing an Equation from Two Points
- Writing an Equation in Point-Slope Form
- Writing an Equation in Slope-Intercept Form