



Topic A:

Linear Functions

8.F.B.4, 8.F.B.5

Focus Standard^s:	8.F.B.4	Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
	8.F.B.5	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Instructional Days:	5	
	Lesson 1:	Modeling Linear Relationships (P) ¹
	Lesson 2:	Interpreting Rate of Change and Initial Value (P)
	Lesson 3:	Representations of a Line (P)
	Lessons 4–5:	Increasing and Decreasing Functions (P, P)

In Topic A, students build on their study of functions by recognizing a linear relationship between two variables (**8.F.B.4**). Students use the context of a problem to construct a function to model a linear relationship (**8.F.B.4**). In Lesson 1, students are given a verbal description of a linear relationship between two variables₇ and then must describe a linear model. Students graph linear functions using a table of values and by plotting points. They recognize a linear function given in terms of the slope and initial value₂ or y -intercept. In Lesson 2, students interpret the rate of change and the y -intercept, or initial value, in the context of the problem. They interpret the sign of the rate of change as indicating that a linear function is increasing or decreasing (**8.F.B.5**) and as indicating the steepness of a line. In Lesson 3, students graph the line of a given linear function. They express the equation of a linear function as $y = mx + b$ ₂ or an equivalent form₂ when given the initial value and slope. In Lessons 4 and 5, students describe and interpret a linear function given two points or its graph.

¹ Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson