

## Topic C

## Linear and Nonlinear Models

## 8.SP.A.1, 8.SP.A.2, 8.SP.A.3

<b>Focus Standards:</b>	8.SP.A.1	Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
	8.SP.A.2	Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
	8.SP.A.3	Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. <i>For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</i>
<b>Instructional Days:</b>	3	
	<b>Lesson 10:</b>	Linear Models (P) <sup>1</sup>
	<b>Lesson 11:</b>	Using Linear Models in a Data Context (P)
	<b>Lesson 12:</b>	Nonlinear Models in a Data Context (Optional) (P)

In Topic C, students interpret and use linear models. They provide verbal descriptions based on how one variable changes as the other variable changes (**8.SP.A.3**). Students identify and describe how one variable changes as the other variable changes for linear and nonlinear associations. They describe patterns of positive and negative associations using scatter plots (**8.SP.A.1**, **8.SP.A.2**). In Lesson 10, students identify applications in which a linear function models the relationship between two numerical variables. In Lesson 11, students use a linear model to answer questions about the relationship between two numerical variables by interpreting the context of a data set (**8.SP.A.1**). Students use graphs and the patterns of linear association to answer questions about the relationship of the data. In Lesson 12, students also examine patterns and graphs that describe nonlinear associations of data (**8.SP.A.1**).

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