

## **Grade 8 Unit 3 Applications of Linear Functions**

### **Unit 3 Purpose**

The contexts in the previous unit were assumed to be linear, however there are few things in life that are exactly linear. In this unit, students will work with different bivariate data sets that have linear correlations. They will learn to create scatter plots to represent data and will discuss why it can be beneficial to model data using linear functions, known as lines of best fit. Students will also consider when a line of best fit might not be an effective way to model how a situation changes over time, even if there appears to be a strong linear correlation. At the end of the unit, scholars will be introduced to another way to represent bivariate data: a two-way frequency table. Students will understand that identifying the relationships in a two-way frequency table makes it possible to make predictions about larger data sets.

This unit begins with a review of what students know about analyzing data. These lessons reinforce the concept of using individual values to summarize sets of data, and ask scholars to compare different ways of displaying samples or large sets of data in order to make inferences and analyze trends. These ideas are foundational to this unit because linear models are essentially summaries of two-variable data sets, but the value of each linear model still depends on the variability within these data sets.

### **Students' Prior Knowledge**

- Students can write the equation of a linear function given a graph or table of values.
- Students can interpret key features of linear functions within a context.
- Students can analyze and compare data, such as by calculating the mean, median, and mode and creating box plots by hand.

### **Lesson 3 Purpose**

- Students will understand that straight lines are commonly used to model relationships between two quantitative variables.
- Students will be able to construct and interpret scatter plots for data involving two variables, including identifying a linear regression for a scatter plot that suggests a linear association.
- Academic language students will use: scatter plot, line of best fit, linear regression, positive association, negative association, linear association