

# Statistics and Probability

In eighth grade, students build on their previous statistics and probability understanding to work with **bivariate data**, which, in mathematics, means two-variable data. The data is commonly represented using a scatter plot that helps reveal whether there might be a relationship between the variables.

Students will construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. They will know that straight lines are widely used to model relationships between two quantitative variables. They will use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.

Students also will understand that patterns of association also can be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Additionally, they will construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects.

## The Grade 8 Common Core State Standards for Statistics and Probability specify that students should—

- Investigate patterns of association in bivariate data.

The following hands-on activities will enable students to experience opportunities to become more familiar with how bivariate data is collected, analyzed, and interpreted. Teachers will want to coach students to apply what they know about data collection, analysis, and interpretation to the mathematical and real-world problems they solve.

Mathematically proficient students apply mathematical concepts to solve problems in daily life. They are able to identify important quantities in a practical situation and map their relationships using tools such as tables and graphs. They can analyze these relationships mathematically to draw conclusions. They also can interpret their results in the context of the situation and reflect on whether their results make sense. Teachers will want to use teachable moments to make connections with what students are learning to do with bivariate data in relation to what others in the “real world” do with such data.