

Statistics and Probability

Big Idea:

- Investigate patterns of association in bivariate data

Standards and Supports:

Investigate patterns of association in bivariate data.

8.SP.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.

- [Background Info. & Guided Practice](#)
- Enrichment Tasks: [Bird's Eggs](#) | [Texting and Grades 1](#)

8.SP.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.

- [Background Info. & Guided Practice](#)
- Enrichment Tasks: [Animal Brains](#) | [Laptop Battery Charge](#)

8.SP.3

Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. 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.

- [Background Info. & Guided Practice](#)
- Enrichment Tasks: [US Airports](#), [Assessment Variation](#)

8.SP.A.4

Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?

- [Background Info. & Guided Practice](#)
- Enrichment Tasks: [What's Your Favorite Subject](#) | [Music and Sports](#)

What are some signs of student mastery?

- Justifies the patterns of association that can be seen in bivariate data by constructing, displaying and interpreting scatter plots and two-way tables.
- Uses the equation of a linear model to solve problems in context.
- Informally fits a straight line to a scatter plot that suggests a linear association and assesses the model fit.
- Compares linear models used to fit the same set of data to determine which is a better fit.

More 4U

NCTM's [Advanced Data Grapher](#) can be used to build and analyze data using box plots, scatterplots, histograms, stem-and-leaf plots, and bubble graphs. You can enter multiple rows and columns of data, select which set(s) to display in a graph, and choose the type of representation.

'[What's a dot plot?](#)' See if this [resource](#) and accompanying [video](#) help deepen your understanding.