

Data & Statistics

Students who data and statistics are learning to answer the questions

What kind of result is typical or acceptable?

Do these two characteristics tend to occur at the same times or different times?

What is the best way to explain these results?

This unit of study addresses Indiana College & Career Ready Standards as follows:

8.DSP.1: Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantitative variables. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

8.DSP.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 describe the model fit by judging the closeness of the data points to the line.

8.DSP.3: Write and use equations that model linear relationships to make predictions, including interpolation and extrapolation, in real-world situations involving bivariate measurement data; interpret the slope and y-intercept.

AI.DS.1: Distinguish between random and non-random sampling methods, identify possible sources of bias in sampling, describe how such bias can be controlled and reduced, evaluate the characteristics of a good survey and well-designed experiment, design simple experiments or investigations to collect data to answer questions of interest, and make inferences from sample results.

AI.DS.2: Graph bivariate data on a scatter plot and describe the relationship between the variables.

AI.DS.3: Use technology to find a linear function that models a relationship for a bivariate data set to make predictions; interpret the slope and y-intercept, and compute (using technology) and interpret the correlation coefficient.

AI.DS.4: Distinguish between correlation and causation.

AI.DS.5: 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 (including joint, marginal, and conditional relative frequencies) to describe possible associations and trends in the data.

AI.DS.6: Understand that statistics and data are non-neutral and designed to serve a particular interest. Analyze the possibilities for whose interest might be served and how the representations might be misleading.

Gaining skills in this unit will enable students to do everyday tasks like conducting surveys, monitoring grades and test results, and being an informed consumer and/or voter. The specific skills in this unit of study include

- calculating mean, median, and mode
- using box-and-whisker plots
- understanding standard deviation
- reading two-way tables
- reading scatterplots and interpreting correlation
- determining causation
- choosing appropriate graphs