

6.DA.3 Data and Analysis

The student will make predictions and draw conclusions from data visualizations. (a) Visualize data using appropriate graphs, charts, and data visualization techniques to enhance understanding and communicate findings effectively. (b) Use computational tools to analyze patterns within data sets and identify trends. (c) Draw conclusions and make predictions based on the analysis and interpretation of the data visualization. (d) Utilize simulations and models to formulate, refine, and test hypotheses.



Integration Opportunities

Math 6.PS.1 Students collect data on factors affecting local park usage, create a circle graph to visually represent the proportions of each factor, and use the graph to discuss potential strategies for improving park management and usage.

History Skills USII a Use computational tools to analyze patterns and use simulations to understand events in United States history.

Science 6.1c,d Analyze and interpret graphical displays of data and construct scientific explanations based on evidence.

Physical Education 6.3c Create a data visualization of calculated resting, active, and recovery heart rate during various physical activities. Identify patterns in the data and use the visualization to find the relationship between heart rate and RPE levels.

Understanding the Standard

Data visualization is the process of turning data into pictures or graphs to help people understand it better. This can show patterns, trends, and relationships that are hard to see just by looking at the numbers. In sixth grade, students will learn to analyze these visual representations to draw conclusions and determine which kind of visualization works best for different types of data. Students will also learn how graphs can sometimes be misleading. You can use software applications like spreadsheet software to assist in visualizing data. A "model" or "simulation" is a way to make predictions based on a data visualization.

Term	Definition
Visualization	The representation of data through the use of charts, plots, and infographics.
Model	Creating a representation of an idea, object, or a process.
Simulation	The use of a model to replicate or imitate a situation or phenomenon.

Prerequisite Knowledge

Before engaging with this standard, students should be able to define "data" and identify ways people use computers to collect it.

Summary of a Lesson

Have students come up with a research question about the student body at their school that can be answered by collecting data. Examples include "how much time do people spend on homework?" or "how much time do students use screens each week?". Have students design a survey to administer to the student body with questions that prompt students to provide data addressing their research question. Then, have students work together to review responses and find examples of "bad" data to remove. The nature of this "bad" data will vary depending on the questions students ask, but common issues include people responding with text instead of a number, people making spelling mistakes in their responses, or people leaving some questions blank. Have students "clean" the data, then demonstrate how to create visualizations of their data using spreadsheet tools. Consult information about your specific spreadsheet software for details on how to accomplish this task. Have students use their visualization to draw conclusions about their research question or test their hypotheses (e.g., "students use their screens too much during the week"). Use the data collected about the student body to find relationships between different data points (e.g., students who do less homework use screens more per week).

Note: This lesson summary also aligns to 6.DA.1 and 6.DA.2



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