

6.DA.2 Data and Analysis

The student will utilize computational tools to visualize and evaluate data. (a) Identify different types of visual representations of data. (b) Compare various visual representations and identify when each should be used. (c) Create charts, graphs, models, and simulations to visualize data. (d) Describe and synthesize information from a visual representation of data.



Integration Opportunities

Science 6.1c.d Organize data using charts, graphs, models and simulations to compare, contrast, and construct explanations.

Physical Education 6.3e Identify and create a visual representation to compare collected personal fitness data to criterion-referenced standards.

English 6.RL.1d Create a visual representation of a character's development to determine if the character is static or dynamic and explain how they impact the events of the plot.

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. Examples of visualizations include circle graphs, bar graphs, scatter plots, and Venn diagrams. 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; one simple example of a model is a line of best fit drawn through a scatter plot, which allows someone to make predictions about the value of an unknown variable based on the known value of another.

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

To engage with this standard, students should have previous experience making predictions, charting information and/ or creating a storyboard.

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 (e.g., "students use their screens too much during the week"). *Note: This lesson summary also aligns to 6.DA.1 and 6.DA.3*