2.DA.2 Data and Analysis

> *The student will manipulate data, create representations, and evaluate data to solve a problem. (a) Create charts, graphs, and models using abstraction to represent data. (b) Analyze data visualizations to draw conclusions. (c) Propose and evaluate a solution to a problem or question based on data and/or data visualization.*

Understanding the Standard

The collection and use of data about individuals and the world around them is a routine part of life and influences how people live. Data are pieces of information collected about people or things. These data can be recorded in tables and can be used to construct object graphs or picture graphs. Just as humans can observe, measure, and record data, digital devices can also collect store data over time. Computers, cell phones, digital toys, and cars can contain sensors to collect data from their surroundings. Both humans and computers can process data by organizing it (such as into a chart or graph), analyzing it (to determine if patterns or trends exist), and using the data to make predictions, make decisions, or draw conclusions.

Term	Definition
Data	Individual facts and information
Prediction	Making a guess of what will happen based on current facts
Table	A way of organizing and displaying data using horizontal rows and vertical columns.
Graph	A way of organizing and displaying data using images to represent the relationship between two or more types of data.

Prerequisite Knowledge

Students should have a foundational knowledge of parts of a computer. They should have experience collecting and recording basic data and organizing the data into charts and graphs from first grade, but may need support with generating questions about the data and determining whether the data can be used to answer generated questions.

Integration Opportunities

English 2.W.1b Have students create charts, graphs, or models from data gathered to include when researching and writing informative or explanatory text.

Math 2.PS.1 Organize a "kindness challenge" by recording the number of kind acts performed or witnessed each day for a week, then create graphs to analyze the results. Determine the most frequent acts, predict how many kind acts students might achieve the following week and suggest strategies to increase acts of kindness in the classroom.

History 2.6 Students will examine data visualizations showing where the English, French, and Spanish settled in North America to draw conclusions.

Summary of a Lesson

Students will collect and organize weather data to make predictions about future weather patterns. Students will track an assortment of weather characteristics (high and low temperature, wind speed, precipitation, barometric pressure) for a few weeks and record in a weather tracking chart using pictures or symbols. They will then look for patterns in the data, noticing whether specific features should be included or may be ignored when describing those patterns. Students should then select which features should be displayed in graph form in order to best show the patterns they have noticed.