



Unit 4: Visualizing Data

Teacher's Guide & Lesson Plans

Overview

This unit examines how essential trees are to a community and then applies data science to examine the distribution of trees in various communities using the Tree Equity Score website. Students discuss different perspectives on trees in their community. Collectively, the class designs a survey to study the perspective of a particular group in their community on the topic of trees. The data is collected, cleaned, and visualized in this unit.

In this unit, students will be able to:

Data Science Learning Objectives

- Plan, collect, clean, analyze and present data
- Explain what data is and give examples of qualitative and quantitative data
- Represent data using a suitable chart

Language Arts Learning Objectives

- Work collaboratively to develop research questions and a survey to gather data to support it
- Conduct polite and efficient interviews
- To listen and to incorporate the ideas of others in a conversation
- Consider their audience when presenting information

Vocabulary Terms

data: information collected from around us

qualitative data: non-numerical data

quantitative data: numbers

survey: a way to ask people questions to learn more about what they think, feel, or do

data collection: Gathering different pieces of information you are interested in and recording them

data cleaning: Fixing errors and making the information clear

data analysis: Sorting, counting, looking for patterns, and drawing conclusions from the information

data visualization: Making charts or graphs from the information

bar chart: is used when you want to compare the amount of different things

pie chart: is used when you want to show a part of a whole



The Big Idea in this unit is:

To take part in the data science process of planning a project, collecting the data, cleaning and analyzing the data, and then discussing the target audience who would benefit from learning about the findings of the project.

Unit Walk-Through

Lesson 4.1: We Need Trees (50 minutes)	Lesson 4.2: Tree Equity Score (50 minutes)	Lesson 4.3: Qualitative and Quantitative Data (50 minutes)	Lesson 4.3: Creating a Survey (50 minutes)	Lesson 4.4: Collecting and Cleaning Data (50 minutes)	Lesson 4.6: Visualizing and Analyzing Data (100 minutes)
Students will explain how trees benefit a community and identify reasons the number of trees is decreasing each year.	Students will be introduced to the tree equity score website. They will compare the tree equity score and heat disparity scores in different zip codes. They will discuss what data is and how it can be visualized.	Students will be introduced to what data is. They will compare qualitative data versus quantitative data. They will learn the appropriate data visualization to represent data.	Students will develop a survey on the topic of trees to learn the perspectives on a particular part of their community. They will identify people who would be interested in the findings of this proposed research.	Students will conduct interviews to gather their data.	Students will create a visualization with their data and discuss what it means. They will discuss the pros and cons of different ways that data can be represented.