

Exploring Data Representation - Lesson 2

Teacher Guide

Duration: 20 minutes

Standards for Mathematics

TEKS.4.9.A.ii

Represent data on a frequency table, dot plot, or stem-and-leaf plot marked with fractions.

Focus Strategies

Think Aloud: The teacher models a process of thinking by speaking aloud what is thought. As an example, 'I think I need more color here in my drawing.' This strategy models for students the type of thinking they can use in an upcoming activity.

Think-Pair-Share: Students are prompted to think about an idea on their own. Students then share their idea with a partner and have a quick discussion. Selected students are asked to share their ideas with the whole group.

Materials

whiteboard, markers, pre-prepared data sets for frequency tables, dot plots
stem-and-leaf plots

Key Vocabulary

data, frequency, plot, fractions, represent

Warm-Up

Ask students to think about their favorite fruits and how they could collect data about their classmates' preferences. Have them share their ideas with a partner for 2 minutes.

Introduction

Explain that today, we will learn how to represent data using different methods. We will use a series of problems to help us understand how to organize and display data effectively.

Exploration & Whole Class Discussion

Present the first problem: 'In a class of 20 students, 8 like apples, 5 like bananas, and 7 like oranges. How can we represent this data?' Allow students to solve this individually, then share their strategies. Discuss how to create a frequency table based on their answers.

Application & Reflection

Introduce a set of data that includes both whole numbers and fractions to represent the length of student shoes: 'The data represents the measurements of student shoes in inches. How can we represent the data using multiple forms of representation?' Have students solve this independently, then discuss with a partner. Finally, share their findings with the class, focusing on how the data representation changes.

Assessment

As a formative assessment, ask students to create their own frequency table, dot plot, or stem-and-leaf plot using a new set of data (e.g., favorite colors of classmates). Collect their work to evaluate their understanding of data representation.

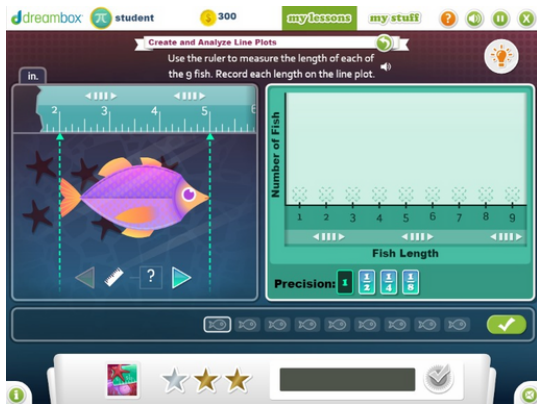
Strategies to Support Emergent Bilingual Students

To support emergent bilingual students, we recommend the following:

1. Provide independent think time after asking questions or posing prompts.
2. Have students pair up with a partner to generate responses together.
3. Have students restate each other's reasoning in classroom discussions.
4. Create a public record of classroom discussions.
5. Use color and annotation to help learners make connections for concepts.
6. Introduce academic vocabulary as needed.
7. Use iconic and semantic gestures to help students understand.

Additional Support Resources

If your students need additional support, you can click on one of the lessons below and present it to your whole class. You can use the interactive manipulatives and built in feedback to support students in a whole class discussion. Good questions to ask are 'What do you see?', 'What do you think?' 'What do you wonder?'



Measuring Fish to the Nearest Eighth Inch and Using a Line Plot to Record the Lengths



Measuring Fish to the Nearest Quarter Inch and Using a Line Plot to Record the Lengths

Sample Lesson Flow

- TEACHER SAY** *Let's start by thinking about our favorite fruits. Turn to your shoulder partner and discuss how we could collect data about our classmates' preferences. You have 2 minutes!*
- STUDENTS DO** Turn and talk to shoulder partner about collecting data on favorite fruits.
- TEACHER SAY** *Great ideas! Today, we will learn how to represent data using different methods. We will use a series of problems to help us organize and display data effectively.*
- TEACHER SAY** *Let's look at our first problem: 'In a class of 20 students, 8 like apples, 5 like bananas, and 7 like oranges. How can we represent this data?' Take a moment to think about it individually.*
- STUDENTS DO** Think individually about how to represent the data.
- TEACHER SAY** *Now, turn to your shoulder partner and share your strategies for representing this data.*
- STUDENTS DO** Discuss strategies with shoulder partner.
- TEACHER SAY** *Who would like to share their ideas with the class? Let's discuss how we can create a frequency table based on your answers.*
- STUDENTS DO** Raise hands to share ideas. Selected students share their strategies.
- TEACHER DO** Record the frequency table on the board based on students' contributions.
- TEACHER SAY** *Now, let's introduce a new problem: 'The data represents the measurements of student shoes in inches. How can we represent the data using multiple forms of representation?' Take a moment to solve this independently.*
- STUDENTS DO** Solve the problem independently.
- TEACHER SAY** *Now, discuss your findings with your shoulder partner. How did the data representation change?*
- STUDENTS DO** Turn and talk to shoulder partner about the changes in the frequency table.
- TEACHER SAY** *Let's come back together. Who would like to share how the frequency table changed?*
- STUDENTS DO** Raise hands to share findings. Selected students share with the class.
- TEACHER SAY** *Excellent work! Now, I want you to create your own frequency table, dot plot, or stem-and-leaf plot using a new set of data. For example, you can collect data on your classmates' favorite colors.*
- STUDENTS DO** Collect data on favorite colors and create a frequency table, dot plot, or stem-and-leaf plot.
- TEACHER DO** Collect students' work to evaluate their understanding of data representation.