

Exploring Data with Problem Strings - Lesson 2

Teacher Guide

Duration: 20 minutes

Standards for Mathematics

TEKS.5.9.C.i

Solve one-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

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, printed frequency tables and bar graphs, paper pencils

Key Vocabulary

data, frequency, graph, problem, strategy, solve

Warm-Up

Begin with a quick review of how to read a bar graph. Ask students to identify the highest and lowest values in a sample bar graph displayed on the board.

Introduction

Explain to students that they will be working with a series of problems that involve data from graphs. Emphasize that they will be using strategies to solve these problems and sharing their thinking with classmates.

Exploration & Whole Class Discussion

Present the first problem based on a frequency table. Allow students 2 minutes to solve it independently. Afterward, invite a few students to share their strategies. Discuss the different approaches and highlight any effective strategies used.

Application & Reflection

Introduce the next problem, which is slightly more complex. Students will solve it independently, then discuss their strategies with a partner. Afterward, select a few students to share their strategies with the class. Continue this process for a total of three problems, gradually increasing complexity.

Assessment

For the final problem, students will solve it independently and then write a brief reflection on the strategy they used. They will share their reflections with a partner, and selected students will share with the class. The teacher will assess understanding based on participation in discussions and the clarity of reflections.

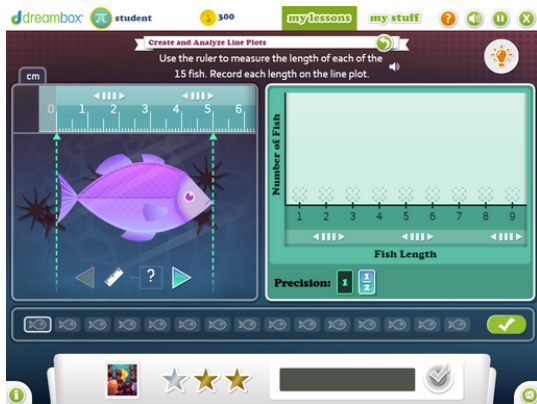
Strategies to Support Emergent Bilingual Students

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 Whole Centimeter and Using a Line Plot to Record the Lengths



Measuring Fish to the Nearest Half Centimeter and Using a Line Plot to Record the Lengths

Sample Lesson Flow

- TEACHER SAY** *Today, we are going to explore data using problem strings. We will solve one-step problems based on information from frequency tables and bar graphs. Let's start with a quick review.*
- TEACHER DO** Display a sample bar graph on the board.
- TEACHER SAY** *Can anyone tell me what the highest value is in this bar graph? And what about the lowest value? Raise your hand to share your thoughts.*
- STUDENTS DO** Raise hands to volunteer and share their answers.
- TEACHER DO** Record the highest and lowest values on the board.
- TEACHER SAY** *Great job! Now, we will work with a series of problems that involve data from graphs. I will present the first problem based on a frequency table.*
- TEACHER DO** Display the first frequency table on the board.
- TEACHER SAY** *Take 2 minutes to solve this problem independently. Think about what the data is telling you.*
- STUDENTS DO** Work independently to solve the problem.
- TEACHER SAY** *Time's up! Who would like to share their strategy for solving this problem?*
- STUDENTS DO** Raise hands to volunteer. Selected students share their strategies.
- TEACHER SAY** *Thank you for sharing! Let's discuss the different approaches you used. I noticed some effective strategies that we can all learn from.*
- TEACHER SAY** *Now, let's move on to the next problem. This one will be a bit more complex.*
- TEACHER DO** Display the next problem on the board.
- TEACHER SAY** *Take a moment to solve this problem independently, and then discuss your strategies with your partner.*
- STUDENTS DO** Work independently, then turn to their partner to discuss their strategies.
- TEACHER SAY** *Who would like to share their strategy with the class?*
- STUDENTS DO** Raise hands to volunteer. Selected students share their strategies.
- TEACHER SAY** *Excellent work! We will continue this process for a total of three problems, gradually increasing the complexity.*
- TEACHER DO** Display the third problem on the board.
- TEACHER SAY** *For this final problem, solve it independently and then write a brief reflection on the strategy you used.*
- STUDENTS DO** Solve the problem independently and write their reflections.
- TEACHER SAY** *Now, turn to your partner and share your reflections.*
- STUDENTS DO** Share their reflections with their partner.
- TEACHER SAY** *Who would like to share their reflection with the class?*

STUDENTS DO

Raise hands to volunteer. Selected students share their reflections.

TEACHER SAY

Great job today! I will assess your understanding based on your participation in discussions and the clarity of your reflections.