

Class Measurement Survey

4th Grade Math Project · Science & Data

Grade 4 · Advanced

Name: _____ Date: _____ Class: _____

The Challenge

Scientists collect data, display it, and use it to answer questions. Today your class is the science team, and your first data set is a pile of pencils.

You will make: Line Plot Poster

What you will learn

- Make a line plot of measurements in fractions of a unit.
- Read a line plot to answer questions.
- Add and subtract fractions to solve problems about the data.
- Solve multistep word problems.

Materials

- Ruler marked in fractions of an inch
- Grid or lined paper
- Poster paper
- Markers

How to do it

1. Part 1: The Data
2. Part 2: Make the Line Plot
3. Part 3: Questions from the Plot
4. Part 4: New Pencils for Everyone
5. Check your work and share your line plot poster.

Part 1: The Data

Students measured the length of their pencils to the nearest $\frac{1}{8}$ inch.

Pencil lengths (inches)
$4\frac{1}{8}$, $4\frac{2}{8}$, $4\frac{3}{8}$, $4\frac{3}{8}$, $4\frac{4}{8}$, $4\frac{4}{8}$, $4\frac{4}{8}$, $4\frac{5}{8}$, $4\frac{6}{8}$, $4\frac{6}{8}$, $5\frac{1}{8}$, $4\frac{3}{8}$

1. How many pencils were measured?

2. Write the lengths in order from shortest to longest.

3. What are the shortest and the longest lengths?

Part 2: Make the Line Plot

Draw a number line from $4\frac{1}{8}$ to $5\frac{1}{8}$ with a mark every $\frac{1}{8}$ inch. Put one X above the number for each pencil.

4. How many Xs are above each length?

5. Which length has the most Xs?

6. How many pencils are longer than $4\frac{3}{8}$ inches?

Part 3: Questions from the Plot

Use your line plot and fraction addition and subtraction.

7. What is the difference between the longest and the shortest pencil?

8. If the shortest and the longest pencil are placed end to end, how long are they together?

9. The 3 pencils that are $4\frac{3}{8}$ inches long are placed end to end. How long is the line?

Part 4: New Pencils for Everyone

Each student in the survey gets one new pencil. Pencils come in packs of 6. Each pack costs $4.

10. How many packs are needed?

11. How much do the packs cost in all?

12. Make a poster of your line plot with a title, labels and two facts you learned from the data.

⭐ Extension Challenge

A student says, 'Most pencils are longer than $4\frac{1}{2}$ inches.' Use the line plot to decide whether the statement is true. Explain with numbers.

How your project will be scored

Category	4 Excellent	3 Good	2 Developing	1 Beginning
Math accuracy	All answers correct	Most answers correct	Some answers correct	Few answers correct
Shows work	Clear work for every step	Work for most steps	Some work shown	Little work shown
Explains thinking	Clear, complete explanations	Mostly clear explanations	Some explanation	Little explanation
Final product	Complete, neat and creative	Complete and neat	Partly complete	Not complete