

Class Survey and Data Report

Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Overview

Students run an anonymous class survey (no names), show the results in a scaled picture graph and a scaled bar graph, answer how-many-more questions, and measure pencils to the nearest quarter inch for a line plot.

Time: 3 class periods · **Product:** Data Report Poster
Standards: 3.MD.B.3, 3.MD.B.4
Prerequisite skills: Tally charts and simple graphs (Grade 2); Multiplication by 2, 5 and 10

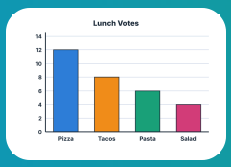
Learning targets

- I can draw a scaled picture graph and bar graph from data.
- I can solve one- and two-step how-many-more and how-many-less problems with a graph.
- I can measure to the nearest quarter inch and make a line plot.

Timing and materials

- Day 1 (45 min): collect votes with tallies (no names) and make the picture graph.
- Day 2 (45 min): bar graph and how-many-more questions.
- Day 3 (45 min): measure pencils, make the line plot, and finish the poster.

Materials: Rulers marked in quarter inches; Pencils of different lengths (about 10 per group); Grid paper; Sample data card (printable support page) for classes that skip the survey. No accounts, paid products or student personal information are needed.



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The three versions

- Remedial: hints for a first step, partly filled tables, sentence frames and fewer open choices; the same learning targets.
- Standard: the full task set at grade level; students choose their strategies and models.
- Advanced: open design constraints, missing information, error analysis and a written justification; no hints.

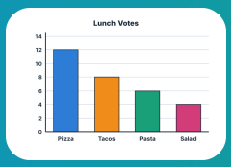
All versions use the same context and learning targets, so groups can share and compare work.

Implementation notes

- Use only anonymous tally votes; never record student names or personal information.
- If time is short, use the sample data card.
- Advanced students choose and defend their own scales.
- Before Part 1, read the challenge aloud and ask students to restate the goal.
- Close with a gallery walk: each group explains one strategy.

Rubric

Learning target	4 Exceeds	3 Meets	2 Approaching	1 Beginning
I can draw a scaled picture graph and bar graph from data.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can solve one- and two-step how-many-more and how-many-less problems with a graph.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can measure to the nearest quarter inch and make a line plot.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can explain my thinking with pictures, numbers and words.	Clear for every part	Clear for most parts	Some explanation	Little explanation
My data report poster is complete and matches my math.	Complete, neat, accurate	Complete	Partly complete	Not complete



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Solutions · Remedial KEY

Part 1: Survey Data

Use your class votes or the sample data in the table.

Lunch	Votes
Pizza	12
Tacos	8
Pasta	6
Salad	4

1. In a picture graph, each ★ = 2 votes. How many ★ for Pizza?
6 stars

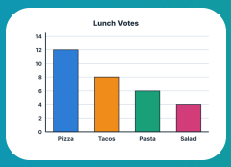
2. How many ★ for Tacos?
4 stars

Part 2: Bar Graph

Make a bar graph with a scale that counts by 2s.

3. How many more votes for Pizza than for Salad?
8 votes

4. How many fewer votes for Pizza than for Tacos and Salad together?
0 votes



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Part 3: Pencil Line Plot

Measure pencils to the nearest half inch. Sample lengths: 3, $3\frac{1}{2}$, 4, $3\frac{1}{2}$, $4\frac{1}{2}$, $3\frac{1}{2}$, 4 inches.

5. Which length appears most often?

$3\frac{1}{2}$ inches

6. How many pencils are longer than $3\frac{1}{2}$ inches?

3 pencils

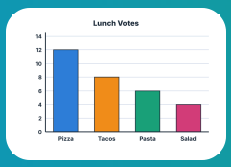
7. How should the line plot scale be marked?

in half inches

Extension

Make a second bar graph of the same data with a scale that counts by 4s. Which bars end between grid lines?

Pasta (not multiples of 4)



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Solutions · Standard KEY

Part 1: Survey Data

Use your class votes or the sample data in the table.

Lunch	Votes
Pizza	12
Tacos	8
Pasta	6
Salad	4

1. In a picture graph, each ★ = 2 votes. How many ★ for Pizza?
6 stars

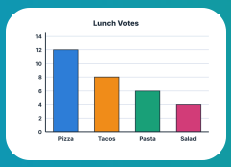
2. How many ★ for Tacos?
4 stars

Part 2: Bar Graph

Make a bar graph with a scale that counts by 2s.

3. How many more votes for Pizza than for Salad?
8 votes

4. How many fewer votes for Pizza than for Tacos and Salad together?
0 votes



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Part 3: Pencil Line Plot

Measure pencils to the nearest quarter inch. Sample lengths: $3\frac{1}{4}$, $3\frac{1}{2}$, 4, $3\frac{1}{2}$, $4\frac{3}{4}$, $3\frac{1}{4}$, 4, $3\frac{1}{2}$ inches.

5. Which length appears most often?

$3\frac{1}{2}$ inches

6. How many pencils are longer than $3\frac{1}{2}$ inches?

3 pencils

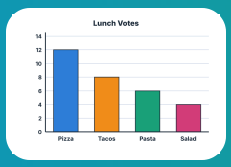
7. How should the line plot scale be marked?

in quarter inches

Extension

Make a second bar graph of the same data with a scale that counts by 4s. Which bars end between grid lines?

Pasta (not multiples of 4)



Class Survey and Data Report

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Solutions · Advanced KEY

Part 1: Survey Data

Use the sample data in the table (or your own class votes).

Lunch	Votes
Pizza	14
Tacos	9
Pasta	6
Salad	3

1. In a picture graph, each ★ = 2 votes. How many ★ for Pizza?

7 stars

2. How many ★ for Tacos?

$4\frac{1}{2}$ stars

Part 2: Bar Graph

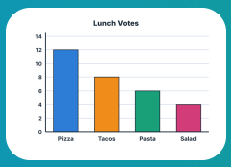
Make a bar graph with a scale that counts by 2s.

3. How many more votes for Pizza than for Salad?

11 votes

4. How many more votes for Pizza than for Tacos and Salad together?

2 votes



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Part 3: Pencil Line Plot

Measure pencils to the nearest quarter inch. Sample lengths: $3\frac{1}{4}$, $3\frac{1}{2}$, 4, $3\frac{1}{2}$, $4\frac{3}{4}$, $3\frac{1}{4}$, 4, $3\frac{1}{2}$ inches.

5. Which length appears most often?

$3\frac{1}{2}$ inches

6. How many pencils are longer than $3\frac{1}{2}$ inches?

3 pencils

7. How should the line plot scale be marked?

in quarter inches

Part 4: Choose the Scale

A bigger school voted: Pizza 140, Tacos 95, Pasta 60, Salad 35.

8. Choose a key for a picture graph so every number uses whole or half symbols. Explain.

Key of 10 (half symbol = 5) works: 14, $9\frac{1}{2}$, 6, $3\frac{1}{2}$ symbols.

9. How many more votes for Pizza than Pasta and Salad together?

45 votes

Extension

Make a second bar graph of the same data with a scale that counts by 4s. Which bars end between grid lines?

Pizza, Tacos, Pasta, Salad (not multiples of 4)