Two Ways to Show Votes

Teacher		**Class**	Grade 2
Subject	Math	**Topic**	Picture and bar graphs
Date		**Room**	
Lesson length	60 minutes	**Country**	United States

Students learn to draw picture graphs and bar graphs with one vote for one picture or box. They graph class tool votes two ways and compare the results.

Curriculum links

- Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. [2]
- Organize and represent a data set using a bar graph with a title and labeled axes (limited to 25 or fewer data points for up to six categories, and limit increments of scale to multiples of 1 or 2). [1]
- Ask and answer questions about the data represented in pictographs and bar graphs (like the total number of data points, how many are in each category, and how many more or less are in one category than another). [1]

Learning objectives

- Students will draw a picture graph with single-unit scale for four categories.
- Students will draw a bar graph with title, labels, and scale of one.
- Students will answer total and compare questions using both graphs.

Success criteria

- I can use 1 picture for 1 vote to show 4 groups.
- I can use 1 box for 1 vote to draw bars going up by 1s.
- I can tell total and which group has more or less.

What students already know

Show tally marks for pencils, crayons, markers. Ask: How many in each? Which has most? How many in all together?

Key words

picture graph	rows of small drawings that show how many votes each group got [2]
bar graph	tall colored blocks that show how many votes each group got [2]
data	the counted facts we collect and show in charts [2]
title	words at the top that tell what the chart is about

Materials

- tally chart of 4 school tools
- picture-graph grid
- bar-graph grid
- pencils
- crayons

Before the lesson

- Print tally chart of 4 school tools, picture-graph grid, and bar-graph grid for each student
- Print Worksheet Task D copies for plenary check
- Test Slide 5 Video clip 1 (0:00-4:11) for sound and picture

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- Slides 1-11
- Video clip 1 (0:00-4:11)
- Worksheet Task D printed copies
- whiteboard and markers
- Write tool tally on board: Pencils 5, Crayons 4, Markers 3, Erasers 2

Lesson outline

0–5 min **Starter** 5 min · Whole class

Hook interest with tool votes and recall counting and comparing.

YOU DO

1. Show Slides 1-2 and greet the class with the lesson goal.
2. Show Slide 3 class vote and read the tally: Pencils 5, Crayons 4, Markers 3, Erasers 2.
3. Say the hook and ask which tool has the most and what the total is.
4. Tell students they will draw the same votes two ways today.

STUDENTS DO

1. Look at the tally chart and count each group aloud.
2. Answer which tool has the most and show total with fingers.
3. Repeat the goal: draw it two ways.

Say: We asked our class about pencils, crayons, markers, and erasers. Can you draw it two ways so anyone can read it? Today we will draw pictures first, then bars. One vote means one picture and one box.

Ask: Which tool has the most votes? (Pencils, with 5 votes.) · How many votes are there in all? (14 votes in all.)

Check understanding: Ask all students to hold up fingers for the total. If many are wrong, count the tallies together one by one.

Support: Point to each tally mark and count slowly together. **Stretch:** Ask how many more pencils than erasers there are.

Use: Slides 1–3

5–17 min **Teaching** 12 min · Whole class

Teach parts of good picture graphs and bar graphs with single-unit scale.

YOU DO

1. Show Slide 4 and explain the same data can make two graphs.
2. Define a picture graph, a data display in which pictures are used to show data [2], and a bar graph, a data display in which bars are used to show the number of items in each category [2].
3. Show Slide 6 mindmap: title, up to 4 groups, labels, 1 picture = 1 vote, 1 box = 1 vote.
4. Model both graphs on the board with a title and labeled axes [1] and scale going up by 1s [1].

STUDENTS DO

1. Repeat what 1 picture and 1 box mean.
2. Count pictures and boxes aloud with the teacher from 0 up by 1s.
3. Point to the title and group labels on the model.

Say: A picture graph uses small drawings in rows to show counts. A bar graph uses tall blocks to show counts. We use 1 picture for 1 vote and 1 box for 1 vote, going up by 1s. Every bar graph needs a title on top and labels for each group.

Worked example: Tool data: Pencils 5, Crayons 4, Markers 3, Erasers 2. Step 1: Write title Our School Tools. Step 2: Label 4 groups. Step 3: Picture graph - draw 5 pencil pictures, 4 crayon pictures, 3 marker pictures, 2 eraser pictures, where one symbol represents 1 piece of data [1]. Step 4: Bar graph - color 5 boxes for pencils, 4 for crayons, 3 for markers, 2 for erasers, with single-unit scale [2]. Step 5: Count to check total 5+4+3+2=14.

Ask: What does 1 picture stand for in our picture graph? (1 vote.) · What must a bar graph have besides the bars? (A title and labeled axes or group labels.) · How do the numbers go up the side? (By 1s: 0, 1, 2, 3, 4, 5.)

Check understanding: Use mini whiteboards: students write title + 1 picture = 1 vote. Reteach labels if missing.

Support: Keep the model visible and count pictures and squares one by one [2]. **Stretch:** Ask students to predict which bar will be tallest before you color it.

Use: Slides 4, 6

17–25 min **Watch and Model** 8 min · Whole class

See the same data drawn both ways and spot title, labels, and matching counts.

YOU DO

1. Show Slide 5 and play Video clip 1 (0:00-4:11).
2. Pause to point out where 1 picture stands for 1 vote and where the title and labels are.
3. Redraw 3 pictures as a bar 3 boxes high to show the same shape of the data [2].
4. Ask which is quicker to read and why.

STUDENTS DO

1. Watch the video and call out the title and labels when spotted.
2. Count along 1 by 1 as the teacher colors boxes.
3. Turn and tell a partner which graph is quicker to read.

Say: Watch how 1 picture stands for 1 vote. Spot the title and labels. See how the same votes look as pictures and as bars. The row with the most pictures matches the tallest bar.

Worked example: If crayons have 4 pictures, color 4 boxes straight up from the bottom to 4. Count 1, 2, 3, 4. The picture count and bar height match.

Ask: What stayed the same in the picture graph and the bar graph? (The numbers and shape of the data stayed the same.) · How do you know the bar stopped at the right number? (Count boxes by 1s and match the picture count.)

Check understanding: Ask students to show 4 fingers for 4 votes and point to the bar top at 4. Recount by 1s if off.

Support: Let students count pictures and bar squares one by one with a finger [2]. **Stretch:** Ask students to explain to a partner why the tallest bar matches the longest picture row [1].

Use: Slide 5, Video clip 1 (0:00–4:11)

25–50 min **Main activity** 25 min · Pairs

Draw both graphs for the same tool data and answer questions about it.

YOU DO

1. Hand out tally chart of 4 school tools, picture-graph grid, bar-graph grid, pencils and crayons.
2. Show Slide 8 steps: draw 4 rows with 1 picture for each vote, draw 4 bars coloring 1 box for each vote, write a title and label each group.
3. Remind students to use single-unit scale to represent a data set with up to four categories [2] and add a title and labeled axes [1].
4. Circulate, check that each bar height matches the picture count, and stop class midway to recount totals.

STUDENTS DO

1. Draw a picture graph with one picture for each vote for all 4 tools.
2. Draw a bar graph with one box for each vote, with title and labels.
3. With partner, answer total, how many in each category, and how many more or less [1].

Say: Use our tool tally: Pencils 5, Crayons 4, Markers 3, Erasers 2. First draw 4 rows and add 1 drawing for each vote. Then draw 4 bars and color 1 box for each vote. Write a title on top and label each group, then check with your partner.

Worked example: Pencils row: draw 5 small pencil shapes and write 5. Pencils bar: start at bottom, color 5 boxes up to 5. Repeat for others. Check total number of data points 5+4+3+2=14 [1] and compare: pencils have 2 more than markers, 5 is more than 2.

Ask: Dogs have 5 votes is like pencils have 5 votes. How many pictures do you draw? (5 pictures, 1 for each vote.) · Your crayon bar should go up to what number? (4, because there are 4 votes.) · How do you know both graphs match? (The picture count equals the bar height for each group.)

Check understanding: Partners trade papers and check total matches in both graphs [1]. If not, recount boxes by 1s together.

Support: Give a grid with the title and labeled axes already started and limit the total to 12 votes [1]. **Stretch:** Students write one more compare question about the data for a partner to solve.

Use: Slide 8

50–60 min **Plenary** 10 min · Whole class

Compare picture and bar graphs and check totals and differences.

YOU DO

1. Show Slide 9 compare: pictures vs colored bars, taller bar means more.
2. Show Slides 10-11 for vote and quick quiz on totals and most votes.
3. Hand out Worksheet Task D and read the best-answer choices together.
4. Collect exit answers and restate success criteria.

STUDENTS DO

1. Answer quiz questions and complete Worksheet Task D.
2. Vote for favorite graph to draw again and explain why.
3. Say the I can lines with thumbs up or sideways.

Say: Both graphs tell the same story. Count pictures to compare in a picture graph. Look for the taller bar in a bar graph. Tell me the total and how many more or less one group has than another.

Worked example: Pencils 5, Crayons 4, Markers 3, Erasers 2. Most: pencils. Least: erasers. Difference: 5 - 2 = 3 more pencils than erasers. Total 14.

Ask: What does a taller bar tell you? (That group has more votes.) · How many more pencil votes than eraser votes? (3 more, because 5 - 2 = 3.)

Check understanding: Use Worksheet Task D answers plus thumbs up for I can lines. Pull a small group for recounting by 1s if errors remain.

Support: Provide sentence frames: ___ has ___. ___ has ___ more than ___. **Stretch:** Ask students to write a put-together question, like how many chose two tools together, for another pair.

Use: Slides 9–11, Worksheet Task D

Common mistakes

Mistake	How to spot it	How to fix it
Drawing 2 pictures for 1 vote or skipping votes so counts do not match	Bar height does not equal picture row count; totals differ between graphs	Recount one-to-one and remember one symbol represents 1 piece of data [1]; point and count each picture and box [2].
Bars floating above the bottom or skipping numbers on the scale	Bars do not start at 0 or jump from 2 to 4	Always start at the bottom and color 1 box for each vote, counting up by 1s in multiples of 1 [1].
Missing title or group labels so no one knows what bars mean	Student cannot answer which bar is which	Add a title and labeled axes for up to four categories [1][2] before answering questions.

Support

- Give a grid with the title and labeled axes already started and limit the total to 14 votes [1].
- Let students count pictures and bar squares one by one with finger tracking [2].

Stretch

- Students write one more compare question about the data for a partner to solve.
- Students cover one graph and rebuild it by looking only at the other graph.

For the LSE or teaching assistant

Sit with students who need counting support. Help them match 1 picture to 1 vote and 1 box to 1 vote, check title and labels, and use sentence frames for more or less.

Check for understanding

Question	Answer
Pencils have 5 votes. How many pictures in the picture graph?	5 pictures, 1 for each vote.
Pencils 5, Crayons 4, Markers 3, Erasers 2. What is the total number of votes?	14 votes.
Which tool has the most votes? How many more than erasers with 2 votes?	Pencils with 5 votes, 3 more than erasers.

Homework

Tally 4 kinds of items at home and draw 1 small picture for each one you count.

Sources

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