Lesson 89 SHAPE & SPACE

Bar charts — drawing and reading

CURRICULUM ALIGNMENT

DAT.DAT.4a pose questions, collect, compare, summarise and represent data selectively to answer those questions.

INTERACTIVES Bar Chart Builder · challenge, display, explore

WHAT THIS LESSON TEACHES

A **bar chart** shows frequencies as bars. Every bar must have the **same width** with **equal gaps** between them. The vertical scale shows how many — choose a sensible step (e.g. 1, 2, 5, 10) so the tallest bar fits.

→ If the highest frequency is 18, a scale going up in **2s** to 20 fits cleanly.

→ If you only have one or two of each, a scale in **1s** is fine.

LESSON ARC

Display the travel-to-school tally (Walk 12, Cycle 5, Bus 8, Car 3) and have pupils predict which bar is tallest before any chart appears. Walk one bar-chart-builder demo aloud, tracing each bar's top down to the side scale. Pupils build the same chart together at the board, then sketch the frame and bars in their maths copy. Class Challenge runs match-the-tally, read-the-fourth-bar and tied-bars tasks. Side scale steps in twos throughout.

TEACHING MOVES

1. **Getting Started.** Display the four tally counts as the class settles and take two or three hands-up answers to 'which would be tallest?' You want pupils committing to Walk out loud before the chart appears, so the bar chart confirms a prediction rather than arriving cold.
2. **Watch and Notice.** Point at the top of each bar and read it DOWN to the side scale: 'Walk reaches 12, so twelve pupils walk.' Flag the gaps between bars on the favourite-fruit chart — bars don't touch. For the fourth-bar task, trace the Green bar's top down to 4: this is reading-off, the reverse of building.
3. **Try It Together.** Call one pupil up per bar and ask the whole room 'how high should this one go?' before they drag. The side scale steps in twos here, so Walk at 12 is six gridlines up, not twelve — watch for pupils counting gridlines as ones. Read each landed bar back down to the scale to confirm.
4. **Draw the Chart in Your Copy.** Glance for two things only as you walk the room: bars drawn to the right height, and both axes labelled. Nudge any bar that's well off — but no scores, this is practice not marking.
5. **Class Challenge.** Keep the board work brisk — pupils take turns and the class confirms each answer before moving on. For the read-the-fourth-bar task, reuse the point-and-trace move on the new chart. For the tied-bars task, draw out that two equal-height bars just means two categories had the same count.
6. **What Did We Notice?.** Listen for pupils naming height as the thing carrying the count and revoice: 'taller means more, and we read the height off the side scale.' Then ask the wider-bar question to surface and kill the idea that a fatter bar means a bigger count.

COMMON MISCONCEPTIONS

⚠ Pupils drag the Walk bar up twelve gridlines instead of six — they count the scale steps as ones when the side scale actually goes up in twos.

Pause and read the side scale aloud as a class — 0, 2, 4, 6, 8, 10, 12 — touching each gridline. Then count up to the Walk bar's top together: 'two, four, six, eight, ten, twelve — six lines, but it reaches twelve.'

⚠ A pupil claims a wider bar means more pupils chose that category — they read width as count instead of height.

On the bar-chart-builder, point to two bars of different width but equal height and ask which is bigger. Establish that width is only spacing; only the height, traced down to the side scale, tells us the count.

⚠ When reading a finished chart, pupils read off the wrong category because they don't trace straight down the bar to its label or across to the scale.

Model the L-shaped trace explicitly: finger on the bar's top, slide across to the side scale for the number, then drop down the bar to the bottom axis for the category. Have a pupil narrate the trace for one bar.

DIFFERENTIATION

EMERGING

- Pre-draw the chart frame with the side scale and four labels already in their copy, so pupils only place the bar heights, not build the axes.
- Stay with the smaller counts first (Car 3, Cycle 5) where the bar tops land on a labelled gridline before tackling Walk at 12.

DEVELOPING

- After the copybook chart, ask: how much taller is the Walk bar than the Cycle bar, read straight off the scale?
- Give them the bar chart with no numbers shown and ask them to write back the four frequencies just from the bar heights.

PROFICIENT

- At the board, narrate a harder variant: pose a chart where the side scale steps in fives and ask a pupil to read off a bar that lands between two gridlines — explain how they know the value.
- Ask: if we collected one more travel survey from a second class, how would the chart change, and could two bars swap places? Explain the reasoning aloud.

Cross-curricular: Tie to Geography — survey how the class actually travels to school this week and build that real bar chart, then talk about what makes walking or cycling popular locally.

ANSWER KEY

a) Walk bar to height 8.

b) Cycle bar to height 3.

c) Bus bar to height 5.

d) Car bar to height 11.

e) **Car** (11 — the tallest bar).

Q1: 15

Q2: 17

Q3: 116

Q4: 138

EXTENSION SHEET · STRETCH ANSWERS

S1: 106

S2: 21

S3: 2