

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

Open with the class's earlier commute tally beside a blank bar-chart canvas on the IWB and ask how to turn it into a chart. Walk three finished bar charts on screen, locking the rule that height = count and pausing on the tied pets chart. Pupils take turns at the board to build a fresh chart from the same tally, then sketch the frame and bars in their copybook. The Class Challenge bank stretches through five charts including tied categories. Student Activity Book practice consolidates the build.

TEACHING MOVES

- Getting Started.** Put the class's own commute tally up beside the blank canvas. Take two or three suggestions and revoice — but don't draw a single bar yet. Hold the suspense; building is the next step.
- Watch and Notice.** Walk the three charts one at a time. On the fruit chart, point to a bar and ask 'which fruit was second favourite?' — listen for pupils answering by position rather than by height, and correct on the spot. On the pets chart, slow right down at the tied bars and say 'same height means same count — that's fine'.
- Try It Together.** Use a different commute tally from the Watch and Notice numbers (Walk 10, Cycle 4, Bus 7, Car 5) so pupils build fresh, not copy. Bring four pupils up in turn; the rest of the class calls out the target height before each one drags. Watch for the slip of reading the y-axis by line-position ('the 4th line up') instead of value ('the line marked 4').
- Draw the Bar Chart in Your Copy.** Two minutes max. Walk the room glancing at axis labels — 'frequency' on the y-axis, categories on the x-axis. Don't mark; just spot pupils who've left axes unlabelled and point at the missing word.
- Class Challenge.** Read each category label aloud before any pupil drags, so the class hears 'Walk, Cycle, Bus, Car' before the build starts. At the pets chart, pause and ask 'how can two bars be the same height?' Direct fast finishers to the extension bank on their device while you circulate.
- What Did We Notice?.** Display-only — no writing. Listen for pupils saying 'size' or 'length' and revoice to 'height'. On the width question, the target answer is that swapping height for width just shifts the work to counting along the bottom; height does the storytelling because all bars share a width.

COMMON MISCONCEPTIONS

⚠ Pupils read the y-axis by line-position — they call the fourth line up 'four' even when the scale climbs in twos, so a bar reaching the fourth line gets read as 4 instead of 8.

Pause the Class Challenge and point at each line up the y-axis in turn, reading the printed value aloud: 'two, four, six, eight'. Ask 'what does each line mean?' before any pupil drags. The label, not the position, gives the count.

⚠ Pupils think tied bars must be wrong — they'll re-drag one bar to make it slightly taller because 'two bars the same looks weird'.

Stop and rebuild the pets tally on the IWB count by count. Three fish, three none — same count, same height. Say it twice: 'tied is fine, tied is what the data says'. Leave the tied chart on screen for the rest of the round.

⚠ Pupils draw the bars but forget axis labels in the copybook, or write 'frequency' along the x-axis where the categories belong.

During the copybook walk, point silently at the missing or misplaced label and wait. Don't say it for them. If the pupil's stuck, prompt 'where do the counts climb?' — they'll point up, and that's where 'frequency' goes.

DIFFERENTIATION

EMERGING

- Pre-label the x-axis categories in the copybook for pupils who struggle to copy from the board — they only build the bars, not the frame.
- Pair them with the unison-voice moments: when the class calls out the target height before each drag, these pupils get the answer aloud before they commit.

DEVELOPING

- After the copybook sketch, ask: which two bars together equal the 'Walk' bar? They have to add bar heights, not just read them.
- On the Class Challenge sport chart (total 30), ask them to predict the tied pair before any bar goes up — using the total as a constraint.

PROFICIENT

- Direct fast finishers to the extension bank on their device while you circulate.
- Pose: 'if I told you only the total count and three of the four bar heights, could you always work out the fourth?' Ask for a chart where you could, and a chart where you couldn't.

◦ **Cross-curricular:** Tie to Geography — pupils tally the counties their families come from and build a bar chart of the result; tied counties are likely and that's the teaching point.

ANSWER KEY

- a) Walk bar to height 8. **Q1: 15**
- b) Cycle bar to height 3. **Q2: 17**
- c) Bus bar to height 5. **Q3: 116**
- d) Car bar to height 11. **Q4: 138**
- e) ****Car**** (11 — the tallest bar).

EXTENSION SHEET · STRETCH ANSWERS

- S1: 106** **S3: 2**
- S2: 21**