

Critically evaluating graphs and misleading data

WHAT THIS LESSON TEACHES

A graph scale that does not start at zero makes small differences between bars look much larger than they are.

→ Family A scored 92 and Family B scored 96; bars look twice as tall if scale starts at 90.

→ Marks at 0, 10, 50, 100 are spaced the same distance apart on a misleading graph.

MODEL THIS ON THE BOARD

SPOTTING A TRICKY SCALE

- 1 Look at the numbers on the vertical axis and check if it starts at zero.
- 2 See the real difference between the two values like 92 and 96.
- 3 Imagine or sketch the same bars with a scale that starts at zero to compare.

ANSWER KEY

Scaffold: visual check on the page

Q1: Makes the 4-point gap look twice as big

Q2: Truncated axis; 30-can gap looks 4× bigger

Q3: heights 1 and 4 (sister looks 4× taller)

Q4: Chopped/truncated axis (starts at 700)

Q5: Bars nearly same height; gap looks small

a) Always — The rule is that starting above zero stretches the visible difference.

b) Always — It is always misleading for those close numbers.

c) Always — Uneven numbers with equal spaces always distort the picture.

d) Never — Different sizes always mislead when the scale is the issue.

EXTENSION SHEET · STRETCH ANSWERS

S1: 216°

S2: 90°

S3: 15

Investigation: Spot the misleading graph — open-ended; scan pupils' working for valid solution paths rather than a single answer.