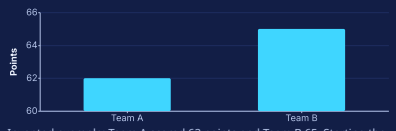
CHOOSING THE RIGHT CHART · PART 5 OF 8 · AGES 11–16

Common Chart Mistakes

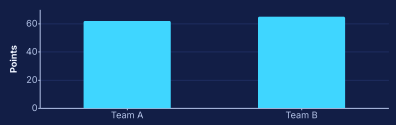
Six ways charts mislead, often by accident, with the fix for each one.

Mistake: the axis starts at 60



Invented example: Team A scored 62 points and Team B 65. Starting the axis at 60 makes B's bar look 2.5 times as tall as A's.

Fixed: the axis starts at 0



The same scores with a zero baseline. Team B scored about 5% more than Team A, and the bars now show that honestly.

1 Bar chart axis not starting at zero

✕ WRONG

~~Bars for 62 and 65 points on an axis that starts at 60~~

✓ RIGHT

Start the value axis at 0 so bar lengths are in proportion to the values

Readers compare bar lengths. A cut-off axis turns a 5% difference into a bar 2.5 times as tall. Line graphs may start above zero if clearly labelled.

2 Overloaded 3D pie chart

✕ WRONG

~~A tilted 3D pie with nine thin slices and a legend to decode~~

✓ RIGHT

A flat pie with up to five or six labelled slices, or a sorted bar chart

Tilting makes front slices look bigger than equal ones at the back, and thin slices are hard to compare. Merge small ones into 'Other'.

3 Uneven time intervals

✕ WRONG

~~2000, 2010, 2015, 2016 and 2017 spaced evenly along the axis~~

✓ RIGHT

Space the years in proportion to time and mark the actual data points

Evenly spacing uneven gaps squashes ten years into the space of one, so a slow change can look sudden.

4 Two y-axes on one chart

✕ WRONG

~~Rainfall on a left axis and umbrella sales on a right axis, stretched until the lines match~~

✓ RIGHT

Draw two charts side by side, each with its own axis

Either scale can be stretched or squashed, so the lines can be made to meet, cross or move together. Statisticians advise avoiding dual axes.

5 Missing units and labels

✕ WRONG

~~An axis numbered 0 to 50 with no title and no unit~~

✓ RIGHT

Label each axis with what it measures and its unit, such as 'Rainfall (mm)'

50 could be millimetres, minutes or per cent. Without labels, readers have to guess, and different readers guess differently.

6 Reading correlation as cause

✕ WRONG

~~'Ice cream sales and sunburn rise together, so ice cream causes sunburn.'~~

✓ RIGHT

'They rise together; hot, sunny weather may be causing both.'

A correlation shows two things change together. Proving a cause needs more evidence, such as a scientific explanation or a fair test.

Check before you share

Does every bar start from zero? Are the axes, units and source labelled? Would someone who has never seen the data read it the way you intend?

NEXT IN THE SERIES
6. Charts and Graphs Key Terms

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