

2 Scatterplots and correlation – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

*Write each word three times.***English****Write it 3 times** (English)

scatterplot

Correlation

Recall

Often two things are linked:

- Taller people tend to weigh more.
- More study hours tend to mean higher marks.
- You can plot pairs of values to see a pattern.

This sheet lines up how to explore two variables together. Each idea has a worked example.

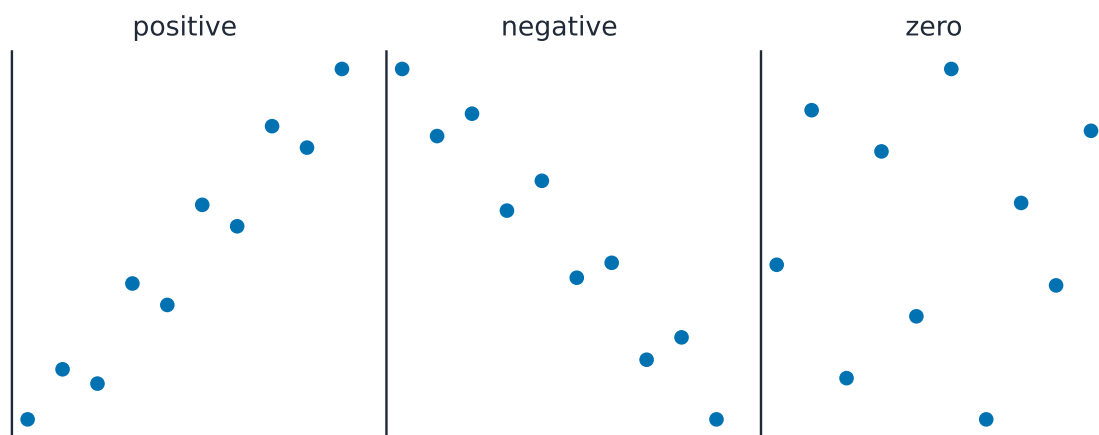
New ideas

■ 1 Scatterplots

A **scatterplot** plots each pair of values as a dot, so you can see any pattern between the two variables.

■ 2 Correlation

Correlation describes the direction of a linear pattern:



- **positive** – as one rises, so does the other,
- **negative** – as one rises, the other falls,
- **none** – no clear pattern.

■ 3 Strength

The correlation coefficient r measures how strong and which way the pattern is: near $+1$ is a strong positive line, near -1 a strong negative one, near 0 no linear link.

■ 4 A caution

Worked example. Ice-cream sales and drownings both rise in summer – they are correlated, but neither causes the other. A third factor (hot weather) drives both.

Watch out: correlation is not causation. Two things rising together does not mean one causes the other – a hidden third factor may cause both.

Practice

Try these in order. The methods are all above.

2.1 State what a scatterplot shows. [2]

2.2 State what positive and negative correlation each mean. [2]

2.3 State what a correlation coefficient near $+1$ tells you. [2]

2.4 State what a correlation coefficient near 0 tells you. [1]

2.5 Ice-cream sales and sunburns are correlated. Explain why this does not mean ice cream causes sunburn. [2]
