

2 Scatterplots and correlation – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word *three times*. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)
scatterplot	散点图	_____
Correlation	相关	_____

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.

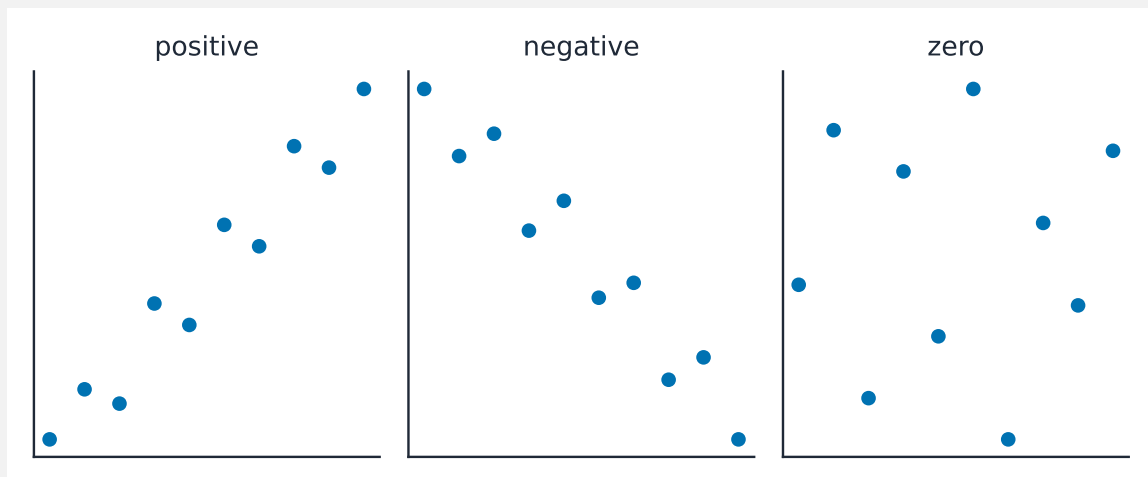
New ideas

■ 1 Scatterplots

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

■ 2 Correlation

Correlation 相关 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]
