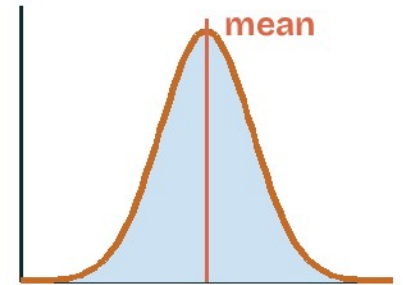


# Statistics and Probability

## Making sense of data and chance

### WHAT IS IT?

Statistics collects, summarizes and interprets data. Probability measures how likely things are. Together they help you judge claims, spot patterns and decide when you cannot be certain.



### THE BIG IDEAS

- 1 Averages (mean, median) and spread (such as range) describe a data set.
- 2 Probability is a number from 0 (impossible) to 1 (certain).
- 3 A fair sample can tell you about a bigger group.
- 4 Two things moving together does not prove one causes the other.

### YOU SEE IT WHEN ...

Weather forecasts

Sports scores and game odds

Polls, surveys and medical test results

### WORDS YOU WILL MEET

#### Mean

the most common average: add the values, then divide by how many

#### Median

the middle value when data is in order (for two middles, halfway between)

#### Probability

how likely an event is, from 0 to 1

#### Sample / population

a part of a group / the whole group

#### Distribution

how data is spread out

#### Correlation

how strongly two things tend to change together

### GOOD TO KNOW FIRST

Fractions, decimals, percentages and reading charts.

### IN YOUR COURSE YOU WILL ...

- Charts and summary numbers
- Probability rules
- The normal distribution
- Surveys, sampling and drawing conclusions

**Start tip: Ask where the data came from before you trust the number.**