

The table below shows English and Maths test scores for 9 different people

English Tests	73%	65%	48%	89%	54%	72%	81%	65%	80%	74%
Maths test	61%	35%	34%	59%	44%	62%	80%	72%	65%	

**Mean**

Add all the data up, divide by how many you have.

**English**

$$\frac{73 + 65 + 48 + 89 + 54 + 72 + 81 + 65 + 80 + 74}{10} = 70\%$$

**Maths**

$$\frac{61 + 35 + 34 + 59 + 44 + 62 + 80 + 72 + 65}{9} = 57\%$$

- The answer you get should be somewhere in the middle of the data.
- Make sure you divide all the numbers by the amount you have, not just the last one.

**Median**

Re-order the data in size order. The median is in the middle.

English: 48, 54, 65, 65, 72, 73, 74, 80, 81, 89

Maths: 34, 35, 44, 59, 61, 62, 65, 72, 80

The median for English is 72.5%, the median for maths is 61%. When you have an even amount of data, the median is midway between the two middle values.

**Mode**

The most is the piece of data that occurs most often. The mode for English is 65%. Maths does not have a mode.

**Range** The difference between the largest and the smallest.

English:  $89 - 48 = 41$

Maths:  $80 - 34 = 36$

When comparing data, the mean/mode/median tell you how about average, whereas range tells you about how spread out the data is.

**Comparing Data**

**Compare Averages**

The mean for English is 70% which is bigger than the mean for maths which is 57%. Therefore, on average the students did better in English than in Maths.

**Compare Range**

The range for maths is 36 which is less than the range in English which is 41. The data in English was therefore more spread out.

**Frequency Tables**

Score	Frequency
1	3
5	4
6	5

The table shows information about scores in a game.

Frequency means 'how frequent' or total. In this example, the total frequency is  $3 + 4 + 5 = 12$

**Mean**

Find the total score then divide by the frequency (12).

$$\begin{aligned} \text{Total score} &= 1 \times 3 + 5 \times 4 + 6 \times 5 \\ &= 3 + 20 + 30 = 53 \end{aligned}$$

$$\text{Mean} = \frac{53}{12} = 4.4$$

Don't make the mistake of dividing by the number of rows.

**Grouped Frequency Tables**

The table shows information about how many times 10 different teams won their matches.

Number of wins	Frequency	midpoint
0 – 4	1	2
5 – 9	5	7
10 – 14	4	12

**Mean**

Use the midpoints to find the mean

Start by making a third column and finding the midpoint of each group.

$$\begin{aligned} \text{Total wins} &= 1 \times 2 + 5 \times 7 + 4 \times 12 \\ &= 2 + 35 + 48 = 85 \end{aligned}$$

$$\text{Mean} = \frac{85}{10} = 8.5$$