

Compare distributions using averages and the range

- 1 A class has a spelling test every week.
Here are the results of four students over a six-week period.

Teddy	6 8 8 9 4 8	Esther	2 6 7 8 9 9
Rosie	7 7 7 7 7 7	Scott	8 6 7 8 7 6

- a) Work out the mean result of each student.

Teddy 7.2 Rosie 7 Esther 6.8 Scott 7

- b) Work out the range of results for each student.

Teddy 5 Rosie 0 Esther 7 Scott 2

- c) Which student had the greatest mean? Teddy
 d) Which student was the most consistent? Rosie
 e) Who do you think revised for the tests?

- 2 Tommy comes to school either by bus or by car.
He compares his travel times (in minutes) by bus and by car.

	Mean	Range
Bus	16	7
Car	12	18

- a) On average, which method of transport is faster? car

How do you know?

The mean is lower.

- b) Which method of transport has the least consistent journey times?

car

How do you know?

The range is greater.

- 3 Filip and Brett are training for a 200 m sprint.

The times (in seconds) for their practice runs are shown.

Filip	27	25	26	25	29	26	25	27	25
Brett	25	24	31	32	29	29	27	30	30

- a) Who has the fastest practice run time? Brett

- b) Work out the median practice run time for each student.

Filip 26 s Brett 29 s

- c) Work out the range of practice run times for each student.

Filip 4 s Brett 8 s

- d) Who has the best median running time? Filip

- e) Who is the most consistent? Filip

- 4 A boys' rugby team plays seven games.
Here is the number of points they score in each game.

14	31	12	27	22	45	16
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- a) Find the median of the number of points scored.

22

- b) Find the range of the number of points scored.

33

A girls' rugby team also plays seven games.

Their median score is 28 points and the range of their scores is 44 points.

- c) Use the median and range to compare the performances of the boys' rugby team and the girls' rugby team.

Median: Girls on average scored more points per game because their median is greater.

Range: Boys were more consistent because they have a smaller range.

- 5 For an English assignment, Nijah is comparing the number of words in thirty sentences of two different authors.

	Number of words in shortest sentence	Number of words in longest sentence	Median number of words per sentence
Author A	6	15	10
Author B	10	23	14

- a) Work out the range of the number of words per sentence for each author.

author A

9

author B

13

- b) Make two comparisons about the number of words per sentence written by the authors.

- Author B used more words per sentence as their median is greater.
- Author A is more consistent as the range is smaller.

- 6 The table shows the scores of a group of students in English and Science tests.

English	47	36	72	42	51	78	38	47	38	52
Science	58	67	74	59	68	66	68	59	63	24

- a) Complete the table.

	Mean	Median	Range
English marks	50.1	47	42
Science marks	60.6	64.5	50

- b) Use an average and the range to make two comparisons between the English and Science marks.

- Science scores were higher because the mean/median for science is greater than the mean/median for English.
- English scores were more consistent because the range of English scores is smaller.

- 7 At a charity 10,000 m race, twenty, experienced runners finish with a mean time of 48 minutes and a range of 10 minutes.

Here are the times (in minutes) of ten first-time runners in the race.

62	70	58	75	66	57	59	98	72	61
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Make two comparisons between the experienced and first-time runners.

mean: 67.8 range: 41

- The experienced runners were faster as their mean is lower.
- The experienced runners were more consistent as their range is smaller.

Will your comparisons change if the runner who took 98 minutes is not included in the data?