



- 1 Here are the test results for two classes.

	Mean	Range
Class 9A	62	40
Class 9B	58	18

Write down two comparisons between the results of the two classes.

(2 marks)

Compare the averages

Mean: $62 > 58$, so 9A did better on average

Compare the spread

Range: $18 < 40$, so 9B was more consistent

9A higher mean, 9B more consistent

- 2 The stem and leaf diagram shows the number of press-ups 11 students did in one minute.

Stem	Leaves
0	6 8
1	1 3 5 7 9
2	2 4 6 8

Key: $1 | 1 = 11$ press-ups

- Find the median number of press-ups.
- Find the range of the number of press-ups.

(3 marks)

a) There are 11 values, so the median is the 6th value: 6, 8, 11, 13, 15, 17, ... The median is 17

b) Range

$$28 - 6 = 22$$

3

Two hockey teams played five matches each. This table shows the number of goals each team scored.

	Match 1	Match 2	Match 3	Match 4	Match 5
Team A	2	0	4	1	3
Team B	1	2	2	3	2

- a. Work out the mean and the range for each team.
b. Which team is more consistent? Give a reason.

(4 marks)

a)

$$A: 2 + 0 + 4 + 1 + 3 = 10$$

$$10 \div 5 = 2 \text{ mean} = 2$$

$$\text{range} = 4 - 0 = 4$$

$$B: 1 + 2 + 2 + 3 + 2 = 10$$

$$10 \div 5 = 2 \text{ mean} = 2$$

$$\text{range} = 3 - 1 = 2$$

b)

Same mean, B has the smaller range

Team B is more consistent

4

Nine boys and nine girls sat the same quiz. Their scores are shown in two stem and leaf diagrams.

Boys

Stem	Leaves
0	5
1	2 8
2	3 7
3	1 5 8
4	4

Girls

Stem	Leaves
2	1 4 6 8
3	0 3 5 7
4	0

Key: 2 | 1 = 21 points

Compare the boys' scores with the girls' scores.

(3 marks)

Boys' median

the 5th of 9 values = 27. Girls' median: the 5th of 9 values
= 30

Boys' range

$44 - 5 = 39$. Girls' range: $40 - 21 = 19$

The girls' median is higher, so on average the girls scored more points

The girls' range is smaller, so the girls' scores were more consistent

5

A town council records how many minutes late the 12 bus and the 15 bus were on five days.

	Mon	Tue	Wed	Thu	Fri
Route 12	4	7	2	9	3
Route 15	6	5	7	5	7

- a. Work out the mean delay and the range for each route.
 b. Sunita says, "Route 12 is better because its mean delay is smaller." Give one reason why Route 15 might still be seen as the more reliable route.

(4 marks)

a)

$$\text{Route 12: } 4 + 7 + 2 + 9 + 3 = 25$$

$$25 \div 5 = 5 \text{ mean} = 5$$

$$\text{range} = 9 - 2 = 7$$

$$\text{Route 15: } 6 + 5 + 7 + 5 + 7 = 30$$

$$30 \div 5 = 6 \text{ mean} = 6$$

$$\text{range} = 7 - 5 = 2$$

b)

Route 15 range (2) is much smaller than Route 12 (7)

Route 15 is more consistent

6

The stem and leaf diagram shows the times, in minutes, that 15 students in Class A took to finish a puzzle.

Stem	Leaves
2	1 4 8
3	0 2 3 5 7 9
4	2 4 6 8
5	0 3

Key: 2 | 1 = 21 minutes

For Class B, the median time was 38 minutes and the range of the times was 15 minutes.

- Find the median time for Class A.
- Find the range of the times for Class A.
- Compare the times of Class A with the times of Class B.

(4 marks)

a) There are 15 values, so the median is the 8th value: 21, 24, 28, 30, 32, 33, 35, 37, ... The median is 37 minutes

b) Range

$$53 - 21 = 32 \text{ minutes}$$

c) Class A's median (37) is lower than Class B's (38), so on average Class A finished slightly faster

Class A's range (32) is larger than Class B's (15), so Class B's times were more consistent

7

A gardener grew 12 bean plants using Fertiliser A and 12 bean plants using Fertiliser B. The stem and leaf diagrams show the heights of the plants, in centimetres, after six weeks.

Fertiliser A

Stem	Leaves
1	4 7
2	1 3 6 8
3	0 2 5 7
4	1 3

Fertiliser B

Stem	Leaves
2	5 7 9
3	1 2 4 6 8 9
4	0 2 5

Key: 2 | 5 = 25 cm

The gardener wants to use the fertiliser that grows taller, more consistent plants. Compare the two distributions and state which fertiliser the gardener should choose.

(5 marks)

Fertiliser A median

$$\begin{aligned} \text{mean of the 6th and 7th of 12 values} &= (28 + 30) \text{ divided by } 2 \\ &= 29 \text{ cm} \end{aligned}$$

Fertiliser B median

$$(34 + 36) \text{ divided by } 2 = 35 \text{ cm}$$

Fertiliser A range

$$43 - 14 = 29 \text{ cm. Fertiliser B range: } 45 - 25 = 20 \text{ cm}$$

B has the higher median, so its plants are taller on average, and B has the smaller range, so its heights are more consistent

The gardener should choose Fertiliser B

8

Nine students in Year 7 and nine students in Year 11 ran a race. Here are their times, in seconds.

Year 7: 12 15 15 18 20 21 24 26 28

Year 11: 8 10 13 14 16 19 22 25 27

Compare the times of the Year 7 students with the times of the Year 11 students.

(4 marks)

Year 7 median

the 5th value = 20 seconds. Year 11 median: the 5th value = 16 seconds

Year 7 range

$28 - 12 = 16$ seconds. Year 11 range: $27 - 8 = 19$ seconds

The Year 11 median is lower, so on average the Year 11 students ran faster

The Year 7 range is smaller, so the Year 7 times were more consistent