PRIOR LEARNING

Associations between variables

Round answers to one decimal place where necessary.

1 A class obtains the following results on a spelling test.

7 5 9 8 4 7 9 8 6 2 10 5 9 2 3 8 9

a Find the mode.

b Find the median.

c Calculate the mean.

d What is the range?

e What is the interquartile range?

f Use your scientific calculator to calculate the standard deviation, s_{n-1}.

2 The growth of some newly-planted tomato plants is measured after 60 days and recorded below.

Growth (in cm)	12	13	14	15	16	17	18
Frequency	3	1	4	5	7	8	4

a Find the mode.

b Find the median.

c Calculate the mean.

d What is the range?

e What is the interquartile range?

f Use your scientific calculator to calculate the standard deviation, s_{n-1}.

3 The heights of a group of students are recorded in this table.

Height (in cm)	155–159	160–164	165–169	170–174	175–179
Frequency	2	5	8	3	10

a Find the modal class.

b Find the median class.

c Calculate the mean. (Hint: use the class centres.)

d What is the range?

e What is the interquartile range?

f Calculate the standard deviation.

4 The following data was collected for the heights (in cm) of Year 8 students.

154 151 163 159 160 191 165 153 142 151 163

a What is the median score?

b What is the interquartile range?

c Calculate the mean.

d Find any outliers.

e Recalculate the mean without the outliers.

f What is the difference between the means calculated with and without the outliers?

5 The heights (in cm) of two basketball teams were recorded:

Team 1	184	189	188	179	192	186	190	187	193	189
Team 2	187	185	196	189	182	191	183	185	187	194

a What is the mean height of the Team 1 players?

b Calculate the standard deviation of the Team 1 players.

c What is the mean height of the Team 2 players?

d Calculate the standard deviation of the Team 2 players.

e Compare the mean heights.

f Compare the standard deviations.

6 Describe the shape of each display.

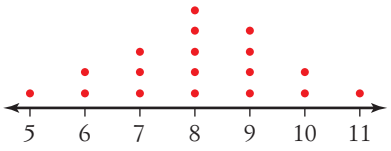
a

b

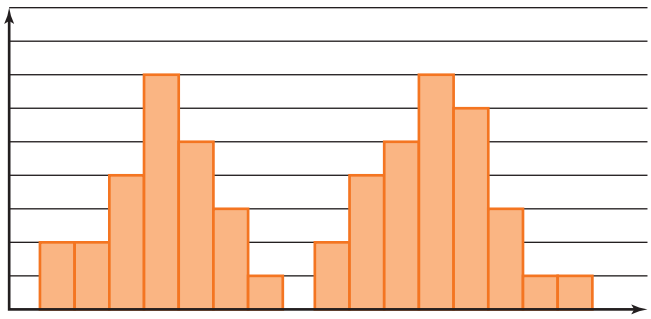
Stem	Leaf
0	2
1	0 5 6
2	2 4 5 5 8
3	4 4 6
4	7

c

d



e



f

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

Answers

1 **a** 9
b 7
c 6.5
d 8
e 4.5
f 2.6

2 **a** 17 cm
b 16 cm
c 15.6 cm
d 6 cm
e 2.5 cm
f 1.8 cm

3 **a** 175–179 cm
b 165–169 cm
c 169.5 cm
d 24 cm
e 12.5 cm
f 6.7 cm

4 **a** 159 cm
b 12 cm
c 159.3 cm
d 191 cm
e 156.1 cm
f 2.9 cm

5 **a** 187.7 cm
b 4.1 cm
c 187.9 cm
d 4.6 cm
e The means of the two teams are almost the same. Team 2's mean is higher by 0.2 cm.
f The standard deviations of both teams are very similar. Team 2's standard deviation is larger by 0.5 cm, so their heights are slightly more spread out.

6 **a** Positively skewed
b Symmetrical
c Negatively skewed
d Symmetrical
e Bimodal
f Negatively skewed