

SCORE

# Data & Measurement

With Classified  
answer book

8

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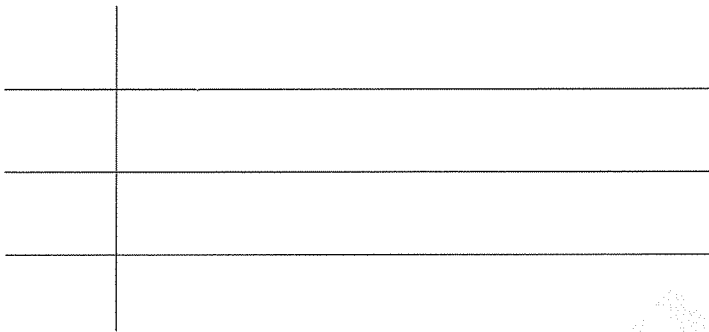
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## 5- Stem & Leaf Diagrams

1. Here are the heights, in cm, of 15 plants.

35	41	47	32	45
40	52	33	55	41
29	38	42	48	38

Draw an ordered stem and leaf diagram to show this information.

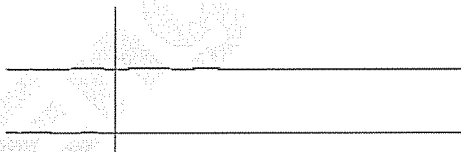


Key:

2. Jo measured the times in seconds it took 18 students to run 400 m. Here are the times.

67	78	79	98	96	103
75	85	94	92	61	80
82	86	90	95	90	89

Draw an ordered stem and leaf diagram to show this information.



3 Use the stem and leaf diagram below to answer the following questions:

Key : 3	5 represents 35
3	5 7 9
4	1 4 5 8 8
5	0 3 6

- 1) The lowest value
- 2) The highest value
- 3) The third value
- 4) The seventh value
- 5) The median value
- 6) The range of the values
- 7) The mode
- 8) The total number of values
- 9) The mean

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- 4 The stem-and-leaf diagram shows the times taken by the students in a Stage 9 class to run 100 m.

Boys' times					Girls' times					
7	5	5	1	15	9					
8	3	2	2	0	16	7	8	8	8	
6	4	4	4	3	17	3	5	5	6	7
				0	18	1	4	4	5	
					19	6	9			

Key: For the boys' times, 1 | 15 means 15.1 seconds  
For the girls' times, 15 | 9 means 15.9 seconds

- a For each set of times, work out
- the mode
  - the median
  - the range
  - the mean.

- 5 This back-to-back stem-and-leaf diagram shows the times taken by the learners in a Stage 9 class to complete a word puzzle. All times are measured to the nearest tenth of a second.

**Girls' times    Boys' times**

	9	24		
6 5 5 4 2 1		25	3	
8 4 3 1 0		26	2 5 5 5 8	
5 3 3 3		27	1 3 5 6 7 7 9	
		28	6 8 9	

**Key:** For the girls' times, 9|24 means 24.9 seconds

For the boys' times, 25|3 means 25.3 seconds

- a For each set of times, work out
- i the mode
  - ii the median
  - iii the range
  - iv the mean.
- b Compare and comment on the times taken by the girls and the boys to complete the word puzzle.

c

John Says

On average, the boys complete the puzzle more quickly than the girls.

Sara Says

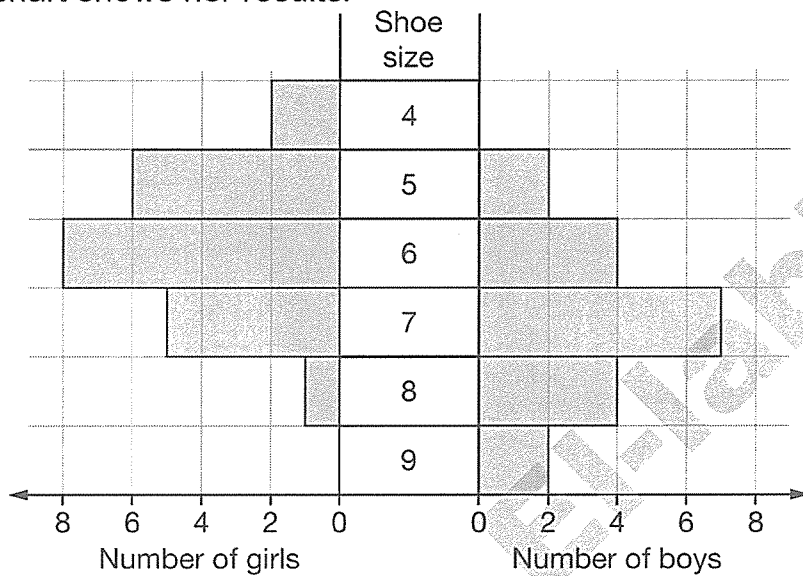
On average, the girls complete the puzzle more quickly than the boys.

- i Which average do you think John is using?
  - ii Which average do you think Sara is using?
- d Who do you think completes the puzzle more quickly, the girls or the boys? Explain your answer.

6. Kim asked some pupils:

To the nearest whole number, what is your shoe size?

The chart shows her results.



(a) How many pupils had **size 6** shoes? \_\_\_\_\_

(b) Kim asked **more girls** than boys. How many more? \_\_\_\_\_

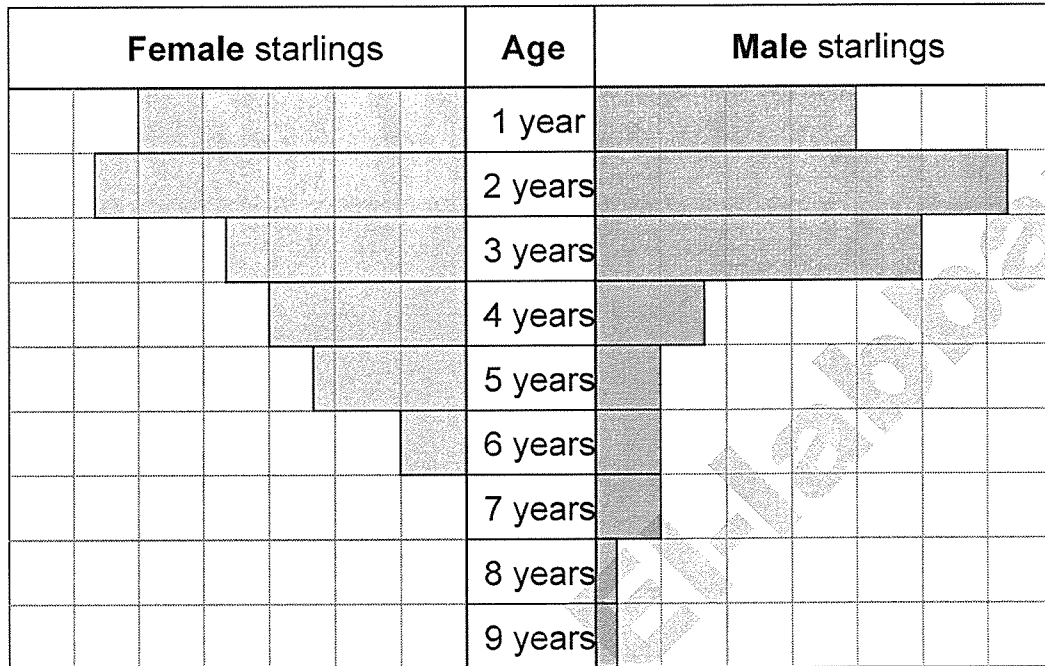
(c) Who had the bigger **range** of shoe sizes?

Girls       Boys       Both the same

Explain your answer.

7. Starlings are birds that live in groups.

The chart shows the **ages** of a group of starlings.



In the chart, each square represents **3** starlings.

- (a) How many **female** starlings are aged **4 years**?

\_\_\_\_\_female

- (b) How many **male** starlings are aged **4 years**?

\_\_\_\_\_male

- (c) More male starlings than female starlings are aged **6 years or older**.

How many more?

\_\_\_\_\_

8 The time taken, in minutes, for 20 pupils to get to school were recorded.

A student was asked to draw an ordered stem and leaf diagram for the data, which is shown below.

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

The student has not drawn the stem and leaf diagram correctly.

Identify three mistakes the student has made.

9. This dual stem and leaf diagram shows the results for the students in M Turner's class.

- (a) How many boys are there in the class?
- (b) How many girls are there in the class?
- (c) What was the highest mark in the class?
- (d) Find the range of the boys' results
- (e) Find the median of the girls' results
- (f) Find the modal mark for the whole class.

		Boys		Girls	
		5	4	0	7
8	8	5	3	2	3 3
		9	4	1	6
			2	1	0 4
			0	5	6 9

Boys Key: 9|2 means 29 marks

Girls Key: 2|6 means 26 marks



10. The data on the right shows daily temperatures (in °C) in Dundee and in London during the same period. Draw a back-to-back stem and leaf diagram to show the data.

Dundee	12	19	6	7	23	4
	3	1	15	5	2	3

London	4	9	18	7	24	12
	13	12	15	21	11	16

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11 Chen records the length, in millimetres, of 10 shells.

34	46	37	55	38
52	68	40	31	47

He draws this stem-and-leaf diagram to show the data.

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

Chen's stem-and-leaf diagram contains some errors.

Draw a correct stem-and-leaf diagram to show Chen's data.


12 Lily counts the number of people on the 12 buses that arrive at Pugu bus station in one day.

23	29	20	27	44	27
41	28	19	16	17	8

She draws a stem-and-leaf diagram of her results.

0	8				
1	6	7	9		
2	0	3	7	8	9
3					
4	4	1			

Key:  
1|6 represents 16 buses

Lily makes some mistakes on her stem-and-leaf diagram.

Redraw the stem-and-leaf diagram correctly below.


Key:  
.....  
.....

13. The weights of books on a bookshelf are given in the stem and leaf diagram below.

Key : 0	4 represents 0.4 kilograms
0	4 5 5
1	0 1 3 4 8
2	4 7

- What is the modal weight
- Find the median weight
- The bookshelf can hold  $13kg$  in total.

Can the shelf support the weight of all the books?  
Explain your reasons.

- 14 The stem and leaf diagram shows the amount of time taken by 9 year 11 students to run 100m.

Key : 1	4 represents 14 seconds
1	4 5
2	0 1 3 4 8
3	3 9

- (a) Work out the median
- (b) Work out the range
- (c) Another pupil ran the race in 38 seconds  
Tick the box that applies

- The range will decrease The
- range will stay the same The
- range will increase

15. This dual stem and leaf diagram shows the number of tickets Andrew sells on April and October

April	October
Key 1   7 = 71 tickets	Key 7   5 = 75 tickets
7	5 6 7
8	0 2 4 7 9
9	1 2 2
10	5 7
11	3

- a) Write down the maximum number of tickets he sells on one day in October.

..... tickets

- b) Find the median number of tickets he sells in October.

..... tickets

- c) The number of tickets he sells for boat trips in April are given below.

92    71    86    97 95 80    117    100  
76    94    106 87    81    102    84

Complete the stem-and-leaf diagram to show this information.