Stem and Leaf Diagrams - Worksheet

Skills

Group A - Drawing a stem and leaf diagram

Using the data, draw an ordered stem and leaf diagram. Remember to include a key to show what the values within the diagram represent.

1)
21, 15, 19, 35, 24, 30, 26, 11

2)
72, 56, 62, 60, 52, 79, 84, 41

3)
103, 100, 125, 123, 101, 111

4)
210, 250, 260, 180, 240, 185

5)
6.2, 7.3, 8.8, 4.5, 4.1, 6.6

6)
1.1, 1.4, 2.3, 2.1, 2.8, 4.7, 4.2

Group B - Reading a stem and leaf diagram

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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Stem and Leaf Diagrams - Worksheet

Group C - Interpreting stem and leaf diagrams.

For each stem and leaf diagram find the mode, median, mean and range.

1)

Key : 3	5 represents 35
3	5 9
4	0 0 2 4 4 5 8 9
5	3 8
6	0

a) Mode =

b) Median =

c) Mean =

d) Range =

2)

Key : 1	5 represents 15
1	5 8
2	0 0 1 1 1 8 9
3	2 8
4	0

a) Mode =

b) Median =

c) Mean =

d) Range =

3)

Key : 11	5 represents 115
11	5 7 7
12	0 1 4 6
13	3 9
14	5

a) Mode =

b) Median =

c) Mean =

d) Range =

4)

Key : 1	4 represents 1.4
1	4 5
2	0 1 3 4 8
3	3 9

a) Mode =

b) Median =

c) Mean =

d) Range =

5)

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

a) Mode =

b) Median =

c) Mean =

d) Range =

6)

Key : 3	5 represents 3.5
3	5 7 9
4	1 4 5 8 8
5	0 3 6

a) Mode =

b) Median =

c) Mean =

d) Range =

Stem and Leaf Diagrams - Worksheet

Applied

1) The stem and leaf diagram shows the height of 10 students on a school trip to a theme park.

Key : 11	5 represents 115
11	5 7 7
12	0 1 4 6
13	3 9
14	5

(a) To be able to ride on the roller coasters the pupils need to be over $120cm$ tall. How many pupils can ride on the roller coaster?

(b) If a pupil is selected at random, what is the probability that they will not be able to ride the roller coaster?

2) 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

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Stem and Leaf Diagrams - Worksheet

(d) Another pupil ran the race in 38 seconds
Tick the box that applies

- ☐ The median will decrease
- ☐ The median will stay the same
- ☐ The median will increase

3) 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

(a) What is the modal weight

(b) Find the median weight

(c) The bookshelf can hold $13kg$ in total.

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

Stem and Leaf Diagrams - Exam Questions

1) **(a)** The time taken by pupils to complete a puzzle is given below.

21, 23, 22.5, 20.7, 19.8, 21.7, 21, 21.3, 20.6,
19.3, 20.8, 17.5, 18.4, 17.4, 22.1, 22, 21.1,
18.2, 16.4, 19.8

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

(3)

(b) Find the median time.

.....

(1)

(4 marks)

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Stem and Leaf Diagrams - Exam Questions

2) The stem and leaf diagram below shows the scores of 20 students in a competition:

Key : 4	3 represents 43 marks
4	3 6
5	3
6	7 8 8
7	0 0 8 9
8	1 5 6
9	4 7 7 9 9
10	4 7

(a) Find the median score

.....

(1)

(b) Find the mean score

.....

(2)

(c) Afterwards, it was discovered that the score 95 marks had been missed off the original list of data.

If this piece of data had been included, what effect would it have on the median from part (a)

Tick the correct statement.

- ☐ The median would decrease.
- ☐ The median would increase by 5
- ☐ The median would stay the same
- ☐ The median would increase by 1

.....

(1)

(4 marks)

Stem and Leaf Diagrams - Exam Questions

3) 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.

1.

2.

3.

(3 marks)

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Stem and Leaf Diagrams - Answers

	Question	Answer
	Skill Questions	
Group A	Using the data, draw an ordered stem and leaf diagram. Remember to include a key to show what the values within the diagram represent.	
	1) 21, 15, 19, 35, 24, 30, 26, 11	**1)** 1 | 1 5 9 2 | 1 4 6 3 | 0 5 Key: 1|1 represents 11
	2) 72, 56, 62, 60, 52, 79, 84, 41	**2)** 4 | 1 5 | 2 6 6 | 0 2 7 | 2 9 8 | 4 Key: 7|2 represents 72
	3) 103, 100, 125, 123, 101, 111	**3)** 10 | 0 1 3 11 | 1 12 | 3 5 Key: 10|3 represents 103

Stem and Leaf Diagrams - Answers

4) 210, 250, 260, 180, 240, 185

4)

18	0 5
19	
20	
21	0
22	
23	
24	0
25	0
26	0

Key: 18|0 represents 180

5) 6.2, 7.3, 8.8, 4.5, 4.1, 6.6

5)

4	1 5
5	
6	2 6
7	3
8	8

Key: 4|1 represents 4.1

6) 1.1, 1.4, 2.3, 2.1, 2.8, 4.7, 4.2

6)

1	1 4
2	1 3 8
3	
4	2 7

Key: 1|1 represents 1.1

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Stem and Leaf Diagrams - Answers

Group B

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	**1)** 35
2)	The highest value	**2)** 56
3)	The third value	**3)** 39
4)	The seventh value	**4)** 48
5)	The median value	**5)** 45
6)	The range of the values	**6)** 11
7)	The mode	**7)** 48
8)	The total number of values	**8)** 11
9)	The mean	**9)** $45.1\ (1dp)$

Group C

For each stem and leaf diagram find the mode, median, mean and range.

1)

Key : 3	5 represents 35
3	5 9
4	0 0 2 4 4 5 8 9
5	3 8
6	0

1)

a)	Mode	**a)** 40 and 44
b)	Median	**b)** 44
c)	Mean	**c)** 45.9
d)	Range	**d)** 25

Stem and Leaf Diagrams - Answers

Group C contd	**2)**	**2)**

Key : 1	5 represents 15
1	5 8
2	0 0 1 1 1 8 9
3	2 8
4	0

	a) Mode	**a)** 21
	b) Median	**b)** 21
	c) Mean	**c)** 25. 25
	d) Range	**d)** 25
	3)	**3)**

Key : 11	5 represents 115
11	5 7 7
12	0 1 4 6
13	3 9
14	5

	a) Mode	**a)** 117
	b) Median	**b)** 122. 5
	c) Mean	**c)** 125. 7
	d) Range	**d)** 30
	4)	**4)**

Key : 1	4 represents 1.4
1	4 5
2	0 1 3 4 8
3	3 9

	a) Mode	**a)** no mode
	b) Median	**b)** 2. 3

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Stem and Leaf Diagrams - Answers

	c) Mean	**c)** 2.41
	d) Range	**d)** 2.5
	5) Key : 0 | 4 represents 0.4 0 | 4 5 5 1 | 0 1 3 4 8 2 | 4 7	**5)**
	a) Mode	**a)** 0.5
	b) Median	**b)** 1.2
	c) Mean	**c)** 1.31
	d) Range	**d)** 2.3
	6) Key : 3 | 5 represents 3.5 3 | 5 7 9 4 | 1 4 5 8 8 5 | 0 3 6	**6)**
	a) Mode	**a)** 4.8
	b) Median	**b)** 4.5
	c) Mean	**c)** 4.51 (1dp)
	d) Range	**d)** 2.1

Stem and Leaf Diagrams - Answers

	Question	Answer
	Applied Questions	
1)	The stem and leaf diagram shows the height of 10 students on a school trip to a theme park. **Key : 11 | 5 represents 115** 11 | 5 7 7 12 | 0 1 4 6 13 | 3 9 14 | 5	
	a) To be able to ride on the roller coasters the pupils need to be over $120cm$ tall. How many pupils can ride on the roller coaster?	**a)** 6 pupils
	b) If a pupil is selected at random, what is the probability that they will not be able to ride the roller coaster?	**b)** $\frac{4}{10}$ or 0.4 or 40%
2)	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	**a)** 23 seconds
	b) Work out the range	**b)** 25 seconds
	c) Tick the multiple choice	**c)** The range will stay the same
	d) Tick the multiple choice	**d)** The median will increase

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Stem and Leaf Diagrams - Answers

3) 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

a) What is the modal weight

b) Find the median weight

c) The bookshelf can hold $13kg$ in total.

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

a) $0.5kg$

b) $1.2kg$

c) No, the total is more than $13kg$ $(13.1kg)$

Stem and Leaf Diagrams - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	Complete the stem and leaf diagram 21, 23, 22.5, 20.7, 19.8, 21.7, 21, 21.3, 20.6, 19.3, 20.8, 17.5, 18.4, 17.4, 22.1, 22, 21.1, 18.2, 16.4, 19.8	(a) 16 | 4 17 | 4 5 18 | 2 4 19 | 3 8 8 20 | 6 7 8 21 | 0 0 1 3 7 22 | 0 1 5 23 | 0 Key : 16 | 4 represents 16.4 seconds Correct stem values Correct leaf values in order Correct Key	 (1) (1) (1)
(b)	What is the median?	(b) 20.75 seconds	(1)
2) (a)	Find the median score.	(a) 80 marks	(1)
(b)	Find the mean score.	(b) *their* 1591 ÷ 20 79.55	(1) (1)
(c)	Tick the correct statement. ☐ The median would decrease. ☐ The median would increase by 5 ☐ The median would stay the same ☐ The median would increase by 1	(c) The median would increase by 1	(1)

Stem and Leaf Diagrams - Mark Scheme

3)	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.	Top line not in ascending order **oe** Only 19 values in the diagram **oe** No key given **oe**	**(1)** **(1)** **(1)**

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