Mean, Median, Mode & Range

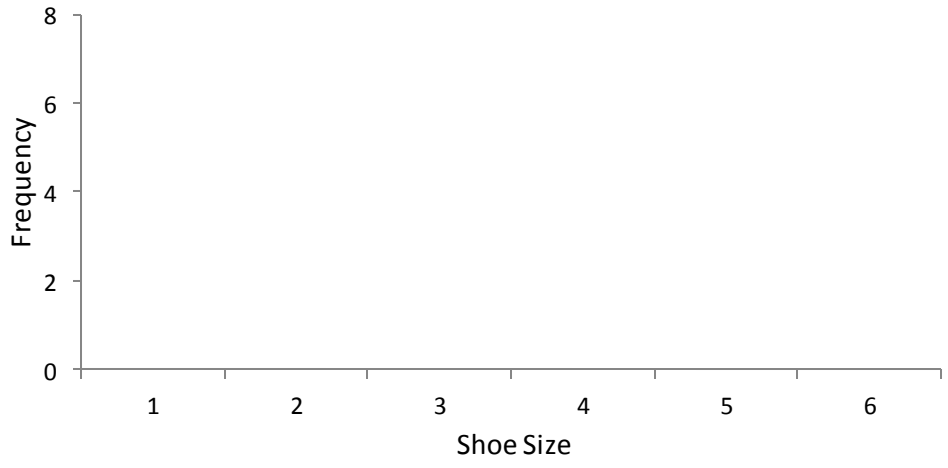
1) A survey was carried out asking 20 boys their shoe size. The results are shown below:-

3	5	1	2	2	4	3	2	4	1
5	6	3	3	3	2	4	3	2	3

Record the results in the frequency diagram below:-

Shoe Size	Frequency	Total
1		
2		
3		
4		
5		
6		
Total		

Now plot the results on the bar chart below:-



a) What is the most common (mode) shoe size?

b) What is the median shoe size?

c) What is the range of shoe sizes?

d) What is the mean (average) shoe size?

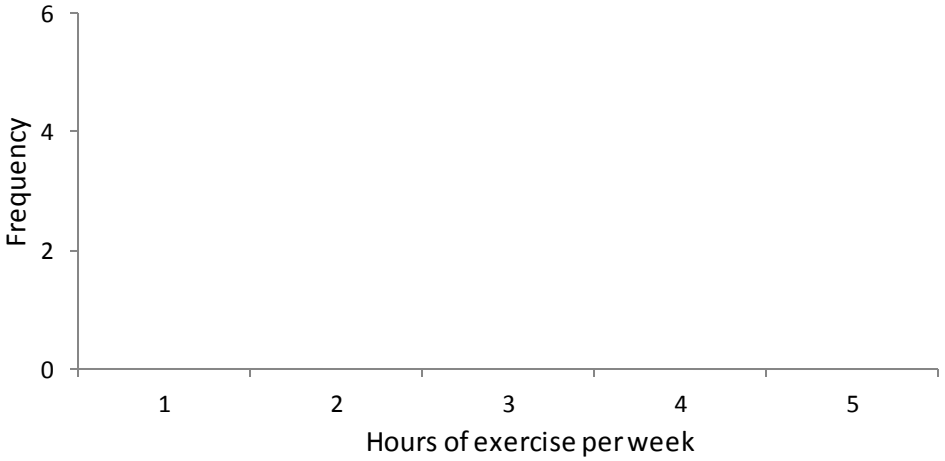
2) 15 children were asked how many hours of exercise they did each week. The results are shown below:-

2	5	1	3	4	4	2	2
2	4	3	2	3	1	2	

Record the results in the frequency diagram below:-

Hours of exercise per week	**Frequency**	**Total**
1		
2		
3		
4		
5		
Total		

Now plot the results on the bar chart below:-



a) What is the most common (mode) number of hours of exercise per week?

b) What is the median number of hours of exercise per week?

c) What is the range of number of hours of exercise per week?

d) What is the mean (average) number of hours of exercise per week?

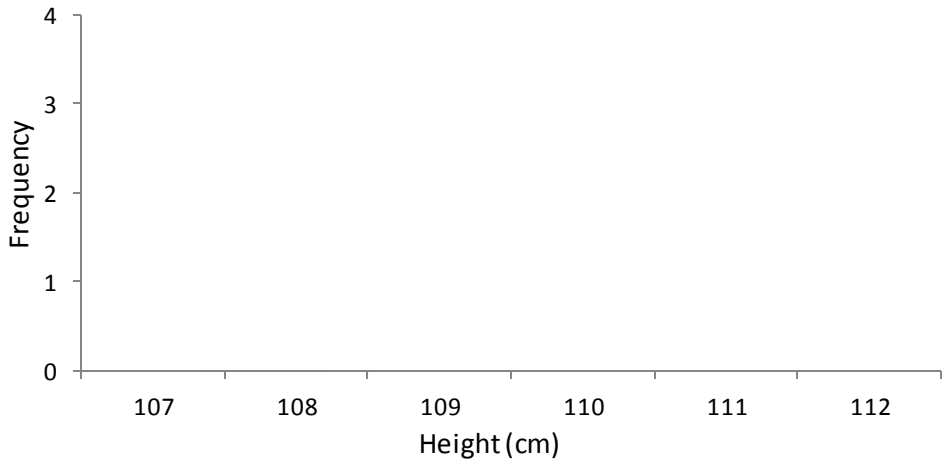
3) The heights of 12 children were measured. The results are shown below:-

107cm	112cm	110cm	108cm	110cm	109cm
108cm	110cm	109cm	109cm	111cm	109cm

Record the results in the frequency diagram below:-

Height (cm)	Frequency	Total
107cm		
108cm		
109cm		
110cm		
111cm		
112cm		
Total		

Now plot the results on the bar chart below:-



a) What is the most common (mode) height?

b) What is the median height?

c) What is the range of heights?

d) What is the mean (average) height?

Answers

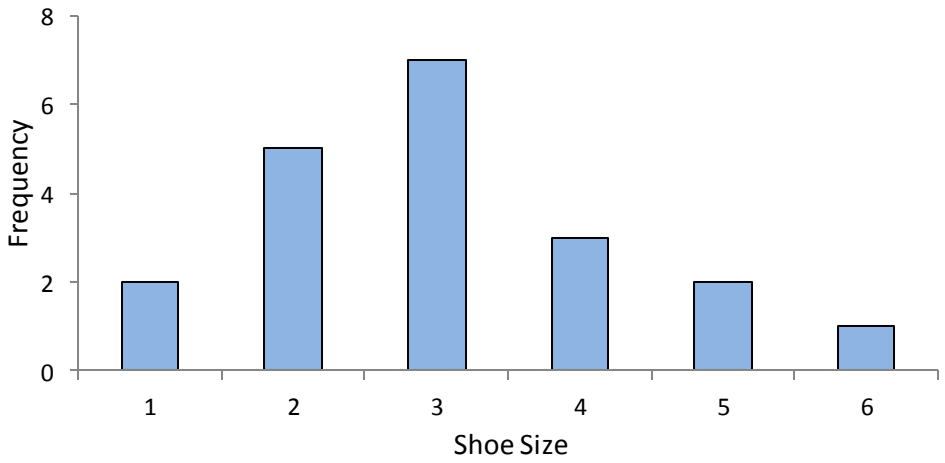
1) A survey was carried out asking 20 boys their shoe size. The results are shown below: -

3	5	1	2	2	4	3	2	4	1
5	6	3	3	3	2	4	3	2	3

Record the results in the frequency diagram below:-

Shoe Size	Frequency	Total
1	II	2
2	𝍸	5
3	𝍸 II	7
4	III	3
5	II	2
6	I	1
Total		**20**

Now plot the results on the bar chart below:-



a) What is the most common (mode) shoe size? 3

b) What is the median shoe size? 3

c) What is the range of shoe sizes? 5

d) What is the mean (average) shoe size? 3.05

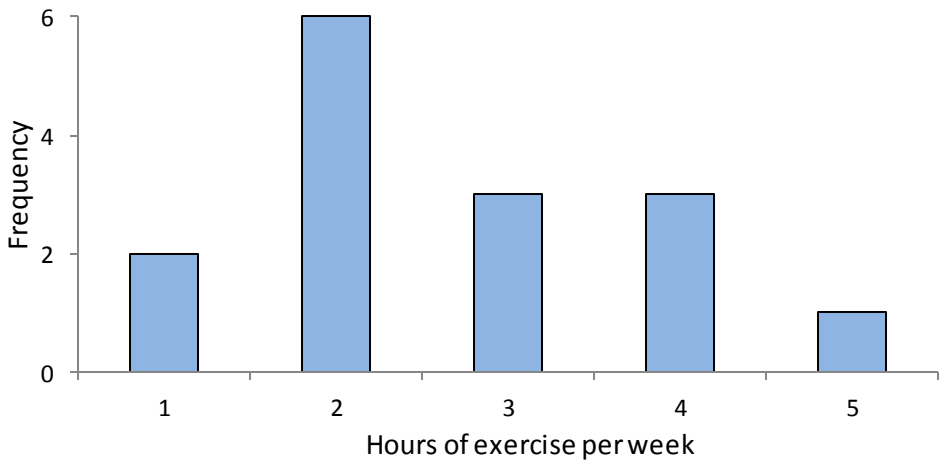
2) 15 children were asked how many hours of exercise they did each week. The results are shown below:-

2	5	1	3	4	4	2	2
2	4	3	2	3	1	2	

Record the results in the frequency diagram below:-

Hours of exercise per week	Frequency	Total
1	II	2
2	𝍸 I	6
3	III	3
4	III	3
5	I	1
Total		**15**

Now plot the results on the bar chart below:-



a) What is the most common (mode) number of hours of exercise per week? 2

b) What is the median number of hours of exercise per week? 2

c) What is the range of number of hours of exercise per week? 4

d) What is the mean (average) number of hours of exercise per week? 2⅔

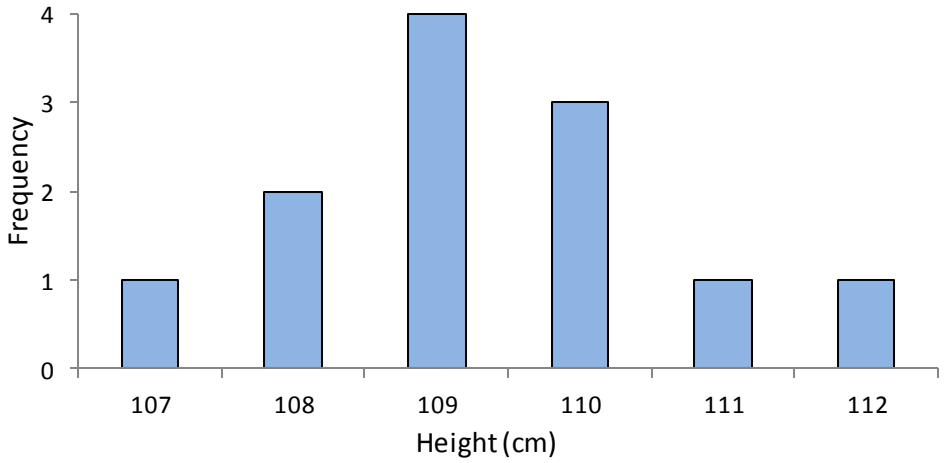
3) The heights of 12 children were measured. The results are shown below:-

107cm	112cm	110cm	108cm	110cm	109cm
108cm	110cm	109cm	109cm	111cm	109cm

Record the results in the frequency diagram below:-

Height (cm)	Frequency	Total
107cm	I	1
108cm	II	2
109cm	IIII	4
110cm	III	3
111cm	I	1
112cm	I	1
Total		**12**

Now plot the results on the bar chart below:-

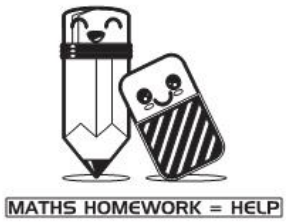


a) What is the most common (mode) height? 109cm

b) What is the median height? 109cm

c) What is the range of heights? 5cm

d) What is the mean (average) height? 109 ⅓cm



Tips and Techniques

1. Read each question slowly. You may find it helpful to underline the numbers and important information that will affect your answer.
For example: Find 23 more than 57?

2. If you do not understand the question straightaway, try reading it through a couple of times until it makes sense.

3. Make sure you read the question carefully. Often, the words highlighted in bold in the question will be the part you need to pay the most attention to, *e.g. Which country had the* ***greatest increase*** *in visitors from 2005 to 2006?*

4. Even if you know the answer to the question without working it out on paper, it is important to always show your working out in the box provided. You will lose marks if you do not do this.

5. Always use a ruler when drawing shapes, symmetry or graphs.

6. Topics that are useful to revise;

* **Time** - 24 hour clock, adding a length of time e.g. 45 minutes to a certain time. An example of a question where time is used is - *"The time is one thirty in the afternoon. Write this as it would be shown on a twenty-four hour clock?"*
* **Money** - find the total amount of shopping items, how much change will you get from a £5, £10 note etc.
* **Number calculations** - times tables, addition, subtraction, multiplication and division methods.
* **Measurement** - how many metres in a kilometre, millilitres in a litre and grams in a kilogram?
* **Percentages and fractions** - 1/2=0.5 or 50%, 1/4=0.25 or 25%, 3/4=0.75 or 75%, 1/3=0.33 or 33%, 1/5=0.2 or 20%

7. Check to see how many marks the question is worth. If it is worth more than one mark, make sure you show your working out.

8. Use everyday objects to help your child practice certain topics. For example; a shopping receipt can be good revision for money questions - adding totals and finding change. Other useful objects that you could use are;

* **Television Guide** - Practice the time a programme starts, what time will it finish? how long does the programme last?
* **Weather Chart** - Change in temperature - *e.g. The temperature fell from 3 degrees celsius to -4 degrees celsius. By how many degrees did the temperature fall?*
* **Measure yourself and other family members to practice height** (in cm, metres), weight (in grams, kilograms), area of hands and feet. You could also calculate the average family height, weight etc.