A sample of 25, month-old chicks from a colony of Rockhopper penguins have had their masses (kg) recorded.

1.12	1.63	0.97	1.27	1.49	1.19	1.24
0.98	1.18	1.34	1.40	0.90	0.96	1.32
1.47	0.94	1.17	1.58	1.47	1.56	1.21
0.93	1.57	1.38	1.23			

1. What is the mode mass of the penguins?
2. What is the median mass of the penguins?
3. What is the range of penguin mass?
4. Calculate the mean mass of the penguins (to 2 dp).
5. Hannah says that you could not create a meaningful frequency table from this data unless it was a grouped frequency table.
   What is a grouped frequency table?
   Why is Hannah correct?

Answers:

1. The mode is the most commonly occurring data item.
   If you created a bar chart from some data the mode would be the data item with the tallest column
   Here the mass of 1.47kg is the mode (it occurs 2 times, everything else only once)
2. The median is the middle data item once they have been sorted into order.
   If you put all the masses into order (ascending or descending it does not matter) and then find the middle item – the 13th – you will find 1.24kg
3. The range = largest value – smallest value
   1.63 – 0.9 = 0.73kg
4. The mean = total of all data items ÷ number of data items
   $\frac{31.5}{25} = 1.26\,\text{kg}$
5. A grouped frequency table shows a range instead of a particular value that is to be given a frequency.
   For this data the table might look like this:

Mass	Frequency
$0.75 < m \leq 1.00$	6
$1.00 < m \leq 1.25$	7
$1.25 < m \leq 1.50$	8
$1.50 < m \leq 1.75$	4
	25

To draw a frequency table using discrete data values the table would start to look like this which is not helpful.

Mass	Frequency
0.90	1
0.93	1
0.94	1
0.97	1
0.98	1
0.96	1
1.12	1
1.17	1