

**Key Vocabulary**

Data	Information that we can analyse.
Average	A value that represents a typical, central value for a set of data. There are three different types of average. When most people talk about average they are probably talking about the mean.
Mode	The most common result in a set of data or the group that contains the biggest frequency.
Median	The middle item when the values are put in order from smallest to largest.
Mean	The total of all the data added together divided by the number of items there are.
Spread	A measure of how varied the data is.
Range	The highest result minus the lowest result. The larger the range, the larger the spread in the data.
Approximate	With grouped data, we don't know all the individual values and therefore all we can do is get a rough value for the mean.

**Key facts / Diagrams**

Mode:  
3, 3, 4, 4, 4, 5, 6, 7, 8  
The mode is 4 as there are more 4s.

Age	0-9	10-19	20-29	30-39
Frequency	24	35	27	14

The "modal group" is "10-19" as there are more people in this group than any other.

Median:  
3, 3, 4, 4, 4, 5, 6, 7, 8  
When the numbers are in order, 4 is the middle number, so the median is 4.

Age	0-9	10-19	20-29	30-39
Frequency	24	35	27	14

There are 100 people in the table. The median will be at the 50<sup>th</sup> and 51<sup>st</sup> person. This person is in the 10-19 group, but we don't know their age.

Range:  
3, 3, 4, 4, 4, 5, 6, 7, 8  
The range is  $8 - 3 = 5$ .

Age	0-9	10-19	20-29	30-39
Frequency	24	35	27	14

We don't know the actual ages of the people. The range could be as big as  $39 - 0 = 39$  or as little as  $30 - 9 = 21$ .

**Common misconceptions**

- You need to know that when there are an even number of items, the median is half way between the two middle numbers.
- If you don't put the numbers in order you won't get the correct median.
- Always check the "reasonableness" of the averages. If your answers don't seem sensible, check what you did on the calculator.

**Worked examples**

Mean:  
3, 3, 4, 4, 4, 5, 6, 7, 8  
Total:  $3+3+4+4+4+5+6+7+8 = 44$ .  
The mean =  $44 \div 9 = 4.8888... \approx 4.9$ .  
The mean is just under 5.

Age	7	8	9	10
Frequency	24	35	27	14

There are 24 seven year-olds. The best way to find their total age is  $24 \times 7 = 168$ .  
8 year-olds:  $35 \times 8 = 280$   
9 year-olds:  $27 \times 9 = 243$   
10 year-olds:  $14 \times 10 = 140$

The total age is therefore  $168+280+243+140 = 831$ .  
The mean age is  $831 \div 100 = 8.31$ .  
The mean age is roughly 8 years 4 months.