

Maths - Year 6

Measurement 1: Statistics, charts and graphs

Key Vocabulary

Data	Information that has been collected.
Survey	Examine and record areas, features or opinions.
Sample	A small part or quantity intending to show what the whole is like.
Range	The difference between the highest and lowest values in a set of statistics.
Statistic	The study and manipulation of data.
Average	A 'central' measure used to summarize and represent a set of data with a spread of values.
Mean	Mathematical name for an average value used to summarize and represent a set of data with a spread of values.
Outlier	A thing or amount detached or significantly different from others in a group.
Skewing	Distorting data that may make conclusions unfair or unreliable.
Measurement related vocabulary	E.g. rate, metre, kilometre, mile, second, minute, hour.

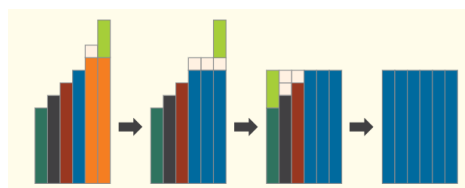
Mathematical Skills

- Calculate the mean from a given data set.
- Choose a suitable type of graph or chart for the purpose of their data set.
- Present, interpret and read data on distance–time graphs.
- Use distance–time graphs to calculate average speed.
- Construct pie charts and bar graphs correctly.
- Choose the most appropriate method for displaying data.
- Understand the differences between the different types of average.
- Know which type of average to use in different contexts.

Mathematical Methods

- Introducing the mean e.g. Kai and Yasmin are both growing beans, and they want to know whose beans are growing more. They both measure the length of the first six beans they harvest and record two sets of data.

Kai	7 cm	9 cm	11 cm	13 cm	8 cm	6 cm
Yasmin	8 cm	10 cm	11 cm	12 cm	12 cm	4 cm



$$\begin{array}{r} 9 \cdot 5 \\ 6 \overline{) 57 \cdot 30} \end{array}$$

$$\begin{array}{r} 10 \cdot 4 \\ 5 \overline{) 52 \cdot 20} \end{array}$$

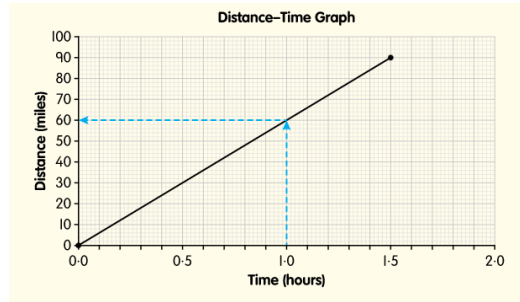
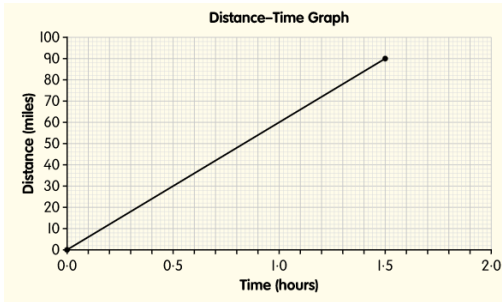
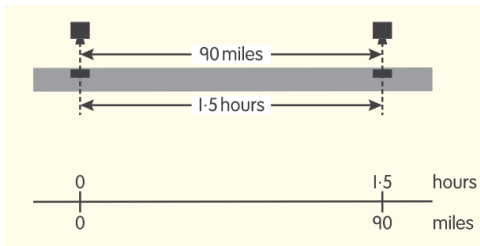
	Bean lengths (cm)	Total (cm)	Mean (cm)
Kai	7 9 11 13 8 6	54	9
Yasmin	8 10 11 12 12 4	57	9.5

- Using a mean e.g. measurements of sauce and juice in a sample of 10 tins or cartons.

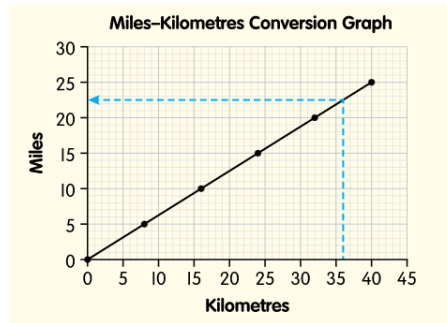
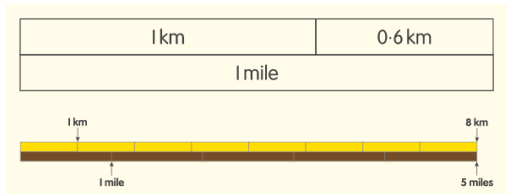
Line	Labelled quantity	Measured quantities (same units, to nearest whole unit)									
Sauce	900g	904	894	913	918	875	905	881	901	914	908
Juice	330ml	329	334	322	325	332	331	327	333	330	328

Mean of juice = $3291 \div 10 = 329.1\text{ml}$

- Understanding average speed e.g. investigators are researching whether to recommend speed-limiting measures on a motorway. They position two cameras at either end of a 90-mile stretch. A car is photographed passing the second camera 1.5 hours after it has passed the first camera.



- Converting between units of speed.

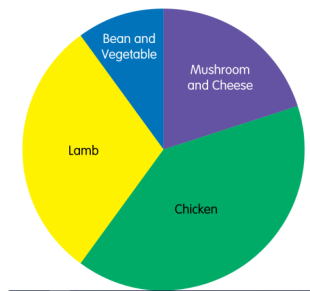


- Constructing and interpreting pie charts.

Pie	Number sold	Angle in pie chart
Mushroom and Cheese (vegetarian)	20	72°
Chicken	40	144°
Lamb	30	108°
Bean and Vegetable (vegetarian)	10	36°
Total	100	360°

$$(360 \div 100) \times 20 = 72^\circ$$

$$(360 \div 100) \times 40 = 144^\circ$$



Can you..?

- Find the mean average mass of a strawberry in this punnet.

12 g	11 g
19 g	13 g
9 g	23 g
18 g	19 g
15 g	17 g
24 g	14 g
16 g	21 g

- Faith thinks that this week was hotter in 2016 than in 2017. Can you work out the mean average for each week to see if Faith is correct?

	M	T	W	T	F	S	S
2016	16°C	18°C	16°C	13°C	15°C	18°C	18°C
2017	12°C	14°C	13°C	15°C	17°C	18°C	18°C