

# STATISTICS . . .

# Statistics

@whisto\_maths

## What do I need to be able to do?

By the end of this unit you should be able to:

- Read and interpret line graphs
- Draw line graphs
- Circles
- Read and interpret pie charts
- Draw pie charts
- The mean

## Keywords

**Protractor:** equipment used to measure and draw angles

**Trend:** a line on a graph showing the general direction the points seem to follow

**X-axis:** the horizontal axis

**Y-axis:** the vertical axis

**Mean:** the average of all the numbers

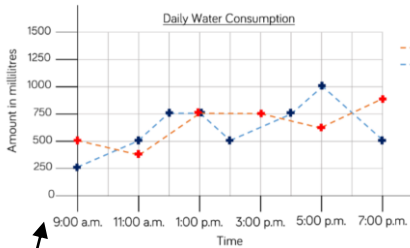
**Circumference:** the perimeter of a circle. The line around the outside.

**Diameter:** a straight line that goes through the centre of a circle. The longest line in a circle.

**Radius:** a straight line from the centre to the radius (Half the length of the diameter)

## Line graphs

A method to observe trends in data over time and make comparisons between groups of data.



A key identifies the data set each line represents

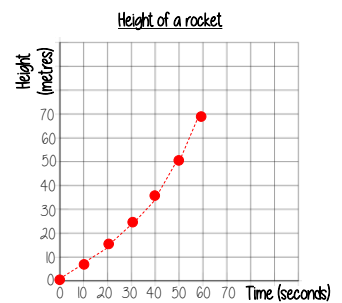
Make comparisons between the data and then relate this information back to the context of the data

"On Tuesday, more water was consumed at 5pm this could have been a period of exercise"

The axes are labelled and show a clear timescale

## Drawing line graphs

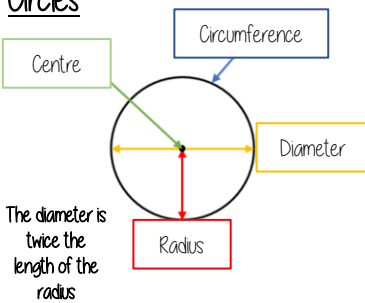
Time (seconds)	Height (metres)
0	0
10	8
20	15
30	25
40	37
50	50
60	70



- Join each point with a straight line.
- Have regular intervals on both axes

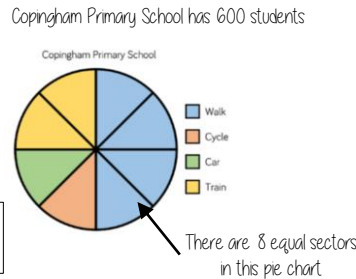
Time is labelled across the x axis

## Circles

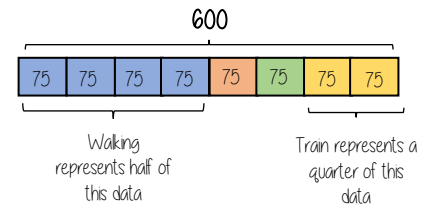


## Read and interpret pie charts

Always read the data for the total amount the pie chart represents



This bar model represents the information in the bar chart

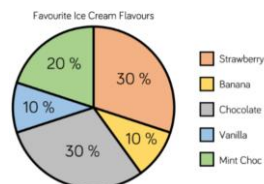


## Pie charts with percentages

This survey asked 160 people

The whole pie chart represents 100%

$$10\% = \frac{1}{10} \quad 50\% = \frac{1}{2} \quad 25\% = \frac{1}{4}$$



Strawberry  $30\% = \frac{3}{10}$

$$160 \div 10 = 16$$

$$16 \times 3 = 48$$

This is 10% make other calculations from this value

## Draw pie charts

Type of pet	Dog	Cat	Hamster
Frequency	32	25	3

There were 60 people asked in this survey (Total frequency)

$\frac{32}{60}$  "32 out of 60 people had a dog"

This fraction of the 360 degrees represents dogs

$$\frac{32}{60} \times 360 = 192^\circ$$



**Multiple method**  
As 60 goes into 360 - 6 times  
Each frequency can be multiplied by 6 to find the degrees (proportion of 360)

Use a protractor to draw  
This is  $192^\circ$

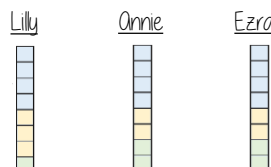
## The mean

Mean - a measure of average It gives an idea of the central value

Lilly, Annie and Ezra have the following cubes



Finding the mean amount is the average amount each person would have if shared out equally



The mean number of blocks would be 8 each

The information is redistributed equally across all groups