



37 - Pie Charts

Creating Pie Charts:

Pie charts are used to represent large data sets. They allow you to quickly compare the size of each category. Generally, pie charts are used to show **qualitative** data.

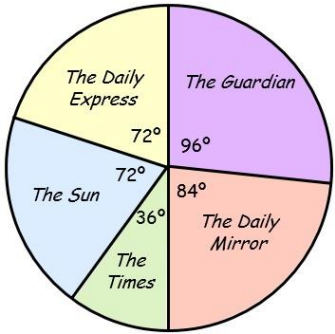
To draw a pie chart we need to know the angle we need to draw for each category. To do this we use the **scaling method**. We need to divide the total frequency by 360° , the number of degrees in a circle. This tells us how many degrees represent one piece of data.

$360 \div 30 = 12^\circ$

To work out each category's associated angle we then multiply 12 by each frequency, as shown below.

Finally we then draw each angle inside a circle.

Newspaper	No of people	Working	Angle
The Guardian	8	$8 \times 12^\circ$	96°
Daily Mirror	7	$7 \times 12^\circ$	84°
The Times	3	$3 \times 12^\circ$	36°
The Sun	6	$6 \times 12^\circ$	72°
Daily Express	6	$6 \times 12^\circ$	72°
30			360°



Top Tip: Always draw each angle clockwise, using the previous line drawn to start.

Interpreting Pie Charts:

To interpret pie charts we must remember that the frequency of a category and the angle it represents are always in a fixed **proportion**. This allows us to calculate the total frequency or frequency of a category as long as we know one angle and its associated frequency.



Germany won 7 bronze medals.

Example:

As we are told that Germany won 7 bronze medals, we can calculate how many degrees 1 medal is worth by doing

$84 \div 7 = 12^\circ$

Every other category will be in the same ratio, where one medal is worth 12° , so it is easy to calculate.

Number of Gold Medals: $120 \div 12 = 10$ medals

Total Number of Medals: $360 \div 12 = 30$ medals

We can use this to compare multiple pie charts even when the total frequency is different.

REMEMBER:

Pie charts only show you the proportion of the total frequency that fall into each category. Two pie charts could look identical however one could be based on 20 people and the other 4000.

If there are no numbers you cannot comment on if there were more in one pie chart or another, only the proportion of each category.

Linked Prior Topics

Measuring and reading angles, drawing circles, properties of a circle, using compass and protractor

Vocabulary

Angle, degrees, scaling method, title, labels, key, qualitative data, proportion

Linked Future Topics

Comparing sets of data, to know which chart to use for different data sets