

what's the point of... GRAPHS?

See it my way

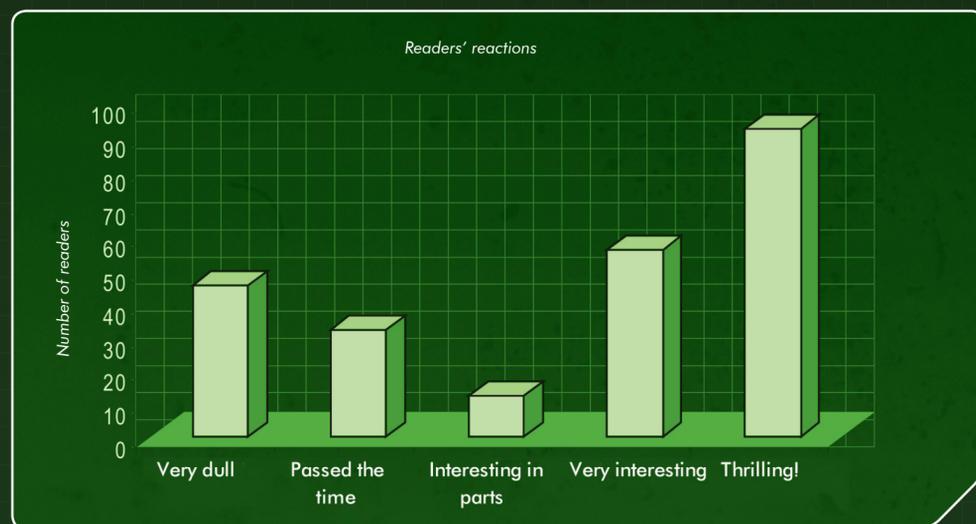
We like pictures, they help us understand things. About half your brain is working to let you see things, so it's no surprise that humans have a highly-developed visual sense.

That's why graphs are so vital. Rather than having to get your head round a long list of numbers you can use them to draw a graph. Graphs let you see how the numbers are related: are they going up, down, up then down? Whatever the trend, a graph can let you see it almost instantly. Graphs are encountered in many jobs so it is likely that you will have to get to grips with graphs – they are everywhere.

Graphs turn up on TV all the time. On the news they can show the rate of inflation for the last 10 years or the increase in arctic ice melt. On a game show a

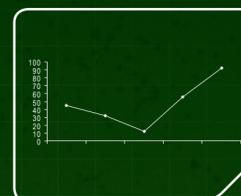
graph can show the number of audience votes for each possible answer. On a consumer affairs programme you might see a large foam meat pie divided up to show the proportions of fat, sugar, protein and salt in a typical pie, each pie slice being in proportion to the amount of pie stuff it represents.

You need to be able to understand graphs to be able to understand the world around you, from newspapers to scientific papers, from magazines to TV shows, graphs are the picture-perfect way to present data.

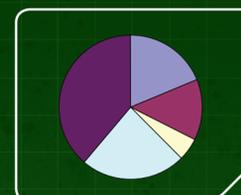


All kinds of everything

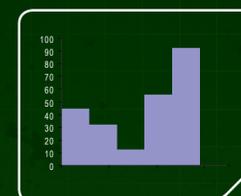
There are many different types of graphs, often called charts, but each is just a different way to turn numbers into patterns to help us to understand them more easily. Typical kinds of graphs include line graphs, pie charts and histograms.



Line graphs have vertical and horizontal axes and points are plotted and joined with lines. The finance markets use these all the time.



In pie charts you turn the numbers into slices (sectors) of a circle, the size of each slice being dependent on the relative size of each of the numbers. Businesses love these sorts of charts as it's easy to see how much of each of their products they are selling.



Histograms are another popular type of graph. Here you group together similar values into 'bins' so, for example, a bin might have size 5 so that any values between 0 and 5 should be added into the first bin. In the final graph

the number of values in each bin is plotted as a bar, the area of which is related to the amount of stuff in each of the bins. Histograms are a good way to present a wide range of data and the frequency with which these groups of values turn up, without the detail of a line graph, so histograms are very popular in business too.

Computers today will allow you to take your spreadsheet data and turn it into all sorts of different types of graphs, so you can choose the one that is best for your presentation, but of course you need to understand the basics, or you could end up showing rubbish.

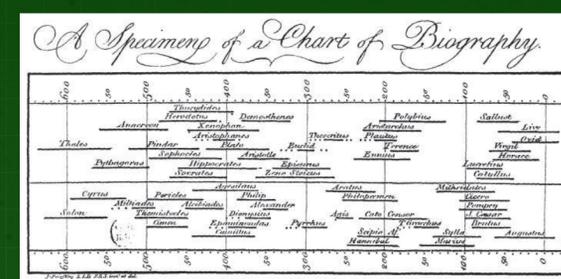
Graphical history

Graphs are mathematical tools and someone had to invent them. The histogram was first introduced by the statistician Karl Pearson in the 1890s. As well as inventing and using graphs, he also found time to set up the first ever university statistics department.

The word histogram comes from the Greek words 'histos' meaning 'anything set upright' (here this refers to the upright bars on the graph) and 'gramma' meaning 'drawing, recording or writing'.

The pie chart was created by Scottish mathematician and engineer William Playfair around 1800. He was a serial graph inventor having also created the line graph, the bar graph and the little-known circle graph. Graph inventors were quite the celebrities in their day.

Historian, scientist and philosopher Joseph Priestley created timelines in the 1760s. These used bars to compare the lifespans of various people and



Priestley Chart

civilisations. They proved to be a commercial success and were reprinted many times. They were probably the inspiration for Playfair's later graph inventions. These early types of graphs made it easy to see the points that were being made and became a national sensation. Priestley was even awarded a Doctor of Law degree for his wonderful lectures and graphs.