Dispersion and scatter graphs

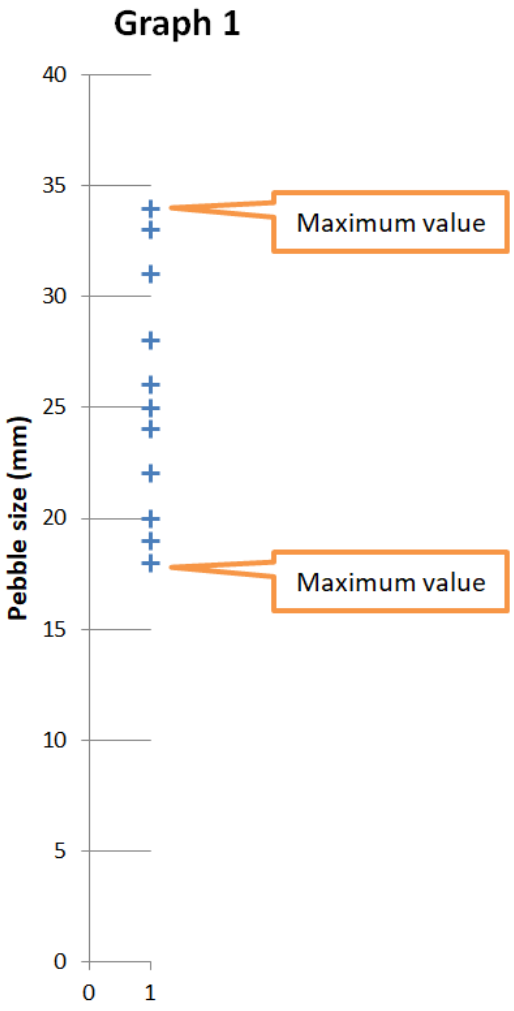
If you search for images of dispersion graph on Google, you will get almost as many pictures of scatter graphs as of dispersion graphs. Perhaps this shouldn't surprise me. After all, the verbs to 'disperse' and 'scatter' have a similar meaning. However, the two graphs are very different and each has a very specific purpose. To save any confusion, here are some thoughts on **when** and **why** a geographer would use each type of graph.

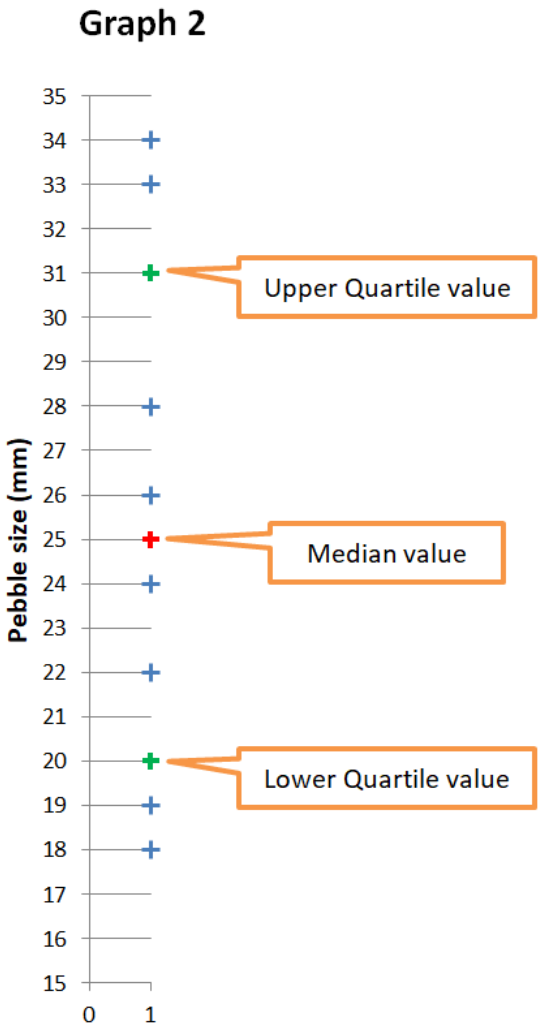
Dispersion graphs

Dispersion graphs are used to show the range of values for a single set of data. For example, in a geographical context, you could use a dispersion graph to show the range of:

- Pebble sizes on a beach or slip-off slope
- House prices in a neighbourhood
- The age of people who visit a geographical location

Graph 1 shows a typical dispersion graph. Each value has been plotted as an individual point along a vertical scale. This type of graph is a useful way of representing the distribution of values within the dataset. You can quickly pick out the maximum and minimum values and then calculate the range. Graph 2 illustrates that you can also 'see' the median and inter-quartile values. This means that you can use a dispersion graph to calculate the inter-quartile range.





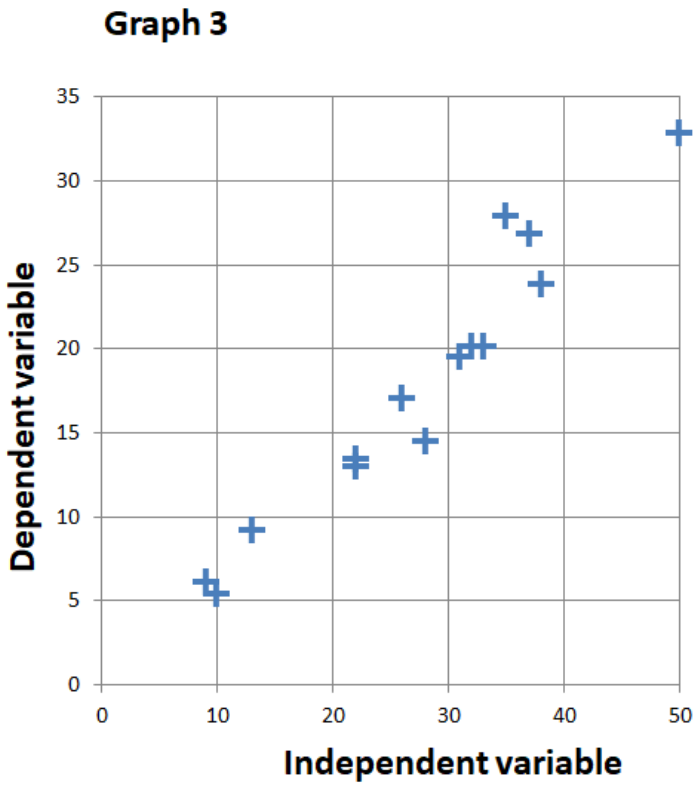
Scatter graphs

Scatter graphs are used to show the relationship (or correlation) between **two variables** within a dataset. For example, in a geographical context, you could use a scatter graph to show the possible correlation between:

- Wind speed and altitude
- Noise levels and amount of traffic
- House prices and distance from a green space
- Car ownership and distance from the CBD

Graph 3 shows a typical scatter graph. Each scatter plot represents the value of two variables. Notice that the dependent variable should always be plotted on the vertical axis.

This type of graph is a useful way of representing the **type** and **strength** of the correlation between the two variables. In the case of graph 3, the correlation is positive: as the values of the independent variable increase, so do the values of the dependent variable. You can add a line of best fit to the scatter graph to represent this correlation. The line of best fit should go through the mean value and have half the scatter plots on each side. If most scatter plots lie close to the line of best fit then the graph suggests that the correlation is relatively strong.



Both dispersion and scatter graphs should be used in GCSE geography.