Quartiles and Box Plots Helpsheet

We use quartiles to split the data into 4 equally quarters. We can then plot these points on a graph to give us a boxplot. Boxplots are incredibly useful for comparing different groups of data. There is no one universally accepted way of finding quartiles, but here is one of the most commonly used one (and the one that graphical calculators tend to use)

1. Put the data in order of size
2. Find the median. If there is an even number of data points then will not be one middle value. In this case you find the mean of the middle two.
3. Use the median to split the data set into two.
4. To find the lower quartile find the median of the bottom half of the data (do not include the median in the bottom half).
5. To find the upper quartile find the median of the upper half of the data (do not include the median in the upper half).

**Example**

Here are the heights of 10 students in cm (to the nearest cm)

154,144,145,142,147,150,158,177,149,167

1. Put them in order

142,144,145,147,**149,150**,154,158,167,177

1. Find the median. Median = 149.5
2. Use the median to split the data set into two.

142,144,**145**,147,149150,154,**158**,167,177

1. Lower quartile = median of the bottom half of the data

Lower quartile =145

1. Upper quartile = median of the upper half of the data

Upper quartile =158

The Lower quartile, median, and upper quartile can be plotted with the minimum and maximum values to form a boxplot:

