Boxplot: How to read it

75th percentile – 3rd quartile:
- 25% of the data above this value
- 75 % of the data below this value

Median: 50% of the data are above this value
50 % of the data are below this value

25th percentile – 1st quartile:
- 75% of the data above this value
- 25 % of the data below this value

Outlier(s): data point that is above
Outlier > Median + 1.5 x IQR

Maximum data point *that is not* an outlier.

InterQuartile Range (IQR):
50% of your data
points are in this range.

Minimum data point that is not an outlier.

Outlier(s): data point that is below
Outlier < Median - 1.5 x IQR

Overall Speed measured

Boxplot: How to read it

Box-and-whisker or **box plots** are a useful method of plotting continuous data. They are particularly useful for comparing the distribution of the data across several groups. The box contains the middle 50% of the data, with lowest 25% of the data lying below it and the highest 25% of the data lying above it. In fact the upper and lower edges of the box represent a particular quantity called the interquartile range. The median is shown by the horizontal line across the box. The whiskers extend to the largest and smallest values excluding the outlying values. The outlying values are those values more than 1.5 box lengths from the upper or lower edges, and are represented as the dots outside the whiskers. The example below shows box plots of the heights of a random sample of men and women. The gender differences in height are immediately obvious from this plot and this illustrates the main advantage of the box plot over histograms when looking at multiple groups. Differences in the distributions of data between groups are much easier to spot with box plots than with histograms.

Example