# Desmos and the AQA Car Large Data Set

First ensure you have a copy of the AQA Cars Large Data Set. You can download one from: http://ifem.co.uk/cpd/AQA_LDS_Cars.xlsx

In this activity we shall learn how to use Desmos to create box plots to compare different sets of data and how to investigate correlation between two sets of data.

Loading Data into Desmos

Columns of data can simply be copied from Excel into the Desmos input window. It is good practice to give the lists of data a name so that you can refer to them. Once you have defined a name and typed '=' you can paste the data from Excel. This will generate a list containing your data.
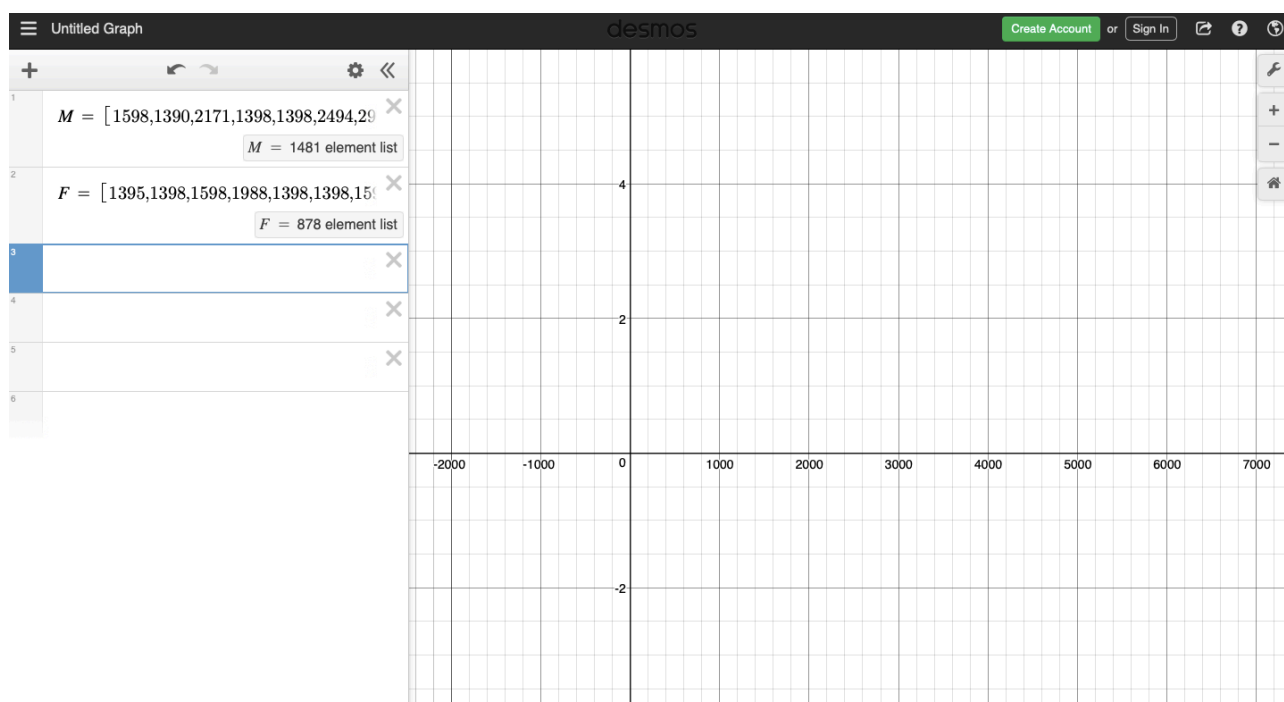

In the above screenshot we have copied the engine sizes of cars owned by males and females (lists "M" and "F" respectively.)

Boxplots

To plot a boxplot of a list of data we can type **boxplot(M)**.
Using the options below we can edit the height of the boxes and the offset of the boxes - the offset will be useful when comparing two sets of data as you will need to offset one box plot from another.
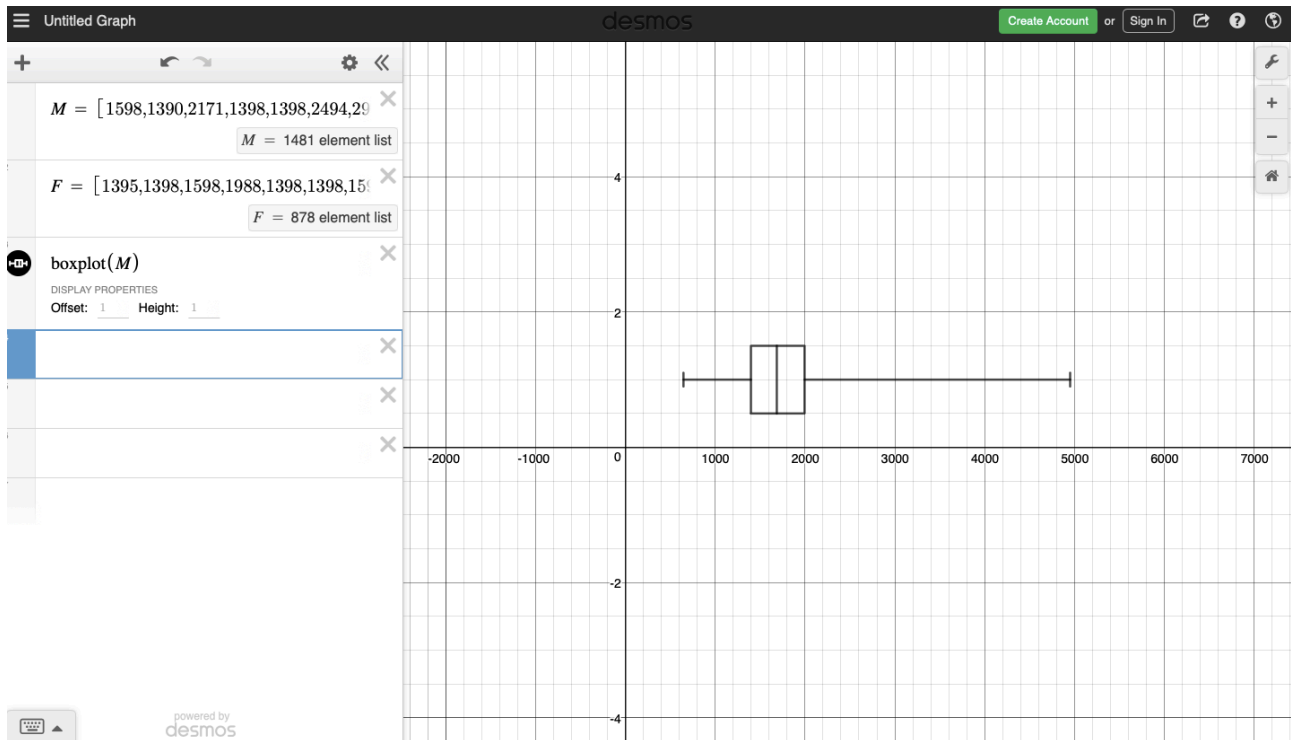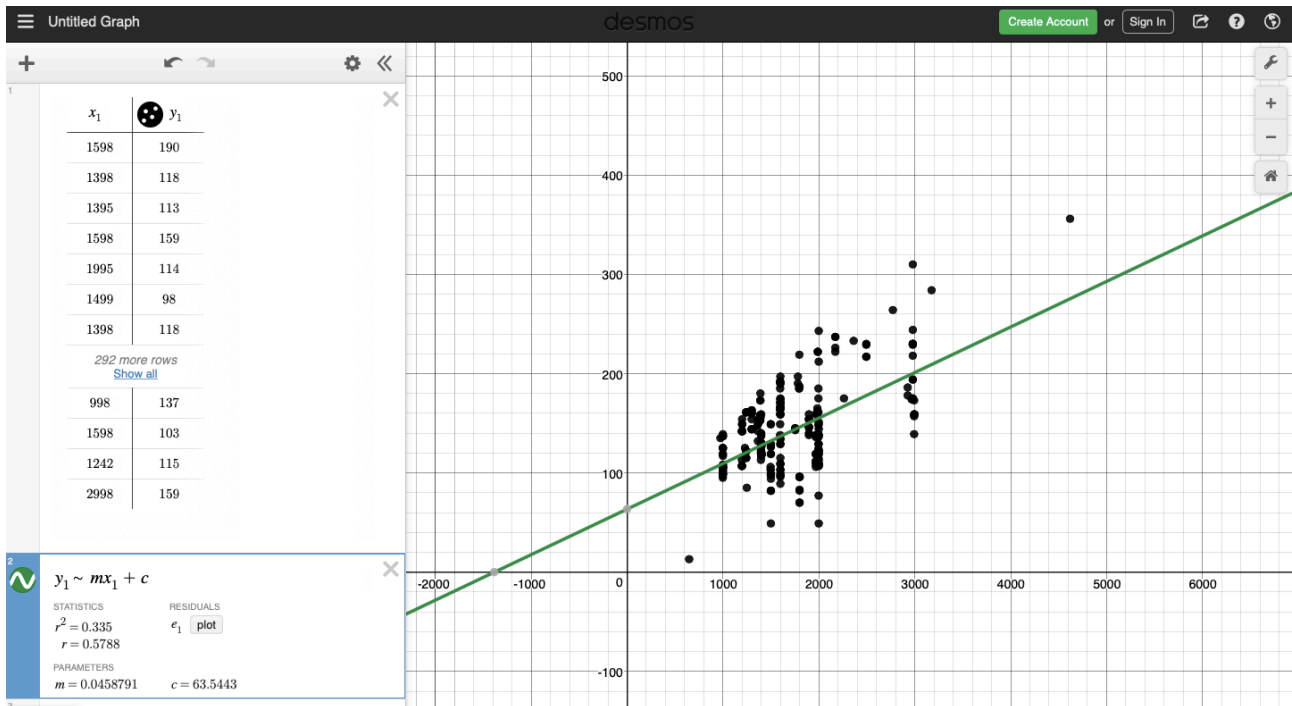

Exercises

1. Can you argue that there is a gender difference in the size of cars that are owned? (Consider what variables could be used as a proxy for this).
2. Do cars purchased in 2016 have less NOX emissions than those purchased in 2002?
3. Do cars purchased in 2002 have greater CO emissions than those purchased in 2016?

Comparing Correlation

To look at bivariate data if you copy two columns of data from Excel into Desmos at the same time, Desmos will automatically generate a table of values and plot a scatter graph for you.

Once the graph is plotted, typing y_1 ~ mx_1 + c will tell Desmos to plot a linear regression line, calculate the values of the constants m and c and also calculate the correlation coefficient, r.

Exercises

1. Is there a link between the size of the engine a car has and its CO emissions?

2. Is there a link between the size of car you and the CO emissions? Consider how you could determine size of car from the data and justify your choice of variable.