Statistics, Day 4

Objectives: To use the calculator to do a simulation

To review summary statistics, histograms and box plots.

A simulation is the imitation of chance behavior. Simulations are often done using calculators or computers.

Let’s suppose that your kid brother’s favorite cereal advertises that each box of cereal contains one of six different matchbox cars. How many boxes of cereal will your mother have to buy so that your brother gets one of every kind? (Assume that there is an equal number of each type of car placed randomly in the boxes). First, make a guess.

We can use the random integer feature of the calculator to simulate which type of car (#1 – 6 ) is in a box of cereal. We will need to keep track of how many boxes we’ll purchase until we get all 6 types of cars. Will everyone in the class get the same answer?

Run your simulation until you get one of each type of car. Cross out the car number as you get each one. Don’t forget to keep track of how many boxes you’ve purchased.

Car: 1 2 3 4 5 6

Tally:

Enter each student’s results into L1 in your calculator.

Make a histogram of the results. What do you notice about the shape of the distribution? Can you explain why the graph has that shape?

What are the mean and median of the distribution?

Which would be a better indicator of how many boxes your mother should expect to have to buy to get all six cars? Why?

What is the IQR of the data? Explain what this number tells you.

Does the data set have any outliers?

25% of the time your mother can expect to buy \_\_\_\_\_ boxes or more.

25% of the time your mother can expect to buy \_\_\_\_\_ boxes or fewer.