# Rolling a dice simulation using a tally table - Part 1

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Select RUN mode from the main menu by using the arrow keys to highlight the RUN icon or pressing 1, similarly using the arrow keys to highlight the STAT icon or pressing 2.
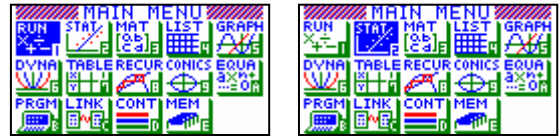
An example to illustrate the usefulness of a technique of simulating the rolling of a die (or any number of dice) is only limited by the 32k memory that the graphic calculator has.

This worksheet shows how the graphical calculator can be used to simulate the rolling of a dice many times (not restricted to the 255 cells in a columns in the **STAT** or **LIST** icons).

Suppose you want to generate the rolls of a **fair 6 sided die** which has the numbers 1, 2, 3, 4, 5 and 6 on each face. In the RUN icon and type: {1,2,3,4,5,6}→List 1 EXE and then {0,0,0,0,0,0}→ List 2 EXE.
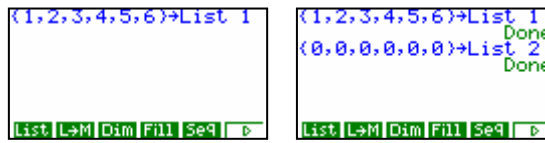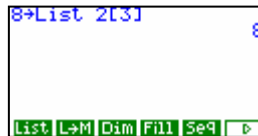
Now have a look in the STAT or LIST icon to see what you have done!

This command sets up a **'Tally Table' (in List 1 - score and list 2 -frequency)**.

Now, go back into the RUN icon and type: 8→List 2[3] EXE.

Now have a look again in STAT or LIST icon to see what you have done!

**See the change in List 2 row 3?**

Application: Using the random number generator **Int(Ran#x6)+1** to generate the rolls of the die (or dice), the command illustrated will sent the result to the tally table set up in List 1 and List 2. We can instruct the calculator to build up this frequency column each time the EXE key is pressed.
Type in as shown in the screen dump on the right.
Required commands:
Int OPTN F6 F4 F2   Ran# OPTN F6 F3 F4
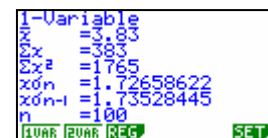List OPTN F1 F1   : SHIFT VARS F6 F5
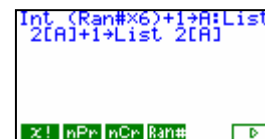
To generate 100 rolls of the dice press EXE 100 times.
[N.B. As you press EXE you will notice that numbers appear on the right hand side of the screen there are the frequency columns cells incrementing.]

Now have a look in STAT icon to see what you have done! List 2 has altered with the dice rolling simulation that you have done in the RUN icon. You can now generate a histogram to display the results or calculate the summary statistics.

Set up the Summary Statistical F2 F6 and alter to suit.

Set up the Statistical graph F1 F6 and alter to suit.

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