Rolling a dice or two! – Histograms and Summary Statistics
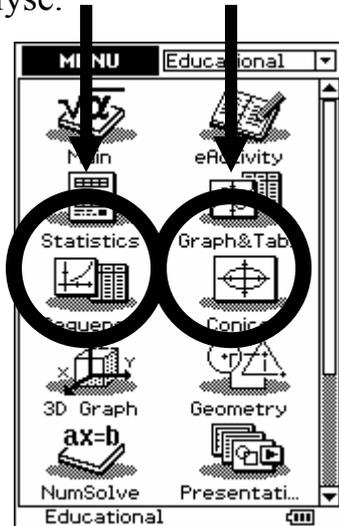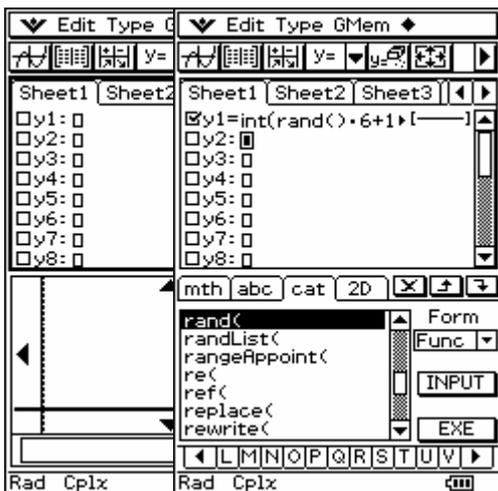
Generating random numbers in **Graph & Table** icon and transferring it to **Statistics** to analyse.

Example 1:   One dice to roll.
Enter the **Graph & Table** icon and type in 'int(rand()x6)+1' into the 'y1 space' **EXE** will store the expression. This will generate a random number from 1~6 [i.e.1, 2, 3, 4, 5 or 6]. You can use the 'cat' keyboard for 'int(' and 'rand('
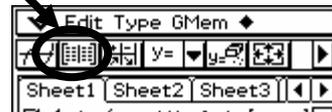

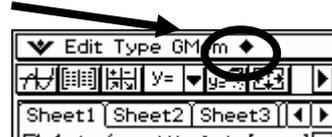To simulate 201 random numbers select ◤ for table settings.
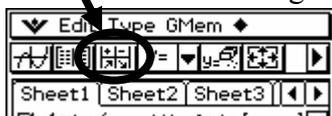
Enter in the start and end values and the step length as shown in the 'screen snap'.

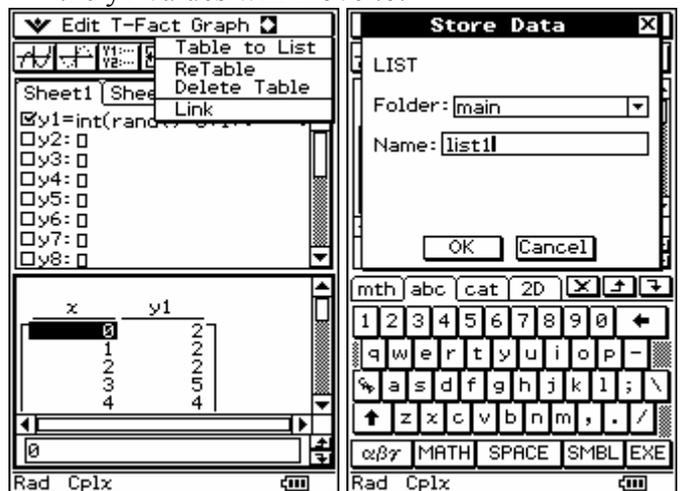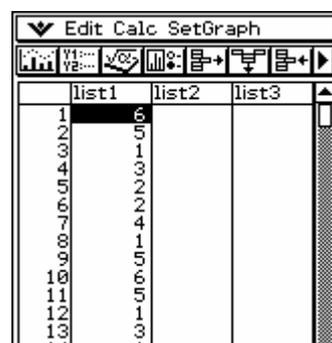Press **OK** to store these settings. Select ◤ for creating the Table

The Table will appear in the bottom half of the screen. Move the cursor into the 'y1' column and click on the diamond for move the y1 table to a list
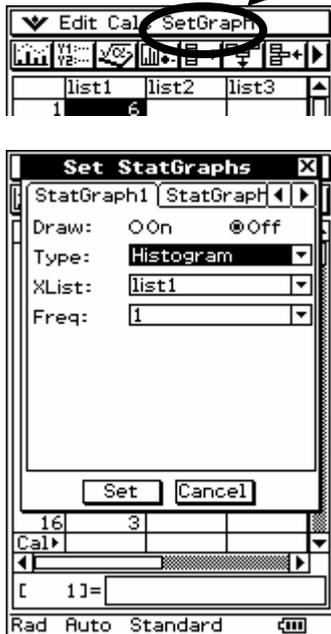

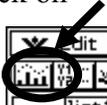Type in list1, as shown, this is where the y1 values will move to.

Tap on the **Menu** icon and enter into **Statistics**, the list1 space will be 'full' of the random numbers now.
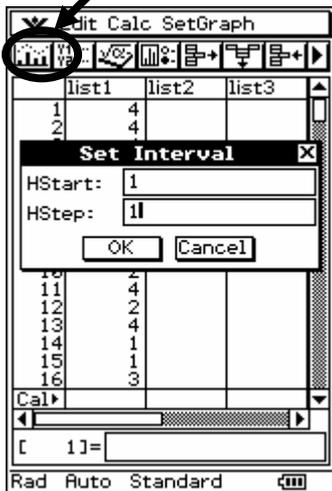
Set up the appropriate statistical graph required, namely a Histogram by tapping on **Setgraph** and change the settings, as shown below.
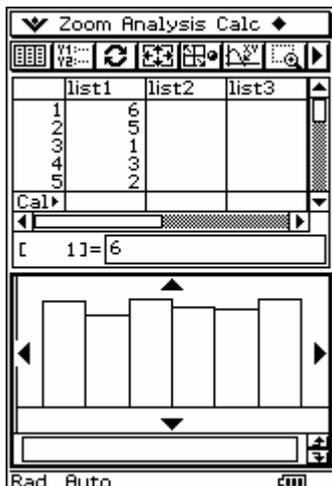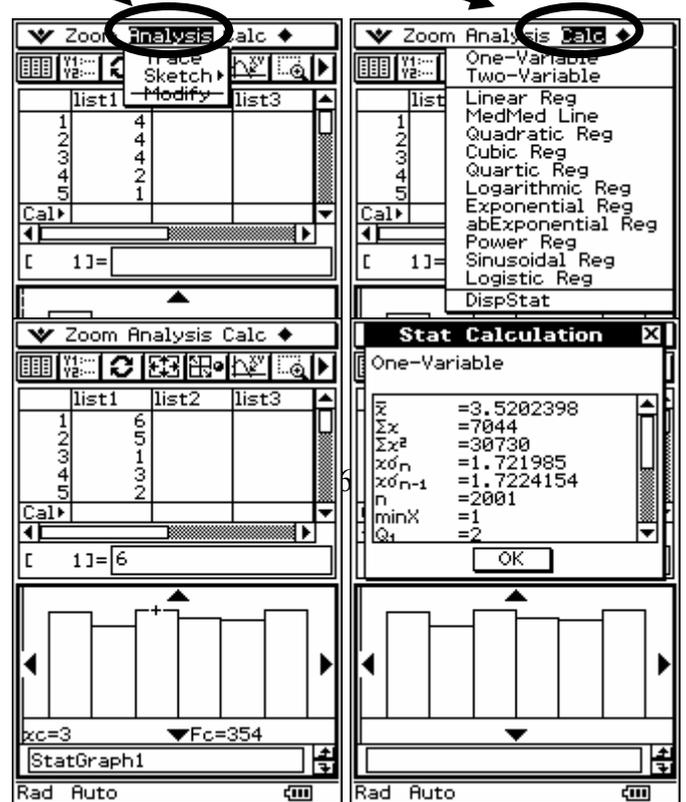

Tap on **Set** to exit.

Click on ⬚ for drawing the Histogram.

Change the Hstep to 1 [the interval width for the bars] and then **OK**.

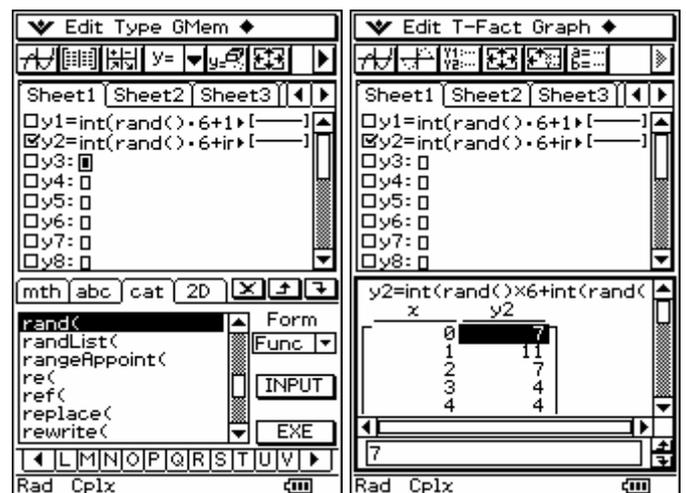You can analyse the graph and calculate summary statistics via **Analysis** and **Calc**

Stat Calculation
One-Variable

x̄	=3.5202398
Σx	=7044
Σx²	=30730
xσ_n	=1.721985
xσ_{n-1}	=1.7224154
n	=2001
minX	=1
Q₁	=2

Example 2:   Two dice to roll.
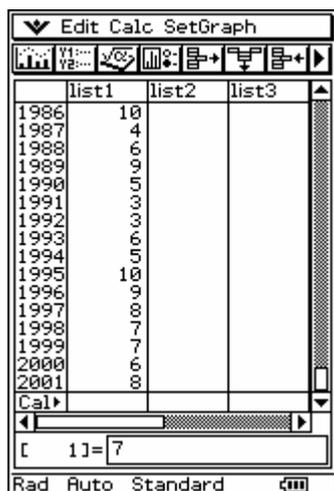A similar procedure to example 1.
Enter in the expression:
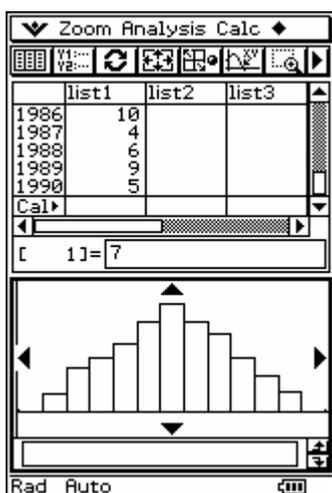'int(rand()x6)+int(rand()x6)+2' into the 'y2 space'.

Generate the Table and move the cursor to the 'y2' column. Tap on the diamond and move the random numbers from 'y2' to 'list1'.

Move from the **Graph & Table** icon to the **Statistics** icon by tapping **Menu** The random numbers will be in the 'list1' column.
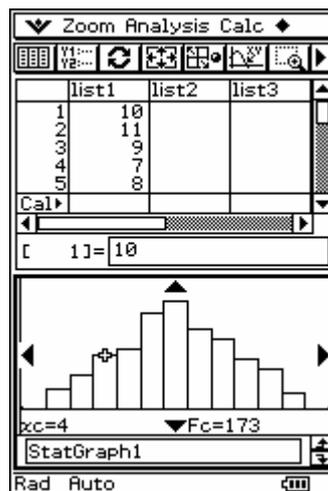

Tap on the graph picture, set up the interval settings and then **OK** to draw the Histogram.
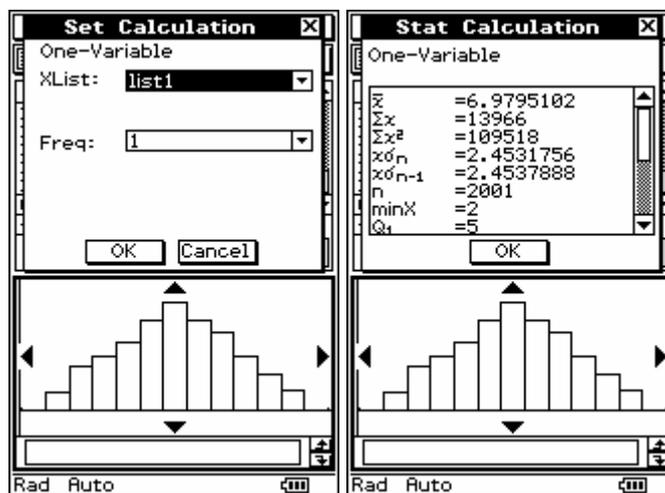

Analyse the graph and calculate summary statistics via **Analysis** and **Calc** picture.

Analysis - you can trace the 'bars' to get the score and frequency

Score	Frequency
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

Calc – you can calculate the summary statistics

Average	
Std dev	
Minimum	
Lower Quartile	
Median	
Upper Quartile	
Maximum	

To do now: **(a) 3 dice to roll.**

                   (b) 5 dice to roll. How could you use Graph & Table and the Statistics icon to analyse the game of Yatzee? Investigate this.