12. Analyzing discrete random variables on the calculator

Let's explore what the calculator can do using the random variable X = Apgar score of a randomly selected newborn from the example on page 369.
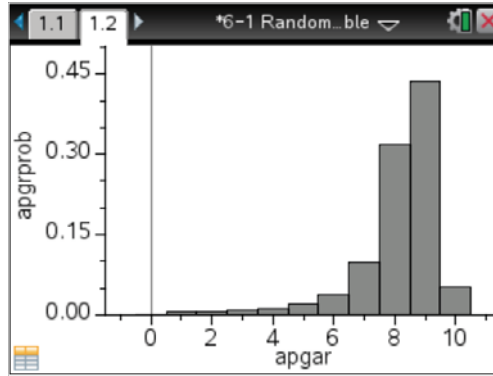
1. Insert a *Lists & Spreadsheet* page. Press (ctrl) ⎀, arrow to *Add Lists & Spreadsheet* and press (enter).
    -   Name column A **apgar** and column B **apgrprob**.
    -   Enter the values of the random variable (0 – 10) in the **apgar** list and the corresponding probabilities in **apgrprob**.

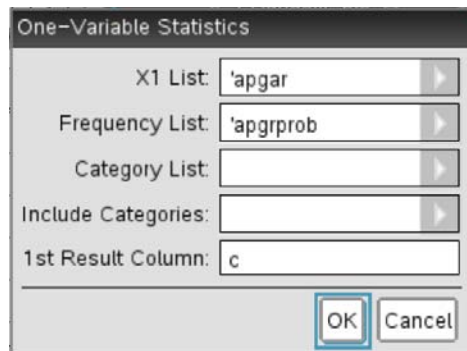

2. Graph a histogram of the probability distribution.
    -   Insert a *Data & Statistics* page. Press (ctrl) ⎀, arrow to *Add Data & Statistics,* and press (enter).
    -   Press (ctrl) (menu) and select *Add X Variable with Summary List*. Press (enter) and a dialogue box should appear. **apgar** should be in the *data list* and **apgrprob** should be in the *summary list*. If they are not, use the drop down boxes to select your variables. When your box looks like the one here, (tab) to ⌷OK⌷ and press (enter).

The probability histogram should now be displayed.

3. To calculate the mean and standard deviation of the random variable, use one-variable statistics with **apgar** as the *Data List* and **apgrprob** as the *Frequency List*.

- Press (ctrl) ◀ to go back to the *Lists & Spreadsheet* page.
- Press (menu) → *Statistics* → *Stat Calculations* → *One-Variable Statistics*.
- Make sure your *X1 List*, *Frequency List*, *1st Result Column* have the variables/values shown (you can press the down arrow in the drop-down boxes to access the variable names and type C for *1st Result Column*. (tab) to OK and press (enter).

- The statistics should now be displayed in your *Lists & Spreadsheet* page.