



# Tiles in the Bag



How many tiles would you have to pick to be confident that your estimated probability truly represents the situation? In this activity, you will draw a tile from a bag, record its color and put it back in the bag. The bag contains 24 tiles – some blue and some green. A green tile is considered a success and a blue tile is considered a failure. By performing many trials, you will determine the number of tiles of each color in the bag.

On the calculator, you will use L1, L2, and L3 to record data. In L1 will be the trial number. In L2 will be the trial result – a 1 for success (green) and a 0 for failure (blue). L3 will be the cumulative sum (running total) of successes. You will use L4 to determine a ratio of the cumulative sum to the trial number.

L1 Trial Number	L2 Trial Result	L3 Cumulative Sum
1		
2		
3		

1. In L1 the number of trials will be two times the number of students in class (for example if there are 24 students in the class then there will be 48 trials). To enter these numbers the easy way – at the top of L1 use the sequence command which can be found by 2<sup>nd</sup> STAT, OPS – then seq(X, X, 1, number of trials, 1).
2. Record the results in L2 as each trial is completed in class. When all the trials are completed, fill in L3.
3. Using the completed information in the lists, determine the number of blue and green tiles in the bag.
4. For L4 use *List Algebra* to calculate the ratio of the cumulative sum to the number of trials.
5. Construct a scatter plot of L1 and L4.
6. Does it appear that the data is leveling off? If so to what number? Enter this number into Y1.
7. Describe what you think the scatter plot would look like as more and more trials are completed.