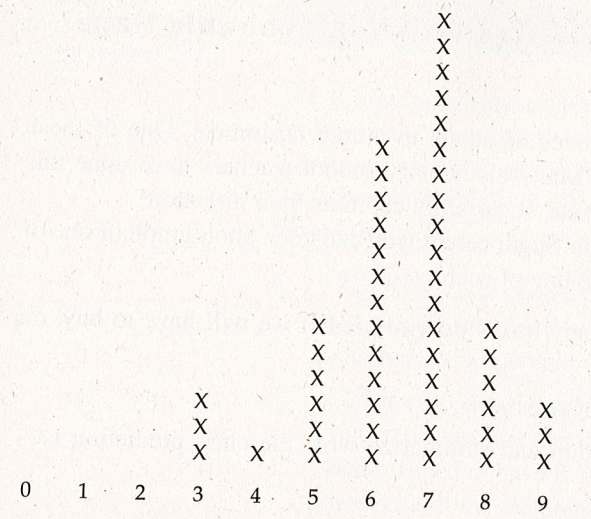## EXPLORATION 7.15 What's in the Bag?

Your instructor will have placed a large number of objects in a bag (e.g., different color marbles). There are many of these in the bag, and there are two colors. By sampling, you are to determine the proportion (percentage) of each.
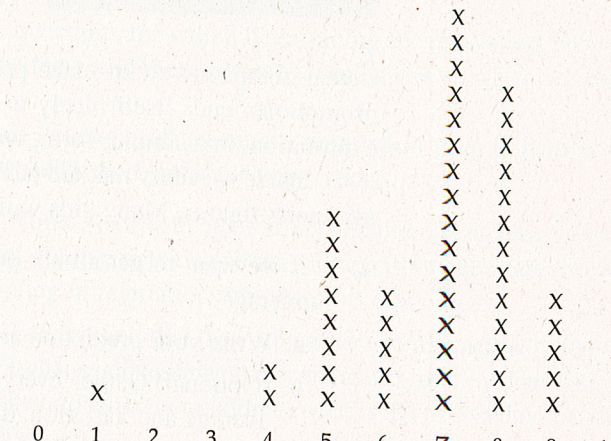
1. Take out 10 objects and record the number of the designated color.

2. Once you get 10 samples of sample size 10, make a line plot.
   Looking only at the distribution, what do you see?

3. Collect more data until you have 50 samples of sample size 10.

   Make a line plot for these data.
   Looking only at the distribution, what do you see?

4. Repeat step 3 to generate data for four line plots, each containing 50 samples of sample size 10.
   Describe similarities and differences between the various distributions.

5. Summarize what you have learned from this exploration about randomness, about patterns in randomness, and about what is the same and what is different when you look at different sets of data from the same bag.
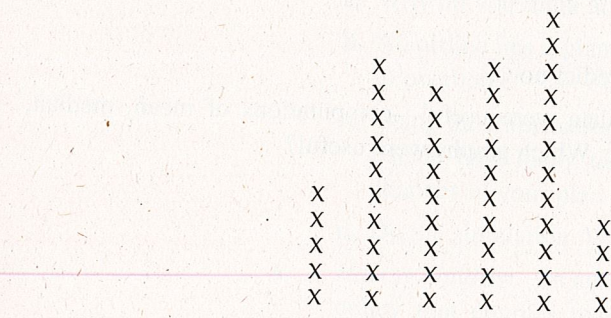
Assessment:

6. Students drew samples from a bag that had 1000 marbles. The bag had blue and red marbles. Each of four groups collected 50 samples of sample size 10. On the next page are the line plots from each group showing the number of blue marbles in each sample of 10. Just by looking at the four line plots, state what you think is the proportion of each color and justify your results.
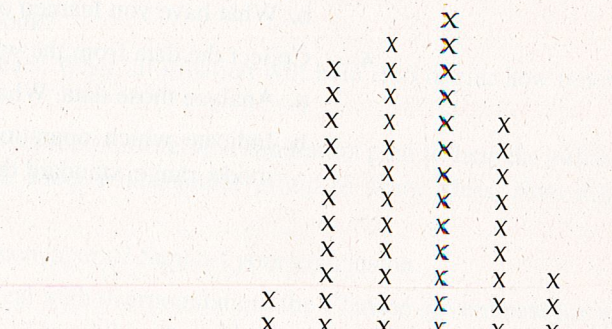

Graph A

Graph B

Graph C

Graph D