Random Sampling

Science Film Festival — Knowledge Through Entertainment

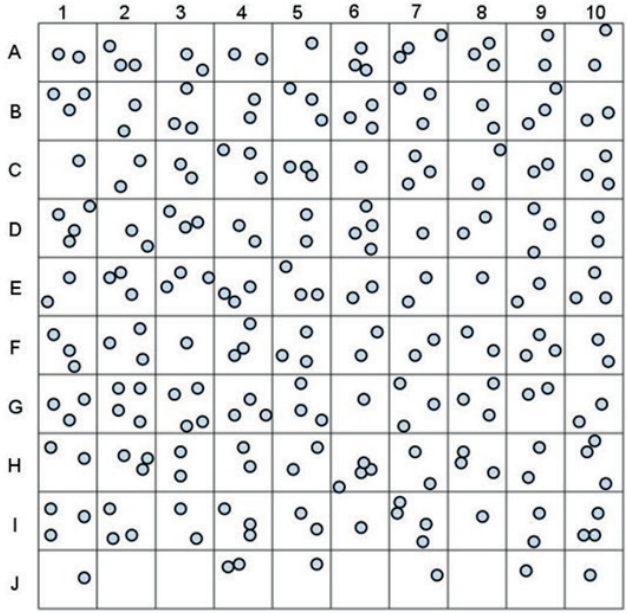
Name(s): _____

Scientists cannot possibly count every organism in a population. One way to estimate the size of a population is to collect data by taking random samples. In this activity, you will look at how data obtained from random sampling compare with data obtained by an actual count.

Procedure:

1. Tear a sheet of paper into 20 slips, each approximately 4cm x 4 cm.
2. Number 10 of the slips from 1 to 10 and put them in a small container
3. Label the remaining 10 slips from A through J and put them in a second container.
   The grid shown below represents a meadow measuring 10 m on each side.
   Each grid segment is 1m x 1m.
   Each black circle represents one sunflower plant.
4. Randomly remove one slip from each container. Write down the number-letter combination and find the grid segment that matches the combination. Count the number of sunflower plants in that grid segment.

Repeat and fill out the data table. Include totals and averages.



5. Repeat step 5 until you have data for 10 different grid segments (and the table is filled out).
These 10 grid segments represent a sample. Gathering data from a randomly selected sample of a larger area is called sampling.

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6. Find the total number of sunflower plants for the 10 segment sample. This is an estimation based on a formula. Add all the grid segment sunflowers together and divide by ten to get an AVERAGE number of sunflower plants per grid segment. Record this number in the table. Multiply the average number of sunflower plants by 100 (this is the total number of grid segments) to find the total number of plants in the meadow based on your sample. Record this number in your data table.

7. Now count all the sunflower plants actually shown in the meadow. Record this number in the data table. Divide this figure by 100 to calculate the average number of sunflower plants per each grid.

SUNFLOWER DATA		
Grid Segment (number - letter)	**Number of Sunflowers**	**Actual Data**
		Total number of Sunflowers _____ (count by hand) **Average number of Sunflowers (divide total by 100) Per grid ____** 
Total Number of Sunflowers		
Average per grid (divide by 10)		
Total Estimated Number of Plants in Meadow (multiply average by 100)		

Authors/Source
www.biologycorner.com