

Name \_\_\_\_\_



## Random Sampling

**Purpose:** To compare data obtained from random sampling with data obtained by an actual count.

**Background Information:** 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**. A random sample is a set of items that have been drawn from a population in such a way that each time an item was selected, every item in the population had an equal chance to be in the sample.

### 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.

	1	2	3	4	5	6	7	8	9	10
A	●	●	●●	●●	●●●	●●	●●	●●	●●	●
B	●●	●	●●	●●	●●	●●	●●	●	●	
C		●	●	●●	●●	●●	●	●	●	
D	●●	●	●●	●●	●●	●	●	●	●●	●●
E	●	●●	●●	●	●●	●●	●	●	●●	
F		●	●●	●		●	●	●	●●	●
G	●●	●●	●	●	●	●	●	●●	●	
H	●	●●	●●	●	●	●●	●	●●	●	●
I	●	●	●	●	●	●	●	●	●	●
J	●●	●	●●	●	●	●	●	●	●	●



### **Data Analysis:**

Compare the total number you got for sunflowers from the SAMPLING to the ACTUAL count. How close are they?

### **Conclusions:**

1. Why was the paper-slip method used to select the grid segments?
2. Why do biologists use sampling? Why can't they just go into the forest and count all the sunflower plants?
3. Population Sampling is usually more effective when the population has an *even dispersion* (evenly spread out) pattern. *Clumped dispersion* (clumped or grouped together) patterns are the least effective. Explain why this would be the case.
4. Describe how you would use Sampling to determine the population of dandelions in your yard.

5. In a Texas Hill Country forest that measures 5 km by 5 km, a sample was taken to count the number of live oaks in the forest. The number of trees counted in the grid is shown below. The grids where the survey was taken were chosen randomly. Determine how many live oaks trees are in this forest using the random sampling technique. **Show your work!**

	7			
				3
			5	
11		9		