

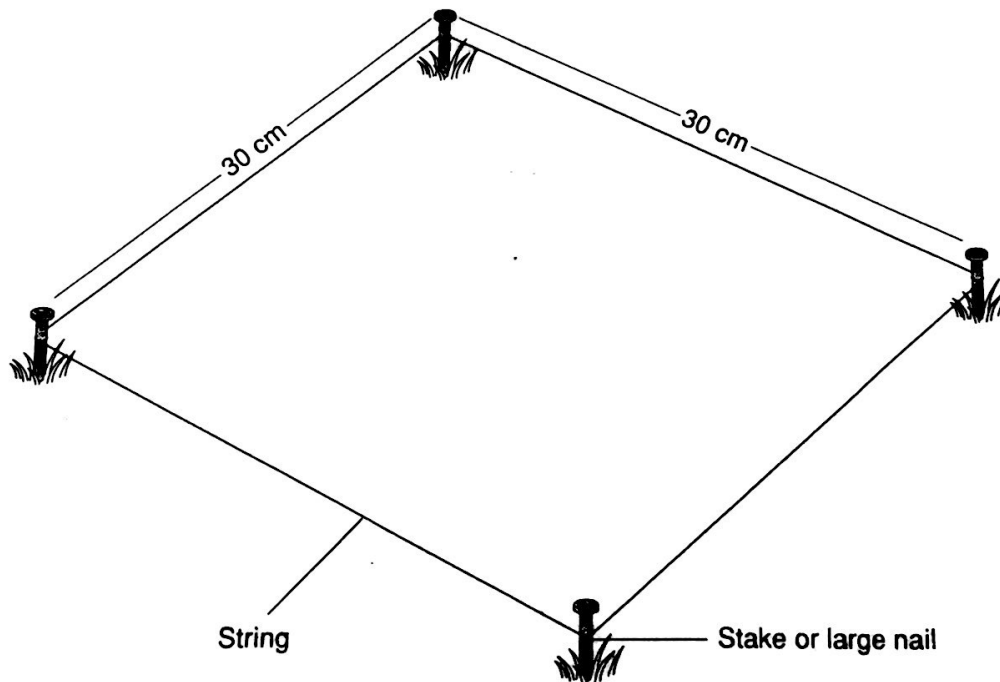
Pre-Lab Discussion

A *population* is a group of individuals of the same species living in a given area. Biologists can use two different methods to determine the number of living things in a given area. The most accurate data would be obtained by counting each member of the population. However, in most situations this counting method is impractical and very time-consuming. A second method is to count a small sample of the population. The sample counted must be representative of the entire population. If the sample is not representative of the entire population, then the data collected are biased and therefore inaccurate. A random selection of areas in which to count organisms helps to eliminate bias. Every member of the population stands an equal chance of being counted.

In this investigation, you will demonstrate the technique of counting a random sample of population, from which you can estimate the size of an actual population.

Problem

How can the number of a population be estimated from a sample?



PROCEDURE:

- 1) Put the stake in the ground that has the string attached.
- 2) Make a square with the string and three other wood stakes.
- 3) Use the meter ruler to measure 3 meters on each side.
- 4) Count the different plants inside the quadrat.
- 5) Calculate the population size for each plant across the field.

Quadrat Technique DATA:

NAME: _____

Plant Type	Quadrat 1	Quadrat 2	Quadrat 3	Quadrat 4	Total Number of Plants
Dandelions					
Bedstraw					
Clover					
Long grass					
Red stemmed Ground cover					

DENSITY CALCULATIONS:

Population size= (total number of plants) x (number of quadrats)

_____ x 2000 = _____ dandelions

_____ x 2000 = _____ bedstraw

_____ x 2000 = _____ clover

_____ x 2000 = _____ long grass

_____ x 2000 = _____ red stemmed ground cover

_____ x 2000 = _____

ANALYSIS QUESTIONS:

1) Why do scientists use the quadrat technique for counting populations?