Name
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## Bean Lab

## Materials:

- 60 pinto beans, black beans, red beans, northern beans, blackeye peas, and chick peas
- ) 6 dixi cups
- graph paper
  - $50 \text{ cm} \times 50 \text{ cm}$  multicolored carpet

## Procedure:

- 1. Work in groups of 3.
- 2. Spread 10 seeds of each type randomly over the carpet.

3. Record the number of each type of seed present on the carpet in the data table below for generation 0.

- 4. Each student in the group will
  - a. Look away from the carpet.
  - b. Turn back to it.
  - c. Pick up the first seed you see and put it in its appropriate Dixie cup.
  - d. Repeat steps a through c 15 times.
  - After 3 students do this, there should be 15 seeds left on the carpet.
- 5. Give each of the surviving seeds 3 offspring of the same type by adding seeds from the Dixie cups. (There should now be 60 seeds on the carpet again.)
- 6. Repeat steps 3 through 5 four more times. Each repetition represents the survival and reproduction of a single generation.

Generation	Pinto Beans	Black Beans	Red Beans	Northern B.	Blackeye P.	Chick Peas
0						
1						
2						
3						
4						

## DATA

Students will generate a data table and graph using Excel and attach to be turned in with the report

**ANALYSIS**—Answer the following items in the spaces provided (three points each)

1. Describe what is meant by a population in a naturally occurring environment.

2. Describe what is meant by genetic variability in a natural population of living things and how genetic variability was demonstrated in this lab.

3. Describe the manner in which various factors in a given environment determine the success or failure of living things in a natural population. Specifically address the individual beans that were more or less successful and explain why.

4. Describe the effect on the population over time that occurs as some organisms are more successful and others less successful in a given environment.