

Name _____

Date _____ Per. _____

THE NATURAL SELECTION OF BEAN HUNTERS

PURPOSE: To experience how the principle of natural selection works.

MATERIALS: paper cups, data sheet_, Tools: knives, forks, spoons tape, bare hands, _Beans: yellow beans, white beans, green beans

PROCEDURE: _

1. Divide class into five groups. Each group receives a different tool which represents its set of genes.
2. Class goes outside to grassy spot where 200 beans of each type (total of 800 beans) are dispersed.
3. At signal, class will collect beans for 30 seconds, count them, and record data by groups.
4. Instructor puts data on master data sheet. The two groups with the least beans become extinct and sit at the tables.
5. For each color, the number of beans that remain in the grass will be doubled and added by dispersal in the area. _ Example: 50 green beans collected from 200. This leaves 150, therefore add another 150 making the new total 300. Do the same with the other colors.
6. Repeat two more times (two more generations) so only one group is left.
7. Repeat the procedure with beans in a new habitat.

PREDICTIONS:

1. Which bean will be more fit? (Explain)

2. Which clan will be more fit? (Explain)

RESULTS:

DATA SHEET: NATURAL SELECTION OF BEANS Habitat 1: _____

Record the number of beans COLLECTED, of each color, and by each group

1 st Generation	Clan Spoon	Clan Fork	Clan Knife	Clan Glove	Clan Hand	Totals
Long-toothed White Bean						
Speckled Slayer Bean						
Black-butted Killer Bean						
Saber-toothed Black Beans						
Totals						

2 nd Generation	Clan Spoon	Clan Fork	Clan Knife	Clan Glove	Clan Hand	Totals
Long-toothed White Bean						
Speckled Slayer Bean						
Black-butted Killer Bean						
Saber-toothed Black Beans						
Totals						

3 rd Generation	Clan Spoon	Clan Fork	Clan Knife	Clan Glove	Clan Hand	Totals
Long-toothed White Bean						
Speckled Slayer Bean						
Black-butted Killer Bean						
Saber-toothed Black Beans						
Totals						

DATA SHEET: NATURAL SELECTION OF BEANS

Habitat 2: _____

Record the number of beans COLLECTED, of each color, and by each group

1 st Generation	Clan Spoon	Clan Fork	Clan Knife	Clan Glove	Clan Hand	Totals
Long-toothed White Bean						
Speckled Slayer Bean						
Black-butted Killer Bean						
Saber-toothed Black Beans						
Totals						

2 nd Generation	Clan Spoon	Clan Fork	Clan Knife	Clan Glove	Clan Hand	Totals
Long-toothed White Bean						
Speckled Slayer Bean						
Black-butted Killer Bean						
Saber-toothed Black Beans						
Totals						

3 rd Generation	Clan Spoon	Clan Fork	Clan Knife	Clan Glove	Clan Hand	Totals
Long-toothed White Bean						
Speckled Slayer Bean						
Black-butted Killer Bean						
Saber-toothed Black Beans						
Totals						

QUESTIONS: _

1. Which groups became extinct first, and why? (what tool were they using?...what else might have contributed to their extinction?)
2. Why did we double the number of beans that were left uncollected?
3. Did any bean group become extinct? If so, which one(s)?
4. How does this experiment relate to naturally occurring animals, e.g., birds, for example?
5. What is a good trait for a bean seed in this experience, and why?
6. What is the best suited (“best fit”) trait in this experience, and why?
7. How might a group of organisms in nature avoid extinction due to competition? (Hint: Darwin's Finches are a great example).
8. Write a paragraph about this experience, pointing out how it illustrates the elements of natural selection.