Speciation Lab
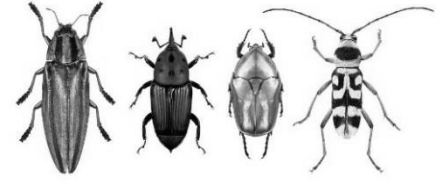## Evolution & Isolation

Name: _____ Date: _____ Block: _____

Pre-Lab Questions:

1. In your own words, define "species." _____

   _____

2. What is speciation? _____

   _____

3. What are the 5 ways species can become isolated and form new species?

   - _____

   - _____

   - _____

   - _____

   - _____

Introduction: A species of beetles comes in a variety of colors (yellow, orange, red, purple, and green). These beetles are living together on a small island. We will observe what happens to the beetles as environmental pressures act on the population.

Speciation Round 1:

1. Remove the beetles from your cup/bag and spread them out on a paper towel.
2. The paper towel represents your island.
3. **How many total beetles do you have in your cup/bag? _____**
4. Record how many beetles you have of each color under **Initial Population** on data table 1.
5. To calculate the percent of each color, divide the number by the total and multiply by 100.
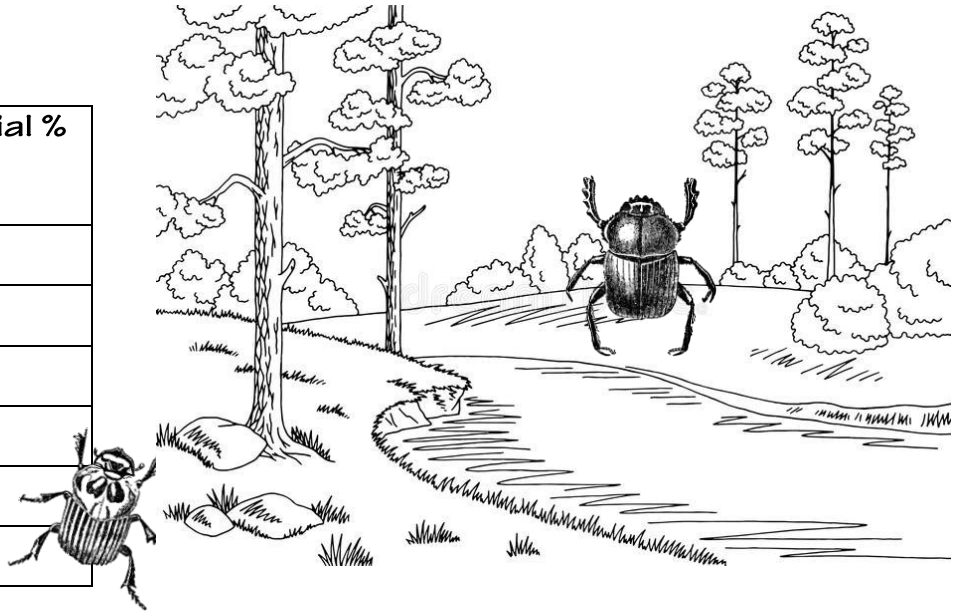
For Example:

Total number of beetles is 20

You have 4 yellow

$$\frac{4}{20} = .20 \times 100 = 20\% \text{ Yellow}$$

Data Table1:

Color	Initial Population	Initial %
Yellow		
Red		
Green		
Orange		
Purple		
Blue		

6. **OH NO!** A large storm brings flood waters to the island. The water carves out a river that separates the population into **two groups**.

7. With a pen/pencil/marker, **randomly** draw a line separating your Froot Loops into two groups.

8. How many beetles are in group #1? _____

9. How many beetles are in group #2? _____

10. Record how many beetles you have in each population in Data Table 2. Calculate the percent of each color by dividing by the new total number of Froot Loops in each population.

Data Table 2:

Color	Group 1 Population	Group 1 Percentage	Group 2 Population	Group 2 Percentage
Yellow				
Red				
Green				
Orange				
Purple				
Blue				

11. What type of isolation occurred? _____

12. How did the population change in group 1 compared to the initial population? _____

_____

_____

13. How did the population change in group 2 compared to the initial population? _____

_____

_____

Speciation Round 2:

1. On the side of the river where group 1 lives, there are a lot of grassy areas. Which color beetle will survive best in this habitat? **Explain what would happen to the other color beetles in terms of natural selection pressures.** _____

_____

_____

2. On the side of the river where group 2 lives, there are a lot of sandy areas. Which color beetle will survive best in this habitat? **Draw a natural selection graph (bell curve) that would indicate the distribution of phenotypes from the initial to the current population.**

3. As a predator, you will spot the beetles easily that aren't able to camouflage well. In group 1, you may **EAT** 3 of each color (if available) **except the green beetles.** In group 2, you may **EAT** 3 of each color (if available) **except the yellow beetles.**

4. How many total beetles are left in group 1: _____

5. How many total beetles are left in group 2: _____

Record how many you have of each color and calculate the percent by dividing by the total number of Froot Loops **IN EACH** population. Record in Table 3.

Data Table 3:

Color	Group 1 Population	Group 1 Percentage	Group 2 Population	Group 2 Percentage
Yellow				
Red				
Green				
Orange				
Purple				
Blue				

6. What type of isolation occurred? _____

7. How did the population change in group 1 compared to the initial population? _____

_____

_____

8. How did the population change in group 2 compared to the initial population? _____

_____

_____

9. Suppose in 100 years the beetles in group 1 come back into contact with the beetles in group 2. Do you think they will be able to reproduce with each other or will they be separate species? **EXPLAIN!!!** _____

_____

_____

_____

_____

_____

_____

_____

★ You may eat your Froot Loops now ★