

"Chippies" Natural Selection

Members of your group need to be assigned to do the following jobs.

KEEPER: _____

This person is in charge of the care and counting of the chippie moths.

MATERIALS MANAGER: _____

This person will get your materials and return the materials.

READER: _____

This person will read directions to the group.

REPORTER: _____

This person reports the group's results to the class.

Activity

1. The reader should read the following story to the group.

"Your group represents a population of tropical birds whose main food is a species of moth named *Chipus colorful*. Their nickname is "Chippies." You birds live on a small island off the coast of a rainforest. Your island is very colorful. After a particularly good year, the population of Chippie moths grew dramatically. There was not enough food or places for these moths to live, so many of them migrated (moved away) from the island to the mainland tropical forest. When they arrived on the mainland, they settled in many different habitats within the rainforest.

2. The Materials Manager should get a bag of materials.

3. Lay the cloth in the bag out on your table. This cloth represents one habitat to which the moths migrated.

4. Describe this habitat.

5. Turn your backs to the table while the Keeper spreads the Chippies as evenly as possible over the cloth, making sure no Chippies stick together.

6. The Keeper should count and record the number of each color in the Chippie Population.

7. Imagine yourselves as predators and the Chippies as your prey. One at a time, turn around and choose a Chippie, using only your eyes to locate it. Once you have selected a chip, put it in the bowl and turn around again. Continue taking turns until only 25 Chippies remain on the cloth and the Keeper signals you to stop.

8. Carefully shake the fabric to remove the survivors. Group the survivors according to color by placing Chippies of the same color together. Record the number of each color that survived.

9. Assume each survivor produces three offspring. Using your teacher's supply of extra Chippies, place three Chippies underneath each survivor.

10. The Keeper should mix the survivors and their offspring thoroughly and distribute them evenly over the cloth as before. (Do not use the Chippies that were "eaten.")

11. Repeat the selection process four more times. Make sure you record the color counts at the beginning of each round.

Chippie Population

Year	Description	Blue	Yellow	Black	Green	Red
1	# at start					
	# survivors					
2	# at start					
	# survivors					
3	# at start					
	# survivors					
4	# at start					
	# survivors					
5	# at start					
	# survivors					

12. Using the data from your chart and the graph paper, make a bar graph that displays the population for Year 1 (use the number of survivors for the year). You should use the colored pencils to match the colors of the Chippies. Remember that a good graph includes a title and clear labels on each axis. On the back of the graph paper, draw a graph for Year 5.

13. Draw a time plot for your assigned color (your teacher will give you this color). Put time (years 1-5) on the horizontal axis, and put the number of survivors on the vertical axis. Plot the points and draw lines to connect the points. Again be sure to include a title and labels.

Questions

1. How are the graphs for Year 1 and Year 5 different?

2. Why do you think the graphs are different?

3. How are the colors of the surviving "Chippies" related to the colors of the habitat?

4. What is natural selection? (Use your book to find the definition.)

5. How are your results related to natural selection?

6. If no new Chippies migrate into the habitat, how will the population of Chippies change over many years?

