C:\Documents and Settings\mcowley\Local Settings\Temporary Internet Files\Content.IE5\R8U5JN3T\MC900013237[1].wmf**Battle of the Beaks Lab ( Forkbirds)**

**Introduciton: The Forkbird Model** In this lab activity, you will role play a single species called the “forkbirds”. Forkbirds feed by either spearing or scooping their food. During feeding times, each bird gathers “wild loops” and immediately deposits them in its “stomach” before gathering more food. Your goal is to gather enough food to survive and reproduce. This will allow you to pass your genes onto another generation. Occasionally, a forkbird offspring will have a genetic mutation that makes it look different from its parent.

**Materials**

4 plastic forks with 1 tine 4 plastic forks with 2 tines

4 plastic forks with 4 tines 1 dice

1 large tray 1 cup of “wild” loops

1 worksheet data table “Forkbird populations”

**Procedure**

1. The initial forkbird population has beaks with only two tines. Each person in your group should begin the activity with a 2 tined fork. Record the initial population of each type of forkbird in Table 1 of your data table.
2. Ms. C will tell you when feeding time begins.
3. When feeding time ends, count the number of wild lops eaten by each forkbird. Within your group, the two forkbirds that gathered the most food survive to reproduce. If there is a tie for second place, then three forkbirds survive. The two forkbirds that tie should keep their forks and skip step 4
4. The two surviving forkbirds should each toss the dice. Use the chart below to determine the type of beak for the offspring. The group members whose forkbirds did not survive should now assume the roles of the offspring.

**Number rolled** **Forkbird offspring**

1. 1 tined bird
2. 2 tined bird
3. Same as parent
4. 4 tined bird
5. Same as parent
6. Same as parent **OVER!!!!!!!!**
7. Record the new population of each type of forkbird in your group in the next row on your data table.
8. Return all of the wild loops to the “forest floor” (tray) to simulate the growth of the wild loops.
9. Repeat Steps 2-6 for nine more rounds to represent additional generations.
10. Share your data with the class on the white board. As a class, record the population of each type of forkbird over many generations. Be sure to copy the class data onto your data table.
11. Create a graph of the class totals of each type of forkbird over many generations. You can plot the data for all three types of forkbirds on a single graph. Be sure to title your graph, label your axis’ and provide a color coded key .(“Cowley likes Color!”)
12. Staple your colored and labeled graph to your data table and answer the following questions in sentences.

**Conclusion /Comprehension Questions**

1. What type of bird was the most successful? Explain how the class data supports this conclusion.
2. A. Look at your graph of the class results. Describe what happened to the number of each type of forkbird over many generations.

b. In the forkbird model, mutations at reproduction were much more common than they are in real life. Imagine that the number of mutations were lowered so that the vast majority of offspring had beaks similar to those of their parents. Predict what you think would have happened to the numbers of each type of forkbird generation.

3. How did the forkbird activity simulate the process of natural selection? Explain.

4. The forkbirds that you studied were a single species. Although they look slightly different, they are a part of a single, interbreeding population. Imagine that a change in the food supply occurred.

a. As a result of heavy rains, the major source of forkbird food is now soft berries, like blueberries. After many generations, how many types of forkbirds do you think will be in the population? Explain your reasoning.

b. As a result of a drought, the major source of forkbird food is now sunflower seeds. After many generations, how many types of forkbirds do you think will be in the population? Explain your reasoning.

5. **Reflection** The cheetah, an extremely fast and efficient hunter is an endangered species. The few cheetahs alive today shoe very little variation. How does this help to explain why cheetahs are on the verge of becoming extinct?

**Bonus !!! Create a creative artistic cover for your lab.**