Name:_____ **Period:**_____ **Date:**_____

Bird Beak Adaptation Lab

Objectives: Students will:
1.) Comprehend that birds have physically adapted in relation to their type of food supply.
2.) Deduce what beaks are most efficient for given foods by experimenting with imitation beaks and given food sources.
3.) Learn the importance of multiple trials.
4.) Represent their data with a bar graph.

TEKS: 5.1, 5.2, 5.4, 5.9 **Time Allotment:** 55 minutes

Background Information:
An adaptation is a characteristic that helps a plant or animal survive in its environment. Bird beaks have adapted for many things such as eating, defense, feeding young, gathering nesting materials, building nests, preening, scratching, courting and attacking. The size and shape a beak is specific for the type of food the bird gathers. For example, cardinals have heavy thick bills used to crack seeds, and humming-birds have thin bills to sip nectar.

Procedures:
Pretend that you are a bird. There are six different stations that represent different food sources. At each station there are three different tools that will act as your beak. You will need to determine which beak works best for each type of food.

1. Write down your hypothesis. Which beak do you think will work best for the food source at your station?
2. See how much food (number of pieces or mL of liquid) you can gather in 20 seconds with the first beak. You can collect your food in a cup that represents your bird stomach.
3. Enter your data in the table. Write down what you used as a beak and how many pieces of food that you gathered. Do this three times, and average the three trials.
4. Repeat steps 2 and 3 for the second and third beaks.
5. Draw a bar graph that shows the average amount of food gathered by the three different types of beaks.
6. Answer the questions.
7. Rotate through the other stations.

Research Question: Which beak tool will work best for the food source at your station?

Hypothesis: I think that…_____

_____

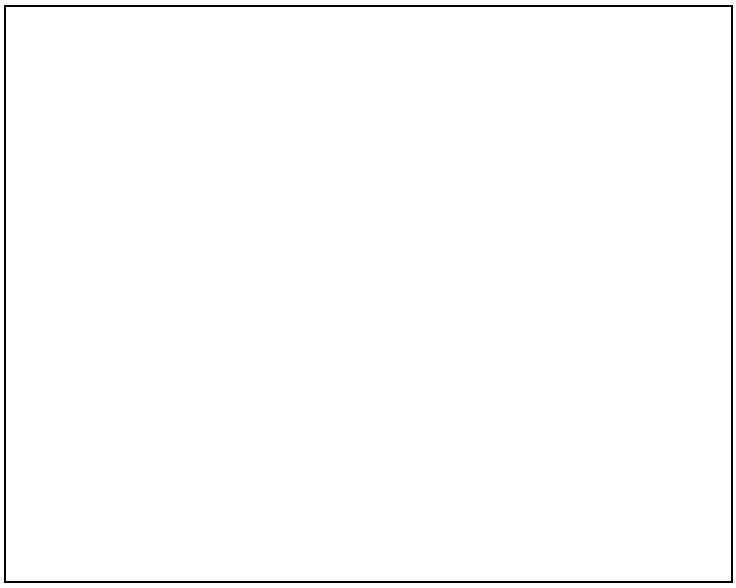
_____

Data Table

	Beak 1:	Beak 2:	Beak 3:
Trial 1			
Trial 2			
Trial 3			
Average (Total/3)			

Draw a **bar graph** that shows the **<u>average amount of food</u>** gathered by the **<u>three types of beaks.</u>**

Amount of food
(number of pieces
or mL of liquid)



Beak 1 Beak 2 Beak 3

What was your food source?_____.

Which beak worked best for that food source?_____.

Station 1
Food: Aquatic Plants (in a container with water)
Beak Tools:

1. Pliers
2. Tweezers
3. Strainer

Station 2
Food: Fish (Nuts in a container with water)
Beak Tools:

4. Pliers
5. Tweezers
6. Chopsticks

Station 3
Food: Nuts/Seeds (sunflower seeds; students must crack the shell to get the seed)
Beak Tools:

7. Pliers
8. Clothes pin
9. Tweezers

Station 4
Food: Insects (rice)
Beak Tools:

10. Pliers
11. Tweezers
12. Chopsticks

Station 5
Food: Nectar (water in a graduated cylinder)
Beak Tools:

13. Clothes pin
14. Medicine dropper
15. Pipette

Station 6
Food: Flying Insects
Beak Tools:

16. Envelope
17. Tweezers
18. Chopsticks

References:

http://www.conservation.state.mo.us/nathis/birds/peekbeak/
http://www.eduref.org/cgi-in/printlessons.cgi/Virtual/Lessons/Science/Animals/ANM0116.html
http://www.inhs.uiuc.edu/chf/pub/virtualbird/student/les4.html
http://www.inhs.uiuc.edu/chf/pub/virtualbird/teacher/lespl4.html
http://www.niles-hs.k12.il.us/karchr/Evolution%20exercises/Bird%20Adaptations.htm
http://www.riroe.k12.il.us/riroe/zoo/apicella/studentsheet3.html
http://www.sciencenetlinks.com/pdfs/birdbeaks_actsheet.pdf
http://www.tpwd.state.tx.us/adv/birding/beginbird/kidbird.htm#shapes