



Bird Beak Adaptation Experiment

Different birds have differently shaped beaks, have you ever wondered why? As the available food type varies in different habitats, birds have had to develop special adaptations to gain access to food more easily. Birds' beaks, in fact, have a great range of specialized shapes to catch and eat different kinds of food. With this experiment you will find out what type of food different beaks can get easier! Focus mostly on the Oystercatcher, which tool do you think best represents its beak?

Set up time: 10 minutes

What do you need?

Pictures of 5 different birds (look at their beaks!). You can print and cut out the sample birds on page 3.

"Beaks":

1. Pegs
2. Tweezers
3. Chopsticks
4. Straws (even better if you have a metal / steel or bamboo one, re-usable options are always preferable!)
5. Teaspoon





“Food”:

1. Pasta
2. Seeds
3. Marbles
4. Pistachios
5. Lemonade (nectar)



Other:

- A stopwatch to count how long it takes with a beak to catch every type of food
- A notebook to record your experiment's results!
- 4 plates
- 5 extra cups where you will be moving food to (this represents the stomach for the different beaks)



Print & Cut-Out

Oystercatcher



Hummingbird



Broad-winged Hawk



Grosbeak



Great White Pelican





What do you do?

1. Find someone (an assistant) who will time your experiments for you with the stopwatch.
2. Place one type of food on each of the plates (one plate per food type). Put the lemonade in a cup, and everything else on a flat plate.
Note: Before each experiment make a prediction about what type of beak you think is going to work best and check at the end to see if you guessed correctly!
1. Each cup must be used for a specific tool/beak; to remember what you used them for, label each of them with the name of the “beak” e.g.: Cup 1 = straw, Cup 2 = tweezers etc.
2. Start with the “nectar”, find out which “beak” will work best at moving the lemonade from the first container into your “stomach” (Cup).
3. When you are ready have your assistant time you for 30 seconds using each tool or “beak” to move the nectar into the cups. Use a different stomach (cup) for each beak so that you can compare which beak was the most effective for that food type.
4. After you have used each tool write down in your notebook which tool moved the most “nectar” into your stomach. Was it the straw? 😊 Which bird do you think would have been most successful? Which ones have a similarly shaped beak?



5. Now try with a different food: the pasta. Would the straw work just as well? Make your guess and see if you were right, once again try every type of beak and write down which one was the most successful. Was it the teaspoon? Or the pegs? Which bird do you think would be better in getting this type of food?
6. For your third experiment get the plate of pistachios. The object now is to see how many of them you can - not only pick up - but also crack open in 30 seconds. No cheating – no using hands! 😊 It is getting harder isn't it? Which beak worked best?
7. Next, try with the marbles and start with the chopsticks, how many can you move in 30 seconds? Is there a beak that works better? If so, which one?
8. Finally, do the same for the seeds, start with the type of beak that you think would be better, what about the tweezers?
9. Now that you have tested all your tools or “beaks”, look back at the pictures of the different birds, which birds have beaks that were like your tools? Write it down in your notebook.

Let's go back to the oystercatcher, what tool do you think best represented this bird's beak?

By looking at what they normally eat, the best food to compare it to are the pistachios, what beak/tool worked better with those?



This is what we know about oystercatcher's beaks:

Their beak is orange / red coloured, it is quite long and powerful and of a medium thickness. The thickness of their beak is perfect to open their favourite foods: shellfish like cockles and mussels! It is in fact thin enough to fit in barely cracked mussels but strong enough to crack them open and extract the mussel from its shell!

Have a look at this persistent oystercatcher cracking a mussel!

<https://www.youtube.com/watch?v=JRZDznBNJLI>