LESSON 1:
BEAK ADAPTATIONS

SUPPLIES

TEACHER PURCHASES

- Bunch of grapes
- Sunflower seeds with shell
- Large pack of gummy bears
- Swedish Fish
- Chocolate Pudding
- Water Bottles (if no sink access in classroom)

NUT FREE

MAIN BIN

- Spoons (15)
- Straws (15)
- Chopsticks (15 pairs)
- Clothespins (15)
- Frosted Cups (45)
- Plates (30)

OBJECTIVES

- ☑ Understand the specific purpose of different bird beaks
- ☑ Students will learn the meaning of the term "adaptation"

HOOK

2-3 min

- What do we have on our bodies that help us eat? Discuss with students that our teeth, mouth, hands, fingers, tongue are all physical features that help us eat food.
- How are our teeth especially helpful? What foods can we eat because we have teeth? Give examples: crunchy foods like pretzels and carrots, or tough foods like steak or chicken.

INTRODUCTION

3-5 min

Close your eyes and picture a pelican plunge diving into the deep ocean to retrieve a fish as its next meal. Now picture a hummingbird stopping to sip some nectar from a flower in your neighbors yard. Lastly, picture a toucan in a tropical rainforest forest gulping down berries to stay hydrated in the tropical heat. We know these animals have a few things in common: they are all species of birds with wings, feathers and the ability to lay eggs. But how are these birds different from one another? Each species of bird has its own unique beak size and shape. Why do we think that is? Well, different species of birds have different beaks to suit their specific diets and environments. Bird beaks are adapted to help birds obtain and process food in ways that increase their chances of survival. From diet, to habitat, to feeding behavior and evolutionary adaptation, each beak is specially designed to help each bird obtain the food and resources it needs to thrive and survive. Today, we will experiment with different beak models to find the purpose of each evolutionary adaptation!

BEAK ADAPTATIONS

DISCUSSION

20-25 min

Look at the objects at your table. Take turns picking up each object and pretending to use them the way you normally would. Give adequate time for each student to handle each object at the table.

Now imagine each of these is the shape of a certain bird's beak. What foods do you think they could easily pick up? Discuss ideas as a table, then as a class.

WHAT IS ADAPTATION?

Adaptation is the change or the process of change in which a species becomes better suited to its environment. Therefore, the various bird beak shapes and sizes are an adaptation for the different types of foods that birds eat.

EXPERIMENTATION

10-15 min

Now let's envision ourselves as birds and see these "beaks" in action.
Pass out: plate of grapes, plate of sunflower seeds in the shell, cup of little water and gummy bears, cup of colored water, and cup of Swedish fish in pudding - for each table.

- Which objects work best to obtain what is on the plate or in the bowl?
- Which grabs the seeds best, the fish in the pudding, which can grab the water best?

Give plenty of time for experimentation.

TAKE AWAY

- We call these bird beaks adaptations.
- The birds' beaks have changed slightly over many years to make them the perfect shape and size for what they need to do.

BEAK ADAPTATIONS

OBSERVATION

10-15 min

- Show students the Bird Handout page. Looking at the 5 birds, which object do you think matches each bird beak?
- How is their beak perfect for the foods they want to eat?
- Show students the photos of the 5 birds.
- Discuss as a group, and then in their Observation box, have them match up the "beaks" (tools used) to the bird.
- What food types do you think each our experiment foods represented?
  - Cup of water - Nectar
  - Pudding - prey in mud or dirt
  - Grape - Fruit with skin
  - Sunflower Seeds- Hard shell seeds and nuts
  - Gummy in water - Fish in the Ocean or River

- Discuss the functions of each beak together.
- See next page for explanation and answers
- Now that the students can see that different birds have different uses for their beaks, ask them to think of other parts of animals bodies that would require certain “adaptations.”

EXTENSION

- Today we learned about cardinal, hummingbird, avocet, macaw, and spoonbill beaks.
- Think of another bird with a unique beak. What does it look like? What diet does that bird have?
- Draw an illustration of this bird and clearly show its beak helping it obtain food.

CONCLUSION

5-7 min

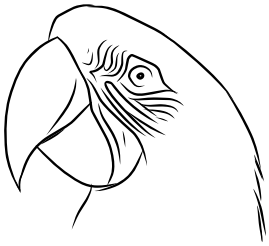
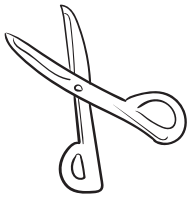
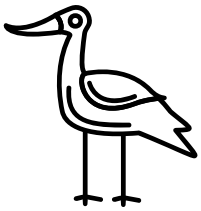
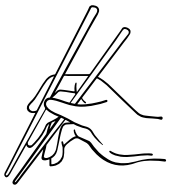
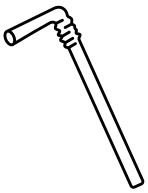
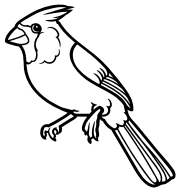
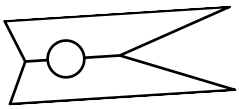
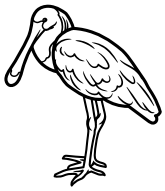
- Fill out Hypothesis/Observation/Conclusion charts on the white board together as a group.
- Instruct students to clean their stations. Make sure to leave the classroom the way you found it.

ASSESSMENT

3 min

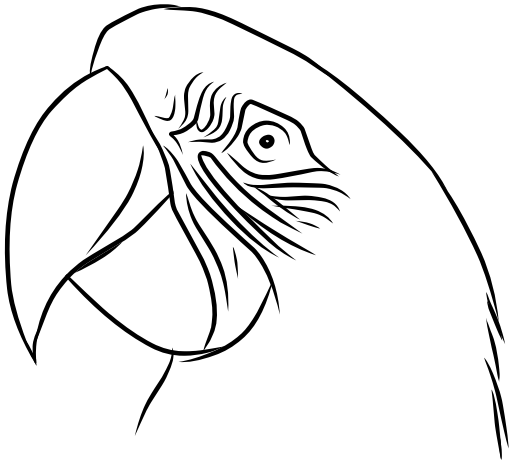
- As each student is leaving, ask them:
- Can you name one species of bird?
- Can you give a detailed description of their beak?
- How is the beak adapted to obtaining a particular food the bird eats?
- What is adaptation?

BEAK ADAPTATIONS

Bird	Beak Object	Food
Macaw 	Scissors – can peel/tear fruits 	Fruit like large grape 
Avocet 	Chopsticks – can pick prey up out of mud 	Fish in pudding 
Hummingbird 	Straw – suck up the nectar 	Cup of Water 
Cardinal 	Clothespin – break open the seeds 	Sunflower seeds with shell 
Spoonbill 	Spoon – can easily scoop up multiple prey 	Gummy bears in water 

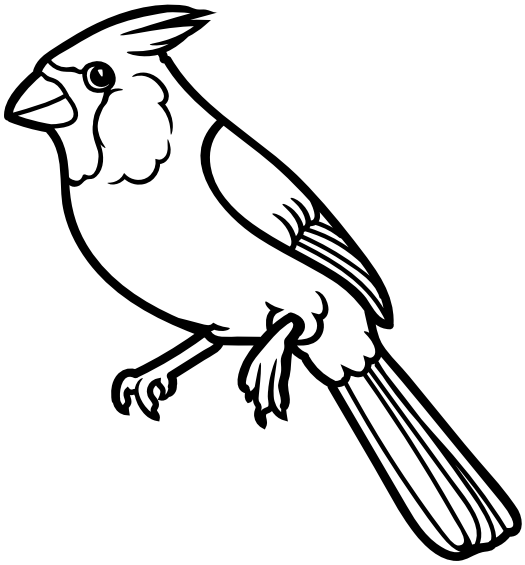
BEAK ADAPTATIONS

MACAW

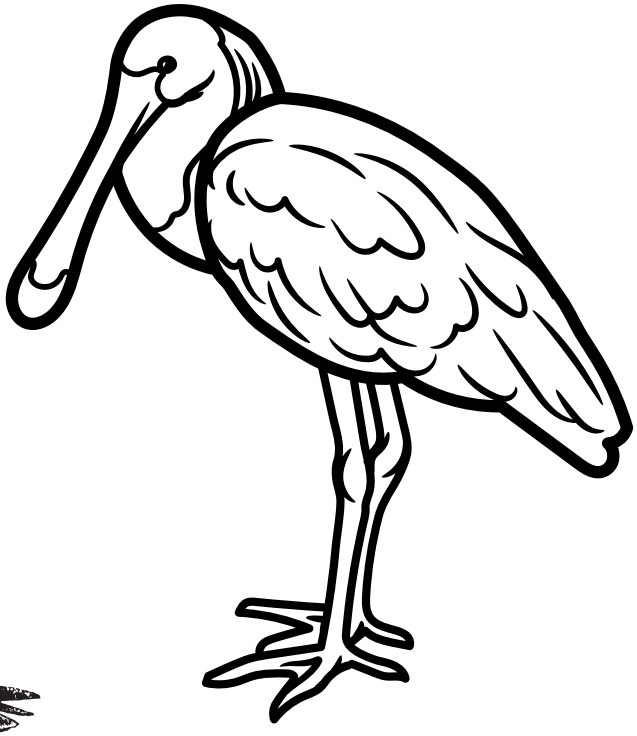


HUMMINGBIRD

CARDINAL



SPOONBILL



AVOCET