



Build a Bird

Overview: In this activity, students will discover the general characteristics of birds by “building” a duck using common everyday materials.

Science Content Standards Correlations: pg 9

Activity Adapted From: Build a Bird, National Conservation Training Center

Grade: 3

Key Concepts: Birds have many unique physical adaptations.

Objectives:

Students will be able to:

- describe physical adaptations unique to birds
- describe the purpose of the adaptations that help birds survive

Possible Locations:

- Discovery Room
- anywhere on Refuge

Materials Provided by the Refuge:

- photo of a duck
- bird part cards
- 1 jacket
- 2 wings
- photos of down feathers and contour feathers
- actual down feathers and contour feathers
- 2 cardboard tubes
- 2 balloons
- 1 bill
- 2 flippers
- 10 binder clips

Time Frame for Conducting this Activity (20 minutes)

Introduction (5 minutes)

- birds are uniquely adapted
- what an adaptation is

Build a Bird (15 minutes)

- discover the different bird adaptations
- use common everyday materials to transform a student into a bird

How this Activity Relates to the Refuge’s Resources

What are the Refuge’s resources?

- significant wildlife habitat
- endangered species
- migratory birds
- resident wildlife

What makes it necessary to manage the resources?

- Wildlife may eat or become entangled in trash such as balloons, fishing line and Styrofoam peanuts.
- Loss of wetland habitats for wildlife due to development, such as landfills, buildings, agriculture land, roads, etc makes it more difficult for wildlife to find food, water, shelter and space.

What can students do to help?

Refuge staff acquire and preserve wetland habitat, but we need your help!

- be responsible for your own trash
- reduce, reuse and recycle, decreasing the need for landfills
- never dump anything down storm drains – pollution can contaminate and destroy wildlife habitat
- adopt a wetland or an endangered species
- only take your dog to place they are permitted and keep it on a leash
- keep your cat inside your house; they catch birds
- teach others what you have learned about habitats and endangered species

How to Lead This Activity by Following the “Do, Read, Ask” Teaching Format

Introduction (5 minutes)

Do

Have students sit down in front of you.

Read

“Today we’re going to discover physical adaptations that birds have by building a bird out of common everyday materials.”

Ask

? What’s one thing that birds can do that most other animals can’t do?

(Fly)

Read

“Birds have developed unique adaptations that allow them to fly, survive at high altitudes and allow them to eat without hands.”

Ask

? Before we go any further, can anyone tell me what an adaptation is?

(If a species has an adaptation that means it changed physically or behaviorally to improve its conditions in its environment. Individuals can also adapt behaviorally, but not physically.)

Build a Bird (15 minutes)

Read

“OK, now I need one volunteer to become our bird and six other volunteers to help construct our bird.”

Do

Pick a volunteer and have them come to the front of the group with you.

Distribute the flash cards to the six other students.

Read

“Let’s start with our bird’s feathers, two kinds of feathers are found on all birds.”

Ask

? Those of you with flash cards take a look and see if you have one of the types. What are they?

(Down feathers and contour feathers.)

Read

“We’re going to start with our down feathers. Close your eyes and imagine that you are a bird in flight. How does it feel to be soaring above the earth? Is it warm or cold? (*cold*) Our bird doesn’t have to worry though, because birds have adapted to these cold temperatures by growing down feathers.”

Do

Give your bird the jacket to put on.

Read

“Will my volunteer with the down feathers card read it for us please? (*Down feathers are fluffy, under-feathers used for insulation.*)

“Actually, a lot of birds line their nests with down feathers to keep their eggs warm, which is a behavioral adaptation.”

Ask

? Next we have the contour feathers; if down feathers keep birds warm, what do you think contour feathers are for?

(Contour feathers are used for flight.)

Do

Pin the wings on your bird’s arms.

Read

“Will my volunteer with the contour feathers card read it for the group please? (*Contour feathers are strong outer feathers used for flight. These feathers are also used as clothes and coloration.*)

“These feathers are a bird’s clothes because they protect and keep their down feathers dry.”

“Let’s take a look at actual feathers to see the difference.”

Do

Hold up the photo of the two types of feathers, if you have real ones pass them around.

Ask

? What are some differences between these two types of feathers?

(Down feathers: softer, don’t “zip” together, not as stiff, fluffy
Contour feathers: stronger, more wind resistant, “zip” together with hooks and barbs, more distinct colors)

Do

Collect the feathers and the photo of the feathers before moving on.

Ask

? Next, think about how much you weigh. Then think about how much a Bald Eagle weighs with its seven to eight foot wing span. Any guesses?

(Bald Eagles weigh eight to 14 pounds.)

? With that large of a wing span, how do you think they manage to keep their weight so low?

(Hollow bones)

Do

Pin the cardboard tubes on your bird’s pants or arms.

Read

“Will my volunteer with the hollow bones card please read it? (*Hollow bones help a bird keep its weight low so it can fly.*)

“Most of a bird’s weight is found in its breast and wings, where their flight muscles are.”

Do

Pick students who haven’t done anything yet.

Read

“OK, I need two more volunteers that haven’t had a chance to help yet. One who is really strong and one who is good at counting to come up to the front.

“OK you’re going to try to flap your “wings” 20 times in 10 seconds. You’re going to count how many times they flap their “wings.” The rest of the group is going to count to 10 with me.

“OK, group we’re not going to count too fast, so follow my pace.

“Ready? Start flapping!

“One (*Mississippi*), two (*Mississippi*), three (*Mississippi*)... 10 (*Mississippi*)

“OK counter, how many did they get?

“How about you flyer, are you breathing a bit quicker than when you started? (*yes*) Was that harder for you than walking? (*yes*)

“Air sacs are an adaptation birds have to help them fly.”

Do

Pin balloons on your bird’s jacket.

Read

“Will my volunteer with the air sac flash card read it for us please? (*A lot of oxygen is needed to give birds energy to fly. Air sacs extend from the lungs, between and into hollow bones. They help maximize the absorption of oxygen.*)

“These air sacs enable the bird to take in enough oxygen to have sufficient energy to fly. These are crucial especially during those long migration flights.”

Ask

? The next adaptation helps birds eat. What do humans use to feed themselves?

(Humans use forks, straws, chopsticks, fingers, lips, teeth, etc.)

? Do you use different things to help you eat different foods?

(Yes. Examples: salad – fork, French fries – fingers, Chinese food – chopsticks)

Read

“Different types of birds have different types of bills so they can eat specific types of food, kind of like our various tools.”

Do

Put the bill on your bird.

Read

“Will my volunteer with the bill card please read it for the group? (*Bills are used for picking up food, nest construction, courtship, preening (cleaning and straitening their feathers) and defense.*)

“Our bird is a duck, so its bill is used for scooping up plants, seeds, invertebrates (animals without backbones) then straining the water out.”

Ask

? Does a bald eagle have the same kind of bill that a duck has? (No) What kind of bill do they have and what do they use it for?

(Raptors use their sharp-hooked bill for tearing meat and their talons for grasping mice or other rodents, small birds and fish.)

? What about songbirds? What kind of bill do they have and what do they use it for?

(Songbirds use their slim and sharp bills for catching insects and eating seeds.)

Read

“We have one more part to our bird left, I’m thinking our bird doesn’t want to fly all the time, it might like some feet.”

Do

Pin the feet on your bird’s pants.

Read

“Will my volunteer with the feet card please read it for the group? (*Feet are for walking and stability. In some cases, feet are important for helping birds find or catch prey.*)

“Birds feet are uniquely adapted for the habitat they live in and their diet. For example raptors have talons to help them grasp prey and woodpeckers have feet for climbing so they can look for insects on trees.

“Our bird is complete! Let’s do a quick review of our bird:

- down feathers for insulation
- contour feathers for flying
- hollow bones for low weight
- air sacs to help get enough oxygen
- beaks for eating
- feet for stability and walking

“Good job! I need my volunteers with the cards to bring them to the front while I dismantle our bird.

“Any questions before we finish?”

Do

If you’re the last group to use this activity gather all the materials and bring them into the visitor center or to the Refuge staff member that was helping your group. Thank you!