

# Birds, Birds, Birds

Environmental Education Lesson Plan  
Edwards Camp and Conference Center

## SUMMARY

Through several hands-on activities and a hike, students will learn about the natural history of birds and how to identify several common birds.

## USAGE

Grades K-7, year round

## OBJECTIVES

Students will be able to...

- Identify 3 adaptations that make birds different than mammals
- Name the parts of a feather
- Discuss why birds migrate
- Name several common “backyard” birds

## MATERIALS

- Binoculars
- Feathers, wings, feet
- Pictures of common birds
- Magnifying lens
- Carpet Squares
- Bird Books and ID cards

## INTRODUCTION

Have students begin by saying what their favorite bird. Talk about where they see birds. Not just in the air, but on the water (ducks), on the ground (robins), on trees (woodpeckers), etc.

## MAIN BODY

### **Activity I: What Makes a Bird a Bird? (10 Minutes)**

Use the dry erase board to list all of the adaptations that separates birds from other animals. Ask the students how are birds different than mammals (us). If they can't get all of the answers give them hints to encourage the answers.

- **Feathers:** (see Activity II)
- **Flight** (due to feathers), not all birds fly though.
- Most have **hollow bones:** help keep birds light, so that they can fly. Not all birds have hollow bones, ie: penguins (don't fly)
- **Gizzard:** Used to grind up seed and insects. Think of chicken gizzards. Muscle with sandpaper inside to grind up seeds.
- **Beaks:** Birds have all different shapes and sizes; discuss some of the different shapes and food the beaks are used for.

- **Feet:** Do all birds have the same kind of feet. Show some of the different kinds of feet. How do these feet help the bird?
- Don't have lungs, have air sacs throughout their body that help them breathe, but also help them fly

### **Activity II: Feather Study** (15 minutes)

Hand out a feather and magnifying lens to each student. Have the students begin to look closely at the feather. There are two types of feathers: contour and down. Contour feathers are found on the wings, tail, and body and help the bird to fly. Down feathers, which are soft and fluffy, lie close to the bird's body and keep them warm. Ask the students what kind of feather they have. Explain that the hard center is called the **shaft** and the skinny hair like substance growing from the shaft is called the **vane**. Each individual hair is called a **barb**. Have the students separate the barbs and look at them in their magnifying lens. Each barb has tiny hooks on them called **barbules** that "zip" the barbs together. Have the student's zip the feathers back up. Ask the students how this zipping of the feathers helps the bird. Birds also have an oil gland above the tail. When a bird "preens" itself they are spreading this oil over the feathers while also zipping the feathers together. This helps keep the feathers waterproof and in good condition for flight. If all of the feathers were unzipped and messy what would happen to the bird? Have the students put the feathers and magnifying lenses back in the bag.

### **Activity III: Wings** (15 minutes)

Get out the different wings. Discuss the shapes of the wings and how it affects the way the birds fly. Show the silhouette of the falcon and discuss how these wings are for fast flight, not soaring. Wings are shaped like a stealth bomber wing. Wing of the hawk is long and wide for long distance flying, soaring. Owl wings are short and rounded for short bursts of speed and maneuvering around the trees in the forest. Now have the students do the attached **Flappers Activity** to discuss how much energy it takes to fly like a bird.

### **Activity IV: Bird Hike** (30-40 Minutes)

Now it is time to head out on the hike. Discuss trail etiquette and importance of being quiet and observant when looking for birds. Pass out binoculars, ID cards, and field guides. A good place to start is the hummingbird garden out in front of the dining hall. Have the kid's practice focusing and spotting things with their binoculars and looking through their bird guides. Try picking out one bird for everyone to practice on. Good places to go to find birds would be the boat bay area. There are usually swallows and terns on the lake right off the beach. In the trees by the boat bay, Orioles, Robins, White-breasted Nuthatches are frequently found. Head out over to the amphitheatre and out on the board walk for another good spot. The prairie area and edge of the pine forest is another good area. Have the students trying to identify common birds using the ID cards. If you hear a bird, try to find it so that you can associate the bird with the call. If you want, you can even have students take turns writing down the different birds that you see and keep a count. Make it a challenge for them to try and find x number of birds. Head back toward the basketball court for the last activity.

### **Activity V: Migration Headache** (25 minutes)

See attached sheet. This is a game to discuss importance of migration and why some birds migrate. Before beginning discuss what migration is and ask students if all birds migrate. Have them come up with some that may or may not and why do they migrate.

### CONCLUSION

Wrap-up by having the students tell one or two things that they learned today. Talk about the importance of birds in the food chain. They are not just food for other animals, but they also help keep populations in balance by eating a lot of “pests” ie: rodents, mosquitoes, other harmful insects. They also help plants by dispersing seeds. Discuss with them that even in their own backyard there are a lot of birds that make a home their helping nature even in the city.

### **Activity I: What Makes a Bird a Bird?** (10 Minutes)

#### Reptilian Relatives:

- Both reptiles and birds lay eggs
- Both have partially hollow bones
- Both have similar types of skulls and ear bones
- Both have scales that cover parts of the body
- Feathers evolved from scales

Feathers: Feathers make birds different from all other animals. See Activity II.

Wings: All birds have wings. Wings are attached to powerful pectoral muscles. Think of a chicken or turkey breast. The type of flying a bird does depends on the size and shape of the wing.

- Large soaring birds like eagles and turkey vultures have long, broad wings
- Forest birds such as some owls and songbirds have short, rounded wings for maneuvering around trees.
- Birds that are fast fliers like falcons have long, pointed wings.

How do wings help flightless birds such as penguins and ostriches? Penguins use them for flippers and ostriches use them for balancing when running.

Hollow Bones: All birds have hollow bones or partially hollow bones. This helps the bird stay lightweight. A birds skeleton is very strong because the bones are fused together. The lightweight and strong bones help in flight and protect internal organs.

Beaks: All birds have beaks. Discuss different kinds of beaks birds have and how they use them. For example- hummingbirds long thin beak or a hawks curved shaped beak.

Crops and Gizzards: The crop of a bird stores undigested food before it enters the stomach. This helps birds gorge on food when they find it and store it for digestion later. All birds have crops, some birds have more developed crops than others. For example- chickens have well developed crops for storing

**Activity II: Feather Study** (15 minutes)

Hand out a feather and magnifying lens to each student. Have the students begin to look closely at the feather. There are two types of feathers: contour and down. **Contour feathers** are found on the wings, tail, and body and help the bird to fly. The contour feathers are very strong, but lightweight. Notice the hollow shaft of the feather. They help streamline a bird to give it a smooth sleek shape. Special contour feathers on the wings are called **flight feathers**. These feathers are shaped to fan the air, creating “lift” which helps the bird get off the ground, maneuver thru the air, and land safely. **Down feathers**, which are soft and fluffy, lie close to the bird’s body and keep them warm. Ask the students what kind of feather they have. Explain that the hard center is called the **shaft** which is a hollow like tube made out of keratin (the same substance that scales and fingernails are made out of). The skinny hair like substance growing from the shaft is called the **vane**. Each individual hair is called a **barb**. Have the students separate the barbs and look at them in their magnifying lens. Each barb has tiny hooks on them called **barbules** that “zip” the barbs together. Have the students zip the feathers back up. Ask the students how this zipping of the feathers helps the bird. It helps keep the bird waterproof and protect its skin. Birds molt (or lose) their feathers twice a year.

**Activity III: Wings** (15 minutes) Show different types of wings. Do crow, hawk, vulture demonstration.