

Birds, Birds, Birds

Environmental Education Lesson Plan
Edwards Camp and Conference Center

Summary

Through several hands on activities the students will have the chance to investigate the world of birds. They will learn about the general characteristics of birds as well as specific adaptations for different species. The students will also discuss common Midwest birds.

Usage – This activity is appropriate for 2nd through 7th grade, year round.

IL Standards

12.A.1a; 12.A.1b; 12.B.1a
12.B.2b;
12.A.3c;; 12.B.3b;

Objectives

Students will be able to...

- Identify characteristics of birds that make them unique
- Identify how diverse and well adapted the bird class is
- Name the parts of a feather
- Name several common Midwest birds

Materials

- Binoculars
- Bird ID Cards
- Build a Nest Cards
- Bird Specimens (Feathers, Wings, feet)
- Bag of corn kernels
- Hand Lenses

Set-Up

- Check the Bird specimens to make sure they are all in good condition
- Make sure that you have all of the necessary materials for the class.

Introduction (5 Minutes)

Start off the class with questions about basic bird knowledge. Use hands on material when appropriate to show off specific structures about birds.

“What makes a bird a bird?”

All birds have a beak with no teeth, a large muscular stomach, feathers, hard-shelled eggs, and a strong skeleton.

“Do all birds lay eggs?”

All **female** birds lay eggs and although they can differ in shape and size all of them have a hard shell and a large yolk in the middle that provides energy for the developing bird.

“Do all birds fly?”

No there are many types of birds that cannot fly.

Penguins, emus, ostriches, kiwis, and several types of rails

“Do all birds have wings?”

Yes, all birds have wings, even flightless birds still have small wings.

“Do all birds have feathers?”

Yes all birds have feathers, they are unique in the animal world, no other animals have feathers.

“Why are some bird bones hollow?”

In order to make them lighter to allow them to fly.

“Are all bird bones hollow?”

No, some need to be solid for specific purposes. Ostriches need to have solid leg bones in order to support their weight and penguins need to have solid bones in order to swim under the water.

“Do all birds have beaks?”

Yes but they look different because they have different functions.

“If birds don’t have teeth, how do they chew their food?”

*Birds have a two-chambered stomach. The first part, the **proventriculus**, breaks down the food with a strong acid. The second part, the **gizzard**, is where the food is ground up by strong muscles and grit and small stones that the birds eat.*

Feather Investigation (10 Minutes)

This allows the students to take time to look at the unique structures that form a birds feathers.

“What different functions do feathers have?”

- *Flight*
- *Warmth*
- *Protection from the sun and water/snow*
- *Swimming*
- *Floating- trapped air in the feathers adds buoyancy*
- *Snowshoeing- feet feathers help support a bird on snow*
- *Bracing themselves against things while standing and climbing*
- *Feeling- nerves around the base of the feathers are stimulated*
- *Hearing- facial discs etc.*
- *Communicating- many birds (Ex: turkeys) drum and rustle their feathers to communicate- especially when trying to attract a mate*
- *Muffling sounds- Ex: feet feathers on an owl*
- *Nest Building- a down-lined nest is nice*
- *Escape! dropping a few large feathers can distract a predator*
- *Camouflage*

“There are two parts of the feather; can anyone tell me what they are?”

*The **Stem** is a hollow tube running up the center of the feather and the **Vane** makes up of the rest of the feather.*

The Vane is held together by tiny hooks called barbs and barbules, birds have to take care of the feathers in order to make sure that they hold together. This is called preening.

Show the students how the barbs and barbules work together by pulling apart the vane and putting it back together.

Divide the students up into several small groups and hand out a feather and hand lens for each group so they can investigate the structure of the feather.

Wonderfull Wings (10 Minutes)

Use this time to talk about the difference in wing structure and function.

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 discuss how much energy it takes to fly like a bird.

Bird Hike (15 Minutes)

Now it is time to head out on a 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.

Build-A-Nest (20 Minutes)

In this activity the students will learn about different behavioral adaptations that birds have as it relates to nest building and the rearing of their young. Take the class to a relatively open area of camp that has a variety of plants.

Ask several questions about the living arrangements of birds before starting the activity.

“Where do birds live?”

The students will list a variety of ecosystems and habitats.

“Even though they live in a variety of environments and habitats, most of them still build some type of nest. Why do birds build nests?”

In order to keep their eggs and babies safe from predators.

“Where do birds build nests?”

In Trees, on the ground, floating in marshy areas, on the sides of buildings and cliffs, tree cavities, etc.

“What do birds use to build nests?”

Some birds are very selective and will use only specific things to build their nests but others will use anything they find such as sticks, mud, stones, lichens, grass, spider webs, snake skins, animal hair, fishing twine, old string/rope, scraps of material/plastic, their own feathers, among others.

Inform the students that they will be taking on the roles of birds building nests today! They will have to build a specific type of nest based on what type of bird they are going to be assigned by the build-a-nest cards.

Rules for Build-A-Nest

1. You will only have 15 minutes.
2. You must stay in the same general area, within eyesight of the instructor.
3. You may use any materials that your bird would use but you may not uproot any plants.
4. You must follow the guidelines on the card.
5. You may only use your “beaks” during this activity. Your bird beak is simply the pointer finger and thumb of one hand (pinching-type motion).
6. Inform them that it is very important to keep the location of their nests secret because we will be playing a game using them.

Divide the class into groups of three to five people and let them get started.

You should walk around during the activity to get an idea of how much time they will need to build their nests successfully.

When the students are done building the nests, take the students on a tour of the nests.

- What materials were used and why?
- Where do your species of bird build their nests- and why?
- Was it hard to find these materials?
- What other materials would you have liked to have?
- Was your nest difficult to build?
- What could you change about your nest to improve the quality of your species’ life?

Blue Jay (15 Minutes)

When all the students have built their nests and have returned to the start location, inform them that we will be playing a game with the nests that they just built.

The instructor will pick one team of students to be Blue Jays for the game. Blue Jays are omnivorous birds that will eat fruits, nuts, seeds, insects, mice, frogs, and **will rob other nests for small songbirds and bird eggs.**

The job of the rest of the class will be to take food in the form of dried beans or corn back to their nests. They are only allowed to take one piece of food per person per time. Their goal is to place the food in their nests without the blue jays finding the nest.

If the Blue Jays discover any of the other nests they may remove one piece of food at a time and place it in their own nest. The Blue Jays are not allowed to destroy any part of the nest while collecting the food.

The other students are not allowed to defend their nests or move them in any way.

This will continue until the instructor calls time and all students return to the starting point leaving their nests and any food they obtained in them.

Briefly conclude this activity with a couple of questions about the strategy of the birds. Before counting the amount of food left in each nest.

- Were the Jays successful in robbing many nests or the same nests over and over?
- Ask the other birds if their nest was robbed and if it was robbed repeatedly.
- What are some successful strategies that were used?
- What strategies could try in the future?
- Subjects include: camouflage, nesting near food source, flocking (teamwork), and leading the predator astray.

Conclusion (5 Minutes)

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.