

IN THE AIR - BIRDS!

Subject: Science
Duration: 1 hour (each activity)
Location: Classroom and Outdoors

Objectives:

To teach students basic bird structure, classification, and behavior.

Materials:

Paper, Pencils, and a bird identification guide

Method:

Discuss with the students the parts of a bird and the different types of birds that exist. Interesting design factors of birds and behavior will be discussed also. Take the students outside for a bird observation walk.

Background:

Birds are the lords and ladies of the air, able to feel the wind flowing freely past their wings as they head skyward, moving from one destination to another. Some of these birds are the most beautifully colored animals in all of nature. Birds are designed in an array of color and their syrinx allows superb vocalization.

Songbirds sing lovely and melodious songs during courtship and as territorial warnings. Birds eat a variety of foods including berries, seeds, grasses, nectar, insects, fish, other birds, and mammals. Birds have features that allow them to feed in different ways. They may have long bills, short bills, thin bills, wide bills, hooked bills, straight bills, big bills, or little bills. Other adaptations are long legs, short legs, tiny claws, big claws, round wings, pointed wings, stiff feathers, and soft feathers. All these parts combine to make very different types of birds. Birds can be categorized into about 8 groups: swimming birds (duck, geese, loons, etc.), aerial divers (pelicans, gulls, terns, etc.), wading birds (egrets, herons, ibises, etc.), shore birds (plovers, sandpipers, etc.), chicken-like birds (grouse, quail, turkey, etc.), birds of prey (eagles, falcons, hawks, owls, etc.), **passerines** -- song birds and perching birds (warblers, thrushes, finches, sparrows, etc.), non-passerines -- non-singers and non-perchers (doves, hummingbirds, kingfishers, woodpeckers, etc.). Within each group, birds are further divided by family, and by species. Bird watching has become an international hobby, and books are available for identifying birds anywhere in the world.

SUGGESTED PROCEDURE:

1) Discuss with the students the parts of a bird. Draw a picture of a bird and label the following parts: bill (upper and lower mandible), forehead, crown (top of the head), nape (back of the neck), back, rump, tail, eyes, throat, breast, belly, side, wings, legs, toes, and claws. Discuss these features with the class, and ask them what similar features humans have. Everything on a bird would have a counter part on a human, except the tail.

Ask the students what the functions are for the different parts of a bird. Wings are used for flight and for covering things up (like young in the nest, or a recently caught meal); the tail is used as a rudder, and for stabilizing the bird; the bill is used to capture and eat food; the feet are used for grasping and clinging.

- 2) Discuss the different types of birds with the students. What birds have they seen? Try categorizing some of the birds seen by the students. Ask the students to describe the most beautiful birds they have seen, the most interesting behaviors they have observed, and the bird songs and calls they have heard. Discuss design factors of birds with the class. Ask them what purposes coloration may serve. Coloration helps some birds to camouflage themselves (e.g. sparrows), while it may help other birds (such as the brightly colored cardinal) to attract mates. Ask the students how they think the shape or size of a bill affects what the bird eats. Long and thin bills are used for probing the mud and sand for **invertebrates**, tiny bills are used for picking insects out from under bark and leaves, wide and short bills are used for cracking seeds, wide and long bills are used for catching fish, and hooked bills are used for tearing flesh. Ask the students about different types of feathers. Discuss the long flight feathers, called primaries, the stiff tail feathers, and the small contour and down feathers that cover the body. Some birds have softer flight feathers than others. Ask the students why they think this might be so. Explain that some birds, like owls, need to sneak up very quietly on their prey so they have soft feathers that don't make any noise. Other birds, like pelicans, gulls, or vultures, have stiff feathers that make a lot of noise when they fly. It is not important for them to sneak up quietly, because their food is either under water or dead. Hummingbirds have stiff noisy wings that actually hum because they are moving so fast! This is fine for the hummingbird, whose principal foods are nectar and insects. Hummingbirds have speed on their side and can move in any direction, even backward, to catch an insect, visit a new flower, or avoid a **predator**.
- 3) Take the students outside for a bird observation walk. Tell them that being quiet is very important in order to see birds. Have them listen for birds as well as look for them. When a bird is seen, have the students note as many different features as possible. Bill shape, body shape, size, tail type and length, leg length, color, stripes, song, and behavior are important factors in determining what type of bird it is. Unless the species of bird is obvious, don't try to identify the bird, but rather try to determine what group of birds it is part of. If no birds are seen or heard, ask the students why the birds aren't around. A predator may be around, and the birds could be hiding. Loud noises may have scared the birds off. If there isn't sufficient cover or food, birds may not be in the area. Early in the morning and late in the day are best times to see birds. They usually keep cool during the heat of the day. Ask the students what birds do in bad weather. They seek protection. Cavities in trees, dense foliage, or thickly clumped branches, shady places underneath roofs, and the insides of abandoned buildings are all good hideouts when shelter is needed.

- 4) Have students observe bird behavior on their own. Assign as homework a bird observation journal on one particular bird. Each student will pick a bird that can be seen around his or her home and watch it. In their journals, the students will write down identifying features about their bird. The following parts of the bird can be noted: size of bird (compared to a known object), bill type, color(s) of a bird, distinguishing marks or features (stripes, eye rings, breasts, colorful patches, etc.), leg length, body length, tail length, shape of wings, and shape of tail. Then have the students write down observations of the bird's behavior. Was it eating, preening (cleaning its feathers), taking a bath, flying, climbing trees, swimming, or walking? Ask them to draw the birds in their journals. When they bring their journals into class, have the students share their observations with their classmates. If a bird identification book is available, try to look up the bird and identify it. If not, have the student choose the category that they think the bird belongs to. Ask each student, "What did you learn by watching the bird?"
- 5) An additional activity, which can be done in the classroom, is to learn about the habits of a **migratory** bird. Before scientists knew that birds migrated in the fall, people were mystified that birds would be around one day, and the next day they would be gone. One popular theory said that birds simply burrowed in the mud and **hibernated** through the winter like **amphibians**. This theory seems silly today but in that time, no one had the capabilities needed to track birds and learn about their long flights. Have the class choose a bird that visits the Gulf Coast in the spring and summer, and migrates south in the fall for the winter. Study the habits of this bird. What food does it eat while it lives on the coast? Where does it build its nest? What type of habit does the bird prefer? These questions can be answered through research and bird identification and bird behavior books. Good examples: The Prothonotary Warbler, which winters from southeastern Mexico to Columbia and Venezuela; The Summer Tanager, which winters from Mexico to Brazil; The Blue Grosbeak, which winters from Mexico to Panama; The Purple Martin, which winters in South America; The Ruby-Throated Hummingbird, which winters from Mexico to Central America; The Yellow-Billed Cuckoo, which winters in Argentina; The Swallow - Tailed Kite, which winters south of the United States; and The Least Tern (also called the little tern), which winters south of the United States, off the coast of Brazil. These birds come to the Gulf Coast to raise their young, and then they spend the winter in countries south of the United States where the food supply is greater and the weather milder. This is one of the reasons why **conservation** groups are trying to save land not only in the United States, but also in the tropics, where many birds winter. Many migratory birds spend time on the barrier islands of Gulf Islands National Seashore, resting and feeding before making that long flight across the Gulf to reach their southern destinations. These birds are referred to as neo-tropical migrants, because they migrate between North America and the neo-(or new world) tropics.