

Activities for All Ages

Nest Mania

California wetlands are home to more than 200 species of birds. Each spring, many thousands of mature birds build nests and raise their young in wetlands. For this activity, students learn the complexities of nest-building by making a nest; they'll draw and name an imaginary bird to go with it.

You will need:

- nest-making materials (sticks, pieces of trash, hair, string, straw, etc.)
- paper for drawing (8-1/2" x 11")
- crayons, markers, or color pencils

Begin by discussing the purpose for nests (to provide eggs and young hatchlings with warmth and protection from predators). Share with students that birds build many different styles of nests using materials available to them. Take the class on a 10-minute walk outdoors and have the students collect materials for nest building.

Divide the class into groups of three. Give each group two sheets of paper and crayons, markers, or colored pencils. On one sheet, have each group construct a bird nest using their materials. Remind students that they are not to use glue or tape since birds do not have access to these types of supplies (birds do sometimes use saliva or spider webs). Also discuss how birds do not have hands/fingers to use when making their nests.

On the second sheet of paper, have someone from each group draw an imaginary bird for their nest. Have them make up a name for their imaginary bird. Give the students about 10 minutes to prepare their nests and pictures. When complete, have each group present their nest and bird to the class, explaining why they chose specific bird features. Encourage them to discuss features such as bill and foot shape, body size, coloring and other adaptations that might help the bird survive.

Discussion Questions

- Why do birds make different types of nests? (Birds usually use nesting materials that are readily available to them. Nest styles evolve as birds attempt to successfully protect their eggs and hatchlings. Bird size, bill shape, and other physical factors influence the nest size and materials birds are able to carry and manipulate.)
- What factors might limit bird nesting? (loss of trees, wetlands, or uplands; flooding; drought; urbanization; pollution, etc.) Which are caused by humans and which are natural?
- What can be done to help birds that can no longer find enough natural nest sites? (Many birds are willing to use man-made nesting structures such as nest boxes, bird houses, and platforms. Habitat restoration projects are also important.)
- What are the benefits and drawbacks of providing artificial nest structures? (Benefits: more nest sites; good opportunities to observe and study birds. Drawbacks: need to repair and clean nest sites; people may work too hard to build man-made structures and not improve habitat.)
- Can students give examples of bird species that will use artificial nest structures? (wood ducks, mergansers, mallards, Canada geese, barn owls, flickers, kestrels, bluebirds, doves, etc.)

Exploring the Flyways

Many species of waterfowl, shorebirds, songbirds, and raptors nest in one area and travel, or migrate, to another for food, water, and shelter during the winter months. Breeding and wintering areas are often thousands of miles apart, so finding adequate food and rest areas in between is important. The migration routes, or flyways, of North American birds are well known. Taking a closer look at the geography, climate, and habitats along each flyway can provide a better understanding about migration.

This activity involves online and/or library research on the part of the students and may take a couple of class periods. Note: An alternative or supplement to this assignment would be to have students write reports on a North American waterfowl species.

You will need:

- a blank map of North America (copy and enlarge the one shown below)
- butcher paper
- crayons, markers, or colored pencils
- library/internet access (see resources list provided)
- maps, atlases, and/or globes (enough for four groups)

Copy or have each student sketch a map of North America. Also prepare one large map of North America on butcher paper. On the large classroom map, draw roughly where the four flyways are located.

Explain to the students that migrating birds use four general routes when traveling across North America (the Pacific, Central, Mississippi, and Atlantic flyways) and that the students are going to create a detailed map of these flyways.

Divide the class into four groups, one group for each flyway. Within each group, there will be three different subjects for the students to research. Have each group collect their research information on the map they sketched. One or two students can research the geography/climate along their flyway (i.e., mountain ranges, waterways, tropical vs. polar). One or two should research any major habitats and wildlife refuges. The rest of the students (at least four) should select or be assigned a migratory bird from the list below (students can research two or three birds if time allows). These students should find out the specific migration route of their bird. Let the students know that routes may vary and may not follow the basic flyway pattern. If possible, label wintering grounds, breeding grounds, and major stopping areas.

Pacific Flyway	Central Flyway	Mississippi Flyway	Atlantic Flyway
cackling Canada goose white-fronted goose pacific black brant emperor goose fox sparrow Ross's goose western tanager	Harris sparrow green-winged teal American golden plover gadwall	whooping crane rose-breasted grosbeak ring-necked duck lesser scaup	Connecticut warbler whistling swan greater snow goose Atlantic brant black duck greater scaup canvasback

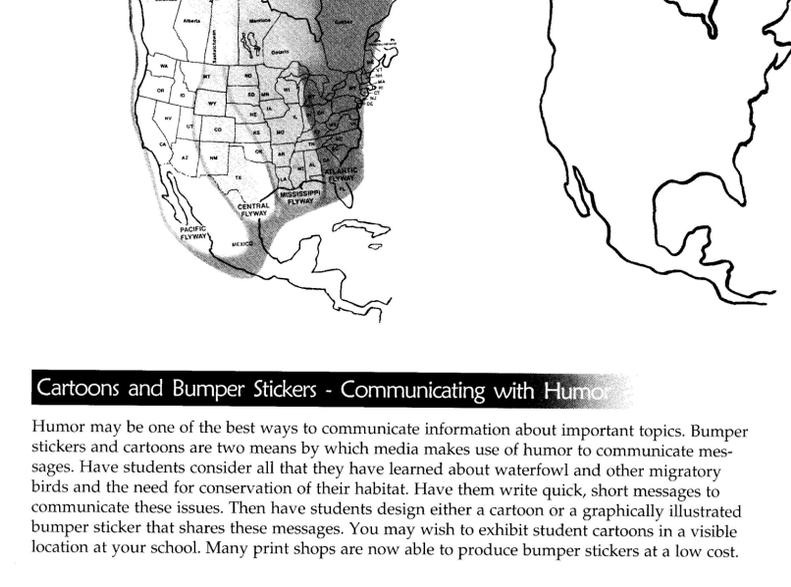
Once the students complete their research, have them transfer their information to the large classroom map. Each of the flyways should be drawn in a different color. Have the students prepare a map legend, identifying each item they add to the map (e.g., ^ = mountains, □ = refuges, = rivers, W = wintering areas, etc.)

Other possible topics to investigate include changes occurring in the wintering or breeding grounds; effects these changes may have on the wildlife, etc.

Discussion Questions

- What are the four North American flyways, and where are they located?
- How are wintering and breeding areas different?
- Why might these birds need to migrate?
- What makes these areas appealing travel routes?
- Do you see any relationships between geography and the flyways?
- Do you see relationships between protected habitat and the flyways? How are the birds affected?
- What changes might affect the birds at their wintering or breeding sites?

Map of North American Flyways



Cartoons and Bumper Stickers - Communicating with Humor

Humor may be one of the best ways to communicate information about important topics. Bumper stickers and cartoons are two means by which media makes use of humor to communicate messages. Have students consider all that they have learned about waterfowl and other migratory birds and the need for conservation of their habitat. Have them write quick, short messages to communicate these issues. Then have students design either a cartoon or a graphically illustrated bumper sticker that shares these messages. You may wish to exhibit student cartoons in a visible location at your school. Many print shops are now able to produce bumper stickers at a low cost.

Waterfowl Fortunes

Students can make fortune cookies that contain facts and messages about waterfowl and wetlands. Have students research waterfowl and wetlands or select local habitat or wildlife issues from the newspaper to support or oppose. Use the information gathered to write brief fortunes for the cookies. Type the fortunes on the computer; print them and cut them out.

Prepare fortune cookies using the following recipe. The class can give away cookies to educate others at school or in the community. An alternative to making fortune cookies would be to bake cookies or cupcakes and place the fortunes on top using toothpicks; have a bake sale to raise funds for a wetland restoration project.

Ingredients

- 3/4 cup all-purpose flour
- 6 tablespoons sugar
- 3 tablespoons cornstarch
- Dash of salt
- 6 tablespoons cooking oil
- 3 egg whites
- 3 tablespoons water
- butter or margarine to grease skillet

Equipment

- electric skillet or griddle
- mixing bowl
- measuring cup
- tablespoon
- spatula
- muffin pan
- pot holder

In a mixing bowl stir together flour, sugar, cornstarch, and salt. Add cooking oil and egg whites; stir until smooth. Add water. Mix well.

Make one cookie at a time by pouring 1 tablespoon of the batter on a lightly greased skillet or griddle; spread into a 3-1/2 inch circle. Cook over low heat about four minutes or until lightly browned. Flip cookie using a spatula. Cook for one minute more.

Working quickly, place cookie on a clean pot holder. Put a paper fortune in the center; fold the cookie in half and then bend it over the edge of a bowl to shape it into a fortune cookie. Place cookie in a muffin pan to cool. Repeat with remaining batter. This recipe makes two dozen cookies.

Artificial Nest Construction

Sometimes changes to wetlands (a loss of trees/grasslands, a shift to young trees, flooding, etc.) will reduce the availability of natural nesting sites. Biologists have found that some birds are willing to use man-made nesting structures when natural nest sites are not available. Man-made structures such as wood duck nest boxes, dove nest cones, and other bird houses are easy to make and can be used year after year as long as they are kept in usable condition.

Divide students into four to six groups. Have each group select a nest from the examples provided below. Have them collect the necessary supplies, build the nest, and place it on or near school grounds.

Students can take turns checking on their nest each week to see if it is being used (nests should be installed from February to early April for best results). Students should record their observations in a journal. Note information such as the date, time, weather, nearby activity, animals present, number of eggs in the nest, and number of young hatched. Students can report their results to the class.

Nest Cone (For Mourning Doves)

You will need:

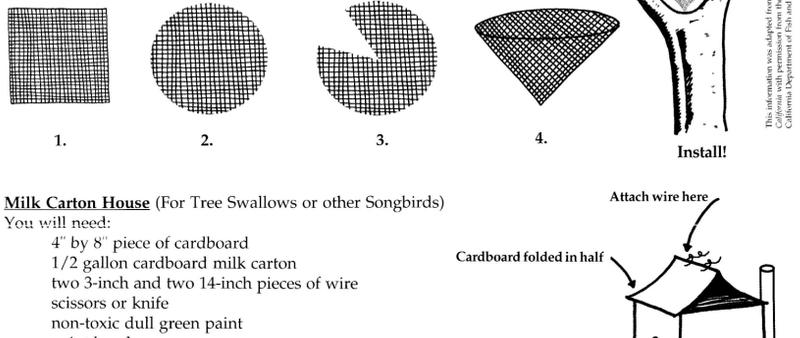
- 12-inch square piece of 1/4" or 3/8" hardware cloth
- four staples or nails
- wire cutters and pliers
- heavy-duty gloves

Directions:

Trim off the corners of the square to form a circle. Cut a three-inch wedge out of the circle as shown. Close the opening by overlapping the edges about three inches.

Installation:

Place the finished cone in moderate shade along limbs where branches fork. It should be about six feet above the ground. Secure the nest to branches using staples or nails. Nest sites must have good visibility and be clear of brushy limb growth. After a nest is installed, bend the outer rough edges down slightly so there will be a smooth place for the birds to alight.



Milk Carton House (For Tree Swallows or other Songbirds)

You will need:

- 4" by 8" piece of cardboard
- 1/2 gallon cardboard milk carton
- two 3-inch and two 14-inch pieces of wire
- scissors or knife
- non-toxic dull green paint
- paint brush

Directions:

Fold the piece of cardboard in half. Make holes in the cardboard and the top of the milk carton and attach the two together using the three-inch pieces of wire (see the drawing). Cut a 1-1/4 inch entrance hole in the upper part of the carton. Paint the carton and cardboard roof. Make several small holes in the carton for ventilation and drainage.

Installation:

Select a nesting pole and place the house at least four feet above the ground. Make holes on both sides of the carton near the back of the house, about two inches from the top and again two inches from the bottom. Run the 14-inch wire pieces through and attach the house to the pole.

Tin Can House (For Songbirds)

You will need:

- clean tin can half way open on one end
- non-toxic dull green paint
- paint brush
- two 12-inch pieces of wire
- pliers or wire benders

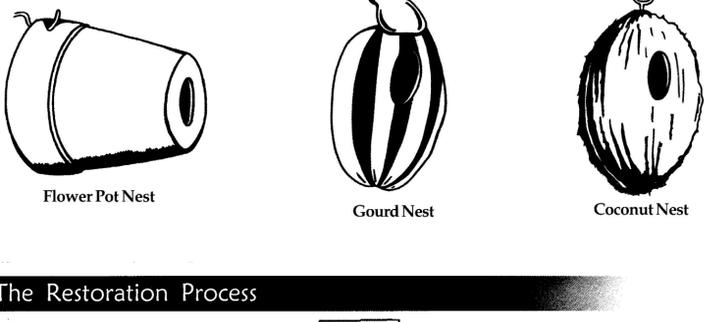
Directions:

Bend the half-opened lid inside the can and use pliers or wire benders to solidly crease the folded area. Paint the outside of the can.

Installation:

Use the wire to strap the tin can to a horizontal tree limb in a shady area. Be sure that the opening is near the top so nest materials will stay in the can.

Other fun ideas for artificial nest construction...

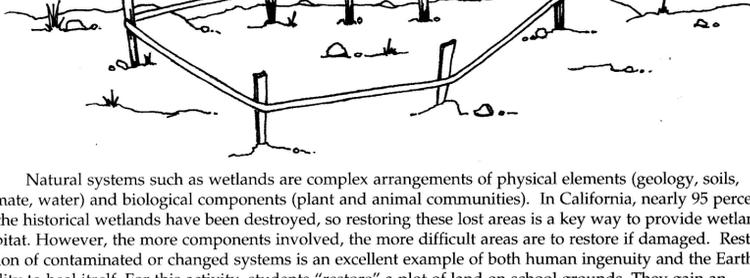


Flower Pot Nest

Gourd Nest

Coconut Nest

The Restoration Process



Natural systems such as wetlands are complex arrangements of physical elements (geology, soils, climate, water) and biological components (plant and animal communities). In California, nearly 95 percent of the historical wetlands have been destroyed, so restoring these lost areas is a key way to provide wetland habitat. However, the more components involved, the more difficult areas are to restore if damaged. Restoration of contaminated or changed systems is an excellent example of both human ingenuity and the Earth's ability to heal itself. For this activity, students "restore" a plot of land on school grounds. They gain an understanding of the procedures and collaboration necessary for habitat restoration, as well as the ways outside influences can affect these types of projects.

You will need:

- orange flagging tape or twine
- wood or plastic stakes
- paper and markers
- shovels
- grass or other hardy plant seeds
- topsoil (if necessary)

Students should begin by "applying" to the school principal for a "permit" to set aside a small section of land (a few square feet) in a high-traffic area of the school (playground or lunch area) as a habitat "reserve." They should border the area with flagging tape or twine tied to stakes. Have them make signs for the protected area to prevent schoolmates from disturbing it.

Students should plant grass or other hardy seeds in the area. It will be the students' responsibility to make sure the plants are watered and the area is protected. Continue the project for several weeks to observe the difficulties in maintaining a "reserve." Discuss disturbances and find ways to prevent them. The season in which this project is conducted can affect the results of the experiment and possible discussion questions. For example, following are discussions related to water:

- Heavy rainfall may wash the seeds away so no plants grow. How might heavy rainfall affect wetland restoration? (Erosion may make an area less suitable for wildlife. Plants can be difficult to establish when performing habitat restoration.)
- Plants may grow exceptionally well with moderate rainfall. How might moderate rainfall in wetlands affect wildlife? (Populations may increase as foods increase.)
- Seeds may not germinate with little rainfall. Students can water their "reserve," but how might drought affect wetland wildlife? (Populations may decrease as food, shelter, water, and space decrease. Fewer wetlands may force wildlife to concentrate in small areas, and disease/predation could result in large die-offs.)

