



WHERE DO BIRDS LIVE?

CAVITY NESTERS OF THE WATSONVILLE WETLANDS

Summary

Where do different wetland birds make their nests? Students explore some in-depth facts about two wetland cavity nesters, learn some benefits these birds provide to the wetland ecosystem, and make connections between the needs of cavity-nesting birds and human activity.

Objectives

Students will:

- Know that different birds make different types of nests.
- Describe some ecosystem benefits of cavity-nesting birds.
- Use descriptive words for local birds and their nests.
- Observe bird activity around bird boxes in the Wetlands.

California Content Standards Addressed

Grade Five- *English Language Content*, Listening and Speaking 1.5.: "Clarify and support spoken ideas with evidence and examples."

Grade Six - *Science content 5.e*: "Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition."

Grade Seven - *Science investigation and experimentation 7.b*:

"Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project."

The Basics:

Grade Level:

6 - 7

Subject areas:

Life Science, English Language

Duration

95 minutes

Number of Docents Needed

1-2

Outline

There are five pieces to this lesson:

- 1) Bird Nest Observation and Introduction (10 minutes)
- 2) Computer Learning Activity (30 minutes; 3 parts at 10 minutes each)
 - 2a) Wetland Cavity Nesters Learning Activity
 - 2b) American Kestrel Learning Activity
 - 2c) Barn Owl Learning Activity
- 3) Bird Box Observation (30 minutes)
- 4) The Bird Nest Jam! (20 minutes)
- 5) Closing Circle (5 minutes)

Materials:

1. Bird Nest Observation and Introduction

assorted, labeled birds nests on the tables
sample bird boxes and bird houses on the tables

2. Computer Learning Activities

turn on all the computers and bring up the website at this url:

<http://www.fitzwerc.org/wlinks/mslessons.htm#Less11/home.html>

1 clipboard per student

1 pencil or pack of colored pencils per student

1 copy of each computer worksheet (Appendices A - C) per student

3. Bird Box Observation

1 pair of binoculars per student and stewards

1 bird guide per student

4. The Bird Nest Jam!

14 bird and nest cards found at the bottom of this lesson. More than 14 if you have more than 14 students

(This game requires 14 specialized bird and nest cards. Here are instructions on how to make them. At the bottom of this lesson are seven pages with pictures of birds and nests. Each page should have a picture of a nest with a description of the bird under it, a picture of a bird with a description of its nest under it, and two boxes with the name of the bird. Print out these seven pages. Cut out bird name boxes and each of the pictures with the description under it. Create flip-up cards by taping two equally sized cards made out of thick paper, cardstock, or poster-board. Create 14 of these flip-up cards. Take the first card and glue/tape the picture of the nest on the top piece of cardstock, then tape/glue the name of the bird that goes with that nest on the bottom piece of cardstock so that it doesn't show unless the top is flipped up. Do the same thing for the bird picture on another card. Continue for all seven birds until all 14 cards are filled up. You may make them as fancy as you want. Some kind of closure at the non-taped side is a good idea to prevent the students from looking at the name of the bird for their picture.)

Vocabulary

nest, cavity, depression, hollow, decay, abandoned, primary, secondary, excavate

Background Material

Birds build nests to protect themselves, their eggs, and their young from predators and from adverse weather. Other animal species also build nests, but birds do so in a greater variety of forms, from a greater variety of materials, and on a greater variety of sites.

A bird's nest, the place where it raises young, is typically thought of as a small cup made with grasses, twigs, mud, and other soft and hardy items. These nests are usually found perched on a branch or between the limbs of a tree or bushes, or even low to the ground. Birds that have these typical nests are robins, hawks, sparrows, ducks, and brown towhees to name a few.

However, some bird families have members that nest in cavities. Cavity nesters are birds that build their nests in tree cavities or holes. These cavities can be either natural (i.e. created by decaying wood), or excavated (i.e. created by woodpeckers). Woodpeckers may come to mind as a cavity nester, as well as some wren species, some members of the titmouse family (which includes chickadees), and some owl species.

There are two types of cavity nesters, **primary** and **secondary**. The primary cavity nesters are woodpeckers, who can chisel cavities into living hardwood trees which they then use for nesting sites. When they are finished nesting, the cavities become available for the secondary cavity nesters, who are unable to excavate.

Acorn woodpeckers, for example, excavate their nesting cavity as a pair or even can be assisted by other adult members of their social group. The circular entrance is usually $1 \frac{3}{5}$ inches in diameter and the inside cavity is about 8-24 in. deep.

Secondary nesters find natural cavities in trees, hollow stumps, or use abandoned nesting holes from bigger birds or woodpecker holes. Some wren species such as Bewick's wren nest in almost any cavity they can find: knotholes, fence posts, even mailboxes and tin cans have been used.

Other birds, like those in the titmouse family usually nest in natural cavities of trees or stumps anywhere from 4-90 feet above ground. This makes bird boxes very enticing to them since these are generally placed higher up on trees and look much like a natural tree cavity. Again these cavities can be lined with down of cottonwood trees, dried grasses, moss,

leaves, fur from animals etc.

Some species return year after year to the same nests while others build or find new ones. In many species the female selects the nest site and begins building the nest; however, in some of the cavity nesting migratory birds such as the house wren, the male selects the nest site because they arrive at the breeding grounds before the females. These males may build several "dummy" nests in various cavities and their mate will make the final decision on which one will be used. Most nesting areas are close the birds food sources, thereby allowing easier access and quicker trips away from the nest to forage for food.

Many cavity nesters are insectivorous, meaning they mainly eat insects. Some problems that may occur with the degradation of the environment are that this prevents cavity nesters and other birds from coming back to their breeding grounds; thereby, allowing insects to overrun the place because there are less predators keeping the insect population down.

Some species of cavity nesters have been forced to primarily use man-made houses to nest in because they cannot find their natural nesting habitat.

Some cavity nesting birds of the Watsonville Wetlands include:

- wood duck - 20 to 50 feet above ground in hollow trees or nest boxes
- common merganser - prefer tree cavities 15-20 feet high, will use cliff ledges, large nest boxes, and occasionally on the ground under a bush or log
- turkey vultures - like hollow trees, although they will nest on the ground since large cavities in snags are rare
- barn owls - Will nest in barns, church steeples, nest boxes, tree hollows - does not add any nesting material
- screech owl - will use tree hollows, woodpecker holes or nest boxes - does not add nesting material
- acorn woodpecker - excavate their own holes - used by other birds
- Nuttall's woodpecker
- ash-throated flycatcher - in any natural or artificial cavity - lines with soft material
- tree swallow - uses natural cavities in trees or stumps near natural bodies of water
- chestnut-backed chickadee - can excavate their own cavities, also use woodpecker holes, lines cavity with fur, feathers, or moss
- house wren - will chase other birds from their cavities

- house sparrow - will move into house set up for other birds

Procedure

1) Bird nest and box observation (25 minutes)

- Ask students if anyone has ever seen a place where a bird lives. Where do birds make their homes?
- Invite students to walk around the tables to look at the assortment of bird nests, birdhouses, and bird boxes. Ask if anyone knows the names of some of these objects? Has anyone observed birds in any of these objects in the wild? Ask for some volunteers to describe some facts about bird nests or other bird homes.
- As students walk around, looking ask questions like: What are nests made of? Where might you find nests? Why do birds build nests? What about birdhouses? Has anyone here ever seen a birdhouse? Has anyone ever made a birdhouse? Do you think all birds will use a birdhouse? Do all birds make nests? Where else might a bird live?
- Tell students that today they will find out more about birds that look for hollow areas like small holes or indentations to make their nests in. These are called cavity-dwelling birds, or cavity-nesting birds. They will learn the names of local cavity-nesting birds and observe bird activity out on the wetlands.

2) Computer Learning Activity (30 minutes, 3 parts at 10 minutes each)

2a) Wetland Cavity Nesters Learning Activity (Part I of the computer activities) (10 minutes)

- Give each student a clipboard, science notebook, pencil, and Wetland Cavity Nesters Worksheet (Appendix A).
- Assign students a partner and direct them to a computer where the website at this URL is open: <http://www.fitzwerc.org/wlinks/mslessons.htm#Less11/home.html>
- Instruct students to read the information on the computer screen with their partner to find the answers for their worksheets. Tell students to use their mouse to click on the screen to change the picture.
- Tell students to be sure to ask if they have any questions.

2b) American Kestrel Learning Activity (Part II of the computer activities) (10 minutes)

- Give each student an American Kestrel Worksheet (Appendix B).

- Instruct them to click on the American Kestrel link on the computer screen and answer the questions on the worksheet.

2c) Barn Owl Learning Activity (Part III of the computer activities) (10 minutes)

- Give each student a Barn Owl Worksheet (Appendix C)
- Instruct them to click on the Barn Owl link on the computer screen and answer the questions on the worksheet.

3) Bird Box Observation (30 minutes)

- Once the kids are done with the computer activity, collect all the worksheets and round up the kids. Explain the proper way to hold and use binoculars. Give each student binoculars and a bird guide.
- Lead students and stewards outside and have them look at the closest bird box to the WERC. Explain that this bird box was made especially for American Kestrels by past Wetland Stewards so that more kestrels would populate the wetlands. Tell them that there are two more boxes that the stewards are going to take them to. We want to see if the boxes are being used by kestrels or other birds. Ask the kids how we can know if the bird boxes are being used. (bird droppings on the ground around the box, noises coming from the box, spotting birds flying in and out of the hole or perching on the box, looking for owl pellets on the ground around the box) Cover all of observations with the kids. Ask the kids if we are going up to the bird boxes quietly or running and screaming.
- Once the kids know to be quiet and what to look for, take the whole group slowly up to the first bird box and make observations. When you are done there, take them a little ways away and ask the students if they think the bird box is being used. In what way? (as a nest home or as a perch) Break the class into two groups and give each group steward leaders. Explain that each group is going to one of the other bird boxes to make the same observations. Remind them that they should approach slowly and quietly. Also encourage them to bird watch along the way.
- When the groups are made, send one group to one bird box and the other group to the other box. The groups have up to 20 minutes to go there and back.

- When the groups return, have the students report what they saw and return the guides and binoculars.

4) The Bird Nest Jam! (20 minutes)

- (Note: this game requires specialized bird and nest cards. For more information on how to make them, go to the materials section.)
- Explain to the students that they are going to play a game where each student gets to be a bird or a nest. The point of the game is to become familiar with some native cavity nesting birds and how to identify their nests if you ever see one in a cavity or are checking bird boxes. Encourage the students to listen carefully or else they will not know how to play the game.
- If there are more than 14 students, break the class into groups of 14 or even groups of a smaller number. Each group must have an even number of students since this is a pair-up game. Have the stewards and docents participate to make the groups larger or more even. If you have a class greater than 14 students you will need to make copies of the bird and nest cards.
- To make the game instructions easier, let us pretend there is only one group of 14 students. Break up that group in to two groups of 7. Group A and Group B. The students in Group A line up side by side facing Group B which also lines up side by side. The two groups should be facing each other. Tell the students that each of them will get a card with a picture on it, Group A will get pictures of nests and Group B will get pictures of birds. Explain that once they get their cards, they may show their pictures to their own group but they may NOT show their pictures to the opposite group. Also, each card flips up to reveal the name of their bird. NO STUDENT MAY LOOK AT THE NAME OF THEIR BIRD UNTIL THEY ARE PAIRED UP.
- Pass out the nest cards randomly to Group A and the bird cards randomly to Group B. (Note: each of the nests matches one of the birds. So if you have a group with less than 14 students, make sure that all of the cards passed out have matches.)
- Explain to the students that Group A has a picture of a nest and a description of the bird that made the nest. Group B has a picture of a bird and a description of the nest

it makes. Each card in Group A pairs up to a card in Group B and the students have to find their match by describing their bird or nest.

- This is how the game is played. The first student in Group A describes the nest in their picture and ALL of the students in Group B try to see if the students' description fits the description of the nest on their bird cards. If one of the kids thinks it's a match they have to say "Stop", step forward and describe the bird in their picture. The student who was describing their nest sees if the bird description matches the bird description on their card. If the student from Group A doesn't think it is a match, they say "No match" and the students from Group A and B step down and the game continues with the next student in Group A. If the student does think it is a match they say "let's see" and then both students meet in the middle and flip up their cards to see if they each have the same bird. If they do not, they step back in line and play resumes. If they do, they share the name of their bird with everyone and step off to the side. Game resumes without them.
- Make sure each student has a chance to describe their nest or bird. Once every student is matched up and have shared the names of their birds they may play again. The 2nd game should be randomized but hopefully goes quicker. The intention is to identify native birds as well as how to identify their nests.

5) Closing circle (5 minutes)

- Pass a feather around the circle and ask each student to name one interesting fact they found out today.

Extensions

1. Build nesting boxes for the American kestrel or barn owl.
2. Use the software program to see if you can identify at least 10 wetland birds that are cavity nesters. Make a list and share them with the class.

Resources and Bibliography

Forest Service, U. S. Department of Agriculture. "Cavity Nesting Birds of North American Forests." Retrieved March 15, 2007 from http://www.na.fs.fed.us/spfo/pubs/wildlife/nesting_birds/CavityNestingBirds.pdf.

Parkin, J. 2007. Personal correspondence.

Terres, J.K. *The Audubon Society Encyclopedia of North American Birds*. New York: Wings Books, 1991.

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Appendices

Appendix A: Wetland Cavity Nesters Worksheet - page 9

Appendix B: American Kestrel Worksheet - page 10

Appendix C: Barn Owl Worksheet - page 11

CAVITY NESTERS COMPUTER WORKSHEET

Name: _____ Date: _____

Fill in the blanks using the information you learn online about cavity nesting birds:

What is a cavity nesting bird? _____

Name two natural cavities

1. _____ 2. _____

Name two man-made cavities

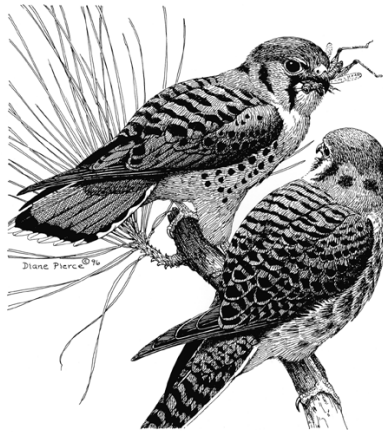
1. _____ 2. _____

What do you think happens to cavity-nesting birds when their nests are removed? Talk to your partner to think of an answer and write it down here:

Now talk about this question with your partner: Why do you think some birds are adapted to lay their eggs in a cavity instead of a nest? Write your answer here:

Name _____

American Kestrel Worksheet



Drawing by Diane Pierce 1996

Use the online American kestrel activity to answer the following questions:

What type of bird is the American kestrel? _____

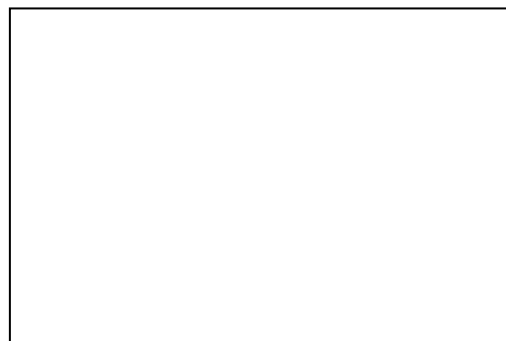
What is the Latin name for the American kestrel? _____

Name one place you might see an American kestrel in the Watsonville Wetlands

How much is the American Kestrel stamp worth? _____

What does the American kestrel eat? _____

Draw a sketch of an American kestrel's beak:



How do you think we can benefit with more American kestrels in the wetlands?

Name _____

Barn Owl Worksheet



Use the WERC Barn Owl Online Activity to answer these questions about barn owls:

What is the Latin name for the barn owl? _____

What is the barn owl's habitat? _____

Name one place in Watsonville wetlands where you might find a barn owl hunting:

Where do barn owls build their nests? _____

How do you think we can benefit with more barn owls in the wetlands?

Look at the pictures of the barn owl on the pop-up answer boxes. It has a very unusual face - what shape would you say it is? _____

Draw a sketch of a barn owl's face:



The small bird that made this nest is light brown all over with an even lighter belly. It has brown speckles all over its back and wings. The tail is flipped up and its beak is long for snatching bugs.



This bird makes a messy, cupped nest made of grass or thin twigs. It may be lined with feathers or fibers, usually with 5-6 glossy white or pink eggs with lots of pink/brownish speckles.

House Wren

House Wren



This bird makes a very soft and downy nest made out of moss, feathers, and other soft fibers. In the nest are usually 6-10 white or cream colored eggs and each is smaller than a penny.



The small, round bird that made this nest has a black head with white cheeks, a chestnut-brown back, and a grey body with white stripes on the wings. It has a very small black beak.

Chestnut-Backed Chickadee

Chestnut-Backed Chickadee



The very tiny bird that made this nest is colored grey all over but can have soft brown patches. It has a small curved tail, a black pointed beak, and a pointed crest of feathers on its head.



This bird makes a soft, cupped nest of feathers, moss, and soft grasses. In the nest are usually 3-6 small white eggs. The eggs can also be cream, brownish, or blue and are smaller than a dime.

Oak Titmouse

Oak Titmouse



The small bird that made this nest has shiny blue feather in the top of its head and down its back. Its chin and stomach are pure white. It has little pink feet and a forked tail.



This bird makes a deep nest of grass and lines it with feathers. In the nest are usually 4-6 pure white, small eggs.

Tree Swallow

Tree Swallow



These birds make a very tidy, cup-shaped nest. They only make their nests out of thin grasses or pine needles and sometimes line it with feathers. The eggs are powder blue.



The birds that made this nest are small plump birds with blue feathers all down their backs and heads. Their chests are orange or brown. They have little black feet and pointed beaks.

Western Bluebird

Western Bluebird



This bird prefers to dig out its own cavity in a tree to nest in. It will use the soft, broken wood from digging the hole as nesting material. They lay 6-8 large white eggs.



G.K. Peck

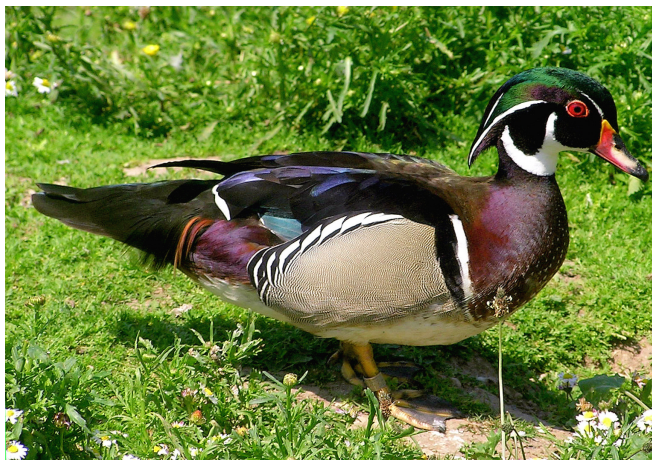
The bird that made this nest is a foot long. It is brown on its back with black stripes and grey on the front with black spots. It has a red mustache and has a black patch on its chest.

Northern Flicker

Northern Flicker



The bird that made this nest is a kind of duck with a crested, green head, red eyes, and multi-colored. It has a white neck, brown chest, and purple, blue, orange and green colors near the tail.



This bird makes a flat nest out of moss, wood chips, or grass. It lines the nest with lots of downy, soft feathers. They lay lots of large white eggs.

Wood Duck

Wood Duck