



### **PATTERNS: Feathering the Nest**

*It is illegal to collect birds' nests, feathers or eggs without federal and state collecting permits.*

Birds' nests, hidden behind leafy curtains in the summer, often surprise us in the fall when they appear among the newly bare branches of trees. After the first snowfall, nests stand out as little snow-capped baskets perched on limbs or tucked away inside hedges and thickets. Although the birds that built them are probably far away, the size and shape, materials and placement of nests can often give us clues about their identity. Birds build their nests without any prior instruction, and yet each builds a nest that is characteristic of its species.

All birds are warm-blooded, and the eggs they lay must be incubated in order for the young to develop and eventually hatch. The rounded eggs need to be kept together and kept warm. Both eggs and the brooding parent need protection from predators. A nest keeps the young safely together in one place where the parent can tend them.

The designs of bird nests are related to the habits and habitat of each species. Some birds simply lay their eggs on bare ground or a rock ledge. Others build simple nests on the ground, like the Killdeer, which makes a shallow scrape in the loose gravel, or the Ruffed Grouse, which makes a shallow leafy nest on the forest floor. The downy young of these birds are **precocial**, able to run and hunt for food within hours of hatching, and so spend little time in the nest.

Other birds build more elaborate nests. Many of these have **altricial** young that are helpless and must be fed and cared for by the parents until they have grown their flight feathers and learned how to fly. Some birds build **platform nests**. Doves build loosely woven platforms of twigs. Ospreys and eagles build huge platforms out of branches and sticks that last for many years. Grebes build floating platform nests in wetlands. **Cavity-nesters** like woodpeckers excavate holes in dead trees for their nests, while chickadees find already-hollow trees in which to nest. Kingfishers and Bank Swallows dig tunnels in sandy banks and build their nests deep inside the ground. Some of the most elaborate and carefully woven nests are **cup nests**, the bowl shaped nests that are built by songbirds. Cup nests may sit on a branch, they may fit into the crotch of a tree, or they may hang from a branch. The Red-eyed Vireo builds a **pensile** nest, attached by its rim to a forked twig. Orioles, instead, weave bag-like **pendulous** nests that swing in the breezes, suspended from the tips of twigs, like cradles in the treetops.

Some birds do not build nests or even tend their own eggs. Cowbirds lay their eggs in the nests of other birds. When the baby hatches, it will be fed by the foster parent birds, and often it will push the other nestlings out of the nest. Cuckoos usually build their own nests, but occasionally leave their eggs in other's nests, especially those of other cuckoos.

The location of a nest is critical for its success, and is predictable for each species. Phoebes choose a spot under the eaves of a barn or house and often under a bridge, giving them the nickname, "bridge birds." House Finches are apt to build nests in wreaths or hanging planters, which can be inconvenient for the homeowner. Goldfinches fasten their thistledown-lined cup nests within the upright crotch of a tree or shrub, and Brown Creepers hide their tiny nests behind the loose bark of a standing snag.

The materials used in nest construction give us clues about the nest-builder. Orioles weave their hanging nests out of fibers stripped from the dead stalks of last-year's milkweed plants. Red-wing Blackbirds build their nests out of sedges, rushes, and grasses, using milkweed fibers to bind them to cattails. Robins line their nests with mud that the female molds to the shape of her body like a potter smoothing out a bowl. Red-eyed Vireos decorate their nests with curls of birch bark or paper from hornets' nests. The Ruby-throated Hummingbird shingles its nest with bits of greenish-gray lichen. Chimney Swifts break off twigs with their feet while on the wing, and build delicate shelf-like nests using their sticky saliva for glue. Their Asian cousins, the swiftlets, build nests entirely with their bubbly saliva - a delicacy collected for birds' nest soup.

Some birds include surprising items in their nests. The Great-crested Flycatcher usually includes a snake skin in its cavity nest, but may instead include a strip of plastic. Many species may include colorful yarn, string, or twine found during nest building. House Wren nests usually include a variety of natural materials such as hair, wool, spider egg-cases, strips of bark, moss and feathers, but some have been found to contain hairpins, nails, tacks, staples, hooks, and rusted pieces of wire!

An obvious choice for a soft lining that is warm and insulating is, of course, feathers. In some birds, like Mallard Ducks and Great Horned Owls, the female will pull feathers from her own breast and use them to line her nest. The expression, "feathering one's nest," meaning to enrich oneself, probably comes instead from songbirds like swallows and House Finches that collect other birds' feathers for lining their nests.

The process of nest building and rearing young can have many variations. In many songbird species, the female builds the nest alone. The Bluebird female gathers nest material while the male stands guard on a fencepost, or fights off competitors like Tree Swallows, which may attempt to usurp the nest cavity. In other species, such as in some swallows and waxwings, male and female work together. In the House Wren, the male claims and defends several nest cavities, building a basic nest in each. The female inspects and selects one of these for her use, or rejects them all and starts anew. Nest building generally takes a few days to a week. After that, females will usually lay an egg each day until the clutch is complete and then begin incubating. In this way, all the eggs will be ready to hatch at the same time.

The nests of birds, tucked away in nooks and crannies, serve to cradle and conceal their eggs and young. They are the visible results of complex innate behaviors that are critically important to the birds' success in raising young. Comparing nests from different species of birds allows us to notice similarities in form and function as well as differences in location, material and design.

### **Suggested References**

Dunning, Joan. *Secrets of the Nest*. Boston: Houghton Mifflin, 1994.

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Stokes, Donald W and Deborah Price. *A Guide to Nature in Winter*. Boston: Little, Brown, 1976.

Stokes, Donald W. and Lillian Q. Stokes. *A Guide to Bird Behavior, vol. I-III*. Boston: Little, Brown, 1983.

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### **PATTERNS: Feathering the Nest Activities**

*Please note: Under the Federal Migratory Bird Act, it is illegal to collect birds' nests unless you have a permit to do so.*

*After handling nests, be sure to wash hands.*

**Focus:** Although all birds' nests are made to contain and conceal the eggs, the design and construction of nests varies greatly and is characteristic for each species.

*What is the purpose of a bird's nest?*

#### ✓ **PUPPET SHOW**

**Objective:** *to meet some common birds and learn about differences in their nest designs.*

Present the puppet show. Afterward, hold up each bird puppet and ask the children what they remember about the characteristics of its nest. What were some differences?

**Materials:** puppets, script, props.

#### ✓ **NEST DETECTIVES**

**Objective:** *to examine a variety of birds' nests and inventory the materials used in their construction.*

Ahead of time, set out the nests provided at separate, numbered stations. For younger children, divide into groups with a leader and visit each of the nest stations to examine and discuss the nests. For older students, provide each team (1-3 students per team) with lenses, paper, pencil and clipboard. Have teams examine each of the nests to see what materials were used in their construction and make a list of these. Afterward, discuss as a group what materials were found in each nest. What can be learned about the bird's habitat from its nest? What can they tell about the size of the bird from the nest?

**Materials:** birds nest collection (provided), magnifying lenses, paper, pencils, clipboards.

#### ✓ **THAT'S MY NEST! (K-2)**

**Objective:** *to match bird puppets with their nests.*

Have children sit in a circle with the collection of nests in the middle. Have each bird puppet appear in turn and describe its nest to the children. You may wish to use the script provided that tells of the materials used and method of construction. Ask the children to point to the nest they think belongs to each bird.

**Materials:** birds' nest collection (provided), script, puppets.

### ✓ KEYING OUT NESTS (3-6)

**Objective:** *to use a dichotomous key to identify five birds' nests.*

Set out 5 nests from the set provided at five separate stations. Nests are labeled (A through E) with paper tags. Divide the class into 5 groups and assign each team to a station where it will begin. Provide each team with a *KEY TO NESTS*, hand lenses and rulers, and a *NEST IDENTIFICATION FORM* on which to record their answers. Have students examine each nest following the questions in the Key and try to determine what kind of bird made it. Once they decide the identity of each nest, they will write its species' name on their form next to the appropriate letter. Teams should move through the stations until they have had a turn at each nest. Afterward, have one student from each team hold up a bird puppet and read the "That's My Nest" scripts (see above activity) so that students can decide whether they correctly identified each nest. Discuss any difficulties in identification they encountered along the way.

**Materials:** Set of five birds' nests (provided); for each team: *NEST IDENTIFICATION FORM*, hand lenses, rulers, *KEY TO NESTS*, pencils, *THAT'S MY NEST* scripts.

### ✓ CONSTRUCTION CHALLENGE

**Objective:** *to try to construct a nest with dried vegetation in order to appreciate the difficulties faced by a bird when building its nest.*

Divide the children into teams of 3-5. Give each team a sturdy forked branch. Set out piles of nesting materials (soft hay, dried leaves of grasses, sedges, irises or lilies) at a distance from the groups of children. To begin, have one child in each group hold the branch and send one child from each group to collect a beakful (using just the index finger and thumb of one hand as the "beak") of nesting material and bring it back to the team. Then, together with teammates, children must try to weave the nesting material into a nest. Have children take turns going for nesting material, holding the branch, and weaving. Tell them they must try to construct a nest that will hold three eggs. When they are ready, test each nest by dropping in three small pebbles. Be sure to applaud for every nest! What did the children find to be hardest about nest building?

**Materials:** sturdy forked twigs, one per group; nesting material such as dried grasses, sedges, rushes, irises or lilies; several small rounded stones or foil-covered chocolate eggs; optional: manmade materials such as yarn, string, pipe-cleaners, shredded paper.

### ✓ PICTURE SHOW

**Objective:** *to review some of the different types of nests and the birds that built them.*

Show pictures of a scrape, platform nest, cup nest, cavity nest, ground nest, hanging nest and others, if possible, as well as pictures of the birds that made them. Afterward, ask the children to complete this sentence: If I were a bird, I'd want to be a \_\_\_\_\_, I'd build my nest out of \_\_\_\_\_, and I'd place it \_\_\_\_\_.

**Materials:** slides or CD, projector, screen.

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## EXTENSIONS

**For the Birds:** Have the children poke pieces of yarn, string, or batting into an old mesh bag, the kind onions are sold in. Place this nesting material outside on the school lawn and watch to see if any birds come to take pieces. Which textures or colors are most popular? Can you find a nest that contains some of the yarn pieces?

**Draw a Nest:** Have students draw a picture of their favorite bird on its nest. Help students to find out about where the bird builds its nest, what type of nest it uses, and what kind of habitat it might choose for nesting. Could they find this bird near where they live?

**Nest Search:** Take the children on a walk around the school grounds pointing out any nests that you located ahead of time, and giving the children a chance to find some you may have missed. How would these nesting sites be different in spring and summer than they are at this time of year, and how would that help the birds?



### KEY TO NESTS

- |   |                             |
|---|-----------------------------|
| 1. Nest contains mud  | Go to question 2            |
| 1. Nest does not contain mud or only very little                  | Go to question 3            |
| 2. Nest is made of grasses and has a deep bowl of mud inside      | <b>American Robin</b>       |
| 2. Nest has moss on the outside and some mud on its base          | <b>Eastern Phoebe</b>       |
| 3. Nest hangs from its rim  | Go to 4                     |
| 3. Nest does not hang from its rim                                | Go to 5                     |
| 4. Nest is 2" deep or less; white birch bark curls on the outside | <b>Red-eyed Vireo</b>       |
| 4. Nest is more than 2" deep and is made of silvery plant fibers  | <b>Northern Oriole</b>      |
| 5. Nest is small and lined with fluffy thistle down               | <b>American Goldfinch</b>   |
| 5. Nest is large and lined with rootlets or fine grasses          | <b>Red-winged Blackbird</b> |

### NEST IDENTIFICATION FORM

**Name of Bird Species**

NEST A: \_\_\_\_\_

NEST B: \_\_\_\_\_

NEST C: \_\_\_\_\_

NEST D: \_\_\_\_\_

NEST E: \_\_\_\_\_





## PATTERNS: Feathering the Nest Puppet Show

**Mrs. Bluebird** Well, that's the last straw!

**Mr. Bluebird** What is it, my dear? Is something the matter?

**Mrs. Bluebird** The matter? No, I just said that's the last straw. I've just added the last piece of straw to our nest, and now it's done.

**Mr. Bluebird** And a more beautiful nest I've never seen. I always admire your great talent in nest building. It must have been hard to learn.

**Mrs. Bluebird** Why no, not at all. I just seemed to know what to do. It must be instinct.

**Mr. Bluebird** And I suppose now you'll be starting to incubate our eggs.

**Mrs. Bluebird** Well, not just yet, dear. After all, I'll only lay one egg a day until I have a full clutch – say 3 or 4 eggs - and then it'll be time to incubate. That way, all our babies will arrive at the same time.

**Mr. Bluebird** And they'll all be ready to learn to fly at the same time. That's what I call good planning. [*tapping noise*]. Uh oh, sounds like an intruder looking for a nest box just like ours. Well, he'd better look somewhere else or he'll have me to deal with! [*exits*]

**Mrs. Bluebird** There's so much competition for nest cavities. It's nearly a full-time job for my mate just to keep intruders away.

**Mr. Bluebird** [*returning*] Well, I took care of him!

**Mrs. Bluebird** Who was it this time, dear?

**Mr. Bluebird** That was a house wren trying to bring a twig in here to start a nest.

**Mrs. Bluebird** The idea! Do the male house wrens build the nests instead of the females?

**Mr. Bluebird** Not really. The males start nests of twigs wherever they can find a good cavity. When the female comes along, she'll pick one of his nests and then rebuild it to suit herself. She adds feathers and grasses and even spider egg cases.

**Mrs. Bluebird** Such clutter!

**Mr. Bluebird** Some birds put all kinds of things into their nests, like hair, bark, spider silk. Why, the Great Crested Flycatcher often puts in a snake skin!

**Mrs. Bluebird** [*shudders*] Ooo! Makes my feathers stand on end. I think I need a bit of fresh air. Is the coast clear?

**Mr. Bluebird** All clear for take-off. [*Mrs. Bluebird exits; Vireo enters*]

**Red-eyed Vireo** Did I hear you mention spider silk-eeo?

**Mr. Bluebird** Who are you? I haven't seen you in these parts before.

**Vireo** If you want to know me, dear-eeo, then come a little near-eeo. Look at my eyes, and not at my ear-eos!

**Mr. Bluebird** You've got red eyes – hey, you must be the Red-eyed Vireo.

**Vireo** Hear, hear, hear-eeo, I am a Vireo! I'm not much to look at, but my nest is very dear-eeo. I hang it from a branch with spider silk, and cover it with birch bark curl-eos.

**Mr. Bluebird** Sounds very fancy. You must hate to leave behind such a nice nest every fall.

**Vireo** Yes, I shed a tear-*eo*. But those old nests might have parasites in them. And, besides, after the winter, they're very mess-*eo*. It's better to start fresh-*eo*. So, Cheerio, Mr. Blue, I must get right to work! [*exits*]

**Mr. Bluebird** Cheerio, Vireo. [*Phoebe enters*]

**Mr. Phoebe** Phoebe, Phoebe! Phoebe, Phoebe! Now where is she?

**Mr. Bluebird** Hello, are you looking for someone?

**Phoebe** Well, what do you think, buddy. I'm looking for my wife, Phoebe. Phoebe! I've got a great piece of real estate I want to show her.

**Mr. Bluebird** Not this real estate! This is my house!

**Phoebe** Hey, don't get all ruffled, Feathers! I'm not looking for a cavity. We Phobes build our nests on ledges – in barns, on houses, and if we're really lucky, we get a spot under a bridge.

**Mr. Bluebird** I've heard you called "bridge birds."

**Phoebe** Sure, and it's not because we play a lot of cards!

**Mr. Bluebird** How do you Phobes get your nests to stay up there?

**Phoebe** Oh, that's easy. We start with a little mud. Dries hard as cement and sticks like glue.

**Mr. Bluebird** I've heard of birds using mud for nest-building – like robins and wood thrushes.

**Phoebe** Don't forget barn swallows. Sometimes we build our nests on top of old swallows' nests, and sometimes they use ours. Hey, I'd better stake out my territory before someone else gets there first. Phoebe, Phoebe! [*exits; Goldfinch enters*]

**Mr. Goldfinch** Potato chip, potato chip.

**Mr. Bluebird** Hello, Goldfinch. You don't seem to be busy defending a nest.

**Goldfinch** Nah, competition for nest sites is too high in the spring. You ought to do what we Goldfinches do.

**Mr. Bluebird** What's that?

**Goldfinch** Well, we wait until later in the summer when the thistles bloom and go to seed. Then we have plenty of thistle seed to feed our families, and we can line our nests with thistle down. It makes a fine, soft cradle.

**Mr. Bluebird** Well, that may be a great idea for Goldfinches, but we bluebirds don't eat thistle seeds. We eat insects. And we don't line our nests with thistle down. We prefer grasses.

**Goldfinch** Well, guess you'll do what works for you. I've got to fly! [*Exits*]

**Mr. Bluebird** Good bye! [*Mrs. Bluebird enters*]

**Mrs. Bluebird** Hello, dear. You look troubled. What's the matter?

**Mr. Bluebird** Barns and bridges! Spider silk, snake skins, and thistle down! What a bunch of bird-brained ideas!

**Mrs. Bluebird** What are you talking about?

**Mr. Bluebird** Feathering the nest, that's what! But I think we should stick with our plain nest of grasses. It's simple but elegant.

**Mrs. Bluebird** I'm happy you like it, dear. I guess you and I are just birds of a feather.

**Mr. Bluebird** That we are, Mrs. Blue. That we are!

**The End**



Four Winds Nature Institute – 11/06

*SCRIPT*  
*for*  
**“THAT’S MY NEST”**  
*And*  
**“KEYING OUT NESTS”**  
**ACTIVITIES**

***AMERICAN ROBIN :***

I build a large, round, sturdy nest with mud and weed stalks. I shape the mud into a nice bowl just the right size for me, and then add soft grasses inside and out.

***NORTHERN ORIOLE:***

I weave a deep pouch out of plant fibers and hang it by its rim from a drooping branch so it can sway in the breezes like a cradle in the tree tops. I line it with soft hair or grasses. I might even weave in some yam or string if I find some I like.

***EASTERN PHOEBE:***

I use balls of mud to attach my cup-shaped nest to its perch so it won't be blown off. It's made of grasses and other plant stalks and covered all over with green moss so it blends into the background. Then I line it with soft hair, feathers or grass.

***AMERICAN GOLDFINCH:***

I nestle my little cup-shaped nest in the crotch of a shrub and attach it to three or four upright branches. I line it with the softest thistle down or cattail fluff so it will be cozy and soft for my young.

***RED-EYED VIREO:***

I weave a tight little cup nest out of plant fibers and I use spider silk to attach the rim to a forked branch. I decorate my nest on the outside with birch bark curls and maybe some paper from a wasp's nest.

***RED-WINGED BLACKBIRD:***

I build my large cup-shaped nest out of cattails, reeds, sedges and grasses among the cattails in a swamp. I use milkweed fibers to attach it to the cattails and keep it above water.