

EXPERIENCE



4-H NATURAL RESOURCES

Birds in Your Backyard

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4-H Leader's Guide

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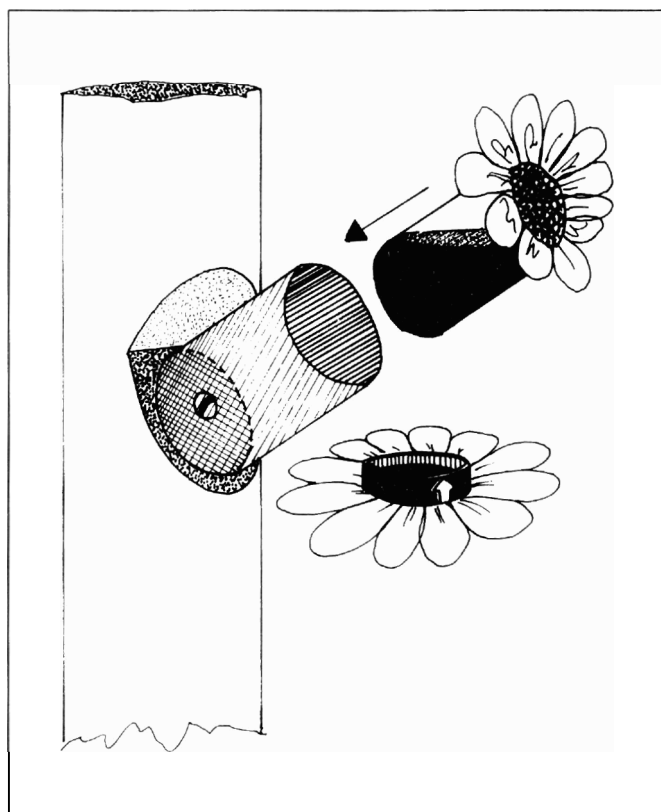
This leader's guide contains material not found in the member's guide to help you teach this project. Suggestions on activities, safety, and teaching techniques are included for your convenience and information. Use the additional material to expand the scope of the project. Included in your leader's folder are a copy of the member's guide, several supplemental project bulletins, a New York State Bird Checklist, and extra field records for members.

Activity 1. Cooking for Birds

The cooking activities in the member's guide should be well supervised because one includes heating fat. Have each member think up recipes using ingredients that birds like to eat (see section on what birds eat). Be sure to feed birds high-fat foods only in the winter when cold temperatures prevent rancidity and melting.

Hummingbird Feeding Solution

A feeding solution for hummingbirds can be made using sugar, water, and red food coloring. Sugar should be dissolved in water to a concentration of no more than one part sugar to four parts water. For example, add 1 cup of sugar to 4 cups of water. Dyeing the feeding solution red with food coloring or using a red feeder helps attract hummingbirds. Various feeders can be used to hold the solution. An example of one is shown here.



Hummingbird Feeder

Plastic pill bottle has bright plastic "flower" cemented to cap; $\frac{1}{8}$ " hole in flower and cap allows access to sweet liquid; the bottle fits into a larger pill bottle screwed to stake at an upward angle. (Bottle also can be hung by a wire instead of mounting.)

Activity 2. Bird Feeders

Use the enclosed instructions for building feeders with your club. These plans are just suggestions and samples; you may find others you prefer.

This activity should be well supervised when sharp or pointed tools are used.

Suggestions for placement of feeders and foods to offer are provided in the member's guide.

Advanced Activity. Bird Habitat

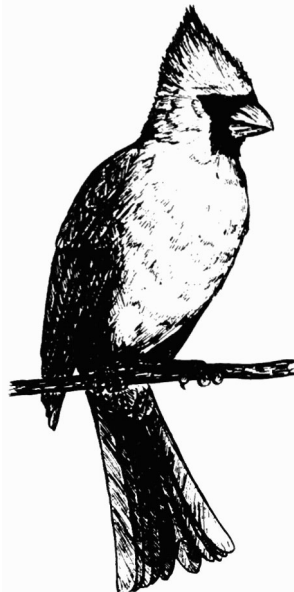
Birds generally live where a good food supply and adequate nesting sites are available. They prefer the habitat, or local conditions, that best suits their needs for food and shelter.

In addition to feeding birds, you can attract them by providing a desirable habitat. Growing plants that provide food and shelter can increase the local bird population and may pro-

vide opportunities for observing birds that do not come to the feeder or nest boxes. Also, knowing what birds are found in a given habitat can help in identifying them. As an advanced activity, you may want to work on habitat improvement with your club members. Sources of information on habitat improvement are in the resources section of this guide.

Additional Activities

- ▶ Ask members to count the number of birds they see in one day. This activity will help them become aware of the birds around them.
 - ▶ At a club meeting, serve a snack with foods that birds like to eat (such as sunflower seeds, peanut butter, or fruit). Discuss which birds eat each food.
 - ▶ Visit birds in their natural environment by going on an early morning or early evening bird walk.
 - ▶ Have a bird "olympics." Divide youth into groups and go outdoors to sight birds. Reward the group that spots the most unusual bird, the largest bird, the smallest bird, or the most birds. (Think up your own categories so all of the groups are recognized.)
 - ▶ Have 4-H members demonstrate to others how to make a bird feeder, how to identify birds, or a related topic.
 - ▶ Visit a local bird sanctuary, nature center, park, or zoo and see what birds are present. Contact staff members in advance to obtain their advice about how best to use their facility. They usually have helpful ideas and reference materials.
 - ▶ Maintain a club listing of birds seen during the project and thereafter. The enclosed "New York State Bird Checklist" may be useful for this activity.
 - ▶ Have a wildlife biologist or other wildlife specialist speak to your club about ways to improve the habitat to attract birds. Do a club project on habitat improvement.
 - ▶ Have an information booth on birds and bird feeding at the fair, mall, or other public place.
 - ▶ Have each member learn about a particular species of bird and share this information with the group.
 - ▶ Listen to recordings of bird songs; make a game of identifying the bird that is singing.
 - ▶ Have members interested in photography start a collection of bird photographs. Suggest keeping a camera by a window near the feeder.
 - ▶ A simple activity can show how birds have adapted to perform certain tasks. Have your group count the sunflower seeds that a bird from the grosbeak, finch, sparrow, and bunting family is able to crack open in one minute. (Watch a bird at a feeder.)
- Members then can count the seeds they are able to open in one minute. This comparison will lead to a discussion of how animals have adapted to live in their environment.
- ▶ As a conclusion to the project, have club members talk to the group about their observations and successes.
 - ▶ Have interested individuals, or the entire club, study birds further by completing one of the 4-H bird projects listed at the end of this guide.





Resources and References

Field Guide Suggestions

Peterson, Roger Tory. *A Field Guide to the Birds East of the Rockies*. 4th ed. Boston: Houghton Mifflin, 1980.

Scott, Shirley, ed. *Field Guide to the Birds of North America*. 2d ed. Washington, D.C.: National Geographic Society, 1987.

Robbins, Chandler S., Bertel Bruun, and Herbert S. Zim. *Birds of North America*. New York: Golden Press, 1983.

Other Resources

1. The following slide sets with scripts are available from Instructional Material Service (IMS), 24 Roberts Hall, Cornell University, Ithaca, New York 14853.

Birds of Woods, Gardens, and Fields (C2065)

Birds That Hunt and Are Hunted (C2055)

Birds of the Wetlands (C2045)

Posters showing birds in their native habitat also are available from IMS. Contact IMS for current prices and availability.

2. The Cornell Laboratory of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850, has a program called Project FeederWatch, which is a network of individuals in North America who feed birds. Participants record their observations for use by researchers studying bird population trends. Advanced members participating in the Birds in Your Backyard project can join this network by contacting the Laboratory of Ornithology.

3. The Cornell Laboratory of Ornithology has many publications on birds available at its bookstore. Records and tapes of bird songs are available also. Write the bookstore at the address given above for a complete listing.

4. Dennis, John D. *The Complete Guide to Bird Feeding*. New York: Knopf, 1978.

5. Kress, Stephen W. *The Audubon Society Guide to Attracting Birds*. New York: Scribner's, 1985.

6. McElroy, Thomas P. Jr. *The New Handbook of Attracting Birds*. New York: Knopf, 1985.

7. Peterson, Roger Tory, Peter Alden, and John Sill. *A Field Guide to the Birds: A Coloring Book*. Boston: Houghton Mifflin, 1982.

8. "Birds, Birds, Birds!" *Ranger Rick's Naturescope* 1, no. 4 (1986).



Natural Resources Youth Development Program

Environmental Awareness and Issues

Environmental Awareness

Environmental Awareness: Wildlife

Nature Trails: Guides to Environmental Understanding

(Starting a Small Business in Natural Resources)

(Water Quality)

Fisheries and Aquatic Education

Let's Go Fishing

Basic Fly Tying

Exploring Freshwater Fisheries

Let's Go Ice Fishing
If Fish Could Talk

The Great Garbage Chase

Sands, Oceans, and Sailors

Aquatic Activities for Youth

Water Worlds

(Aquatic Education Manual)

Forestry

Know Your Trees

4-H Wood Sample Collection

What's a Tree to Me

Trees from Seeds

Tree Planting

Backyard Maple Sirup

Understanding Forest Ecosystems

Firewood: From Woodlot to Woodpile

Forestry A: Trees

Forestry B: Forests

Forestry C: Forestry

Northeast 4-H Forestry Project

(Introduction to Forestry)

Wildlife

Bird Study: An Introduction to Ornithology for Youth
Bluebirds in New York
(currently being revised)

Nest Boxes for Wood Ducks

NYS DEC Pheasant Rearing Guide

Understanding Birds of Prey

Southwest 4-H Wildlife Projects

Wildlife Habitat Enhancement

Trapping Furbearers
DEC Student Manual

Shooting Sports

Birds in Your Backyard
(Introduction to Wildlife Principles)

(Urban/Suburban Wildlife Habitat Improvement)

Note: Projects in parentheses are being developed.

Program Philosophy

The 4-H Natural Resources Program provides educational programs for adult volunteers and youth using the research and knowledge of Cornell faculty and students in the Department of Natural Resources. The educational programs can be divided into three categories: (1) Natural Resources Awareness projects encourage youth to make personal discoveries about their local environment. (2) Ecology and Management of Natural Resources projects promote understanding of the scientific principles involved in managing our natural resources. (3) Environmental Issues projects train youth to become better decision makers about issues relating to environmental problems.

Program Sequence

No rigid sequence of projects is built into the program, but a logical flow from awareness through understanding to involvement and leadership exists. Natural Resources Awareness level projects provide the foundation for the more advanced Ecology and Management of Natural Resources and Environmental Issues projects. Advanced 4-Hers with an interest in natural resources are encouraged to attend the annual Natural Resources Youth Action Program at the Arnot Forest, during which they receive intensive training in natural resources subject matter from Cornell faculty and students.

Bird-Feeding Tips from the Cornell Laboratory of Ornithology



	Chickadees, titmice, nuthatches	Finches	Cardinal, grosbeaks	Sparrows	Blackbirds	Jays	Wood- peckers	Orioles, tanagers	Humming- birds	Pigeons, doves	Quails, pheasants
Sunflower seed ¹	●	●	●	●	○	○	○				
Corn ²		○		○	●	●				●	●
Millet ³		○		○	○					○	○
Niger ⁴		●									
Suet ⁵	●					○	●	○			
Sugar water ⁶								○	●		
Fruits ⁷						○		●			

- preferred
- readily eaten

Footnotes and guidelines on reverse.

GENERAL GUIDELINES FOR FEEDING BIRDS

➤ Birds' feeding habits vary by region, season, and among individual birds. Therefore, you may find exceptions to the food preferences shown on the chart. Seeds listed are those that attract the greatest variety of birds.

➤ Feeding birds need not be a complicated or expensive process. Most bird species can be attracted simply by providing sunflowerseed, either on the ground or in an inexpensive feeder. Even scraps of stale bread, cake, or doughnuts may attract birds. Be sure that foods are not moldy or they may be harmful to birds.

➤ No evidence exists that birds depend on bird feeders for survival. Therefore, don't worry if you must stop feeding birds for awhile.

➤ Landscaping for birds is the best way to provide for their long-term needs. For example, consider planting berry bushes for fruit-eating birds, or perennial flowers for hummingbirds. **Plantings** can be attractive to both you and the birds.

CHART FOOTNOTES

1. **Black oilseed** preferred but striped seed eaten readily.
2. Cracked corn for finches and sparrows; dried whole-kernel corn for jays, pigeons and doves, quails and pheasants.
3. White millet highly preferred over red millet.
4. Seed of choice for small finches such as goldfinches, siskins, and redpolls. Also known as thistle.
5. Do not feed suet when outside temperature is above 70° F as suet may become rancid and harmful to birds.
6. Mix at no less than 4 parts water to 1 part sugar. Empty and thoroughly clean feeder at least weekly to prevent growth of mold, which may harm birds.
7. Raisins, currants, and sliced apples, oranges, and bananas. Fruits also may attract mockingbirds, robins, bluebirds, and waxwings, especially during winter.



Woodworking

Bird Feeder

Materials Needed:

1 piece softwood board,
1" x 10" x 48"

3 No. 8 flat head wood screws, 1 1/2"

1 quart-size glass jar

2 blocks of plywood or softwood,
1/2" x 1" x 3"

12 1" box nails

1 strip of tin can or galvanized iron,
1" x 12"

2 No. 8 round head wood screws, 3/4"

1 piece wood lattice, 1/4" x 1 1/2" x 30"

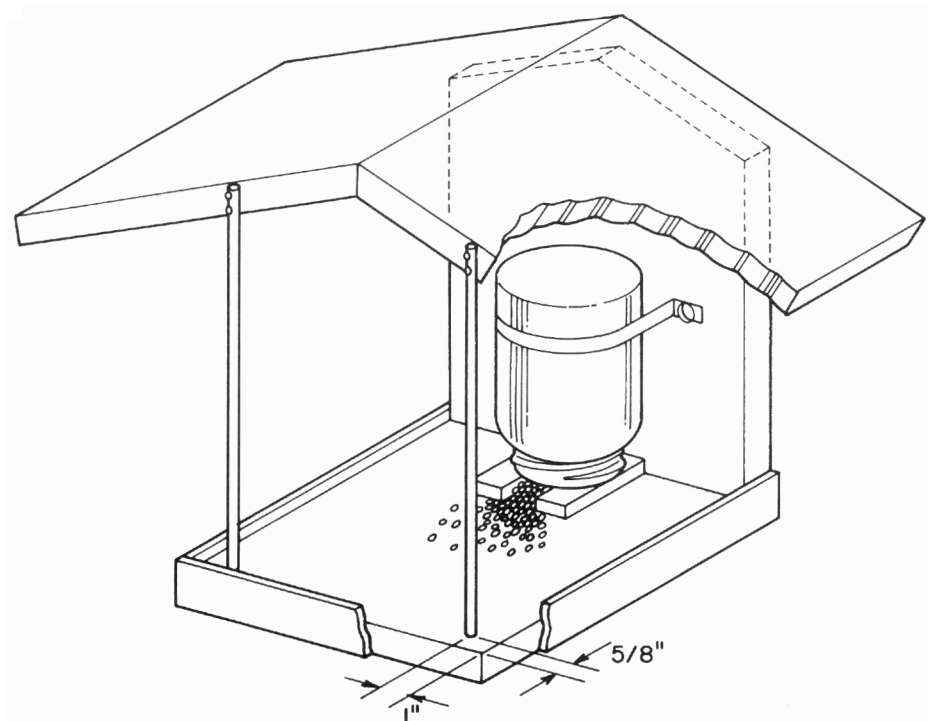
6 finishing nails, 8d

waterproof glue

2 corrugated fasteners, 1/2" x 1"

30" of 3/8" dowelling, sawed into two
15" pieces

exterior paint or wood preservative



How to Make the Feeder:

1. Measure 12" along one edge of the 1" x 10" x 48" board. Square across the board at the 12-inch mark and saw off the piece. This 12" x 10" piece is one side of the roof.

2. Measure and saw another piece as in step 1 for the other roof piece.

3. Measure and mark a 10" piece along the edge of the board for the floor of the feeder. Square and saw off this piece.

4. The remaining piece (14" x 10") is the back of the feeder. From one end, measure and mark points 2" along each 14-inch edge. From the center of the same end, draw a line across the board to each point. Saw along the lines. This forms an angle to which the roof pieces will fit.

5. The 10-inch edges of the roof pieces must fit together at an angle to form the joint at the peak of the roof. To do this, set a T-bevel at the angle of the roof shown in the illustration or trace and cut out the pattern and draw the angle along one edge at one end of each roof piece. Saw along these lines. This cuts an angle on each roof piece so that the edges will fit together.

6. Place one edge of the floor against the bottom of the back piece. Fasten with three No. 8, 1½" flat head wood screws through the back and into the floor piece. Drill pilot holes to prevent splitting and to make the screws turn more easily.

7. Place the glass jar so its mouth is on the feeder floor and its side is against the center of the back. Set two ½" x 1" x 3" blocks of plywood, or other softwood, under opposite sides of the jar mouth, as illustrated. This leaves an opening ½" high and about 1½" wide between the mouth of the jar and the floor. Birdseed will flow from the jar through this opening onto the floor of the feeder. Remove the jar, mark the location of the blocks with a pencil, and turn the feeder over. Fasten each block to the floor of the feeder with two 1" box nails.

8. Set the glass jar in place as in step 7. Bend a 1-inch strip of tin or other pliable material around the jar near the top. Shape each end of the strip so a screw can be put through the strip into the back of the feeder, as illustrated. Use a No. 8, ¾" round head wood screw to fasten each end of this strip. After putting the screws in place, take out one screw and remove the jar.

9. Measure along the edge at one side of the feeder floor from the back to the front corner. Mark this distance on a strip of ¼" x 1½" lattice and saw off the piece. Fasten this piece in place with its lower edge even with the bottom of the feeder floor. Use three 1" box nails.

10. Repeat step 9 on the other edge of the floor.

11. Measure across the front end of the floor. Mark this distance and cut another piece of lattice to fit. Fasten it in place with 1" box nails. These pieces form a raised edge to keep bird food on the feeder.

12. Hold the roof pieces in place. When they fit properly, fasten one piece with 8d finishing nails and waterproof glue. Use a nail set on the nails. Fasten the other roof piece in place. Use the corrugated fasteners at the joint in the front and back to strengthen the roof joint.

13. Although roof supports in the front are optional, the two ⅜" dowels will add stability to the roof. Refer to the illustration for dowel locations. Recess dowels ½" into the feeder floor. Drill nail holes through the top of the dowels and nail the roof pieces to them.

14. Using a ¼" bit, drill a hole through the center of the back above the top of the glass jar. This hole can be used with a large screw to fasten the feeder to a tree, post, or other location. If the feeder will be set on a horizontal surface, the hole is unnecessary.

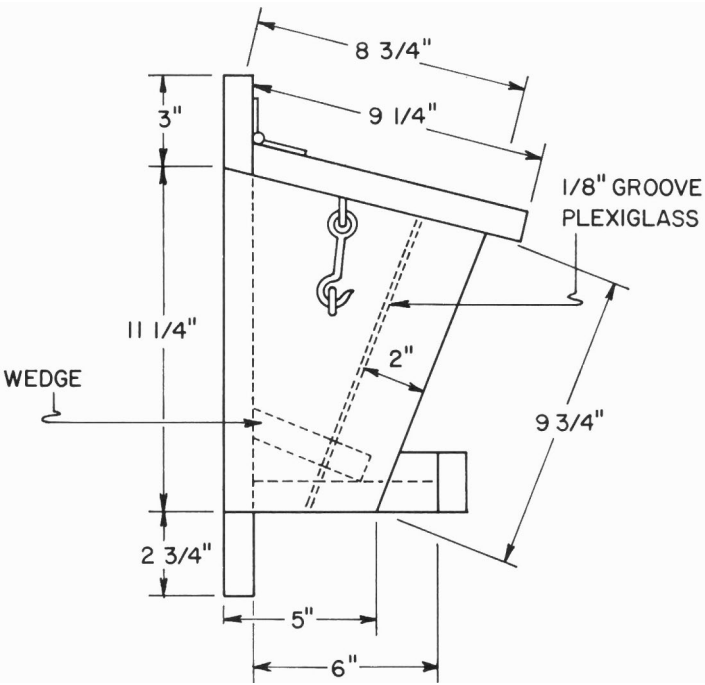
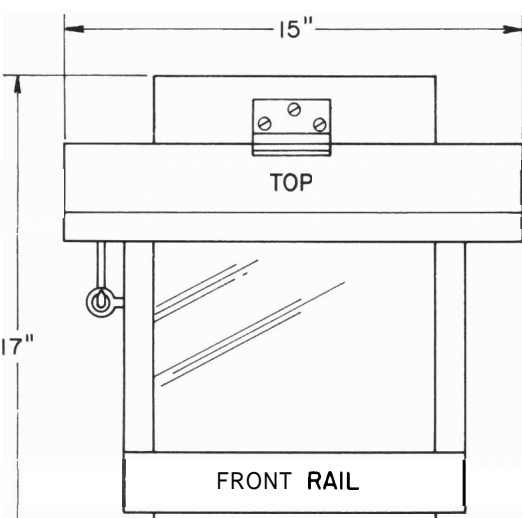
15. Paint the feeder with two coats of exterior paint or a wood preservative.

16. Fasten the feeder to a tree, post, or other location.

17. Remove the feeder jar to fill it with birdseed.

Figure 1. The proposed research framework.

Parts





Assembly Instructions

1. Precut and sand all pieces.
(Optional: Stain or paint parts before assembly)
2. Cut $\frac{1}{8}$ " wide groove $\frac{1}{8}$ " deep on insides of feeder side pieces. This will be parallel to and 2" from front edge.
3. Using 1 $\frac{1}{2}$ " common box or galvanized nails, begin assembly by nailing bottom through back at right angles. All parts may be glued with an exterior-grade carpenter's glue for added strength and a weather-tight seal.
4. Nail sides to back and bottom and attach wedge by glueing and nailing to back and bottom. The wedge should be angled so that bird feed will spill out onto the feeder tray.
5. Slide plexiglass through grooves and insert (wooden) plugs to hold plexiglass approximately $\frac{3}{8}$ " to $\frac{1}{2}$ " above bottom. (Note: Leftover wood scraps, screws, or small nails can be used as plugs to elevate the plexiglass above the bottom of the feeder. Adjust the plexiglass opening according to the coarseness of the bird feed used; the opening should be large enough to allow a free flow of the seed to the feeder tray.)
6. Glue and nail side and front rails to finish feeder tray.
7. Place top on feeder with hinge in place and mark screw holes for hinge plates. (Optional: Paint hinge with rust-inhibiting paint before final assembly.)
8. Attach screw hook and eyelet to secure the top. (Note: Avoid placing eyelet where groove for plexiglass is located.)
9. If finish has not been applied before assembly, paint or stain the feeder.
10. Attach feeder securely to post or tree. Feeder will hold up to five pounds of mixed bird seed.



New York State Bird Checklist

Prepared by Paul DeBenedictis, Syracuse University, 1987

Use a check-mark in the space at the left of a bird's name to indicate that it has been seen.

- | | | |
|---|--|---|
| <input type="checkbox"/> Red-throated Loon | <input type="checkbox"/> Double-crested Cormorant | <input type="checkbox"/> Mallard |
| <input type="checkbox"/> Arctic Loon | <input type="checkbox"/> Magnificent Frigatebird | <input type="checkbox"/> Northern Pintail |
| <input type="checkbox"/> Common Loon | <input type="checkbox"/> American Bittern | <input type="checkbox"/> Blue-winged Teal |
| <input type="checkbox"/> Yellow-billed Loon | <input type="checkbox"/> Least Bittern | <input type="checkbox"/> Cinnamon Teal |
| <input type="checkbox"/> Pied-billed Grebe | <input type="checkbox"/> Great Blue Heron | <input type="checkbox"/> Northern Shoveller |
| <input type="checkbox"/> Horned Grebe | <input type="checkbox"/> Great Egret | <input type="checkbox"/> Gadwall |
| <input type="checkbox"/> Eared Grebe | <input type="checkbox"/> Snowy Egret | <input type="checkbox"/> Eurasian Wigeon |
| <input type="checkbox"/> Red-necked Grebe | <input type="checkbox"/> Little Blue Heron | <input type="checkbox"/> American Wigeon |
| <input type="checkbox"/> Western Grebe | <input type="checkbox"/> Tricolored Heron | <input type="checkbox"/> Canvasback |
| <input type="checkbox"/> Yellow-nosed Albatross | <input type="checkbox"/> Cattle Egret | <input type="checkbox"/> Redhead |
| <input type="checkbox"/> Northern Fulmar | <input type="checkbox"/> Green-backed Heron | <input type="checkbox"/> Ring-necked Duck |
| <input type="checkbox"/> Black-capped Petrel | <input type="checkbox"/> Black-crowned Night-Heron | <input type="checkbox"/> Tufted Duck |
| <input type="checkbox"/> Mottled Petrel | <input type="checkbox"/> Yellow-crowned Night-Heron | <input type="checkbox"/> Greater Scaup |
| <input type="checkbox"/> Herald Petrel | <input type="checkbox"/> White Ibis | <input type="checkbox"/> Lesser Scaup |
| <input type="checkbox"/> Cory's Shearwater | <input type="checkbox"/> Glossy Ibis | <input type="checkbox"/> Common Eider |
| <input type="checkbox"/> Greater Shearwater | <input type="checkbox"/> White-faced Ibis | <input type="checkbox"/> King Eider |
| <input type="checkbox"/> Sooty Shearwater | <input type="checkbox"/> Wood Stork | <input type="checkbox"/> Labrador Duck |
| <input type="checkbox"/> Manx Shearwater | <input type="checkbox"/> Fulvous Whistling-Duck | <input type="checkbox"/> Harlequin Duck |
| <input type="checkbox"/> Audubon's Shearwater | <input type="checkbox"/> Tundra Swan | <input type="checkbox"/> Oldsquaw |
| <input type="checkbox"/> Wilson's Storm-Petrel | <input type="checkbox"/> Mute Swan | <input type="checkbox"/> Black Scoter |
| <input type="checkbox"/> White-faced Storm-Petrel | <input type="checkbox"/> Greater White-fronted Goose | <input type="checkbox"/> Surf Scoter |
| <input type="checkbox"/> Leach's storm-Petrel | <input type="checkbox"/> Snow Goose | <input type="checkbox"/> White-winged Scoter |
| <input type="checkbox"/> White-tailed Tropicbird | <input type="checkbox"/> Ross' Goose | <input type="checkbox"/> Common Goldeneye |
| <input type="checkbox"/> Red-billed Tropicbird | <input type="checkbox"/> Brant | <input type="checkbox"/> Barrow's Goldeneye |
| <input type="checkbox"/> Brown Booby | <input type="checkbox"/> Barnacle Goose | <input type="checkbox"/> Bufflehead |
| <input type="checkbox"/> Northern Gannet | <input type="checkbox"/> Canada Goose | <input type="checkbox"/> Smew |
| <input type="checkbox"/> American White Pelican | <input type="checkbox"/> Wood Duck | <input type="checkbox"/> Hooded Merganser |
| <input type="checkbox"/> Brown Pelican | <input type="checkbox"/> Green-winged Teal | <input type="checkbox"/> Common Merganser |
| <input type="checkbox"/> Great Cormorant | <input type="checkbox"/> American Black Duck | <input type="checkbox"/> Red-breasted Merganser |



- | | | |
|--|---|---|
| <input type="checkbox"/> Ruddy Duck | <input type="checkbox"/> Virginia Rail | <input type="checkbox"/> Western Sandpiper |
| <input type="checkbox"/> Black Vulture | <input type="checkbox"/> Sora | <input type="checkbox"/> Little Stint |
| <input type="checkbox"/> Turkey Vulture | <input type="checkbox"/> Purple Gallinule | <input type="checkbox"/> Least Sandpiper |
| <input type="checkbox"/> Osprey | <input type="checkbox"/> Common Moorhen | <input type="checkbox"/> White-rumped Sandpiper |
| <input type="checkbox"/> Am. Swallow-tailed Kite | <input type="checkbox"/> American Coot | <input type="checkbox"/> Baird's Sandpiper |
| <input type="checkbox"/> Black-shouldered Kite | <input type="checkbox"/> Sandhill Crane | <input type="checkbox"/> Pectoral Sandpiper |
| <input type="checkbox"/> Mississippi Kite | <input type="checkbox"/> Northern Lapwing | <input type="checkbox"/> Sharp-tailed Sandpiper |
| <input type="checkbox"/> Bald Eagle | <input type="checkbox"/> Black-bellied Plover | <input type="checkbox"/> Purple Sandpiper |
| <input type="checkbox"/> Northern Harrier | <input type="checkbox"/> Lesser Golden Plover | <input type="checkbox"/> Dunlin |
| <input type="checkbox"/> Sharp-shinned Hawk | <input type="checkbox"/> Wilson's Plover | <input type="checkbox"/> Curlew Sandpiper |
| <input type="checkbox"/> Cooper's Hawk | <input type="checkbox"/> Semipalmated Plover | <input type="checkbox"/> Stilt Sandpiper |
| <input type="checkbox"/> Northern Goshawk | <input type="checkbox"/> Piping Plover | <input type="checkbox"/> Buff-breasted Sandpiper |
| <input type="checkbox"/> Red-shouldered Hawk | <input type="checkbox"/> Killdeer | <input type="checkbox"/> Ruff |
| <input type="checkbox"/> Broad-winged Hawk | <input type="checkbox"/> American Oystercatcher | <input type="checkbox"/> Short-billed Dowitcher |
| <input type="checkbox"/> Swainson's Hawk | <input type="checkbox"/> Black-necked Stilt | <input type="checkbox"/> Long-billed Dowitcher |
| <input type="checkbox"/> Red-tailed Hawk | <input type="checkbox"/> American Avocet | <input type="checkbox"/> Common Snipe |
| <input type="checkbox"/> Rough-legged Hawk | <input type="checkbox"/> Greater Yellowlegs | <input type="checkbox"/> American Woodcock |
| <input type="checkbox"/> Golden Eagle | <input type="checkbox"/> Lesser Yellowlegs | <input type="checkbox"/> Wilson's Phalarope |
| <input type="checkbox"/> American Kestrel | <input type="checkbox"/> Wood Sandpiper | <input type="checkbox"/> Red-necked Phalarope |
| <input type="checkbox"/> Merlin | <input type="checkbox"/> Solitary Sandpiper | <input type="checkbox"/> Red Phalarope |
| <input type="checkbox"/> Peregrine Falcon | <input type="checkbox"/> Willet | <input type="checkbox"/> Pomarine Jaeger |
| <input type="checkbox"/> Gryfalcon | <input type="checkbox"/> Spotted Sandpiper | <input type="checkbox"/> Parasitic Jaeger |
| <input type="checkbox"/> Gray Partridge | <input type="checkbox"/> Upland Sandpiper | <input type="checkbox"/> Long-tailed Jaeger |
| <input type="checkbox"/> Ring-necked Pheasant | <input type="checkbox"/> Eskimo Curlew | <input type="checkbox"/> Great Skua |
| <input type="checkbox"/> Spruce Grouse | <input type="checkbox"/> Whimbrel | <input type="checkbox"/> South Polar Skua |
| <input type="checkbox"/> Ruffed Grouse | <input type="checkbox"/> Eurasian Curlew | <input type="checkbox"/> Laughing Gull |
| <input type="checkbox"/> Greater Prairie Chicken | <input type="checkbox"/> Long-billed Curlew | <input type="checkbox"/> Franklin's Gull |
| <input type="checkbox"/> Wild Turkey | <input type="checkbox"/> Hudsonian Godwit | <input type="checkbox"/> Little Gull |
| <input type="checkbox"/> Northern Bobwhite | <input type="checkbox"/> Bar-tailed Godwit | <input type="checkbox"/> Common Black-headed Gull |
| <input type="checkbox"/> Yellow Rail | <input type="checkbox"/> Marbled Godwit | <input type="checkbox"/> Bonaparte's Gull |
| <input type="checkbox"/> Black Rail | <input type="checkbox"/> Ruddy Turnstone | <input type="checkbox"/> Ring-billed Gull |
| <input type="checkbox"/> Corn Crane | <input type="checkbox"/> Red Knot | <input type="checkbox"/> California Gull |
| <input type="checkbox"/> Clapper Rail | <input type="checkbox"/> Sanderling | <input type="checkbox"/> Herring Gull |
| <input type="checkbox"/> King Rail | <input type="checkbox"/> Semipalmated Sandpiper | <input type="checkbox"/> Thayer's Gull |



- | | | |
|---|--|--|
| <input type="checkbox"/> Iceland Gull | <input type="checkbox"/> Great Horned Owl | <input type="checkbox"/> Ash-throated Flycatcher |
| <input type="checkbox"/> Lesser Black-backed Gull | <input type="checkbox"/> Snowy Owl | <input type="checkbox"/> Great Crested Flycatcher |
| <input type="checkbox"/> Glaucous Gull | <input type="checkbox"/> Northern Hawk-Owl | <input type="checkbox"/> Western Kingbird |
| <input type="checkbox"/> Great Black-backed Gull | <input type="checkbox"/> Burrowing Owl | <input type="checkbox"/> Eastern Kingbird |
| <input type="checkbox"/> Black-legged Kittiwake | <input type="checkbox"/> Barred Owl | <input type="checkbox"/> Gray Kingbird |
| <input type="checkbox"/> Sabine's Gull | <input type="checkbox"/> Great Gray Owl | <input type="checkbox"/> Scissor-tailed Flycatcher |
| <input type="checkbox"/> Ivory Gull | <input type="checkbox"/> Long-eared Owl | <input type="checkbox"/> Common Skylark |
| <input type="checkbox"/> Gull-billed Tern | <input type="checkbox"/> Short-eared Owl | <input type="checkbox"/> Horned Lark |
| <input type="checkbox"/> Caspian Tern | <input type="checkbox"/> Boreal Owl | <input type="checkbox"/> Purple Martin |
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| <input type="checkbox"/> Golden-winged Warbler | <input type="checkbox"/> Hooded Warbler | <input type="checkbox"/> Lincoln's Sparrow |



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| <input type="checkbox"/> Brown-headed Cowbird | |
| <input type="checkbox"/> Orchard Oriole | |
| <input type="checkbox"/> Northern Oriole | |



Field Record

Common name: _____

Family: _____ Sex: ☐ Male ☐ Female

Date: _____ Location: _____

Where sighted (check one): ☐ Woods ☐ Lake ☐ Garden

☐ Stream ☐ Field ☐ Ocean ☐ Park ☐ Cliff or building

☐ Other _____

Size: ☐ House sparrow ☐ Robin ☐ Pigeon or larger

Field marks:

Behavior:

Field Record

Common name: _____

Family: _____ Sex: ☐ Male ☐ Female

Date: _____ Location: _____

Where sighted (check one): ☐ Woods ☐ Lake ☐ Garden

☐ Stream ☐ Field ☐ Ocean ☐ Park ☐ Cliff or building

☐ Other _____

Size: ☐ House sparrow ☐ Robin ☐ Pigeon or larger

Field marks:

Behavior:



WILDLIFE PROJECT

Birdhouses and Bird Furniture



ELEVATED NESTING BIRD



INTRODUCTION

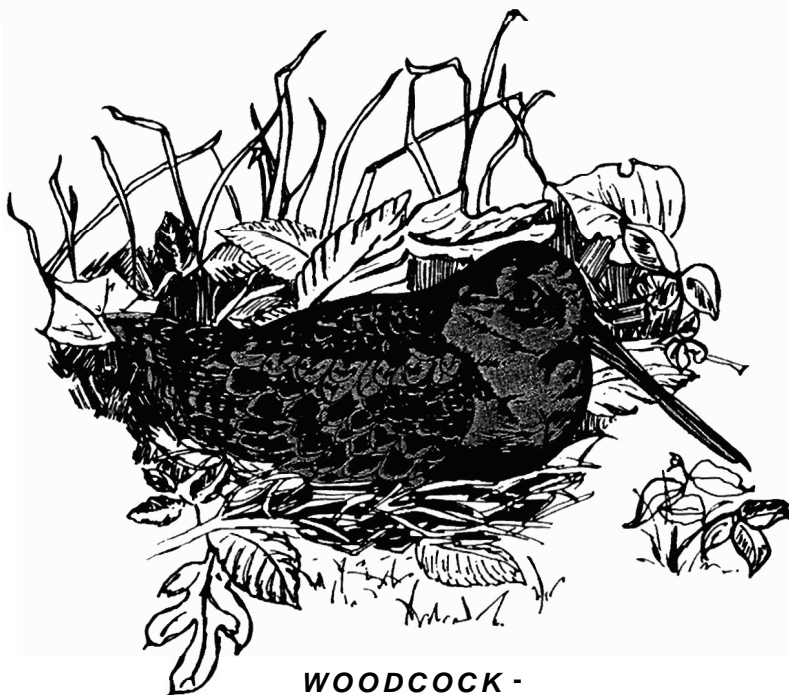
Birdhouses and bird feeders can be used to improve nesting and feeding conditions for birds. In this activity guide you will learn how to construct, place and erect bird furniture so birds will use them.

BIRDHOUSES

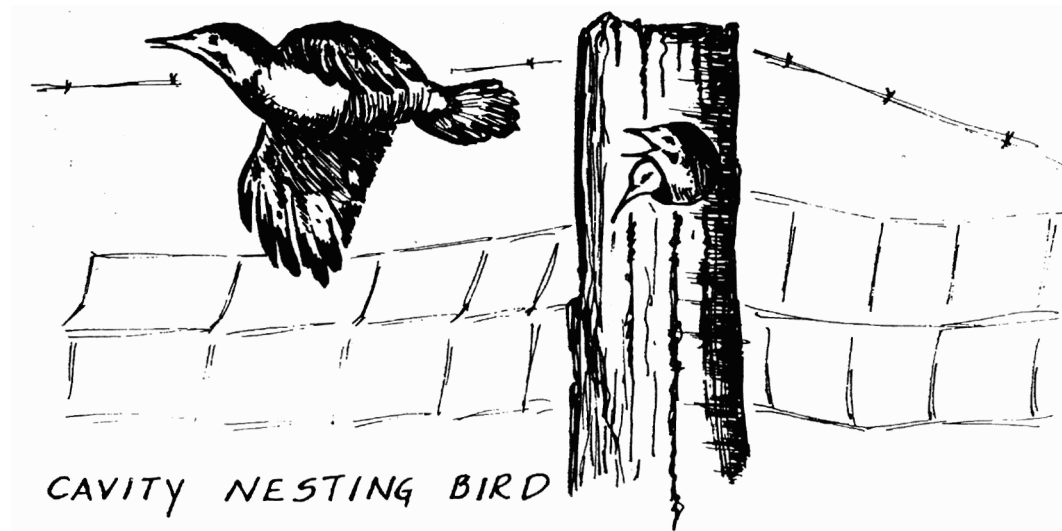
When it comes to nesting, birds can be divided into three groups. These groups are based on the location they select for nesting sites. Some birds such as the turkey, whip-poor-will, quail or killdeer build their nests on the ground. This group of birds is called ground **nesters**. Another group of birds is the **cavity or hole nesters**. These birds select nest sites in holes or cavities of trees. Some examples of cavity nesters are wood ducks, owls, woodpeckers and purple martins. A third group of birds is the **elevated nesters**. These birds build their nests above ground. These nests are usually constructed of twigs, grass or vines on the limbs of trees or shrubs.

Properly constructed and erected birdhouses provide excellent nesting sites for cavity nesters. There are only a few simple but important rules to follow:

1. Birdhouses can be made from a wide variety of materials. If you use wood, make sure it is treated to make it decay resistant.
2. Avoid the use of metal. Metal gets too hot and the birds could die from high temperature.
3. Provide ventilation and drainage. Several small holes in the bottom will provide drainage. Leave a crack where the sides meet the top to provide ventilation.
4. After the nesting season is over, take down your birdhouse, clean out old nest material and store for next year.
5. Fasten your birdhouses securely in the crotch of a tree, on a fence post or against the trunk of a tree.



WOODCOCK -
GROUND NEST

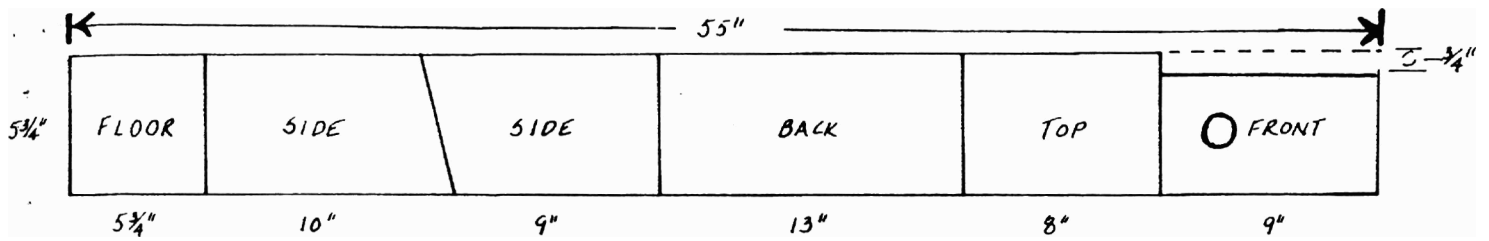


6. When selecting a location for birdhouses, make sure that food and water are close by.
7. Select a location that will be difficult for predators, such as cats, to get to the birdhouse. You may want to use a "predator guard."
8. Birdhouses should be spaced at least **30** feet apart. You can have too much of a good thing.

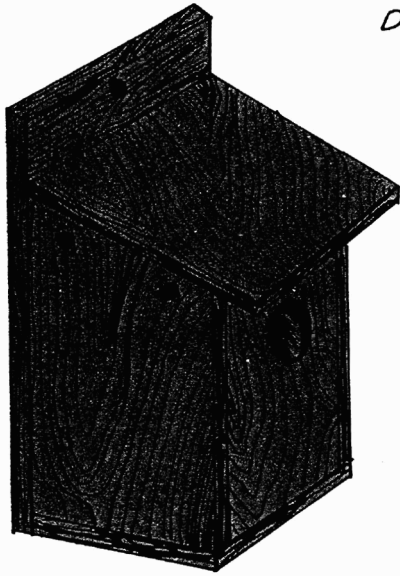
Before you build a birdhouse, learn what kind of birds are likely to nest in your area. Your leader or Extension agent should be able to help you. Use the dimensions in Table 1 to build your birdhouse. **Remember**, birds are selective in choosing their nesting sites. The materials that you use are not as important as using the right dimensions.

Table 1. Birdhouse Dimensions for Cavity Nesters

Species	Diameter of Entrance (inches)	Depth of Cavity (inches)	Floor of Cavity (inches)	Entrance Above Floor (inches)	Height Above Ground (feet)
Purple Martin	2½	6	6 x 6	1	15-20
Tree Swallow	1½	6	5 x 5	1-5	10-15
Carolina Wren	1½	6-8	4 x 4	1-6	6-10
House Wren	1¼	6-8	4 x 4	1-6	6-10
Nuthatch	1¼	8-10	4 x 4	6-8	12-20
Black-capped Chickadee	1 1/8	8-10	4 x 4	6-8	6-15
Tufted Titmouse	1¼	8-10	4 x 4	6-8	6-16
Flicker	2½	16-18	7 x 7	14-16	6-20
Downy Woodpecker	1¼	9-12	4 x 4	6-8	6-20
Hairy Woodpecker	1½	12-15	6 x 6	9-12	12-20
Red-headed Woodpecker	2	12-15	6 x 6	9-12	12-20
Screech Owl	3	12-15	8 x 8	9-12	10-30
Barn Owl	6	12-15	8 x 8	9-12	12-20
Bluebird	1 3/8	8	5 x 5	6	5-10
Crested Flycatcher	2	8-10	6 x 6	6-8	8-20
Sparrow Hawk	3	12-15	8 x 8	9-12	10-30
Wood Duck.	3 x 4 (oval)	10-24	10 x 18	12-16	10-20



DESIGN FOR A BIRDHOUSE



seed cakes melt the suet in a pan over low heat. Pour a seed mixture into a muffin pan so that each mold is about three-fourths full of seed. Now pour the melted suet over the seeds in each muffin mold. Stir the seeds and let cool. Once cool you can place the individual seed cakes in a suet feeder, windowsill feeder or on a feeding table.

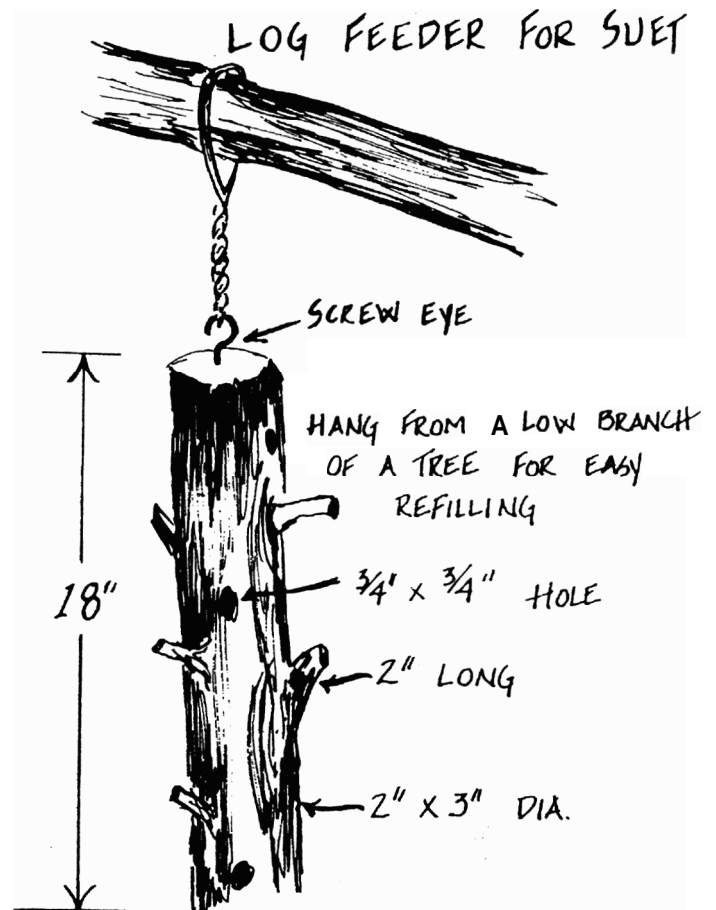
BIRD FEEDERS

Birds require an abundant supply of food. They also eat a wide variety of different kinds of food. Some birds are seed eaters, others eat fruit, some eat insects, while still others eat animals. Bird feeders can be used to supplement natural foods and attract birds all year long.

Bird feeders can be as simple or elaborate as you want to make them. Just remember the following rules:

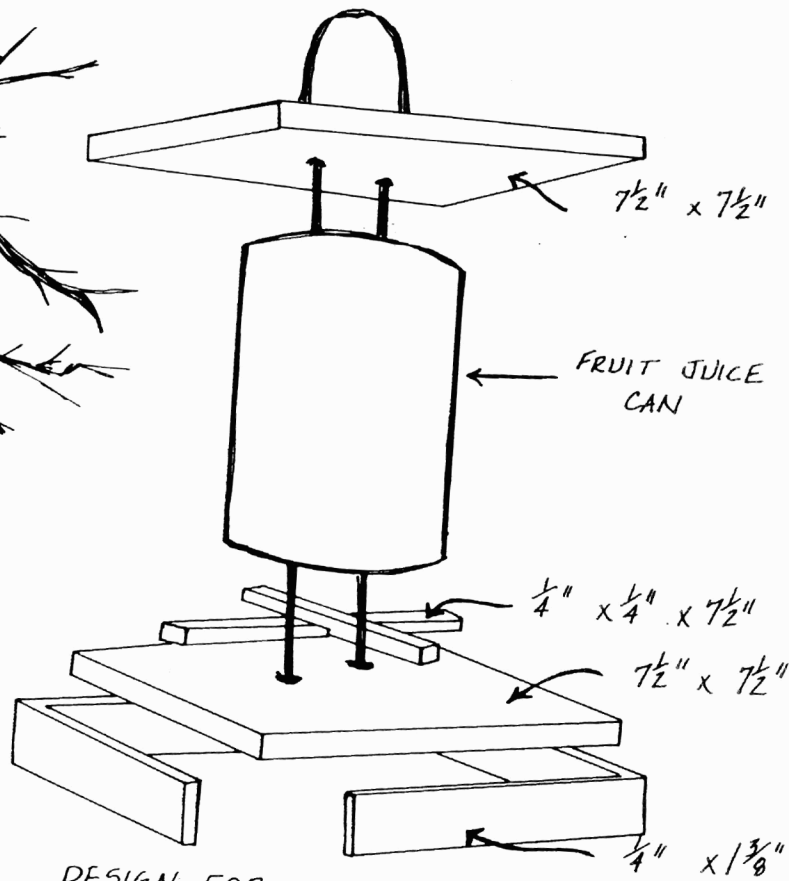
1. Place your feeder so cats can not harm the birds that come to feed.
2. In cold weather, once you begin feeding birds be sure to continue feeding. Birds can become dependent upon your feeder. If you do not keep a continuous supply of food in your feeder during cold weather, they could starve before they find a new food supply.
3. Use a variety of foods. For the seed eaters you can either purchase a mixture of bird seed or mix your own. A good mixture is: five pounds of sunflower seed mixed thoroughly with 25 pounds of coarse chicken scratch feed.

You can usually get the ingredients from a local feed store. Insect-eating birds are fond of suet, the fat trimmings from meat. Beef suet is best. You can use the suet in a suet feeder or in seed cakes. To make

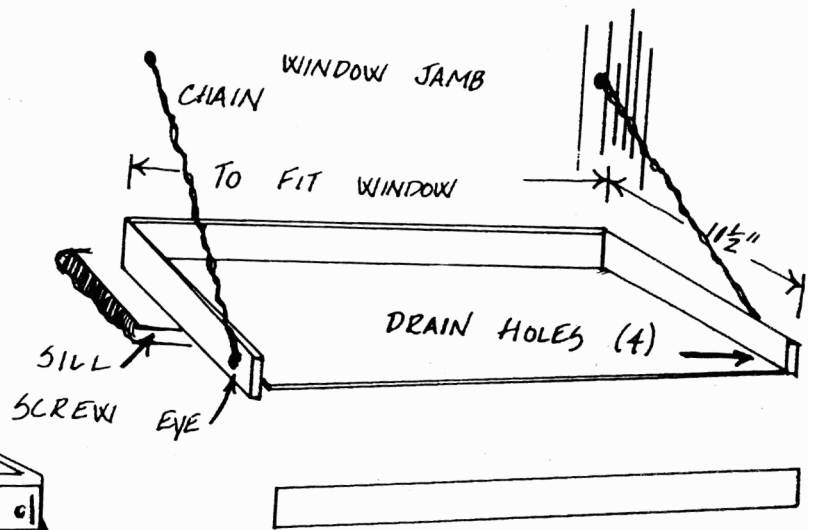
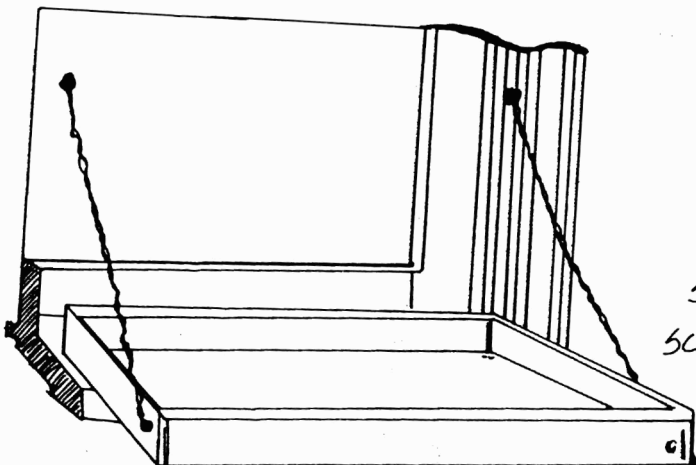




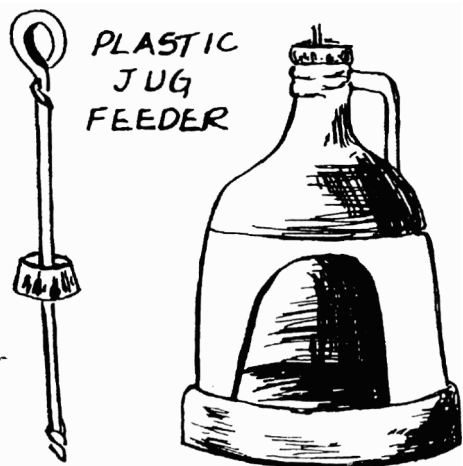
TIN CAN FEEDER



DESIGN FOR A TIN CAN FEEDER

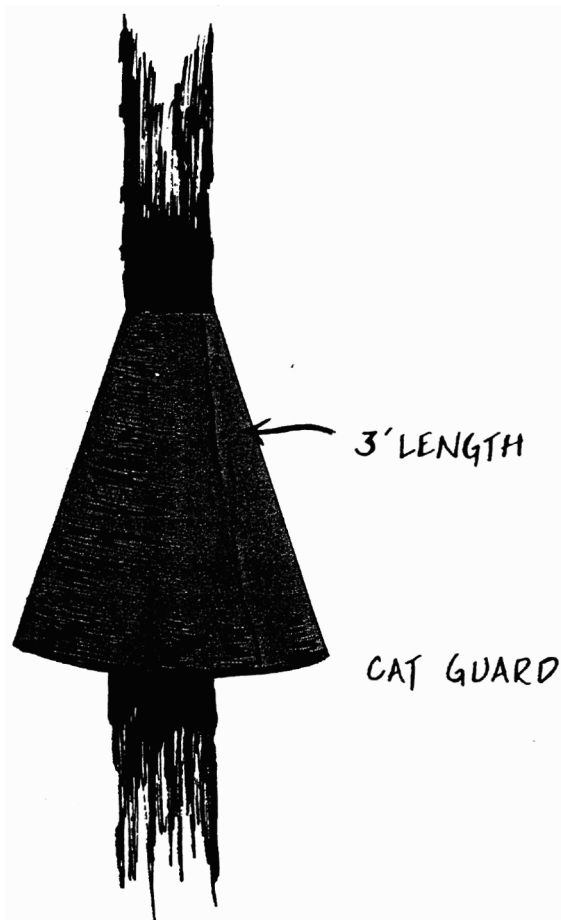


WINDOW SILL FEEDER



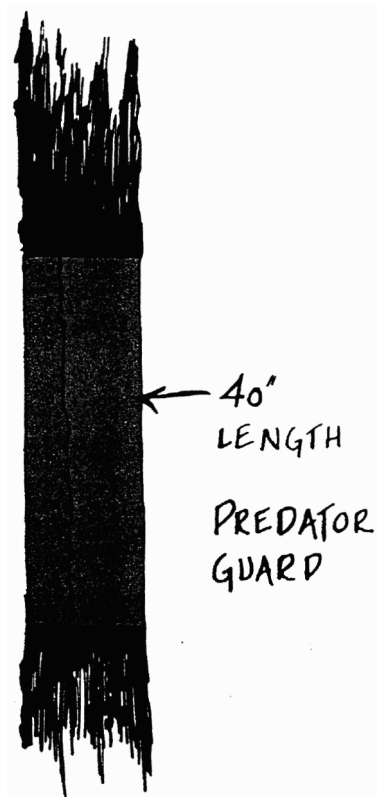
WATER

Water is important to birds for drinking and bathing. The most common mistake made with bird waterers is to make them too deep. Birds like shallow water. Be sure the water is no deeper than about three inches. Bird waterers can be made in a variety of shapes and sizes. Be sure to locate your waterer near cover so that predators, such as house cats, cannot catch any of the birds.



THINGS TO DO

1. Build and erect a birdhouse for several different kinds of birds that nest in your area.
2. Study the birds using your birdhouses. Be **careful** not to **disturb the birds**. Record your observations. Make notes on the following: When the birds first moved into the house; how long it took them to gather nesting materials; how many eggs are in the nest; how long it took the eggs to hatch; whether all of the eggs hatched; how long the chicks lived in the birdhouse after they hatched; whether both parents set on the eggs or only one; the role of the parents after the eggs hatched and how often the parents fed the young birds.
3. Give a demonstration on how to build a birdhouse and how to erect it.
4. Build a bird feeder for seed eaters. Record the kinds of birds, time of day, season of the year and food eaten by each bird you see at your feeder.
5. Build a suet feeder. Make the same kind of observations for the suet feeder that you did for the seed feeder. Did the same kinds of birds that used your seed feeder also feed at the suet feeder? How were they different?
6. Give a demonstration to your club on how to build different kinds of bird feeders. Show them what kinds of food to use and why.
7. Build a bird waterer. Study what kinds of birds use your bird waterer. Do they all use it for the same reason?



ADDITIONAL READING AND REFERENCES

Attracting Birds to Your Garden. Sherry Gellner, editor. Lane Books, California.

A Guide to Field Identification—Birds of North America, by Chandler S. Robbins, Bertel Brun, & Herbert S. Zim, Golden Press, New York.

American Wildlife and Plants, by Alexander C. Martin, Herbert S. Zim and Arnold Nelson, Dover Publications, New York.

ACKNOWLEDGEMENTS

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