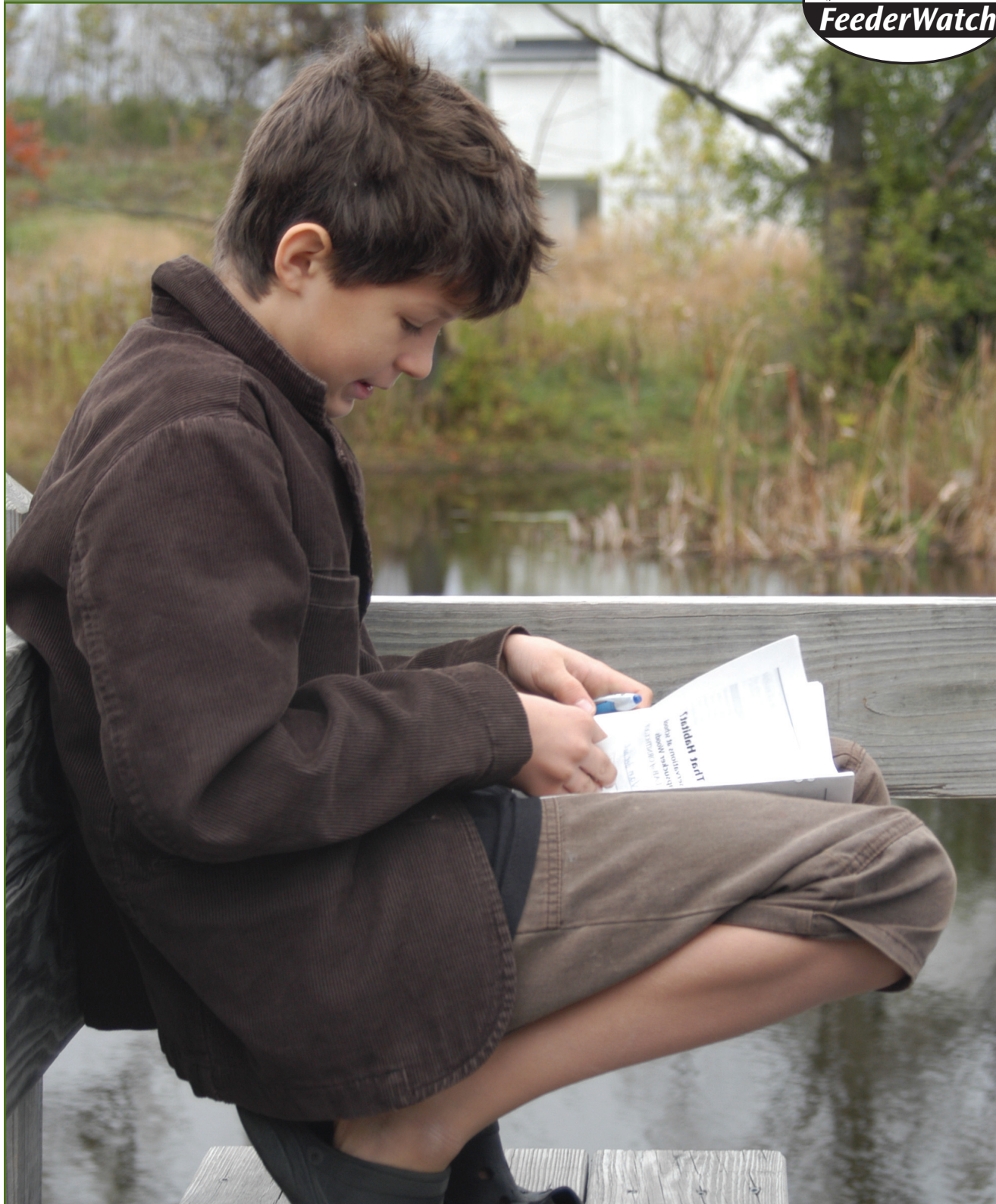




Homeschooler's Guide to Project FeederWatch



Susan Spear

Homeschooler's Guide to Project FeederWatch

The *Homeschooler's Guide to Project FeederWatch* is a sample curriculum from the BirdSleuth team at the Cornell Lab of Ornithology.

If you find these activities useful, be sure to investigate the *Science Investigator's Kit for Homeschoolers*

www.birdsleuth.net/homeschool

Production Team for the *Homeschooler's Guide to Project FeederWatch*

Curriculum Writers: Jennifer Fee, David Bonter, Genna Knight

Editor: Miyoko Chu, Ph.D.

Design Director: Diane Tessaglia-Hymes

Graphic Designer: Susan E. Spear



BirdSleuth or Homeschool Activity Questions:

Email: birdsleuth@cornell.edu

Phone: 607-254-2489

BirdSleuth web site: **www.birdsleuth.net**

Project FeederWatch Questions:

Email: feederwatch@cornell.edu

Phone: 607-254-2427

FeederWatch web site: **www.feederwatch.org**



The Cornell Lab of Ornithology is a nonprofit membership institution whose mission is to interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.

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159 Sapsucker Woods Road

Ithaca, NY 14850

www.birds.cornell.edu



CORNELL LAB of ORNITHOLOGY



Homeschooler's Guide to Project FeederWatch

Inquiry through Citizen Science

Through the Cornell Lab of Ornithology's **Citizen Science** Program, people of all ages collect data about local birds and send their observations to scientists who study bird populations.

Inquiry is a fantastic way to teach science! Students ask and answer their own questions, taking an interest in and responsibility for their own learning. Participating in a citizen-science project such as Project FeederWatch is a great way to encourage inquiry using the scientific process: observing birds carefully, collecting data, asking questions, drawing conclusions through research and observation, and even publishing results.

Introduction to Project FeederWatch

Project FeederWatch is perfect for homeschool students! You are joining thousands of other FeederWatchers across North America who watch birds for science—and for fun. Participants identify and count birds that visit feeders then submit their observations to help scientists monitor bird populations across the continent. This guide provides suggestions for how you can use Project FeederWatch to teach a variety of subjects to students of all ages.

The Project FeederWatch research kit includes everything you and your child need to participate. Please keep the instruction booklet handy and follow the simple protocol to submit observations to the Project FeederWatch database. If you work with young children, please monitor their bird observations and fill in the data forms together. We make this special request because FeederWatch data must be accurate. Our ongoing research depends on reliable information from participants.

When your research kit arrives, take an opportunity to review the materials with your son or daughter and create a participation plan. Have your child create a count schedule. Where will your count site be? Challenge your child to use the resources available in the handbook and at the end of this module to think of ways to create a bird-friendly environment within your designated count site. What could be added to draw birds and wildlife to your site? It will be fun to see which species show up!

Introduction to BirdSleuth

BirdSleuth is a series of teaching modules that has been developed with National Science Foundation support. We've created these modules with the homeschool audience in mind. If you find these lessons useful, we've also created a more robust curriculum, the *Science Investigator's Kit for Homeschoolers*, that focuses on learning science content and developing science process skills. To learn about this and other modules, such as *Most Wanted Birds*, *Exploring Bird Behavior*, and the free online *Investigating Evidence* module, visit www.BirdSleuth.net.

Materials You'll Need

- **FeederWatch Research Kit**—After registering for Project FeederWatch, you will receive a research kit in the mail which includes everything you will need to participate:
 - › Easy-to-follow instructions
 - › The *FeederWatcher's Handbook* containing tips on how to safely attract birds to your yard
 - › The Common Feeder Birds poster
 - › A calendar featuring bird photos submitted by FeederWatchers
 - › A paper data booklet for those who do not wish to submit counts online
 - › *Winter Bird Highlights*, the annual summary of findings from Project FeederWatch
 - › A subscription to *BirdScope*, the quarterly newsletter of the Cornell Lab of Ornithology, featuring news about birds and research conducted at the Lab
 - › A Tally Sheet that you can photocopy, for recording notes and observations
- **Bird feeder**—You'll need at least one. There is no "standard" Project FeederWatch feeder. You can buy a feeder or, better yet, let your child make one! See the Resource Pages at the end of this module.
- **Seeds**—Try a bag of mixed commercial birdseed first. Notice which species prefer which seeds. Adjust your offerings to match the preferences of the birds in your area.
- **Water**—Birds need water to drink, as well as for bathing to remove dirt and pests from their feathers. Water often attracts bird species that don't usually visit feeders. Provide clean, fresh water daily. Birdbaths may be kept ice-free in cold climates by using a specially-made heating device. Do not use any chemicals to prevent the water from freezing as this may harm birds.
- **Good viewing location**—Be sure to position your feeder where it can be easily observed. Trees and shrubs near the feeder provide perching sites and cover for birds.
- **Binoculars** (optional)—These are great for seeing field marks on faraway birds. Beginning and young bird watchers may find binoculars difficult to handle, so be prepared to help!
- **Identification guides**—Identifying birds is a lifelong learning opportunity. A good beginner's resource is the Common Feeder Birds poster, included in your Project FeederWatch kit. You will also want to refer to a field guide for range maps, additional species, and more information about the birds you see.



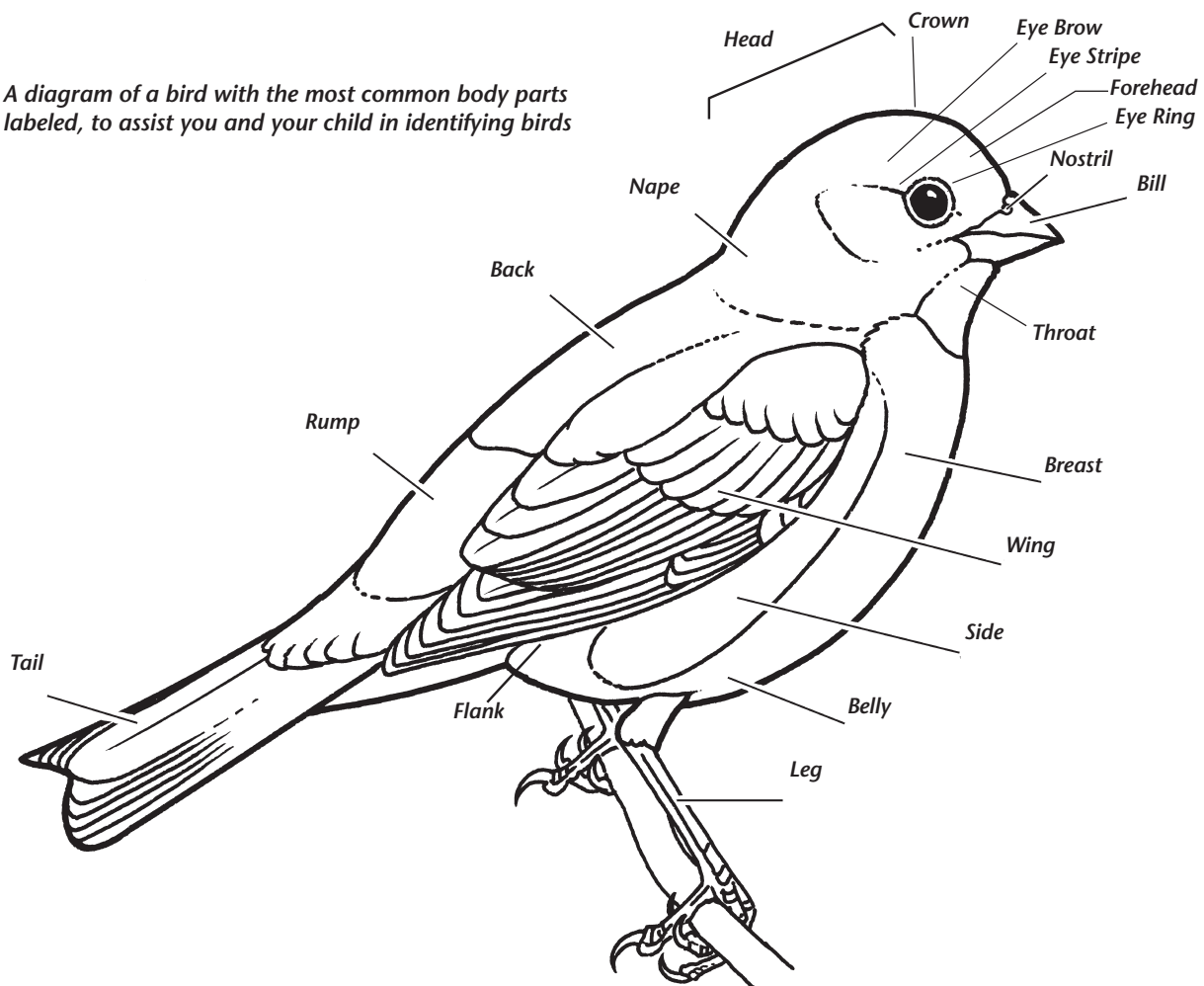
Educator's Advice "I WONDER" LIST

Inquiry is a critical component of the BirdSleuth curriculum. The "I Wonder" list provides a way to track your child's questions throughout the investigations.

Questions might arise that you can't explore because of time constraints, or because you are not sure how to address them, or because you want your children to consider conclusions on their own. Keep track of these questions with an "I Wonder" list. Recording questions will eliminate pressure for you to provide immediate answers and may encourage students to think about possible solutions on their own.

The "I Wonder" list will provide a wealth of ideas that can form the basis of independent research. Your child will have the opportunity to return to questions he or she is genuinely interested in.

A diagram of a bird with the most common body parts labeled, to assist you and your child in identifying birds



Project FeederWatch Homeschool Activities



Activity 1 Focus on a Feeder Bird



White-crowned Sparrow
by Orville Rice

Step 1: Literature research

Have your child select one bird species to observe and study in detail, for example, he or she can research the bird's life cycle and behavior. Create a list of questions that your child is interested in, such as: Where does this bird find its food when not at a feeder? Where does it sleep? Where does it live during the summer? What kind of nest does it build—or does it build a nest at all? What habitat does it prefer? Discuss where to find the answers—in a book, online, or in a field guide.

Step 2: Observational research

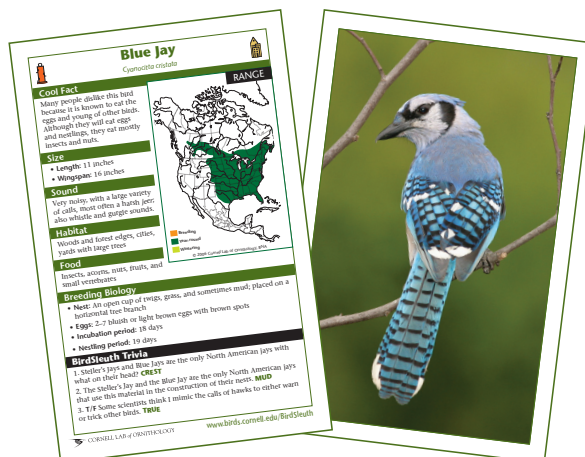
Your child should also investigate some questions about the bird using direct observation: What time of day does your chosen bird visit your feeder? Does this bird visit alone or with a flock of the same species or other species? How does it behave as it approaches and leaves the feeder? What kind(s) of seed does it eat? Which type of feeder does it prefer?

Step 3: Compare and contrast

Have your child choose a second bird and find the answers to these questions, then compare and contrast the two species.

Additional resource

Click on "Bird Guide" at the All About Birds web site at www.allaboutbirds.org.



Consider ordering and using the BirdSleuth Game Cards, a set of 36 full-color cards that contain photos and information on some favorite birds. Activity and game ideas are included, as is password access to an online Bird ID quiz for children that includes sound and video of these common birds. www.BirdSleuth.net/cards



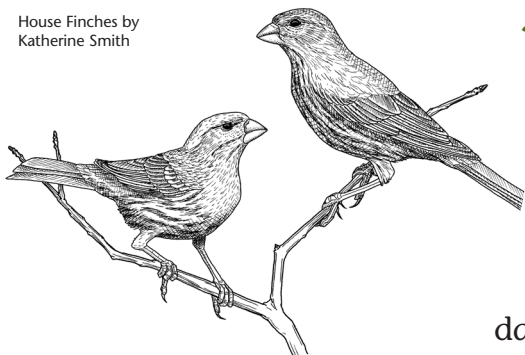
Project FeederWatch Homeschool Activities



Activity 2 Math Counts!



House Finches by
Katherine Smith

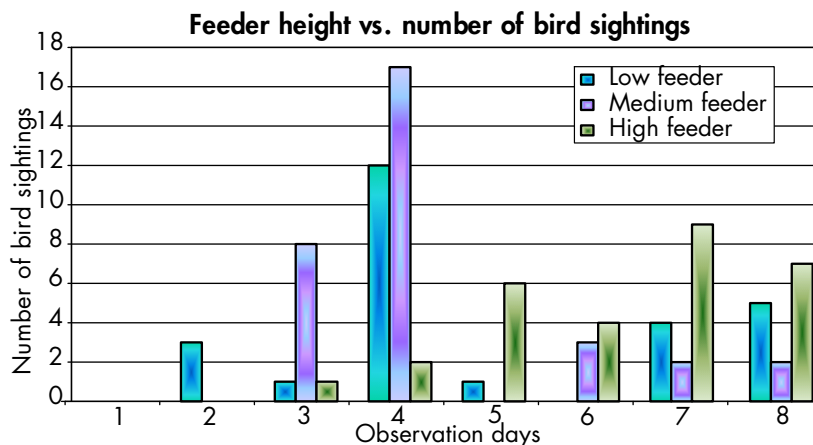


Step 1: Calculate seed consumption

Have your child weigh the birdseed in your feeder before and after each Project FeederWatch count—or every day for a week—and calculate how much seed was eaten or dropped. After several measurements, have your child determine the average consumption rate and predict how often the feeders need to be refilled. Discuss the variables—weather, time of day, different seed, etc.—that may affect these predictions.

Step 2: Graph bird counts

Work with your child to create data tables about the kinds and numbers of birds that visit. Together, you can graph the results by hand or with a computer program such as Excel. Information about graphing and interpreting bird data can be found in the free ONLINE MODULE, *BirdSleuth: Investigating Evidence*, specifically in Investigation 3, “Show me the Data.” www.birds.cornell.edu/birdsleuth/inquiry-resources



Alexa, Rachel and Elizabeth had three bird feeders and wondered if the height at which a bird feeder was hung would affect the numbers of birds that visited each feeder. They watched their feeders for eight days, analyzed their data, and concluded that height had no effect.

Additional resource

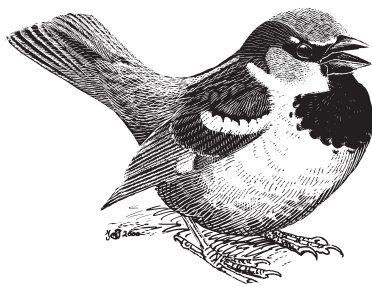
Compare your observations with others in your area by exploring data submitted by Project FeederWatchers in your state or province! Visit the Explore Data section of the FeederWatch web site, www.feederwatch.org.



Project FeederWatch Homeschool Activities



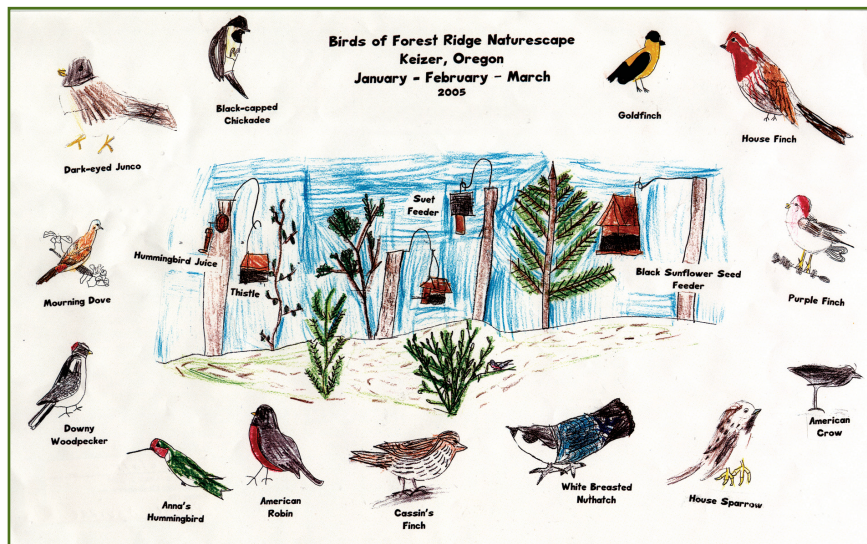
Activity 3 Birds Through Words



House Sparrow by John Schmitt

Step 1: Keep a nature journal or field notebook

Note-taking is an essential part of all bird-related research and is a good skill in general. In a journal or notebook, have your son or daughter practice writing clear, detailed observations of the birds at your feeder site. Have him or her include the date of the observation, the location, the weather, the species' name (if known), and an overview of the bird's appearance, behavior, and sounds. Ask your child to include sketches of his or her observations.



Children visiting the Forest Ridge Naturescape studied and drew the kinds of feeders there, and how the feeders were hung. They also drew the kinds of birds that visited the bird-feeding area. Illustration by Ms. Aquirre's Grade 2 students, Forest Ridge Elementary School, Ketzer, Oregon.

Step 2: Write about birds

Encourage your child to write poetry about feeder birds. The poems can be simple rhymes, limericks, haiku, or other forms. You may also suggest writing a creative short story about a selected species of bird or an individual bird at the feeder. Challenge your son or daughter to include factual observations in his or her fictional accounts.

Step 3: Find out more about famous ornithologists and naturalists

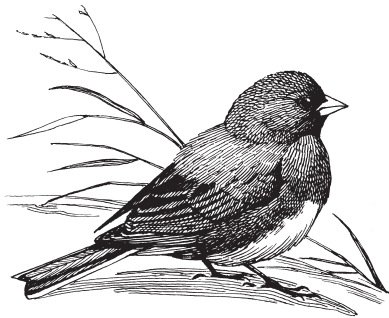
To teach your child about science as a human endeavor, ask him or her to research the lives of famous bird biologists, artists, and researchers, such as John James Audubon, Rachel Carson, Roger Tory Peterson, Margaret Morse Nice, and Alexander Wilson. Suggest writing and presenting a skit using them as main characters.



Project FeederWatch Homeschool Activities



Activity 4 Our World of Birds



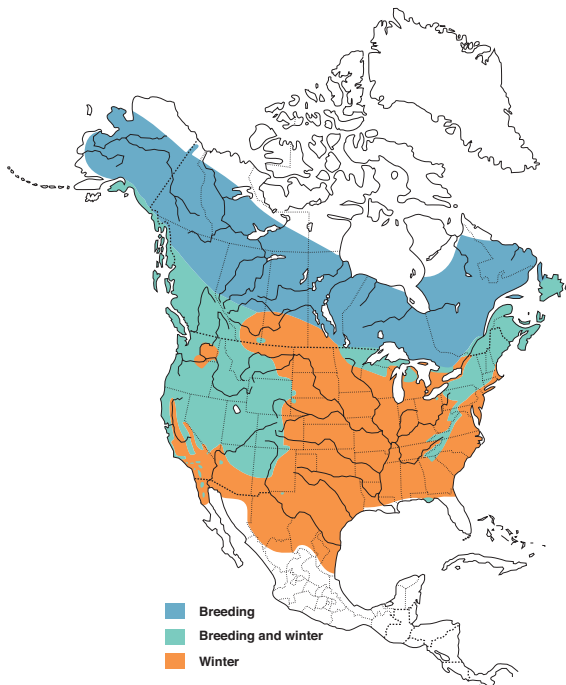
Dark-eyed Junco by Orville Rice

Step 1: Bird geography

Encourage your child to study the geographic ranges of birds that visit feeders in your yard, using field guides or the All About Birds web site: www.allaboutbirds.org. Discuss how the species seen vary with latitude, longitude, and altitude. For example, your child might explore how the Rocky Mountains affect bird ranges or where the birds at your feeders live during the summer months. Ask your son or daughter to research the official bird of your state or province.

Step 2: Birds in popular culture

Birds are everywhere--not just at your feeder! Ask your child to devise a list of birds that appear in everyday instances. For example, how many sports teams can your child list that are named after birds? Which cartoons or comic strips feature birds as the main characters? Challenge your child to think of common expressions that refer to birds and bird behavior. For example, why would someone call a person a "wise old owl" or say, "homework is for the birds!"? What connections can be made between the expression and the origin by studying birds and bird behavior?



Step 3: Birds and the law

Another interesting project for your child may be to research current United States, Canadian, and international laws that specifically protect birds. What is the history that prompted these laws? Why is it illegal for most people to collect and keep bird feathers—even the feathers of common feeder birds?

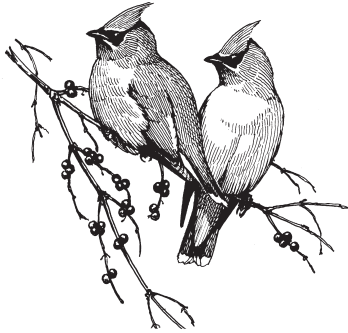
Dark-eyed Junco range map. Where you live, would you be more likely to see these birds at your feeders in winter, in summer, or all year-round?

Map courtesy of Birds of North America Online





Activity 5 The Art of Observation



Cedar Waxwings
by Orville Rice

Step 1: Sketching birds

Teach your child to care for and use binoculars to observe feeder birds. Encourage him or her to make detailed sketches and start a feeder bird sketch book. It is important to include field marks such as the curve of the bird's bill, its eye ring (if present), its crown, cheek, or ear patch. It may be helpful to have your son or daughter study bird illustrations in field guides or interview a bird artist. Does the artist keep a notebook of field sketches?

Step 2: Behind the mask

Help your child to make feeder bird masks from papier mache or other materials. He or she can use these masks to act out stories about observed bird behaviors.



Blue Jay by Ester. Consider sending your child's artwork to us. We publish children's art and reports in Classroom BirdScope, on the Project FeederWatch web site, or elsewhere. Details and submissions are found at: www.birds.cornell.edu/birdsleuth/student-publications.



Resource Pages



Bird Feeder Chart



HELP YOUR BIRDS STAY HEALTHY! All feeders need to be cleaned frequently. Remove all moldy seeds as these can harm the birds. Wash feeders in a bleach solution (1 part bleach, 9 parts water).

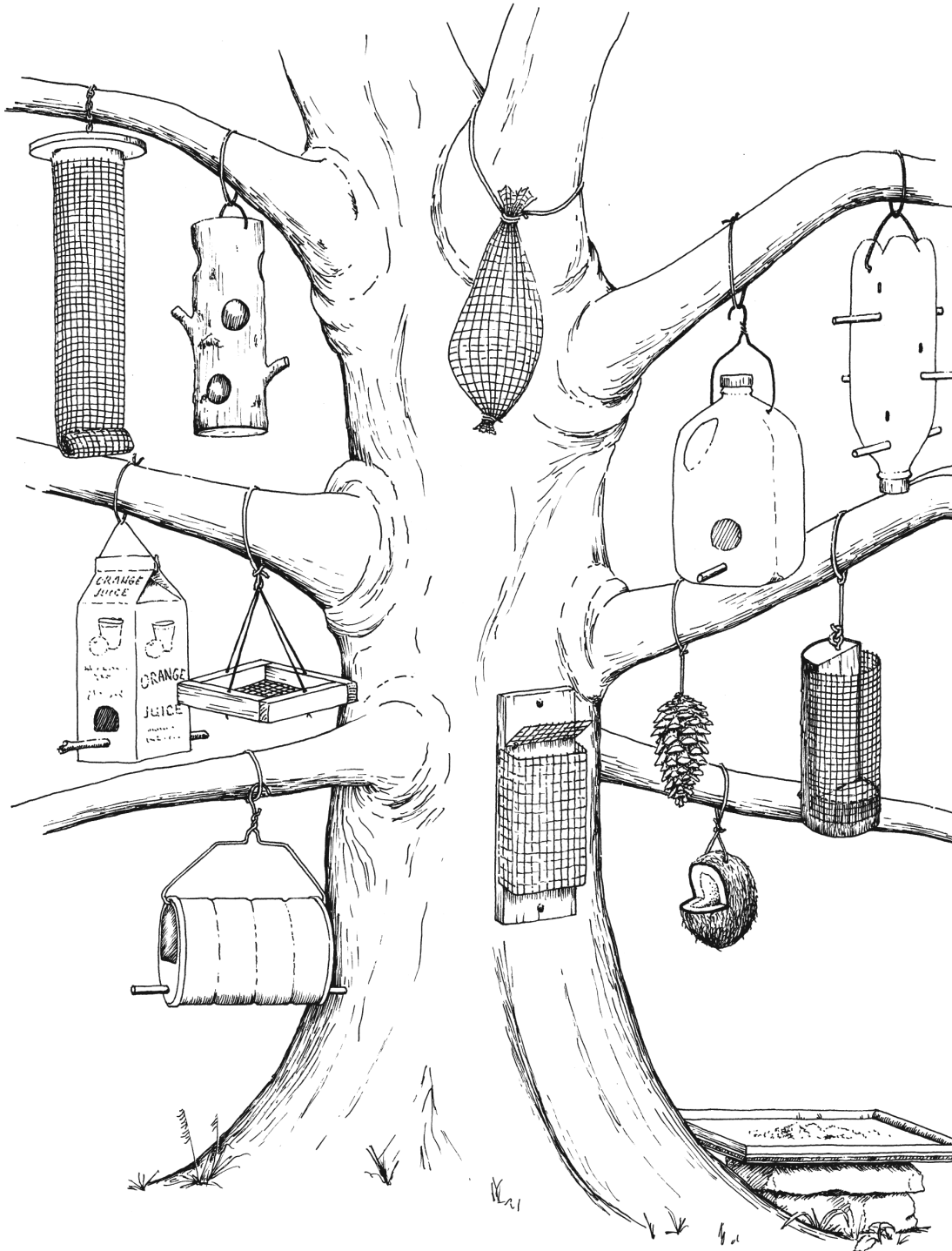
Feeder type	Looks like	Attracts	Food	Notes
Platform	Flat, raised surface	Ground-feeding birds: doves, jays, juncos, sparrows	Seeds*, stale bread, fruit	Food becomes wet and soiled with bird droppings—clean often
House (Hopper)	Roof and clear sides	Large and small birds: doves, jays, titmice, chickadees	Seeds*	May be difficult to clean
Tube	Clear tube with several openings, perches by each opening	Small songbirds: chickadees, titmice, finches	Seeds*	Small perches will limit access, prevent large birds from feeding
Suet Cage	Small metal cage or mesh bag	Insect-eating birds: woodpeckers, chickadees, and nuthatches	Suet (animal fat)	Suet can spoil in hot weather
Dome	Seed-filled bowl with clear dome above	Small songbirds: chickadees, titmice, finches	Seeds*	Usually small, requires frequent filling
Windowsill	Platform extending from windowsill	Large and small birds: chickadees, titmice, finches, doves	Seeds*	Birds may fly into window when spooked
Thistle (Nyjer)	Tube feeder with smaller holes	Small songbirds, especially finches	Nyjer seeds	Seed relatively expensive
Humming-bird	Tube or inverted bottle that holds sugar water	Hummingbirds	1 part sugar dissolved in 4 parts hot water	Clean and replace nectar every three days

* Seeds may include black-oil or striped sunflower, millet, milo, safflower, and other seeds and grains.





Simple Feeders You Can Make





Simple Feeders You Can Make



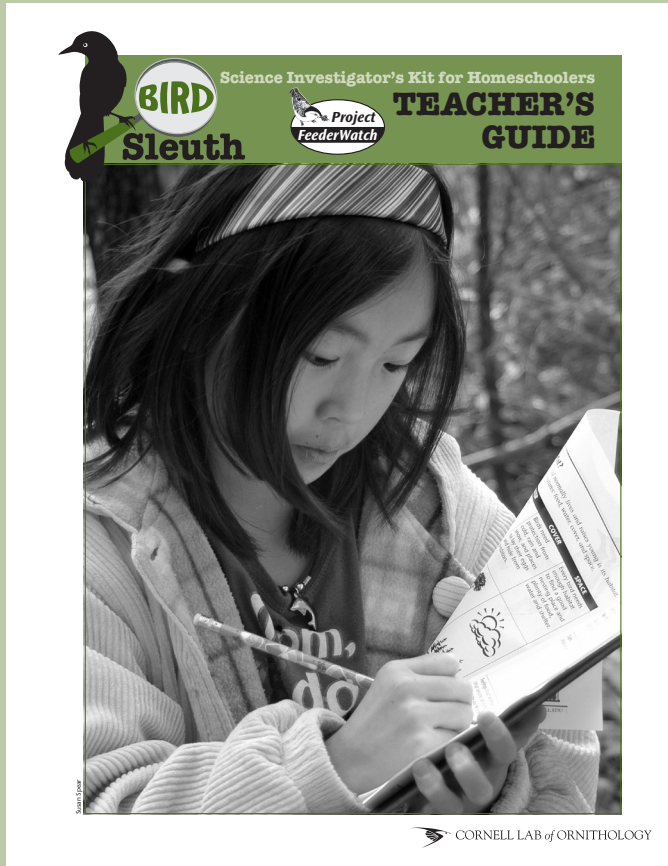
Here are some questions to consider as you and your child plan your feeder design:

- What kinds of birds do you want to attract? For example, is your feeder for seed-eating birds or for insect-eaters who are attracted to fatty foods such as suet?
- What feeder type will you choose—or will your feeder be an original design?
- Will the birds need a perch?
- How will water drain out of your feeder when it rains?
- How will you protect your feeder from squirrels?
- How will you put seed or suet in your feeder?
- What materials will you need to make your feeder?
- How will you hang or mount the feeder?

Describe the feeder you are planning to make and outline a plan:

1. What type of feeder did you choose?
2. What will your feeder look like? Draw a sketch of your feeder on graph paper and determine its final size.
3. List the materials you plan to use to build your feeder. Describe them here.
4. List the materials you will need to hang or mount your feeder. Where will you put it?





Learn More

We hope you found these activities to be useful. If you and your child are interested in learning science through birds, be sure to investigate the **Science Investigator's Kit for Homeschoolers**. The new kit provides in-depth curriculum that focuses on learning science content and developing science process skills. Visit www.birdsleuth.net/homeschool for more information, and order yours today.

