

ART + SCIENCE AT HOME

Hara Woltz and Shelly Forster

FEEDING BEHAVIOR

There are around [248 different species of breeding birds in New York State](#) and all of them need to eat! Birds consume a variety of foods, ranging from other birds, to fish, to fruits, to seeds, to grasses. How much does an individual bird need to eat? There is no one size fits all for how much a bird eats in a day, but it is probably more than you think. A general rule is that the smaller the bird is, the more food it needs relative to its body weight. Birds vary their consumption patterns based on three primary factors: nutritional content of the food they find, the air temperature, and their activity level. A Black-Capped Chickadee eats around 35 percent of its body weight a day. That's the equivalent of a hundred-pound human eating about 380 pancakes! A hummingbird drinks 100% of its body weight a day in addition to chowing down on upwards of a thousand insects. If we translate their nectar consumption to human terms, that would be like one of us drinking around 17 gallons of Gatorade a day. On a cold day they need even more. A Blue Jay may take down 10% of its body weight, and an American Crow about 4% ([Cornell Lab of Ornithology](#)). We've established that birds need a lot of nutrients to fuel their lives. How do they go about procuring all that food? There is great diversity among the foraging behaviors used by birds, and many specialized adaptations for foraging. Here are a few of their foraging techniques:

DABBLING



Blue-winged Teals ©John Schwarz

Tipping forward, immersing head and neck to eat submerged vegetation such as algae or duckweed. Examples: Ducks, Geese, and Swans.

CACHING



Acorn Woodpecker ©Matt Davis

Storing food for later use. Examples: Woodpeckers, Jays, Chickadees.

GLEANING



W.B. Nuthatch ©Gordon Dimmig

Picking invertebrate food from surfaces such as a leaf, branch, trunk. Examples: Thrushes, Chickadees, Nuthatches.

PLUNGE DIVING



Osprey ©David Brown

Diving into water feet first or bill first to catch prey beneath the surface. Examples: Osprey, Kingfishers.

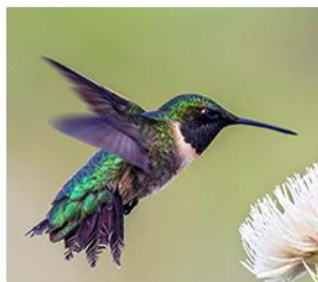
HAWKING



Barn Swallow ©Andrew Dreelin

Feeding in flight. Examples: Barn Swallows, Swifts, Purple Martins.

PROBING



R.T. Hummingbird ©Tal Pipkin

Inserting bill into an area such as a crack in a tree trunk, a hole in the ground, or a flower. Examples: American Robins, Woodpeckers, Hummingbirds.

GRAZING



A. Goldfinch ©Gordon Dimmig

Feeding on grasses or their seeds in fields or meadows. Examples: Goldfinches, Sparrows.

SCRATCHING



Rock Dove ©Hara Woltz

Pulling feet along the ground to loosen dirt and reveal insects or seeds. Examples: Sparrows, Doves, Towhees.

A deeper look at some of these behaviors reveals all sorts of amazing adaptations. For example, Black-Capped Chickadees (**CACHING**) scatter hoard up to 80,000 seeds and insects in preparation for cold and food-scarce NY winters. They tuck them into bark crevices, in between rocks, and into branches. A part of their brain called the hippocampus helps them recall what types of food items are stashed where. A Black-Capped Chickadee's hippocampus grows in the fall and then shrinks in the spring when fresh food is available again. Hummingbirds (**PROBING**) can [remember](#) where nectar filled flowers are, and when they bloom. They know how long it takes for a flower to refill with nectar after they've sipped it down. They calculate on the fly, keeping track of flower maps and nectar fill rates, eating insects as they go. Some days they visit more than a thousand flowers.

Many birds use more than one technique of foraging depending on seasonal availability of food. And, though many birds forage throughout the day, early morning and late afternoon are good times for looking for birds. Birdfeeders are a great way to see bird foraging up close. Both Audubon and Cornell provide information on how to follow best practices for feeding birds in your yard. We recommend checking out resources like this [Cornell page](#) on bird feeding and this Audubon article [When it's okay to feed birds](#) to ensure that you keep the birds that visit healthy.

Now that we know a little more about how and what birds eat, let's investigate their feeding patterns!

STEP ONE: Gather your materials and head outside.

- Today you will need your fieldbook, and your drawing supplies. If you have a bird ID guide, or app, bring that with you.

STEP TWO: Find a sit spot where you can observe some birds.

- Do you have a bird feeder set up, or do you know someone who has a bird feeder that you could observe?
- Otherwise, find a spot where you see birds and can sit and observe them. For example, you might see American Robins foraging on grassy lawns. Look for them hopping along the ground, probing for worms. American Robins can take down more than fourteen worms a day!
- You could also look for birds in a park, or along the edges of a meadow. Parks are a great place to observe the foraging behavior of Rock Doves (Pigeons).
- If you do not have a physical place to observe birds, go online! Cornell Lab or Ornithology has a bunch of [live bird cams](#), including their [FeederWatch cam from Ithaca, NY](#) and their [fruit feeder cam from Panama](#).

STEP THREE: Observe the Weather.

- Take note of the same weather factors you observed yesterday.
- Look back to yesterday's notes if you need a reminder.

STEP FOUR: Look closely.

- Spend a few minutes observing the bird visitors who come to your spot.
- If you can't identify the species, you can make some notes about it for later, and make up a name for now.
- How long does an individual stay?
- Do you notice any preferences in what it is eating?
- Does it look around between mouthfuls?

STEP FIVE: Create a notational language.

- On one page in journal create a symbolic legend for the bird species you see. For instance, a Northern Cardinal might be a red triangle.

STEP SIX: Record bird visits.

- Set a timer for 10 minutes and record the birds that you see. Use your symbols to mark each time a bird lands on the feeder. It's okay if it is the same bird returning. You are marking the number of different landings. While you are doing this, make some notes about any behaviors that you observe, or questions that you have.

STEP SEVEN: Focus on one bird.

- Pick one of your bird visitors and draw it. This could be a quick sketch or longer drawing. Up to you!



This project is made possible with funds from the Decentralization Program, a regrant program of the New York State Council on the Arts with the support of Governor Andrew M. Cuomo and the New York State Legislature and administered by Arts Mid-Hudson.