Winter Bird Observation

Overview: Bird feeders are lively places during the winter months and their presence is important. Though many bird species can handle the hardships of winter, with natural food sources becoming fewer due to the loss of habitats, feeders can help fill a food void. Feeding winter birds can be a fun and educational activity for students; they can learn about different species while also learning about their habitats, diets and winter survival tools.

Grade Level/Range: Grades 3 to 8

Objective: Students will:

- Observe bird feeding sites to learn more about their habits and habitats.
- Discuss the challenges of the winter season for animals and related adaptations.

Time: 4 to 6 weeks

Materials:

- Bird Observation Handout
- Clipboards and pencils
- Online or printed bird identification guide

Background Information:
There are lots of common birds in North America that stick around for winter. Many of these are colorful favorites that evoke a winter feeling. Each has a unique lifestyle and story to tell. Ten of the best for students to easily recognize are:

The Northern Cardinal

Probably the most well-known and beloved of all American winter birds, the northern cardinal inhabits much of eastern and midwestern North America, from Quebec, Canada all the way down to Central America. The male birds have bright red plumage, black faces and orange beaks, as well as a cheery red crest on their heads. The brownish red females are less colorful, which camouflages them when they are protecting their spring nests. These birds favor shrubby, forested areas, and they eat seeds and fruits in winter, with a supplement of insects in the summer months. Their call is a clear or trilled whistle.

Blue Jay

Distinctive blue, white and black markings and a blue head crest decorate this relatively large bird. Blue jays naturally exist in forest edges and wooded city areas across eastern North America. They are adaptable, somewhat aggressive birds with varied sharp, crow-like calls. (Sometimes they mimic the calls of hawks to frighten other birds!) The ground foraging birds have a varied diet, eating everything from small mice to grains, seeds and insects, but in the winter they rely mostly on a diet of seeds. You might even see them snatching pieces of pet food from the bowl if you feed your pet outside!

Cedar Waxwing

The beautiful cedar waxwing is a master flyer capable of acrobatic turns in the sky. Its plumage is tawny brown on the head and chest, fading to blue-gray on the wings, with a pale yellow belly. The crested birds have red markings on the wing tips, yellow markings on the tail tips, and a narrow black face mask bordered in white. The woodland natives also like wooded neighborhoods and can be found throughout the U.S. down to the northernmost tip of South America in winter and in the northern half of the U.S. and most of Canada in the summer breeding season. Cedar waxwings primarily eat fruit and enjoy dining on overripe berries on winter shrubs and trees. While they don't usually visit feeders, you may be able to attract these fruit lovers to platform feeders with orange slices, grapes and raisins. Their call is a high-pitched trilled whistle.

American Goldfinch

Brilliant gold plumage with black markings makes these birds nearly impossible to miss. Finches of all types are small, seed-eating birds that frequent feeders. The American goldfinch is found across much of North America and northern Mexico; it's a seasonal winter visitor in the Southwest and along the Gulf Coast but a year round resident in most other areas. Goldfinches favor open fields, parks and lowlands – anywhere where thistles, asters and sunflowers are common. Their chirpy, melodic song patterns are variable but distinctive. Females have lighter yellow bellies but otherwise look like males.

Tufted Titmouse

A small, silvery gray bird, the tufted titmouse has a smart little tufted head crest, a whitish belly and tawny or rusty patches flanking the wings. It is found only in the eastern United States and adjacent Canada where it lives in lower elevation forests and wooded neighborhoods. Its varied diet consists of insects, nuts, seeds and small fruits. This species nests in tree holes and forages in tree canopies and among tall plants for winter food. Sometimes tufted titmice use their fast, repetitive whistling calls to rally in groups and attack threatening predators like hawks.

Downy Woodpecker

One of the most common and adaptable of the woodpeckers, downy woodpeckers are a relatively small birds that are easily distinguished by their black and white checkered wings, white back, and black striped head accented with a patch of red in the back. They are found across North America from Alaska to Florida, where they live in open woodlands, scrubby areas and wooded neighborhoods. These insect eaters relish suet at winter feeders. They make a loud, percussive "rat-ta-tat-tat" when pecking trees and have a shrill, whinnying call.

White-breasted Nuthatch

Long beaks, attractive gray, black and white markings, and white bellies accented with reddish-brown are the key identifiers of the white-breasted nuthatch. Native to much of North America, these forest dwelling birds survive on a diet of insects, nuts, and seeds. Their long, strong silvery beaks can easily wedge open nuts. The call of the nuthatch is a loud, rapid, nasal "yank-yank-yank".

Mourning Doves

Ground-foraging mourning doves are tawny gray with flecks of black on their wings. These common North American birds mate for life and are often seen in pairs. They are very prevalent in open wooded areas, fields, and yards where they can be seen scouring the ground and low-lying plants for seeds and berries. They emit mournful coos and nest in trees.

Carolina Wrens

In fall you can hear the "tea party, tea party, tea party" songs of defensive Carolina wrens staking out their winter territories. Found across the eastern United States down into adjacent Mexico, these small birds have cinnamon brown plumage and perky tails that stick upwards. They like spots with dense vines and bushes where they can forage on insects and small vertebrates. In the winter they switch to a diet of fruits and seeds.

Carolina Chickadee

A common bird across the southeastern United States, the Carolina chickadee is a small bird with a distinctive black cap and chin, gray and white wings, buffy tan body and little beak. (The similar looking black-capped chickadee is found across the northern half of the country.) It inhabits shrubby forests and wooded neighborhoods where it forages for insects, seeds, and nuts. Spiders are also a favorite treat! The males do most of the singing with a high-pitched, two to three note "fee-bee" whistle.

Laying the Groundwork: Ask students, why are birds important in our ecosystem? Some answers may include: they spread plant seeds, eat pesky insects, feed on decaying matter, and just in general are fun to watch and observe (bird watching is one of the most popular hobbies in the United States). Ask students to consider the question, what do birds eat? Are all of these items available in nature during the winter? If not, how do they survive the winter months?

Exploration

Explain to students that you plan to create a bird observation center in your schoolyard by setting up bird feeder stations. You can build your own from recycled materials such as milk cartons, recycled jugs or pine cones or purchase pre-made bird feeders.

Next decide what type of bird seed you want to use. Introduce students to some of the common birds in your area and explain that they each have different food preferences. Here is a list of favorite winter bird foods for the 10 most common birds.

Favorite Winter Bird Foods

Bird	Millet	Cracked Corn	Sunflower Seed	Wild Fruits	Thistle Seed	Suet
American Goldfinch	x		x	x	x	
Blue Jay			x	x		x
Cardinal	x		x	x		
Carolina Wren				x		x
Cedar Waxwing				x		
Chickadee			x	x		x
Downy Woodpecker						x
Mourning Dove	x	x	x	x		
Nuthatch		x	x	x		x
Tufted Titmouse			x	x		x

You can select your seed to attract a certain species of bird or offer a variety to attract different bird species.

Set up your bird feeders and schedule time for students to observe them. Placing feeders by a window for indoor viewing is an excellent idea for those cold winter days. You can use the sample Bird Observation Worksheet to collect data or younger students can create a chart on a whiteboard or large sheet of paper so they can check off birds they see on the playground or at the classroom birdfeeder. Make sure to alter the observation times so that students can determine if their visitors change throughout the day. If you have multiple feeders offering different types of seed, make sure students record which birds visit which feeders, as certain types of birds have preference for particular kinds of seeds.

After a couple of weeks, compile your observations looking for patterns in birds observed at your feeders at different times of the day. Discuss the results.

Making Connections:

Use your bird observations to discuss the challenges of the winter season for animals and related adaptations. You may want to ask:

- How has urbanization impacted other animals' ability to survive the winter months? *Loss of habitat has decreased food sources during winter months and available shelter.*

- What are other adaptations do birds have to help them survive winter months? Dense down feathers lining their bodies helps to store heat, and they put on fat reserves, eat frequently, and seek protective shelter. Plant cover is the most common type of shelter, but some winter birds nest in tree holes and others may seek refuge under the warm eaves of buildings. Dedicated winter birders may even put up protective roosting boxes to give their birds shelter in winter.
- Many other birds survive the winter months by migrating to warmer climates. Discuss migration and research which birds migrate, where they go and why and how they do it.

Branching Out:

Science – Study additional bird adaptations. For example, different birds have different types of beaks (also known as bills) which influence their food preferences. For example, hummingbirds have long slender beaks that allow them to delicately probe flowers in search of nectar. Short, thick, cone-shaped beaks, such as those on cardinals, sparrows, and grosbeaks, are ideal for cracking hard seeds. Swallows and others that gather insects in flight can open their beaks wide to get a mouthful. Some birds that find insects in logs and twigs, such as warblers, have small sharp beaks while others, like woodpeckers, have long and chisel-like beaks for boring deep. Birds of prey have sharp hooked beaks for tearing into meat. The common crow has a multipurpose beak suitable for eating fruit, seeds, insects, and fish. Some ducks and other water birds have bills that act like strainers to gather tiny plants and animals. Herons have spear-like bills for fishing.

Once students have investigated beaks, you might want to bring in or challenge them to find tools that have functions similar to bird beaks and try using them to access different food sources. (A hummingbird's beak acts like a straw, for instance. A nutcracker functions like the beaks on seed-eating birds. The beaks of many water birds function much like strainers.)

Your keen observers might notice or question whether birds have teeth. (They don't.) How do they handle those hard seeds? Birds have strong acids in their stomachs that help digest food. From there, hard foods, such as nuts, seeds, and grains, go into the gizzard (a muscular part of the stomach) where it is further ground up. Many birds actually swallow small stones or grit, which help break down the food!

Social Studies - Many species of our feathered friends are in decline. Scientists believe this may be due, in part, to habitats being lost or fragmented due to land clearing, development, and building on wetlands. Other factors, such as house cats, pesticides, and oil spills threaten birds. Ask students conduct research to learn more about these factors and then consider how they might take constructive action. For instance, they could make nesting boxes, continue feeding birds throughout year, garden for the birds, or donate time or funds to efforts to improve habitats locally and nationally.

Music - Encourage students to notice differences in birds' songs. There are many different recordings available online. Research some of the meanings behind those songs. Inspire inquiry by asking: are bird songs different during different times of year? Who does the singing? (Males do most of the singing to attract females or tell other males to stay away. Also watch for displays such as thumping and strutting.) In addition to a melodious song, most birds also have shorter call notes to warn others. Many bird guides mention words or phrases that birders employ to identify certain bird songs. Robins, for instance, sound as though they're "saying" cheery, cheerio. Some, like chickadees, are said to say their own names. Students may want to make up their own words or other devices to help them identify bird songs in the schoolyard or neighborhood.