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# K-12 Partnership Lesson Plan

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# *What’s in My Backyard?*

# *Identifying Winter Birds in Michigan*

## Overview

Although winter may seem like a life-less frozen wasteland here in Michigan, many birds spend the winter here. Some arctic birds even come down to Michigan to escape the cold! Many of these winter birds can be easily attracted to backyard feeders, particularly since food is in short supply. In this lesson students will learn how to identify the 16 most common feeder birds in Michigan and will be introduced to 8 other less common species. Students will learn how scientists classify and identify species. This lesson also provides materials necessary for students to collect data from their own bird feeder and tools to contribute their data to citizen science efforts, such as the Great Backyard Bird Count or Cornell’s eBird tracking program that help scientists monitor bird populations across the United States.

**Objectives**

At the conclusion of the lesson, students will be able to:

* Correctly identify the 16 most common birds that visit Michigan feeders in winter
* Recognize 8 other less common species
* Explain how citizen science information on birds can help scientists

**Length of Lesson**

Bird identification lesson: 45 min class period

Data collection at feeders: any 15 min period

**Grade Levels**

All levels (upper elementary-high school)

**Standards covered (NGSS)**

Disciplinary Core Ideas:

* **2-LS4-1**: make observations of plants and animals to compare the diversity of life in different habitats

Cross Cutting Concepts:

* Patterns

Science and Engineering Practices

* Planning and carrying out investigations
* Analyzing and interpreting data

***Previous Michigan Standards Met:***

* **L.OL.E.4**: organisms can be classified on the basis of observable characteristics
* **L.EV.M.21**: relating the degree of similarity in anatomical features to the classification of contemporary organisms

**Materials**

* Powerpoint that introduces citizen science bird watching programs and introduces all the bird species (“Bird Identification Intro”)
* Powerpoint with virtual bird watching slides to practice identifying birds (“Virtual Bird Watching Slides”)
* Colored printable bird guide with helpful pointers (pdf: “Winter Feeder Bird Guide”)
* Checklist for data collection at feeders (pdf: “Bird Guide and Checklist”)
* (For data collection) Bird feeder with seed placed near a classroom window or in student backyards

**Background**

**Citizen Scientists in Ornithology**

Citizen scientists have a long history of contributing essential data to ornithologists (scientists who study birds). Birds are charismatic animals that can be found everywhere in the world and consequently humans have been paying attention to them for a long time. More informal data collection has been formalized into several well-organized programs that collect huge amounts of data on birds every year. Every year in mid/late December the National Audubon Society runs the Christmas Bird Count. Tens of thousands of people at over 2,300 sites across the Western Hemisphere all go out and count all the birds they can identify at their feeders and in the field. This count is currently on its 114th year. In mid February the Cornell Lab of Ornithology, Audubon Society, and Bird Studies Canada sponsor the Great Backyard Bird Count. This count occurs throughout the entire world and was first launched in 1998 as the first online citizen-science project collecting data on wild birds. In 2013 participants in 111 countries counted 33,464,616 birds! This count is user friendly for even elementary students and requires only a minimum of 15 minutes of observation. Finally, Cornell’s eBird tracking system accepts checklists of birds at any time of year. These observations are updated in real time as people submit them and during the time of the spring migration you can watch the wave of birds move north! Data from all these programs are used by scientists to tell whether bird populations are growing or shrinking, whether range boundaries are changing with human disturbance or climate change, or whether the timing of migration has changed over time.

**Michigan Birds**

Although identifying birds may seem daunting at first, every species has particular characteristics that set it apart. The printable bird guide and the powerpoint offer useful tips for students to use when trying to tell birds apart. Although students are often tempted to use size when trying to identify species, it’s more reliable to first use overall shape, overall color, and then key markings noted in the bird guide.

Attracting birds to feeders is a relatively easy task. Most of the species on the most common list will be attract to any basic birdseed mix found at the grocery store. Black-oil sunflower seeds are a particularly good treat for birds in the winter as they contain a high fat content that provides a lot of energy. To attract the woodpecker species you will need to use a suet block. The feeder should be placed in an area that has a relatively low amount of traffic and the closer to sources of shelter (small trees, bushes, etc.) the more bird traffic you have. If you have a tree close to a classroom window this can be a particularly good place to observe. You should keep to the feeder regularly stocked for a week before you plan to take any data so the birds will learn the location of the new food source. When observing you should instruct your students to avoid making any sudden movements and wait for a minute or so after sitting down to let the birds adjust to the change.

### Activities of the session

1. Start with the bird identification intro powerpoint to introduce citizen science contributions to ornithology and to introduce the bird species. It is helpful to pass out the picture bird guide so students can follow along (~30min)
2. Have students break into small groups. Give each group a picture bird guide and a checklist. Using the virtual bird watching slides have each group identify the birds in the slides and mark them on their checklist as though they were actually observing at a feeder (~15min)

**For data collection**

1. One week prior to collecting data, put a full bird feeder in the location that you plan to observe. Keep this feeder well stocked so the birds learn where the food source is.
2. Fill out the information at the top of the winter feeder bird checklist before you start observing
3. Mark tallies for every bird you see visit the feeder while you observe. Observe for at least 15 minutes.

\*\*note: if you have a video camera, you can record birds coming to the feeder and then have students identify birds from the video. This will allow you to pause and go back for the more difficult identifications

**Resources**

* For information on the Christmas Bird Count and the instructions on how to join a count circle, visit: <http://birds.audubon.org/christmas-bird-count>
* For information on the Great Backyard Bird Count and the instructions on how to submit data, visit: <http://gbbc.birdcount.org/>
* For information on submitting or using data from eBird, visit: <http://ebird.org/content/ebird/>
* To explore eBird data, visit the “Explore Data” tab on the above page.

**Extensions and Modifications**

The first half of this lesson can be used without the data collection to teach about how scientists identify and classify species. Data collected from feeders can be used to answer numerous questions and be used in student designed experiments (example questions: do different species prefer feeders with different kinds of food? Are different species present at different times of day? Are certain species more common on cold days?). Student data can also be compared to past records on the resource pages listed above.