



# Citizen Science

## Overview

Students will become citizen scientists by participating in an on-going research project of local bird populations and sharing their data.

## California Science Standards

Grade 6: 7.b.-I&E  
Grade 7: 7.a.b.-I&E

## Oregon Science Standards

Grade 6: 2L.2, 4D.1  
Grade 7: 3S.1,3  
High School: 3S.1,2

## National Standards

Content Standard A:  
Scientific Inquiry

## Materials Include

\* Student Journal

## Materials Needed

\* Research materials  
(computers, books, articles, etc).  
\* Computer Lab  
(Citizen Science website)

## Activity Time

Preparation: 15 min.  
Activity Time: 45 min.

## Best Season

All Seasons

## Vocabulary

\* Citizen Science

**Grade Level:** 3rd-12th (O.S.S.: 6th-7th, & 12th) (C.S.S: 6th-7th)

## Learner Objectives

Students will:

- Describe how citizen science can help birds
- Research citizen science on-going research projects
- Participate in a citizen science project

## Background Information

To facilitate understanding of the natural world, professional scientists have initiated a citizen partnership. Within this partnership, citizen science practitioners including retired scientists, educators, community groups, birders, and student groups engage in bird study by contributing their personal bird data, observations, and studies to on-going research projects. This data becomes a part of a national database which helps research scientists answer ecological questions about bird populations and use results in conservation.

Researchers at Cornell Lab of Ornithology (CLO) encourage others to participate in citizen science. With support from the National Science Foundation, CLO has begun a variety of different citizen science projects including The Bird House Network, Birds in Forested Landscapes, Urban Bird Studies, Pigeon Watch, eBird, and Backyard Feederwatch.

Each project provides easy-to-follow instructions describing how to count and observe birds in a particular area. Students are encouraged to participate and become citizen scientists after they have completed one or more of the other kit lesson plans. This way students can use their new skills as ornithologists (bird biologists) and share their science data with scientists and truly help birds! See *Counting Birds* lesson plan to get students involved in citizen science by entering their bird count into a citizen science project such as eBird.

# Lesson Plan

## Getting Ready!

1. Read the background information and teacher tips.
2. Determine computer research site for students.
3. Make copies of the *Student Journal: Citizen Science* sheets.

## Discuss!

1. Explain to students that professional scientists need their help with bird study projects. *Birds are threatened by the introduction of non-native species, pollution, habitat loss, and disease. Scientists need to know about the different birds found in their town. As more bird observations are shared, more questions about bird populations can be answered.*
2. Ask students if they ever watch birds and if they can think of any ways this could help scientists with their research?
3. Write ideas on the board.
4. Let students know that they will begin their journey of becoming citizen scientists – one of the most important groups of people in science today! (You may elicit responses such as “What is a citizen scientist?” or “Huh?”).
5. Explain to students that a citizen scientist helps professional scientists study birds or other wildlife. For instance, just by watching and observing birds you can help scientists study birds. At this point you may have covered some of the bird activities such as *Counting Birds*. Let students know that they can share their science data such as bird counts with scientists and truly help birds.
6. Explain to students that there are different projects scientists are working on that could use their help.
7. List some of the projects.
8. Have each student pick one to research for the day or week.

## Investigate!

1. Give each student a Student Journal.
2. Take students to the computer lab to research.
3. Direct students to the Cornell Lab of Ornithology website: <http://www.birds.cornell.edu/>
4. Have students click on “Lab Programs” & then “Citizen Science”.
5. Have students fill out their Student Journal sheets. You may also ask students to share information as a poster, presentation, or a written description.
6. Students are now ready to start a project & become citizen scientists!



Birders collecting data to enter on eBird.

### What is a Citizen Scientist?

A person who helps professional ornithologists study birds by sharing her bird observation data.

# Teacher Tips

## Follow-up!

1. Ask students a few questions to recap the lesson (see right panel).

## Cornell Lab of Ornithology: Online Citizen Science Projects

**The Birdhouse Network:** The Birdhouse Network began to help scientists understand more about bird breeding habits. Participants place nest boxes or birdhouses in their yard or schoolyard and monitor the nests inside. Information gathered by the participant includes the number of eggs and young raised in the nest. Then this information is submitted to an online database. Follow this link for more information:

<http://watch.birds.cornell.edu/nest/home/index>.

**eBird:** eBird documents bird abundances and distribution in a particular area or region. Participants submit bird observations to an online database being sure to include species name and numbers detected and birding information such as when, where, and how they went birding. This information is then filtered by a bird scientist expert and made available to other educators, students, and scientists. Follow this link for more information:

<http://ebird.org/content/ebird/>.

**Project Feederwatch:** Project Feederwatch is a winter-long survey of birds that visit feeders at backyards, nature centers, and community areas. Participants monitor their bird feeders from November through early April recording species name and numbers. With the help of participants, scientists can more easily identify winter bird populations and long-term trends in abundances. Follow this link for more information:

<http://www.birds.cornell.edu/pfw/>.

**Urban Bird Studies:** Urban Bird Studies is a group of projects to help scientists learn about birds found in urban areas. Participants count number of birds seen and observe bird behavior from a particular location of their choice in an urban area. For more information follow this link:

<http://www.birds.cornell.edu/celebration>.

**Pigeon Watch:** Participants observe pigeon numbers and courtship behaviors and submit their data online. Follow this link for more information: <http://www.birds.cornell.edu/pigeonwatch>.



Students counting and recording number of birds at Denman Wildlife Refuge, OR.

## Suggested Questions

*How can you help bird populations in your area?*

*What is a citizen scientist?*

*What kinds of projects does Cornell Lab of Ornithology have that help bird populations?*

