



# Counting Birds

## Overview

Students will identify local birds in their schoolyard and conduct a bird study.

## California Content Standards

Grade 5: 6.c.-I&E  
Grade 6: 7a.b.-I&E  
Grade 7: 7.a.c.-I&E  
Grade 8: 9.a.e.-I&E

## Oregon Science Standards

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

## National Standards

Content Standard A:  
Scientific Inquiry

## Materials Included

\* Student Journals  
\* Bird focus cards  
\* Clipboards  
\* Pencils  
\* Watch/Stopwatch  
\* Binoculars (optional)  
\* *Common Birds of Crater Lake NP* PowerPoint and script

## Activity Time

Preparation: 15 min.  
Activity Time: Varies

## Best Season

Spring/Summer/Fall

## Vocabulary

\* Species  
\* Non-native

**Grade Level:** 2nd-12th (O.S.S: 2nd-4th, 6th, 7th, & 12th) (C.S.S: 5th-8th)

## Learner Objectives

Student will:

- Describe why scientists count birds
- Demonstrate the ability to collect and organize scientific data during a local bird count
- Identify local and native birds

## Background Information

At the turn of the 20<sup>th</sup> century, conservation was at its beginning stages and scientists were becoming more concerned about declining bird populations. To help stabilize bird populations, a new protocol was initiated when studying birds. The species and numbers of birds in a given area over an extended period of time were documented. Ornithologists (scientists who study birds) began keeping lists or informal counts of bird species at a particular site. Eventually, formal counts were established including the Christmas Bird Count in 1899, the Breeding Bird Census in 1937, and Breeding Bird Survey in 1965. Bird counts, when repeated year after year, within a season, or weekly, can provide invaluable insight into past and present status and health of bird populations as well as the general health of our environment.

Today, ornithologists follow a standardized method when conducting a bird survey. For example Klamath Bird Observatory biologists conduct point counts along routes in the Klamath Basin. Point counts take place around a designated point along a route and records all birds seen or heard during a 5 minute count. Various details are recorded at each point including, reference number, name of the point, date, and the time. The individual birds are recorded in the order that they are observed.

Developing a local bird count, whether in the schoolyard or a birding trail, is a great way for your students to better understand local bird species and to participate in the conservation of birds! It is also an ideal opportunity for a science inquiry lesson based on field study. See the *Citizen Science* activity for additional information about becoming involved in bird conservation.

# Lesson Plan

## Getting Ready!

1. Read over background information section & *Common Birds* PowerPoint.
2. Make copies of the *Student Journal: Counting Birds*.
3. Determine the type of count according to:
  - Bird Study Unit:** What variable would you like to investigate?
    - A. # of birds by species
    - B. # of birds by families (ducks, hawks, finches, etc).
  - Location:** Where would you like your count to occur?
    - A. Schoolyard Count
    - B. KBBT Trail Count at Crater Lake National Park
    - C. Bird Feeder Count
    - D. Other nature site (wetland, riparian area, prairie/meadow)
  - Frequency:** How often and for how long do you want to count?
    - A. Seasonally over a school year
    - B. Monthly over a semester or school year
    - C. Hourly over a morning, afternoon, or end of the school day
  - Others Variables:**
    - A. Bird behavior

## Discuss!

1. Explain to students that scientists study birds by counting them year after year, during different seasons, and/or monthly.
2. Ask students why scientists would count birds. *To obtain information about the presence and absence of bird species, track changes over time, monitor bird habitat quality, develop ways to protect and/or conserve bird species, etc.*
3. Hand out Student Journals and direct students to the top graph. Have students answer the questions about the graph and discuss.
4. Show *Common Birds of Crater Lake National Park* PowerPoint to prepare students for counting.

## Investigate!

1. Explain to students they will conduct a bird count.
2. Ask students to predict/formulate and agree on a hypothesis based on location, frequency, and study variables (see scenarios).
3. Once a hypothesis is formulated, divide students into pairs, giving each group a clipboard, field guide, binoculars, and Student Journals.
4. Explain to students that they should count all the birds that they see or hear in the count area and record data into their journals.
5. Allow students at least 15-20 minutes to count birds.
6. Back in the classroom, list the names of birds seen.
7. Have students create a graph with their results and info in the Student Journal.
8. After the count, ask students if their hypothesis was supported.

## Citizen Science!

Cornell Lab of Ornithology recently started one of the most innovative ways to study birds. They began what is called eBird where anyone can share their bird count data over the internet. Ultimately, the bird data helps scientists study birds and discover ways to protect them. Students are not excluded, but rather encouraged, to participate in bird study counts and share their data on eBird. This way they become “citizen scientists!” See *Citizen Science* lesson.

Cassin's Finch



Photo by Jim Livaudais

## Suggested Questions

*What is a bird count?*

*For your bird count, what data did you collect?*

*What hypothesis would you test next?*

# Teacher Tips

## Follow-up!

1. Ask students 2-3 questions to re-cap the lesson (see right panel on previous page).

## Three Bird Count Scenarios

### Scenario # 1

Bird Study Unit: # of birds by species

Location: 3 different habitats

Duration: Monthly over the school year

Details: Students will formulate hypotheses about bird species that will be found at a wetland, meadow, and riparian area. They can also create hypotheses about which will have highest abundances or greatest diversity. Students will observe birds found in the three locations and record data in Student Journal sheets. After the count is complete, students will create graphs with their collected data and draw conclusions.

### Scenario # 2

Bird Study Unit: # of birds by species

Location: Bird Feeder

Duration: One week with three daily observations: morning, lunch, and end of school day

Details: Students will formulate hypotheses about when they think birds are most active and why. Students will observe birds at feeders and record data. After the count is complete, students will create graphs with their collected data and draw conclusions.

### Scenario # 3

Bird Study Unit: # of birds by species

Type of Count: Schoolyard

Duration: Weekly

Details: Discuss with students the difference between native and non-native species. Have students formulate hypotheses about whether they will find more or less non-native species as compared to native species in the schoolyard and why (non-native or native plants, landscape, feeders, etc). During the count, students will observe birds and identify non-native species. Students will create graphs with their collected data and draw conclusions. Ask students if they think non-native bird species are a problem for native bird species.

## Why Count Birds?

- \* Measures distribution and abundance of bird species over time.
- \* Helps detect bird population declines and endangered species.
- \* Supports protection of native birds.
- \* Facilitates management plans for local bird species.

Northern Flicker



Photo by Tom Grey

## Native vs. Non-Native

**“Native” means.....**

*Species originating in the area.*

**Non-native means....**

*Species introduced into the area after European contact.*

*Examples:*

*European Starling*

*House Sparrow*

*Ring-necked Pheasant*