

LESSON 5: BIRD BIODIVERSITY DATA COLLECTION (DAY 1)

OVERVIEW:

The purpose of this lesson is for students to begin collecting observations in order to answer their research question as part of their field investigation and to inform their action plan. The lesson begins with a review of how to identify birds with the students identifying four birds shown in a PowerPoint. In their groups, students discuss their data collection protocol before they head outside. Students go outside to collect their first set of bird biodiversity data. The reflection question for today focuses on whether students need to revise or refine their methodologies in order to collect appropriate data for their research question. The lesson concludes with a discussion of how well the data collection went and whether students think they need to revise their methods.

Ways of Knowing Urban Ecology:



Students will...

Understand

- Recognize the identifying characteristics of four common bird species. (*ecosystem state and structure*)

Talk

- Justify adaptations to data collection methods with observable field conditions.

Do

- Utilize identifying characteristics to identify common bird species.
- Conduct methodical observations of birds according to a protocol.
- Make judgments concerning and adaptations to data collection methods based on field conditions.
- Methodically record any adaptations to data collection methods.

Act

No specific goals connected with acting on urban ecology in this lesson.

SAFETY GUIDELINES:

While no specific safety hazards are associated with this lesson, there is always a safety concern when taking groups of students outside. Please consult the “Field Site Safety” information for specific information regarding safety in the field.

PREPARATION:

Time:

1 class period

Materials:

Activity 5.1

- PowerPoint slideshow of four common local bird species
- Computer with projector OR photocopies of PowerPoint slideshow for each student

Activity 5.2

- Binoculars
- Field guides
- Copies of data and field note sheets
- Clipboards or hard-backed books (to use as a writing surface)

- Pencils and pens

INSTRUCTIONAL SEQUENCE

Activity 5.1: Discussion about Bird Identification

1. Remind students that today they are going to begin collecting data for their field investigation. In order to practice students' identification skills before they go out in the field, project the PowerPoint slide with the 4 common bird species to your area. Have each student write down what they think the name of each species is as well as the bird characteristic they find most helpful to help them identify the species.

Teaching Alternative

This can also be completed as a Do Now or Warm Up activity as soon as students enter the classroom.

2. Have students share what they named the species as well as the characteristic they found most helpful.
3. Ask students which two species of the four birds are the most closely related and why.
 - The house finch and the house sparrow are the most closely related. They are both part of the order Passeriformes, which includes the songbirds. If you look at the shape of the house finch and house sparrow, you can see that they are similar. You may want to show students Cornell Urban Bird website, which groups common urban birds:
http://www.birds.cornell.edu/programs/urbanbirds/BirdGuide/ubs_UBPBirdGuideEN.html

Activity 5.2: Data Collection

Instructional Strategy

Set aside a pocket folder for each group and place them somewhere easily accessible in the room. Have your students place their data collection protocols, notes, and analysis sheets in this folder. Students do not take these folders home, and they remain in the classroom to ensure that an absent student does not prevent the rest of the group from completing data collection or analysis.

1. Before heading outside, have each group briefly review their protocol. You may also want to assign or have students assign different group roles (see Teaching Strategy box below).
2. Since this is the students' first day outside collecting biodiversity data, ask students to focus on:
 - 1) *Collecting data* according to the protocol.
 - 2) *Making changes to their data collection methods* based on field conditions. For example they may get outside and find a fence blocking the path of their transect or identify a better transect. They may also want to slightly modify their questions based on their observations. They should record any changes that they make on their data collection sheet under the reflection question which focuses on any changes or refinement of their research design.

3. Emphasize the importance of having students record location, day, time and conditions because these may be factors that affect results and could also serve as a measure of comparison, for instance if one class meets at two different times of the day. You may have students fill in this top section of the protocol in the classroom.
4. Ask students to predict what they will see in the field. Will they see many birds or few birds? Many species or only a few species of birds?
5. Have students go outside and collect their bird data.

Teaching Strategy

In order to keep all students engaged in the field study you might want to assign students in a group to different roles. You could then have students rotate through the different roles on different days out in the field. Examples of possible roles are:

Group Role	Number	Primary Responsibility
Recorder	1	Record all information (weather and bird survey data) on data sheet.
Bird Spotters	1 or 2	Use binoculars to spot birds.
Bird Identifiers	1 or 2	Use field guides to ID bird species.

Concluding the Lesson

1. After students have collected their data, bring them back inside to share some of their findings from their first day of collecting bird data.
2. Ask students if the identifying characteristics they listed at the beginning of class were helpful in identifying bird species in the field.
3. Ask students if any of the groups had changed their original procedure for their investigation. If they did, ask students to justify their changes with specific characteristics of field conditions.
 - o Students’ responses to this will vary depending on the field site and their experience completing field studies.
4. Ask students after one day of collecting data if their predictions were correct or not. Tell students they will be going outside two more times to collect more data before they will analyze their results.

Teaching Alternative

- You may want to have students read this article from June 15, 2007 in the Boston Globe that discusses the decrease in bird biodiversity in the Boston area - http://www.boston.com/news/nation/articles/2007/06/15/with_development_common_birds_are_losing_ground/