

## LESSON 4: IDENTIFYING BIRDS

### OVERVIEW:

*The purpose of this lesson is to familiarize students with taxonomy and basic birding skills, including using binoculars, navigating field guides and identifying birds. The lesson begins with a discussion of taxonomy and the importance of naming or identifying birds. The students are introduced to both the binoculars and field guides before they go outside to conduct a bird binocular race. During the binocular race, students use binoculars and field guides to identify pictures of birds on laminated cards. If time permits, students can practice their skills on a bird walk around the schoolyard. They will use these birding skills in the next lesson where they will collect their first set of data for the bird biodiversity investigation.*

### SUB-QUESTION:

How do we identify the birds at our field site?

### WAYS OF KNOWING URBAN ECOLOGY:



*Students will...*

#### Understand

- Recognize that living organisms can be classified into a hierarchy of groups and subgroups based on their physical characteristics and behaviors with species being the most fundamental unit of classification. (*ecosystem state and structure*)
- There are various sources of inputs and outputs associated with the carbon cycle. (*ecosystem change, forces and drivers, ecosystem state and structure*)
- Carbon moves throughout various carbon reservoirs on Earth. (*ecosystem change, ecosystem state and structure*)

#### Talk

*No specific goals connected with talking about urban ecology in this lesson.*

#### Do

- Use scientific equipment and resources, such as binoculars and field guides, to identify birds.

#### Act

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

### SAFETY GUIDELINES:

If you choose the outdoor option, please follow the guidelines for safety in the field.

### PREPARATION:

1. Decide where you are going to hang your birds at the site. Consider that you want all the students to be standing in one central location. This allows you to help the students with the identification and forces them to use their binoculars rather than walking up to the pictures. An area with shrubs or lots of low branches will make it easy to hang the pictures of birds.
2. Hang the bird pictures around the site. Make sure all the birds can be seen from a central location.

#### **Teaching Alternative: (Indoor version)**

If going outside is not possible, tape the bird pictures on the chalk board in the front of the room and have students work from their desks. You may have to move students from the front because of the short distances. Please note, while this version will work indoors, our field tests find students are more engaged when they conduct this activity outside.

**Time:**

1 class period

**Materials:**

- Collection of bird photographs common to your study site (laminated is ideal) with large numbers on them.
- Binoculars (at least 1 per pair of students)
- String, clothes pins or paper clips for hanging bird photographs
- Bird field guides
- Data sheets – Binocular Races
- Copies of Student Sheets

**INSTRUCTIONAL SEQUENCE****Activity 4.1: Discussion of identification and classification**

1. Remind students that in the previous class they had designed an investigation to examine the bird biodiversity at their field site. Before they can go outside and start their field study, they need to first learn how to identify birds. Ask students – What type of system do you think scientists have developed to identify organisms? Why have they developed that system?
  - Scientists have developed a hierarchical taxonomic system where organisms are categorized into different groups (kind of like how music is categorized into groups like jazz and R&B). Scientists use morphology (i.e. physical characteristics), behaviors and genetic information to determine the similarities and differences between organisms and classify them into groups. The most fundamental unit is the species, which is what we will be using to classify the birds.
  - Scientists created this system so that different people were all calling the same organism by the same name. This is important in determining how many species exist, where they exist, and whether their numbers are increasing or decreasing.

**Teaching Alternative**

- These discussion questions can also be used as an individual “Do Now” or warm up activity at the beginning of the class where students write down their ideas before they are discussed.
- You may also want to show this 6 minute and 29 second video clip created by Arizona State University called Planet Bob that uses humor to make a case for the importance of taxonomy. It illustrates the importance of naming organisms by showing what the world would be like if everything was named “Bob”. The clip can be found on youtube - <http://www.youtube.com/watch?v=mwuASmP7TfU> and <http://www.planetbob.asu.edu/>

**Activity 4.2: Field Skills - Binoculars**

1. Tell students that they will be going outside to conduct a binocular race where you have set up a series of pictures of birds that they will need to try and identify as quickly as possible. This will help them practice how to identify birds before they start their research investigation. Before they do the binocular races, you first want to review the binoculars and the field guides for the birds.

2. Pass out binoculars (before going outside) to students. You may also want to either pass out or project student sheet 4.2 that explains the parts of the binoculars with pictures.
3. Following the directions below, walk students through using binoculars. Explain the importance of using the neck strap to prevent damaging the binoculars. Also, tell the students to not rub the lenses with their fingers, because it scratches the lenses. Watch for students squinting (e.g., looking through the binoculars with one eye only).
  - Eyecups:
    - If you use binoculars with your glasses on, fold the soft rubber eyecups down so the end of the eyepiece is as flat as possible. When you are looking through binoculars, put the flat eyepiece right up against the lenses of your glasses. If you are not wearing glasses, leave the eyecups unfolded.
  - Hinge:
    - The distance between peoples' eyes varies so binoculars have a hinge in the middle. While looking through the binoculars, move them in and out until you have one big, clear, circular field of view. You should never see two circles.
  - Focusing:
    - Close your right eye and sight an object with your left eye. Focus the binocular by rotating the center focus wheel until the image is sharp and clear.
    - Open your right eye and close your left eye. Rotate the right eyepiece until the object sighted is sharp and clear. (Note the setting of the diopter scale for later use.)
    - Both sides (eyes) are now in focus and you will need to use only the center focus wheel to focus on other objects.

#### **Activity 4.3: Field Skills – Field Guides**

1. Discuss with the students how to be successful at identifying birds. They are not expected to know all of the birds, but they need to develop the skill of using a field guide. Ask the students to brainstorm a list of bird features that will be important to notice to identify birds correctly: color, beak shape, size, habitat, song, wing bars, etc. Tell the students to keep these in mind whenever they are identifying a bird.
2. Distribute the field guides and review the organization.
  - Note: each field guide is organized differently (by color, by category, etc.).
3. Distribute the binocular races data sheet. Tell students that the numbers correspond to a number that will be on each picture of each bird. They need to first write down what each bird looks like keeping in mind important features (e.g. color, beak shape, size). Then they will need to use the field guides to identify the birds. Have students work in pairs or small groups.
  - You may want to turn it into a race where you time how long it takes each group to fill in the sheet. The group with the most correct responses and shortest time will win.

#### **Activity 4.4: Binocular Races**

1. Head to the location where you hung out your bird pictures. Define a line which students must stand behind to identify the birds. This should be far enough away that they have to use their binoculars to see the birds.

2. Using binoculars, have pairs or small groups of students try to find and identify birds as quickly as they can and fill out their student activity sheet. They should be able to spot the bird with the binoculars and name it using a bird field guide.
3. Have the students write the bird's identification on their data sheet. You can have them write distinguishing field marks to help them identify the bird in the future.
4. Have them continue until they find most or all of the birds you have placed around the site. Be sure to let each student have a turn using the binoculars and field guide.

**Teaching Strategy**

Using a field guide for the first time can be difficult. Guiding questions can help student in keying on important features. Sample questions include: What color is the beak? What shape is the beak? Are there any marks or patterns on the wing?

**Optional Activity 4.5: Bird Survey**

1. If there is time, or if a group finishes the binocular races early have them practice identifying birds at the study site. This will also give your students an idea of what birds they can expect to see at their study site.
2. Students can use the student data sheet to record the birds and locations. Identifying birds while they're moving is obviously more difficult than on laminated cards.

**Concluding the Lesson**

1. When you return to the classroom, read off the correct species name for each bird and have the students determine how many species they correctly identified.
2. Discuss strategies that the students used to identify the birds. Were there particular characteristics that they found really helpful to identify the birds? How did they use the field guides? Were there strategies for finding the birds in the field guides?
3. Discuss challenges that they think might arise when they are trying to identify real birds at their field site. What do they think will be more challenging? Why? What other strategies can they use when they are real birds (e.g. song and behavior)?
4. After completing the binocular races, is there anything students want to change about their methods for their investigation? If yes, what do they want to change and how.

**Teaching Alternative**

- Another way to help familiarize yourself or your students with common urban birds is to use the Cornell Ornithology website - [http://www.birds.cornell.edu/programs/urbanbirds/BirdGuide/ubs\\_UBPBirdGuideEN.html](http://www.birds.cornell.edu/programs/urbanbirds/BirdGuide/ubs_UBPBirdGuideEN.html)
- The website includes pictures, descriptions, facts and birds songs for common urban birds. When you discuss the different birds at the end of class, if there is a particular species that is difficult for the students to identify you may want to project that bird and discuss its unique features.