



Community Science

Pollinators

Lesson 6: Binocular ID

Duration: 55-60 minutes

Location: Indoor/Outdoor

Overview

In this lesson students will understand how to properly handle and care for their binoculars and learn how birds are an important tree/forest species.

Learning objectives

By the end of the session, students will be able to:

- Make and record observations of animals living amongst the tree layers;
- Create hypotheses about the impacts (positive or negative) of identified animals on the trees;
- Use binoculars safely and effectively to sight animals far away;
- Understand appropriate behaviour when going out to observe animals.

Curriculum links

Grade: 6

Subject and Unit: Trees and Forests

- Describe kinds of plants and animals found living on, under and among trees; and identify how trees affect and are affected by those living things (extension activity)

Equipment required

- Binoculars
- Pencil
- Paper
- Portable writing surface
- 6 clips
- 6 bean bags
- Laminated pollinator images (optional)
- Clothespins



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Lesson plan

Time	Activity	Equipment Needed
3 minutes	<p>Display binoculars and discuss quality and respect. <i>(Binoculars are a high-quality piece of equipment that we are fortunate to use. These binoculars have been loaned to us by a group of citizen scientists.)</i></p> <p>What are binoculars used for? <i>(Binoculars are used to see items far away.)</i> Who uses binoculars? <i>(Many scientists, photographers, explorers and everyday people-citizens, like you and me, use binoculars).</i> - How should we treat them? <i>(We need to treat them with the same respect and care that we show our things and people here. This means we will not swing them around, drop them, hit them against things, etc.)</i></p> <p>Discuss lens care. <i>(Try to keep dry and clean. Do not use your fingers to wipe dirt and sand away, blow off debris and use a soft cloth to wipe the rest away.)</i> Discuss keeping the strap around the user's neck. <i>(Do not swing it around or hit it against other items. If you are not using the binoculars, they should be in their protective case.)</i> Respect the tool and be its' caretakers.</p>	<ul style="list-style-type: none">• Binoculars
3 minutes	<p>Discuss parts of binocular: eye piece, magnifying lens, width adjustment, focus wheel, neck strap. <i>(Use image provided to help children identify different parts.)</i></p>	<ul style="list-style-type: none">• Binocular diagram
2 minutes	<p>Demonstrate using binoculars.</p> <ul style="list-style-type: none">• Find the object you want to see with your naked eye.• Then bring the binoculars up to your eyes.• Do you see black? Adjust the binocular width to your eyes until you see one circle and then use the focus wheel until you see the object clearly.	<ul style="list-style-type: none">• Binoculars



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10 minutes	<p>Indoor Binocular Activity</p> <ul style="list-style-type: none">• Situate the students at the far end of your classroom or hallway. Students should be placed in teams of two. Pass out binoculars, one per group.• Explain that teams need to practice wearing binoculars around their necks; adjusting them for their eye width and focusing using the focus wheel. After five minutes of practice, place typed Transition Instructions on the far side of the room/hallway, have students use their binoculars to focus, read and follow the instructions. <p style="text-align: center;">Transition Instructions</p> <ol style="list-style-type: none">1. Read these instructions SILENTLY to yourself.2. When you have finished reading the instructions, pass the binoculars to your partner if they have not read them.3. With your partner, go get a piece of unused paper, a pencil, and something solid to write on (a clipboard or a book).4. Sit together and wait silently for further instructions.	<ul style="list-style-type: none">• Binoculars• Pencil• Paper• Portable writing surface• Transition Instructions
30 minutes	<p>Schoolyard/Gymnasium Binocular Activity</p> <ul style="list-style-type: none">• Explain activity. Challenge students to utilize the binoculars to identify and record 3 animals living amongst the tree layers on your schoolyard (under or within). Each team will move from place-to-place (<i>point out locations where you have placed the viewing locations</i>), stand behind the line (<i>bean bag you have placed to mark the viewing locations</i>), use their binoculars to observe animals within the tree layers, record observations, then go to the next place, etc.	<ul style="list-style-type: none">• 6 bean bags• Pencil• Paper• Portable writing surface• Binoculars• Laminate pollinator



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	<p>To ensure that students find animals you may want to utilize the laminated pollinator images and place them strategically in and around the schoolyard trees prior to the lesson. To ensure other students do not touch or move them, placing a sign out may be advisable. If you do place laminated images, instruct students beforehand to stay a minimum of 5m away from the image to ID with the binoculars.</p> <p>When students have made some observations at their viewing location, ask the students to hypothesize how these animals benefit or harm the tree they were found in/near.</p> <p>Encourage the students to record information about the animals they see (do they know the species? What colour was it or patterns did it have? Size? etc.) When they have reached all 6 viewing locations and created 6 potential hypotheses, they will report to the teacher.</p>	<p>images (optional)</p> <ul style="list-style-type: none">• Clothespins
10 minutes	<p>Debrief by reviewing as a group the observations and hypotheses made for the different viewing locations.</p> <p>Explain to students that this is what scientists do: they observe nature, make observations (collect data) to make hypotheses then test them! One extremely important element to collecting data is recording our observations correctly. In science we have to be 100% sure of the species and the number of animals we are documenting. Scientists cannot guess and assume what animal they saw - the same is true for citizen scientists! Citizen scientists need to be 100% sure of the species of animal they are logging into their citizen science application, or else the data given to scientists may not be true! So, once way we can prevent this is taking photos or looking at our recorded</p>	



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	observations/notes to make sure we are properly identifying the species we are submitting to citizen science.	
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Extension

1. Prior to going outside, have the group brainstorm a list of appropriate field behaviours that will guide the group's actions outside. *(No running because this can scare off animals. Fast movements are not helpful because they can scare off animals. Whisper voices are best to not disturb animals nearby. Creating a signal to freeze without shouting will reduce the likelihood that animals you see will run away before everyone has a chance to see them... etc.)*
Have students make a commitment to abide by the guidelines and post it in the classroom as a reminder.