

Eco-Tours Part Two: Making Comparisons

Students continue a comparison of two ecosystems as they “visit” a non-bog ecosystem

What makes a cranberry bog an ecosystem?

Lesson Overview

This lesson is a guided comparison between a cranberry bog and a local site. It extends students’ understanding of the cranberry bog, and prompts them to appreciate it as an example of an ecosystem. It also provides an opportunity to extend your existing curriculum’s lessons about organisms, habitats, and/or ecosystems.

Whether students live in cranberry growing regions or nowhere near bogs, they may be able to make better sense of the bog study by comparing it to a familiar part of their environment. Therefore, just as “Welcome to the Bog” asked students to make careful observations of a bog ecosystem, this lesson invites students to look thoughtfully at their own surroundings in order to compare and contrast the cranberry bog with their local ecosystem.

In “Welcome to the Bog,” the computer screen provided a frame around images of the bog, providing a focal point for student attention. Similarly, in this lesson, students view their real environment through cardboard frames—thereby zooming in on one particular “image,” a focal point within the larger site. They then use many of the same questions from “Welcome to the Bog” to understand their own ecosystem before completing a Venn diagram¹ about both sites.

Students also record their own free-form notes in a paper journal.

Background

An ecosystem is a complex of both living and nonliving things, as well as the interactions among them. Each interaction may impact the rest of the system. For example, a decomposer changes the soil when it digests the remains of an

organism. In turn, this change impacts the surrounding plants. Examining a site from an ecosystems point of view can deepen our appreciation of it. We might not only see a tree, but also recognize its connections to its surroundings.

The cranberry bog system is more than just a bog. It is a particular wetland ecosystem which includes fields, forests, streams, ponds, and several species of animals, plants, and insects. In the activity, "Welcome to the Bog," students found and categorized both living and nonliving things. The actual system within which their school is located will present both commonalities with, and differences from, the bog. By comparing and contrasting both sites, students can achieve a greater understanding of ecosystems as a whole and these unique systems in particular.

Materials

Cardboard or heavy paper for frames/ one frame per student pair
(Note: The frame size is not terribly important; it might be a rectangle cut from an index card or from an 8.5" x 11" piece of cardstock. However, if your students will examine their site through a window, it may be useful to use a larger frame and tape it on the window.)

Masking tape (optional for taping frames to window)

Paper

Clipboards (one per student pair)

Pencils

Chart paper or whiteboard

Cranberry Questions Chart

Exploring Cranberries Web Resources

Web image resources from "Welcome to the Bog"

Making Comparisons: Student Worksheets: In the Field, Back in the Classroom
(printed, 1 per student pair)

Compare What You See: Venn Diagram

Preparation

1. Set up computers so students can access the resources.
2. Prepare the frames by cutting a rectangular section from a piece of cardboard or heavy paper, leaving a 2 -inch frame.
3. Prepare handouts and journal pages as listed in Materials.
4. This lesson calls for students to go outside to make observations. Arrange for access to a suitable site. However, if going outside isn't possible, make arrangements as needed so students can look out a window.

Lesson

1. Let students know that in this lesson, they will make comparisons between a cranberry bog and some part of their environment with which they are more familiar (specify it now).
2. Engage students in a discussion reviewing the images presented in, "Welcome to the Bog." Ask students to recall specifics of one image that stood out as particularly interesting. Record students' responses on chart paper or board.
3. Return to the section, "Welcome to the Bog", or distribute printed images.
4. Give students 5-7 minutes to review the images. Invite students to add new thoughts to the class chart.
5. Have student pairs select one bog image that they will use for their comparative study.
6. Distribute cardboard frames and paper on clipboards to student pairs and explain how they will be used.
 - a. Students will look through the frames at their familiar site, making observations of only the part of the site they can see in the frame. Note: A large frame (8.5" x 11" sheet, for example) should be positioned at least arm's length from students, whereas a smaller one (3" x 5" index card, for example) can be held closer.

- b. The blank paper and clip boards are for recording their own observations and sketches. (Later, students will also receive an observation sheet with questions on it.)
7. Take students to the viewing site. Ask each group to use their frame to capture and focus in on one spot.
 8. Give students 7-10 minutes to make their own, free form written observations and sketches of the site, as seen through their frame.
 9. Distribute Student Worksheet: Making Comparisons, Part 1. Provide a few minutes for students to complete the worksheet, reminding them to continue to focus on what they see inside the frame.

Making Comparisons Group _____

Part 1: In the Field
Looking at the Whole

1. Summarize what you saw when you looked at your frame.

2. If you have not done so already, make a quick sketch of what you see on blank paper.
3. Create a caption for your sketch. _____

Looking at the Parts

4. What do you see through the frame that is living? List at least 5 living things.

5. What nonliving things do you see? List at least 5 nonliving things.

6. You know what season it is, but what do you see in your "framed image" that is evidence for the season?

10. Return to the classroom. Have students complete Making Comparisons, Part 2

Making Comparisons	Group _____
<p>Part 2: Back in the Classroom</p> <p><u>Looking at the Whole</u></p> <p>1. Examine the sketch you made and compare it to the notes you took later. What details in your notes are missing in your sketch?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p><u>Looking at the Parts</u></p> <p>2. Sort the living things into categories and give each category a name.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>3. Sort the nonliving things into categories and give each category a name.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>4. Do you need to revise your caption from Part 1 now that you have taken a closer look?</p> <p>_____</p>	

11. Have students use all their notes and sketches to complete the Venn diagram
12. Discuss student insights from this experience. Some *sample* discussion points follow; choose or replace as appropriate for your classroom:
- a. Have student groups share some of the similarities they note between the bog and the familiar site. Did different groups note different comparisons? How can we account for these differences? What new understandings do students have about the bog as a result of the lesson? Do these insights help to answer any of the questions on the

Cranberry Questions Chart in the classroom? What new questions do they have about the bog? Add these to the Cranberry Questions Chart.

b. Consider both sites as ecosystems

- i. How is a bog an ecosystem? How is the familiar site?
- ii. One of the things we know about ecosystems is that the parts interact with each other. What interactions do students see or infer among the parts of the bog? (*Predator/prey, producer/consumer/decomposer, water/plants and animals, sun and plants, soil and plants, decomposers/soil*) What interactions do they see or infer among the parts of their site?