

Lesson 11

Water Ecotones

What is an ecotone? Why is it important?
What can negatively affect an ecotone?
What can positively affect an ecotone?

GOAL To understand that a healthy ecotone has more diversity than an ecosystem, itself.

OBJECTIVES Students will:

- ✓ examine the plants and animals of two ecosystems
- ✓ study an ecotone (two ecosystems overlapping)
- ✓ determine whether the ecotone has more or less diversity.

MATERIALS Ecotone study sheet, pencils, clipboards, magnifying lenses (optional)

CORE CURRICULUM CONTENT STANDARDS

- Language Arts 2(2)
- Science 1(1,2), 3(2-4), 5(3), 6(4), 8(2- 4)
- Social Studies 9(1,3,4), 10(1-4), 12(5)

VOCABULARY ecosystem, ecotone, diversity, hypothesis, hypothesize

PROCEDURES

1. Explain to students that they will be investigating an ecotone. An ecotone is an area where two ecosystems meet and interact. It encompasses all organisms as well as inorganic (non-living) substances such as water, rocks, etc. The area of overlapping ecosystems tends to be more complex and diverse than the ecosystem, itself. Animals common to both ecosystems are brought together. Even though they may not be seen, there are clues such as tracks, dropping and feathers to indicate the animals' presence.
2. Have the students formulate a hypothesis based on the information provided. For example, the hypothesis might be that the ecotone will have more diversity than the ecosystem, itself.
3. Decide on a site. The riparian area on the edge of a forest or two mini ecosystems on the school grounds are examples of sites for students to examine.
4. Have students work in two groups. Have one group study a ten foot area in one ecosystem and the other group will examine the other ecosystem (ten feet). Have students list different plants and animals (or evidence of) they observe and tally what they find. Have them include rocks and other non-living items found.
5. Ask students to discuss differences and similarities of the different ecosystems.
6. Next ask them to examine and study the overlap of the two ecosystems. Have them list the plants, animals and non-living items they observe and any indirect evidence of animals there.
7. Have students compare the diversity of plants and animals they find in the ecotone and compare to the diversity they identified in the two separate ecosystems.
8. Have students interpret their findings. Instruct them to confirm or deny hypothesis and present findings.

EXTENSIONS

1. Have students identify additional ecotones and explore the habitats.
2. Have students identify wildlife that travels through different ecotones. Instruct students to write a story about the animal and its experiences.

RESOURCES

Samples, Bob, *Project Wild Aquatic Education Activity Guide*, 1992, Council for Environmental Education, Gaithersburg, MD 20878.

GLOSSARY

diversity - variety or multiformity

ecosystem - an ecological community together with its environment, functioning as a unit

ecotone - a transitional zone between two communities containing the characteristic species of each

hypothesis - a tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation

hypothesize - to believe especially on uncertain or tentative grounds

Ecosystem/ECOTONE Study Sheet

1. Describe your surroundings.
2. Is there any running water (stream, river) or standing water (pond, lake, wetland) in your ecosystem?
3. What type of plant life exists in your ecosystem? Are there trees? Are they coniferous or deciduous? Are they large, grow together, or by itself? Describe and try to identify plant life in your ecosystem.
4. Do you see or hear of any signs of wildlife, or any other animals?
5. Are there any other organisms or evidence of (insects)?
6. How does the ecosystem # 2 compare to ecosystem #1?
7. Repeat questions # 1 – 6, for ecotone (edge of two ecosystems) and compare results.