

Ecosystem Lesson Plan Food Chain/Food Web

Keywords: ecosystem, dependence, living things, nonliving things

Grade Level: 3rd/4th

Setting: Classroom

Subjects Covered: Science

Goals:

Students will be capable of describing an ecosystem.

Students will create a simple food chain.

Students will create a food web.

Materials:

Ecosystems document (from Environment & Ecology Series) – 1 per student or pair of students

Index cards

Whiteboard or chalkboard

Dry erase markers or chalk

Pencils – 1 per student

Old magazines/scissors/glue or drawing paper/magic markers/colored pencils/crayons, etc.

State Standards Addressed: E & E Standards: 4.6.4.A

Preparation:

1. Read through entire lesson and *Ecosystem* document to ensure understanding of the material and activities.
You may want to explore the internet sites to develop a further understanding of food chains and food webs.
2. Have all materials before beginning lesson. Write the following on individual index cards for the Food Web activity. *sun, tree/acorn, insect, opossum, bird, mouse, raccoon, snake, weasel, skunk, owl, hawk, and fox*

Lesson Steps:

1. Introduce the lesson. ***“Today we will learn about ecosystems. Can anyone define an ecosystem?, etc.”***
Accept responses to develop an initial interest or connection.
2. Distribute *Ecosystems* document to each student or pair of students. Direct students to look at picture on the cover. As a class, brainstorm any connections between the cover picture and ecosystems.

*possible discussion may include: *two children are observing the area around a pond
*two children are using binoculars to observe
*it appears the children are looking at something in the weeds/grass
the word “system” means “working together”

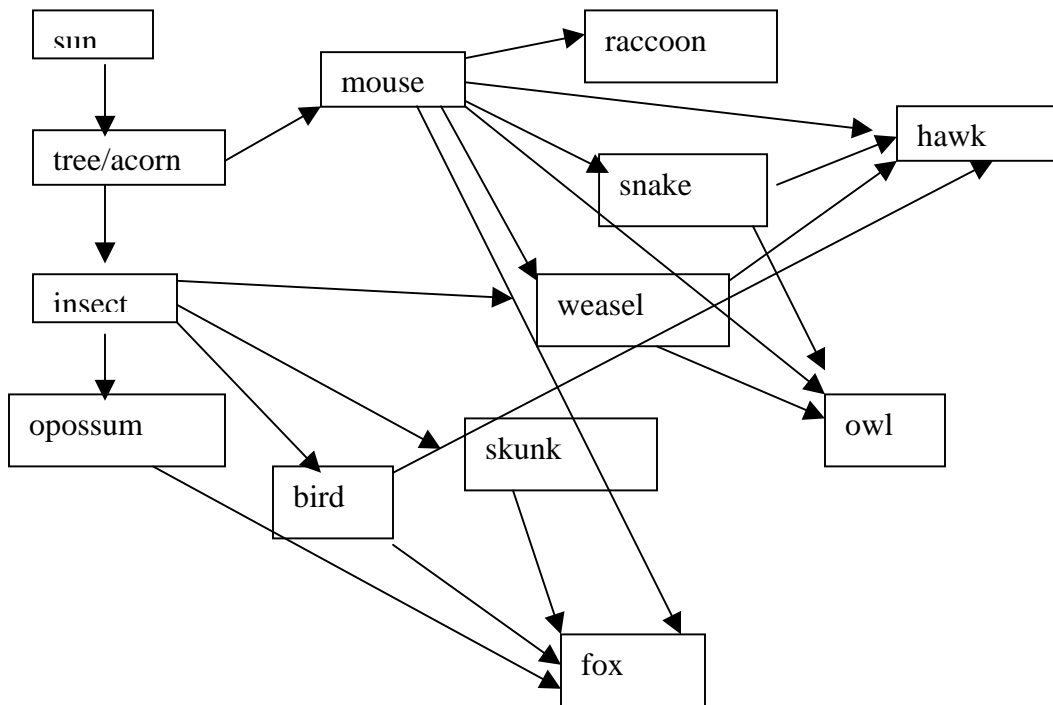
3. Ask for student volunteers to read aloud, or have students silently read sections of document. Discuss to attain an understanding of an ecosystem (*place where living and nonliving things live and depend upon each other for survival*). Use illustrations and pictures to enhance understanding.

4. After reading and discussing the document, write the word “Food Chain” on the whiteboard. *Food Chains reflect the living part of an ecosystem, and diagram a transfer of energy as living things eat each other. Food Chains are a single path of energy.* Use the example in the document, and draw the following chain on the board.

sun ⇒ tree leaves ⇒ caterpillar ⇒ bird ⇒ snake ⇒ raccoon

5. Once an understanding has been developed, challenge small groups of students to create a simple food chain for a pond, forest, desert, savannah, or arctic region. Groups can write food chain plants/animals on index cards and share with the class when finished. Index cards can be taped to the board and connected with arrows drawn with dry erase markers.

6. *Food Webs illustrate how many animals and plants are interconnected to help them survive in an ecosystem.* Using the index cards with names of plants and animals that were prepared in advance, tape them in various places on your whiteboard. Challenge students to draw arrows connecting living things which eat each other. **The arrow should start at an animal and point to the item that it is being eaten by. The arrow traces the flow of energy.** Students will be amazed at the amount of arrows that can be drawn.



7. After discussion, have students close their eyes as you say aloud the names in a food chain. Ask them to visualize the food chain taking place. As they are thinking about the food chain, ask them to picture **where** the food chain is taking place. For example, “Imagine taking a walk through the woods in Pennsylvania. Imagine the sun shining down on an oak tree. Picture the leaves of the tree (growing from the forest soil) soaking up the sunshine to make food and create acorns. Along comes a hungry caterpillar and eats some of the tree’s leaves. The caterpillar slowly crawls away from the tree (over rocks/soil), only to be gobbled up by a hungry weasel. Later that night, as the weasel takes a drink from a nearby creek (water), an owl swoops down for a midnight snack.”

8. Make a list on the board of all the non-living things that made the food chain possible. The list could include: sunlight, water, rocks, soil, and air.
9. Challenge the students to create an ecosystem of their choice. The ecosystem could be drawn, or students could use old magazine pictures to create a collage. The ecosystem should include at least four non-living things and five living things that depend on each other for survival in their ecosystem. Students should label each of the living and non-living things. Assess this ecosystem for overall understanding of the lesson.

Resource: *Ecosystems* (a flier in the *Environment & Ecology Series*)

This flier is available free-of-charge; however there is a \$5 shipping and handling charge for all bulk orders (> 2 in quantity). Thus, a teacher can order 25 for his/her class and only pay \$5, or 50 for two classes, and still pay only \$5. Other fliers in the *Environment & Ecology Series* can be ordered at the same time and they will also be included under the \$5 shipping and handling charge.

Available Through:

The Publication Distribution Center
College of Ag Sciences
The Pennsylvania State University
112 Agricultural Administration Building
University Park, PA 16802

Orders can also be made by calling (toll-free) The Publication Distribution Center at: 1-877-345-0691 (must use a credit card for shipping charge)

Internet Sites: <http://sftrc.cas.psu.edu>
www.sciencebob.com/lab/q-web-chain.html
www.planetpals.com/foodchain.html
www.pbs.org/edens/etosha/fm_foodchain.htm

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