

## **Environmental Conditions: Friend or Foe**

by

Patti Brockman and Joan Tinnell, Taylor County Elementary, Taylor Co., KY

**Overview:** In this unit of study you will learn how organisms are classified and how their needs are met through their environment. You will use this information to examine how plants and animals are interdependent and how environmental changes affect them.

### **Academic Expectations:**

- 2.1 Scientific ways of thinking and working
- 2.2 Students identify, compare, and contrast patterns and use them to understand/interpret past and present events and predict future events.
- 2.3 Students identify and describe systems, subsystems and components and their interactions by completing tasks and/or creating products.
- 2.4 Students use models and scale to explain or predict the organization, function, and behavior of objects, materials, and living things in their environment.
- 2.5 Students understand the tendency of nature to remain constant or move toward a steady state in closed systems.
- 2.6 Students complete tasks and/or develop products that identify, describe, and direct evolutionary change that has occurred or is occurring around them.

### **Core Content:**

SC-E-3.1.1 Things in the environment are classified as living, nonliving, and once living. Living things differ from nonliving things. Organisms are classified into groups by using various characteristics.

SC-E-3.1.2 Organisms have basic needs. Organisms can survive only in environments in which their needs can be met.

SC-E-3.2.1 Plants and animals have life cycles.

SC-E-3.3.1 Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.

SC-E-3.3.2 Distinct environments support the lives of different types of organisms. When the environment changes, some plants and animals survive and other die or move to new locations.

SC-E-3.3.3 All organisms cause changes in the environment where they live. Some of these changes are detrimental to the organism or to other organisms; other changes are beneficial.

### **Program of Studies:**

- Organisms' pattern of behavior is related to environments.

- All animals depend on plants
- Organisms change the environment

**Essential Content:**

- Organisms' patterns of behavior are related to environments
- All animals depend on plants
- Organisms change the environment
- Organisms have life cycles

**Organizer:**

Changes in the environment may be detrimental or beneficial to organisms, therefore affecting human survival on earth.

**Essential Questions:**

How are organisms classified?

How are organisms' basic needs met through their environment?

How are plants and animals dependent upon each other?

How do environmental changes affect organisms?

**Culminating Project:** In small groups, students will create a poster, chart, rap, PowerPoint, or brochure demonstrating how organisms are interdependent and how environmental changes affect them based on what they have learned. Students will present their finished products to the class.

**Enabling Skills and Processes:**

- Language skills (e.g. use of descriptive and figurative language, word usage, spelling, writing, reading)
- Communication skills (e.g. public speaking, listening)
- Cooperation skills
- Use of technology
- Basic art skills
- Mathematic skills
- Research skills

## **Instructional Plan 1**

**Title:** What's in your schoolyard?

**Number of Days:** 3

**Essential Question:**

How are organisms classified?

### **Activity 1**

**Materials:**

- Insect nets (made from pantyhose and clothes hangers)
- Egg cartons (for collecting items)
- Hand lens
- Collection jars
- Plant and animal field guides
- Garden trowel

Divide the class into small group for an outdoor investigation. Instruct students to plot a 1-foot square of land in their schoolyard environment. Using the given materials, they will collect samples of organisms found within the marked area. Take samples back to the classroom and allow students to determine the criteria for classifying their finding. Share results with whole class. The teacher will introduce scientific means/vocabulary for classification. Students will regroup their organisms according to given scientific classifications. Share results with whole class.

### **Activity 2:**

**Materials:**

- 2-liter bottle
- Sand
- Aquatic plants (elodea)
- Gravel
- Scissors
- Ruler
- Water
- Fish (1 small guppy or goldfish per student)
- Fish food
- Paper
- Writing utensils

**Vocabulary:**

1. Ecosystem- an ecological community together with its environment, functioning as a unit
2. Biotic- the living parts of an ecosystem
3. Abiotic- the non-living parts of the ecosystem

**Procedure:**

Refer to Ecosystems- Lesson Plan # AELP-ECL0200

<http://ericir.syr.edu/Virtual/Lessons/Science/Ecology/ECL0200.html>

**Description:** Students will become familiar with the terms ecosystem, biotic, and abiotic. They will understand what an ecosystem is and the role of abiotic and biotic factors. Students will create an ecosystem using designated materials.

**Instructional Plan 2**

**Title:** Beautiful Basics

**Number of Days:** 3-4

**Essential Question:** How are organisms' basic needs met through their environment?

**Procedure:**

1. Make a 3 column chart labeled People, Pets, and Wildlife.
2. Ask: "What do people need in order to be able to live?" Record responses and complete the same with pets and wildlife.
3. After the chart is complete, ask the students to cluster ideas together into larger themes. Help the students to establish the essential survival needs for people, pets and wildlife.

Project Wild (2001). Council for environmental education.

4. Instruct students to research an organism of their choice and describe, using words and pictures, how it meets its basic needs.

### **Instructional Plan 3**

**Title:** Food Web

**Number of Days:** 2

**Essential Question:** How are plants and animals dependent upon each other?

**Activity 1:**

**Materials:** Fish journal page  
Food web worksheet  
Note cards  
Glue  
Sand/glitter

**Procedure:** Refer to Ask ERIC lesson Plan #: AELP-ECL0096

Description: Students will learn the basics of food chains and food webs through various ways such as whole class activities, journaling, oral discussions, and small group activities.

### **Instructional Plan 4**

**Title:** Positive or Negative

**Number of Days:** 2 Days

**Essential Question:** How do environmental changes affect organisms?

**Activity 1:** “Oh Deer!”

**Procedure:** Refer to AskERIC lesson plan #:AELP-ECL 0043

**Description:** This game in environmental education is necessary to show children the interdependence of animal life with their environment recognizing that some fluctuations in wildlife populations are natural as ecological systems undergo a constant change.

## Activity 2: Habitat Lap Sit

### Procedure:

1. Have the students form a circle, standing shoulder to shoulder. Ask them to name the components of habitat, with the first student saying food, the next saying water, the third saying shelter, and the fourth saying space. Continue around the circle until each student has called out a habitat component.
2. Ask the students to turn toward their right, at the same time taking one step toward the center of the circle. They should be standing close together, with each student looking at the back of the head of the student in front of him or her.
3. Ask everyone to listen carefully. Students should place their hands on the shoulders of the person in front of them. At the count of three, ask the students to sit down slowly on the knees of the person behind them, keeping their own knees together to support the person in front of them. As the students are sitting say, "Food, water shelter and space in the proper arrangement are needed to have a suitable habitat." The term "proper arrangement: is represented by the student's intact, lap-sit circle.
4. The students at this point may either fall or sit down. Discuss with the students the necessary components of suitable habitats.
5. After the students have a better understanding that food, water, shelter, and space are necessary for any animal's survival, and that the appropriate arrangement comprises a suitable habitat, let the students try the activity again. This time ask them to hold their lap-sit posture. Tell the students, "It is a drought year. The water supply is reduced by the drought conditions." At this point, have the student who was identified as "water", remove himself from the lap-sit circle. Other ways that educators can illustrate varying conditions could be to remove a student from the circle because of pollution of water supply, urban development that is limiting the availability of all habitat components, soil erosion affecting food and water supplies, and so on.
6. Ask the students to discuss what this activity means to them. Ask them to summarize the main things they have learned. They could include the following:
  - Food, water, shelter, and space, in appropriate arrangement, can be called a habitat.
  - Humans and other animals depend on habitat.
  - Loss of any elements of habitat influences the animals living there.
  - The components of habitat must be in an arrangement that meets the needs of the individual animals or populations of animals in order for the animals to survive.

Project Wild (2001). Council for environmental education.

