

**TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT**

A MOBILE ANIMAL

Grade Level: 9-12

Time Required: Minimum of one week

SC Science Standards

This lesson plan was correlated with only the grade level specified unless otherwise noted.

*Note: This activity is best fit to the standards for 7th and 8th grades.

Grade 7:

- I. A. 1. a
- I. A. 1. b. 1
- I. A. 1. d. 1
- I. A. 3. a
- I. A. 7. a
- II. B. 1. a, b
- II. D. 2. b, c

Grade 8:

- I. A. 1. a
- I. A. 1. b. 1
- I. A. 1. d. 1
- I. A. 3. a
- I. A. 7. a
- II. A. 2. a

Purpose

Students will research an animal that is familiar to their area. They will acquire information about the animal through observation and personal research. Students will achieve an encompassing view of this animal in its ecosystem. This activity will serve as a culmination of study related to various ecological concepts and builds on activities found in Project Wild. (“My Kingdom For A Shelter,” “Urban Nature Search,” “Carrying Capacity,” “Shrinking Habitat”)

Skills

Application, classification, decision making, description, observation, research.

Concepts

Taxonomic classification of wildlife, determination of biological niche, habitat as a requirement for wildlife, predator/prey relationships, limitations of carrying capacity, energy transfer in food web, ecological pyramids of energy transfer.

Materials Needed

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| <u>Project Wild</u> Text | Colored Pencils |
| Paper | Hanger |
| Poster Board | Pen |
| Yarn | Construction Paper |
| Research Sources | Hole Punchers |
| Scissors | Binoculars (optional) |
| Magic Markers | Camera (optional) |
| Student Journals | |

Definition of Terms

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| <u>Animal</u> | A living organism able to move of its own accord. |
| <u>Biological Niche</u> | Ecological role played by organism. |
| <u>Carrying Capacity</u> | The number of animals of a given species that the environment of an area can support during the least favorable period of the year. |
| <u>Ecology</u> | Study of the interrelations between living organisms and their environment. |
| <u>Ecosystem</u> | A community of life in an environment. |
| <u>Energy Pyramid</u> | Passage of energy from one trophic level to another. |
| <u>Environment</u> | Sum of all external conditions and influences that affect the development and ultimately, the survival of an organism. |
| <u>Food Chain</u> | Transfer of food energy from organisms in one trophic level to those in another. |
| <u>Food Web</u> | Complex and interlocking series of food chains. |

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| <u>Habitat</u> | The locality where an animal or plant normally lives and grows. |
| <u>Limiting Factors</u> | Influences in the life history of any animal which restrict growth and reproduction. |
| <u>Predator</u> | An animal that kills and eats other animals. |
| <u>Prey</u> | Animals that are killed and eaten by other animals. |

Before the Session

Prepare a diagram with instructions for construction of the “mobile.” Have available a previously prepared mobile. Insure that materials are on hand for the mobile construction and research sources are available.

Background Information

Carolus Linnaeus was the first person to organize organisms into a comprehensive hierarchy. The main categories used today are: kingdom, phylum, class, order, family, genus and species. Scientist use these scientific classifications in order to know when they are talking about a specific species and to denote similarities in organisms through the use of similar Latin terms. Common names are not used because they are often misleading and confusing. Often, several organisms will be known by the same common name. Thus, scientific classification promotes clarity of the animal being discussed.

All animals exist in a specific habitat that is conducive for their survival. Yet, it is possible for the animal to reach the carrying capacity of their habitat. Thus, predation, competition and climate will influence where the animal will find the resources to succeed. As a result of the animal’s specific needs and the competition present in its ecosystem, each animal must establish its own biological niche whereby it interacts with its environment.

Another obvious concern for an animal is a continuing food supply. Therefore, each animal acts as a predator at some point and then, serves as prey for yet another animal. This food chain reaction intermingles with a variety of organisms in the ecosystem and results in a food web. As the food web graduates up and energy is transferred, energy is lost at each step of the food web.

Through study, research and observation, students should correlate all of these ecological concepts to the specific animal they are evaluating. The final goal of this activity is to cause students to become more aware of the interrelationships of many life forms and each one’s relevance to the other.

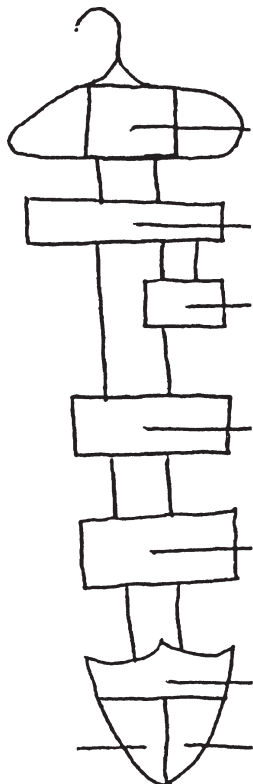
Suggested Lesson Plan

Activity 1

1. Students will choose an animal that is familiar to their area (ex. squirrels, a species of bird, chipmunks, deer) and observe the animal for two hours. During the observation time, the student will keep a journal, logging in any and all observations about the animal's activities (ex. what it eats, how it moves, what alarms the animal, reactions when alarmed, interactions with other animals of the same and different species), that can be used as a reference for the remaining parts of the activity.
2. Students will need access to resource material in order to complete the following: map of the range of the animal, the taxonomic classification for the animal, the animal's common name, a photo or drawing of the animal's habitat, ten statements that describe specific characteristics of the animal and the ways which it is beneficial and detrimental.

Activity 2

1. Students will construct a "mobile" that is based on data recorded by the student in their journals, and through research.



- a. Within the hanger, a map of the range of the animal will be illustrated.
- b. The first level will identify the scientific name of the animal.
- c. The second level will be hung to the side and indicate the animal's common name. (This is done to denote the fact that the common name is less specific than the scientific name.)
- d. The third level will be a photo or drawing of the habitat in which the animal was sighted.
- e. The fourth level will consist of ten statements based on observations and/or research about the animal.
- f. The fifth level will be presented as a coat-of-arms. The top one-third of the coat-of-arms will be a photo or drawing of the animal. The bottom two-thirds of the coat-of-arms will be divided in half with one side noting beneficial or good qualities and characteristics about the animal while the other side denotes the detrimental or bad qualities and characteristics about the animal. These benefits and detriments will come as a result of the student's evaluation of the animal.

2. All of these levels will be suspended from the hanger by yarn inserted through holes punched into each level.
3. The levels should hang in consecutive order.

Activity 3

1. The student will write an essay from the perspective of the animal. Again this material will result from the student's journal and research. The following topics should be included:
 - a. A description of the observation period.
 - b. Where the "local" food source is found.
 - c. How its "home" is made.
 - d. A description of the animal and its mate.
 - e. Its biological niche.
 - f. Its position in the food web.
 - g. Any predator/prey relationships.
 - h. Limitations of the carrying capacity.
 - i. Its position in a pyramid of energy transfer.
 - j. Any other pertinent data about the animal and its ecosystem.

Extension

1. Students can construct a slide presentation accompanied by narration which illustrates data about the animal and its ecosystem.
2. Students can write and illustrate a book about the animal for an elementary classroom.

Any activity such as an oral report or presentation of the data collected to another class or group would serve to reenforce the identification and knowledge gained from the study of the specific animal.

Resources Available

Biology: A Journey Into Life. 1988. K. Arms and P. S. Camp. Saunders College Publishing, Philadelphia.

Elements of Ecology. 1992. R. L. Smith. Harper Collins Publishers, Inc., New York.

Environmental Science: A Framework for Decision Making. 1989. D. D. Chiras. Addison-Wesley Publishing Company, New York.

Project Wild. 1992. Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council, Inc., Bethesda, M. D.

Wildlife Reference Books

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