



*Science

The Circle of Life

Every living thing experiences a lifecycle and is part of a food chain/web. Noah knew this, recognizing that each animal was distinct, and an essential component of an interconnected ecosystem. It was necessary to have all animals join Noah in order to continue a balance in the circle of life, a balance of a food chain and web.

Kentucky Science Standards

Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6) Grades 4-6

Animal Families & Classification

Academic Expectations:

2.3 Students identify and analyze systems and the ways their components work together or affect each other.

2.4 Students use the concept of scale and scientific models to explain the organization and functioning of living and nonliving things and predict other characteristics that might be observed.

2.5 Students understand that under certain conditions nature tends to remain the same or move toward a balance.

Ohio Science Standards: Life Sciences

Animal Families & Classification

Benchmarks Grades 4-5

A. Differentiate between the life cycles of different plants and animals.

B. Analyze plant and animal structures and functions needed for survival and describe the flow of energy through a system that all organisms use to survive.

C. Compare changes in an organism's ecosystem/habitat that affects its survival.

Grade 6

B. Describe the characteristics of an organism in terms of a combination of inherited traits and recognize reproduction as characteristic of living organisms essential to the continuation of the species.

Objective:

Students will:

- Create an authentic presentation of the lifecycle of a selected animal that also includes the animal's role in the transfer of energy.

Assessment:

Students will be able to:

- Demonstrate understanding of the stages in the lifecycle of a selected animal.
- Demonstrate understanding of the animal's role in a common food web/chain, and how it impacts the transfer of energy.

Sample selected response items to gauge student understanding:

1. Complete this sentence. Animal decomposers_____.

Answer: Feed and breakdown dead organisms returning organic substances back to the environment; recyclers.

2. "Producers" are important in the transfer of energy in an ecosystem. Explain how this occurs.

Answer: Producers (e.g., green plants) begin the process of energy transfer through a food chain/web when eaten by a consumer; providing a food source for other organisms. Their chemical makeup provides nutrients for required energy of other animals.

3. Illustrate a simple food chain/web, identifying the herbivore, omnivore, carnivore, producer, consumer, and decomposer. Use arrows to demonstrate the transfer of energy throughout.

Answer: A pattern of eating and being eaten is a food chain (e.g., Plants trap the sun's energy and make their own food. A small animal eats the plant to receive stored nutrients and energy of the sun within the plant. A larger animal eats a smaller animal. Nutrients and energy is passed from the smaller to the larger animal. This process of one animal eating another continues until the top of the food chain reached.)

Vocabulary:

- Life cycle
- Food web/chain
- Producer
- Consumer
- Decomposer
- Energy flow/transfer
- Herbivore
- Carnivore
- Omnivore

Materials

- Print and Internet resources about selected animals
- Crayons, markers, colored pencils, etc.
- File cards for note taking
- Drawing paper
- PowerPoint presentation software (optional)
- CD or disk for saving work (optional)

Activity

Eat, or be Eaten: Food Chains

Teacher will:

Note: Optional use of PowerPoint presentation software may be used for completion of a student product.

1. Optional: Identify and bookmark appropriate web sites related to animals and animal lifecycles.
2. Collect print resource materials about selected animals.

3. Assist students in their selection of animals to study to provide classroom variety and illustrate various classifications and ranks within animal food chains/webs.
4. Create a word bank for students to add essential vocabulary discovered as they explore and examine the lifecycles of animals.
5. Monitor student work time, and monitor student progress by asking questions and facilitating discussion about project requirements.
6. Recall with students the tale and the Children's Theatre Production of *Noah's Ark*. Emphasis on major story events, especially the collection of animals and their required survival needs.
7. Instruct students in their task to research the lifecycle of a selected animal from the tale of *Noah's Ark*.
8. Challenge students with the task to identify the animal's rank in a given food chain/web and its role in energy transfer within the chain/web. Students will take notes, draw pictures and organize information with the help of graphic organizers.
9. Have students organize their research finding into a presentation of their own innovation, and share with the class. (PowerPoint presentation is optional). Students will use scientific vocabulary from the word bank in their discussion and presentation.
10. Have students evaluate their work based upon predetermined requirements/criteria as presented in a project rubric or scoring guide.
11. Facilitate discussion with students as to the consequences that may have occurred had Noah not had a missing animal with various animal food chains/webs aboard his ark.
12. Optional: Save all of student presentations on a CD for sharing with future students and/or parents.