

Title: Food Web Model

Objective: Create an electronic or paper chart visualization of the movement of matter and energy in a biome; Model the concept of a food chain and food web

Time: 30-60 minutes (research/create models); 15-30 minutes (present models)

Materials needed: Research materials, materials for creating the charts.

Interdisciplinary Lesson

Theme: Ecology

Topic: Food Chain/Web

Suggested Grade Level: 3-5

Indoors or Outdoors: Indoor

Directions:

1. Brainstorm other Minnesota biomes besides a deciduous forest. Review necessary components of all food chains.
2. Pull up some examples of food chains and food webs on the internet to show possibilities.
3. Each student researches a specific biome to find what plants, animals, and decomposers are found there.
4. Create a visual model (electronic, paper chart, etc.) to show at least two food chains in the selected biome. Include labels and pictures for sun, producers, consumers, and decomposers. Include arrows showing the movement of matter and energy from the sun to other organisms in each food chain.
5. Present visual models in small groups or to whole class.

Variation: Provide students choice by allowing them to work individually or in pairs. Allow students to select biomes from around the world, including both terrestrial and aquatic biomes.

Discussion Questions:

1. What did you learn about the biome you selected to create your model?
2. If one component of a food chain was in danger of disappearing how would this affect the food chain/entire food web?
3. What can humans do, or avoid doing, to protect the health and integrity of the food web model you have created?

Science and Engineering Practices:

2. Developing and using models; 6. Constructing explanations for science; 8. Obtaining, evaluating and communicating information.

Crosscutting Concepts:

4. Systems and system models; 5. Energy and matter: flows, cycles, and conservation.

Disciplinary Core Ideas:

LS2: Ecosystems: Interactions, energy and dynamics.

Background Information:

- **Producer**- an organism which produces its own food. Plants are producers.
- **Consumer**- an organism which does not produce its own food. Animals are consumers that depend on producers to survive. Consumers include: **Herbivores**- eat only plants or plant products. **Carnivores**- eat only animals. **Omnivores**- eat both plants and animals.
- **Decomposer**- consume dead animals and plants (i.e.- earthworm, beetle, mushroom, shelf fungus).
- **Food Chain**- A food chain shows the path of energy from one living thing to another, beginning with the sun.
- **Food Web**- A food web contains all the food chains within a particular ecosystem.

Additional Resources:

- *What Are Food Chains and Webs?* by Bobbie Kalman, Jacqueline Langille
- *Who Eats What?: Food Chains and Food Webs* by Patricia Lauber

Correlates with:

Greeting - Eat Up the Food Chain (p. 7)

Activity - Weave a Food Web (p. 77)