

# Huron County Nature Center Wilderness Arboretum

## Food Webs in Habitats

### Grass, Rabbits, and Foxes

Lesson Plan

Level: 4<sup>th</sup> – 5<sup>th</sup> Grade

Developed by Bob Tallman with funding support, in part, from the Huron County Nature Center.

**Program Description:** Students will play a game which illustrates some of the dynamics of a food web. The game will be played in the open field at the Nature Center.

#### **MEAP Benchmarks:**

SCII.III.5.MS.1: Describe common patterns of relationships among populations.

SCI.III.5.MS.2: Describe how all organisms acquire energy directly or indirectly from the sunlight.

SCI III.5.MS.3: Predict the effects of changes in one population in a food web on the other populations.

SCI III.5.EL.1 Identify familiar organisms as part of a food chain or food web and describe their feeding relationships within the web.

SCI III.5.EL.2. Describe the basic requirements for all living things to maintain their existence.

#### **Game Materials:**

About 200 half pint milk cartons, washed and stapled shut

Flagging to identify students who are acting as foxes

Whistle

Boxes or garbage bags for milk cartons, one more than the number of foxes

#### **Procedures:**

1. Outline the game area to be used by having a student run the perimeter.

2. Scatter the milk cartons (herbivore food for 1 day) throughout the game area. (Note that rabbit food stores solar energy.)
3. Designate 4 students as foxes and use flagging to wrap around their arms. Define what foxes eat. (Note that energy is transferred from the sun to the plants and through the rabbits to the foxes.)
4. The remaining students are rabbits. Define what rabbits eat.
5. Once the game begins, each rabbit must pick up a milk carton (representing herbivore food for 1 day), and take the carton outside the perimeter of the game area to the boxes.
6. “Foxes” try to catch a “rabbit” (carnivore food for 1 day) by grabbing them on the shoulders with two hands. Once grabbed “rabbits” cannot escape and must walk slowly with the fox outside the game perimeter. The captured rabbits must remain outside the perimeter in designated areas.
7. If rabbits cannot find food, they die and sit down inside the game area. The foxes ignore the starved rabbits.
8. Game continues until the leader blows a whistle. (**Note:** The game should be ended before all rabbits are dead.) All participants freeze and sit down. The group then counts how many foxes, rabbits, and herbivore food supplies are left. They discuss what this means in terms of the food web.
9. Then one or more variables are changed.  
For example,
  - a. fewer food supplies, i.e. put out fewer milk cartons because its been a dry season
  - b. 2 foxes because 2 have emigrated
  - c. more foxes because each pair had two young
  - d. more rabbits because each pair has 6 young
  - e. fewer rabbit because rabbits emigrated because of shortage of food
10. The game is played again and the results are discussed.

All milk cartons are collected and saved for the next group.

**Post-visit Suggestions:**

1. Use the game to discuss migration, reproduction, predators, adequate food supply, famine, and the effects of each on population size. Discuss also how solar energy stored by the plants nourishes first the herbivores and then the carnivores. Review vocabulary using the crossword puzzle.

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## Food Webs in Habitats – Vocabulary Grass, Rabbits, and Foxes

**Food Chain:** sequence of organisms related to one another as food and consumers

**Food Web:** interrelated food chains in a community

**Producer:** an organism able to make its own food

**Consumer:** an organism that obtains its energy by eating another organism

**Energy:** The ability to do work

**Matter:** a tangible substance that has weight and takes up space

**Migration:** movement of organisms from one place to another

**Emigration:** migration out of an area (exit)

**Immigration:** migration into an area

**Predator:** an animal that gets its energy by eating another animal

**Prey:** the hunted and killed animal

**Population:** groups of organisms of the same kind in a given place at a given time

**Reproduction:** the process of creating more organisms of the same species

**Death:** the end of life

**Famine:** a situation where there is not enough food to sustain life

**Adequate food supply:** a situation where there is enough food to sustain life

**Herbivore:** an organism that consumes plants

**Carnivore:** an organism that consumes animals

**Omnivore:** an organism that consumes both plants and animals