

Grade 4-5: A Farm Ecosystem

National Science Standard

Life Science: Populations and Ecosystems

Objectives

The student will:

1. describe how a farm represents an ecosystem.

Background

An ecosystem is any group of living and nonliving things interacting with each other. Energy flows through an ecosystem. As one part of the system is growing, another is dying. In an ecosystem, energy from one part of the system is needed by another part of the system. A farm ecosystem is different from a forest or meadow ecosystem because humans control many of the interactions among the things on a farm.

Soil lays the groundwork for farming. It contains the main nutrients that a farmer's crop needs to grow-nitrogen, phosphorus and potassium. Crops grow by using the nutrients in the soil, water and sunlight.

Crops are grown for human food and animal feed. Feed corn and hay are fed to cattle. Cattle can provide the farm with manure that is added to the soil to replenish nitrogen in the soil. Cattle can also be consumed by humans and provides protein.

After a crop is harvested the remaining plant material not consumed by animal or humans is allowed to decay (composted) and added back to the soil to replace nutrients removed during harvest.

There are good insects and bad insects for a farmer. Certain insects like bees can pollinate a farmer's crop. Pollination allows plants to create seeds, such as grains of wheat or kernels of corn. Some insects can kill plants and reduce the amount of food a farmer can grow.

Instruction Procedure

1. Review background information.
2. Explain Activity 1.
3. Review students completed activity.

Word Power

- Compost (n.): A mixture of rotten leaves, vegetables, manure, etc. that is added to soil to make it richer.
- Crop (n.): plants grown for food.
- Ecosystem (n.): any group of living and nonliving things interacting with each other can be considered as an ecosystem.
- Nutrient (n.): Something that is needed by people, animals and plants to stay strong and healthy. Proteins, minerals and vitamins are all nutrients.
- Pollinate (v.): To carry or transfer pollen from the stamen to the pistil of the same flower or another flower where female cells can be fertilized to produce seed. Insects, birds, the wind, and some animals can help pollinate plants.
- Protein (n.): A substance found in all living plant and animal cells. Foods such as meat, cheese, eggs, beans, and fish are sources of dietary protein.
- Soil: (n.) Dirt or earth in which plants grow.

Assessment:

Were all the possible interactions depicted in at least one of the scenes? Can the class identify the missing interactions? If not, discuss with the class what was omitted.

A Farm Ecosystem (Activity 1)

Supplies

Magazines with good picture of animals and insects (Good choices are National Geographic and hunting, fishing or farming magazines)

Markers

Poster board

Glue

1. Have the students work in groups of 3 or 4.
2. Using pictures cut from the magazines instruct them to depict a farm ecosystem.
3. With the marker have them draw arrows between the components that interact.
4. Have them present as a group to the class the interactions that are occurring.

