

## NATIONAL SCIENCE STANDARD

- Life Science: Populations and Ecosystems

## OBJECTIVE

The student will describe how a farm represents an ecosystem.

## BACKGROUND

An ecosystem is any group of living and nonliving things interacting with one 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 may also be consumed by people to provide protein in the diet.

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



## FAST FACT

A FARM ECOSYSTEM IS DIFFERENT FROM A FOREST OR MEADOW ECOSYSTEM BECAUSE HUMANS CONTROL MANY OF THE INTERACTIONS AMONG THE THINGS ON A FARM.

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.

## INSTRUCTIONAL PROCEDURE

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



## 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.

## 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.



NAME \_\_\_\_\_

## ACTIVITY 1 — A FARM ECOSYSTEM

### SUPPLIES

- MAGAZINES WITH GOOD PICTURE OF ANIMALS AND INSECTS. GOOD CHOICES ARE:
  - NATIONAL GEOGRAPHIC
  - HUNTING MAGAZINES
  - FISHING MAGAZINES
  - FARMING MAGAZINES
- MARKERS
- POSTER BOARD
- GLUE



### INSTRUCTIONS

1. Work in groups of 3 or 4.
2. Use pictures cut from the magazines to depict a farm ecosystem.
3. With markers, draw arrows between the components that interact.
4. Groups present, to the class, the interactions that are occurring.