Agriculture in the Classroom
UtahStateUniversity
COOPERATIVE EXTENSION

Case of the Missing Pumpkin

Integrated Core

Purpose
Students will gain an understanding of the principles and importance of the decomposition process.

Time: 1 hour

Level: Elementary

Materials
- ❑ Pumpkin, cleaned out and carved
- ❑ Aquarium
- ❑ Grass Clippings
- ❑ Sticks
- ❑ Water
- ❑ Tape
- ❑ Candle
- ❑ Soil
- ❑ Leaves
- ❑ Spray bottle
- ❑ Plastic wrap
- ❑ Calendar

It's not just a Halloween mystery... decomposition can turn a Jack O'Lantern into nutrient-rich soil for growing more pumpkins

Background

Decomposition is nature's way of taking life and energy from dead plants and animals and changing it so new plants can use it. Bacteria and fungus eat the dead tissue from plants and excrete it in a form that helps live plants grow. These decomposers are so small you can't see them except when they are all massed together. That's the green, white, or blue furry stuff you've probably seen growing on food you keep in the refrigerator too long. Earthworms, land snails, slugs, and even fly larva (maggots) are also important decomposers.

In nature, dead plants and animals decompose and become humus for the soil. Humus acts as a sponge to help the soil hold water. It also traps air in the soil. Plants need air and water in the soil to grow. When the farmer plants crops in the soil, the growing crops take out nutrients. The farmer can replace those nutrients by tilling dead plants back into the soil and letting the decomposers go to work.

Activity Procedures

1. During October, bring a pumpkin to class. Clean it out and carve a face. Place a candle inside and use the pumpkin as a centerpiece. The burning candle will help speed decomposition.
2. Cover the bottom of an aquarium with potting soil or garden soil. Mix leaves, sitcks, and grass clippings with the soil. Push the pumpkin into the soil so it is partially buried.
3. Moisten the contents of the aquarium with a spray bottle and cover it with plastic cling wrap. Tape it so little or no air will get in.
4. Place a calendar near the aquarium. Mark the day the experiment began. Have students observe the aquarium and mark the calendar whenever anything significant occurs (the first day it "rains," the day the pumpkin's face caves in).
5. At the end of the school year, have students count how many days it took the pumpkin to decompose. Take off the wrap and let students smell the inside of the aquarium and feel the pumpkin and the soil. Have students write adjectives describing the experiment on pumpkin cut-outs and tape them to the aquarium.