

Decomposition Observation Bags

This lesson is adapted from the lesson Fungus Among Us in GrowLab: Classroom Activities for Indoor Gardens and Grow Lights (<http://www.gardeners.com/buy/growlab-activities/8593682.html>)

Overview: Students examine the process of decomposition and consider how living and once-living materials decompose to become part of soil.

Grade Level/Range: Grades 2 - 4

Objective: Students will observe and begin to understand the process of decomposition.

Time: 2 weeks +

Materials:

- Clear gallon plastic bags
- Plant debris
- Pieces of old fruit, vegetables, and bread
- Soil

Background Information: Decomposers are the final links in the food chain. These organisms use dead plants and animals as food, ultimately releasing locked up nutrients to be used again by plants. Among the decomposers are fungi, which include molds, mildews, mushrooms, rusts, and smuts. Because they lack chlorophyll and can't carry out photosynthesis, fungi feed on once-living materials or act as parasites on living organisms. Some fungi can be seen by the unaided eye, but other decomposers, such as bacteria, are so small that a mere teaspoon of soil may contain billions of them.

Laying the Groundwork: Ask students, "What do you think would happen if we left plant debris and/or old food sitting out? Would it still be the same in one week? Two weeks? Three weeks?"

Exploration:

- Place pieces of plant debris, old fruit, vegetables, and moist bread in clear gallon plastic bags (separately or in different combinations). Hang the bags on a bulletin board with a sign reading: "What do you think is happening in this bag?"
- Take time to regularly observe any changes in the plant debris and food scraps in the bags. After a week or two, depending on the foods chosen, students should notice the objects showing signs of mold and other fungal growth.

Making Connections: Ask students: How did the observed changes compare with your predictions? Have you noticed this kind of change before? What do you think is causing this change?

Ask them to brainstorm places where they have seen examples of once-living things changing and decomposing in the environment, such as rotting logs, leaves on the forest floor, or compost piles. Ask them to imagine what our planet would look like if living things did not decompose after they died.

Branching Out:

- Repeat your experiment by investigating the impact different types of conditions have on your decomposition bags, such as amount of moisture, temperature, and the addition of soil. Which seem to promote the most rapid decomposition? Further explore by adding items you don't think will decompose and see what happens to them.
- Explore ways humans prevent food from decomposing such as refrigeration, drying, smoking, canning, and salting.
- Ask students to brainstorm a list of materials that decomposers do not break down. What happens to them?
- Investigate compost bins and the benefits of using compost in your garden. If possible, plan a field trip to a composting facility or find a special guest speaker to find out more about composting efforts in your area.