

FOOD BREAKERS



BENCHMARKS and TASKS

SC.G.1.2.4 The student knows that some organisms decompose dead plants and animals into simple minerals and nutrients for use by living things and thereby recycle matter.

SC.G.1.2.6 The student knows that organisms are growing, dying, and decaying and that new organisms are being produced from the materials of dead organisms.

- The student categorizes populations of organisms by the function they serve in an ecosystem: plants and some microorganisms as *producers* that make their own food; animals, including humans, as *consumers*, which obtain food by eating other organisms; and *decomposers*, primarily bacteria and fungi, recyclers that break down dead plant and animal materials into elements that return to the soil, water, and air for use again.
- The student examines patterns of interdependency in ecological systems by analyzing relationships in food webs among producers, consumers, and decomposers and discovers that no matter how distant the relationship may seem, all things are connected.

KEY QUESTION

How do decomposers play an important role in our environment?

BACKGROUND INFORMATION

When dead trees fall to the ground, a variety of life starts to grow on the fallen logs. **Protists**, such as fungi, slime molds, and bacteria, act as **decomposers**, which digest matter and return the remains to the soil. As time passes, the decaying process continues.

Fungi are non-green **organisms** with no roots, stems, flowers, seeds, or leaves. They lack chlorophyll and cannot make their own food the way seed plants can. They rely on organic matter, living or dead, for nourishment. As long as fungi have a moist environment, they are capable of digesting almost anything. Fungi reproduce by forming spores rather than seeds. Mold, mushrooms, and other fungus spores are in the air all the time, but we only become aware of them when they fall on a suitable material and begin to reproduce.

Yeast is a microorganism of the fungi group. The yeast feeds on the banana, causing it to break down into smaller parts, producing decay. Decomposers play a very important part in an **ecosystem** because much of the dead material in an **environment** must be broken down into smaller parts and reused by plants and animals. Fertilizers used on plants and in gardens have decomposers in them to make materials usable by plants.

MATERIALS

Per group

2 banana slices	1 marker	1 pkg. dry yeast
2 plastic, resealable bags	2 paper towels	1 teaspoon

Per student

hand lens
science journal

Teacher

slice of moldy bread in a sealed baggie
1 plastic knife

TEACHING TIPS

1. In advance, place a slice of bread in a zip-type baggie and allow it to become moldy.
2. At the beginning of class, prepare the bananas by cutting two slices for each group.

ENGAGE

1. Show students the moldy slice of bread. (Observe through the sealed baggie. Do not allow students to open the baggie!) Have students describe what they see.
2. Explain that mold is a type of fungus. As long as fungi have a moist environment, they are capable of digesting almost anything. Fungi reproduce by forming spores. Mold, mushrooms, and other fungus spores are in the air all the time, but we only become aware of them when they fall on a suitable material and begin to reproduce. Tell the students that they are going to be exploring another kind of fungus during the activity.

EXPLORE

1. Have students wash their hands before setting up the experiment.
2. Give each group two paper towels, each containing one slice of banana.
3. Tell students to sprinkle one teaspoon of yeast on only one of the banana slices. They should put nothing on the other banana slice.
4. Place one banana slice in each bag and seal the bags.
5. Mark the bag containing the yeast with a “Y”.
6. Check the bags daily for one week.
7. Students should NOT open the bags, but should use the hand lenses to observe the contents.

EXPLAIN

Which banana showed the quickest decomposition? (the banana with the yeast)

Why do you think the banana in the bag with yeast decomposed more quickly than the other? (If students do not mention that the yeast is a fungus, share this information with them. Since yeast has no chlorophyll, it must depend on other organisms for food. The yeast eats the banana, causing it to break down or decay.)

Why are decomposers important? (Decomposers play an important part in the environment because they break down dead material so that plants and animals can reuse it.)

EXTEND/APPLY

Ask: Now that you have a better understanding of what decomposers are and the role decomposers play in our environment, can you list some decomposers you might find in a forest ecosystem? (fungi, worms, insects, bacteria)

ASSESSMENT

Have students reflect on the key question in their science journals: How do decomposers play an important role in our environment?