

Non-Obvious Causes of Decomposition

RECAST ACTIVITY

Ask,

“What do you think happens to the organic matter in a compost tank filled with worms?”

Record the students’ predictions on chart paper. Then ask what would happen without worms. Record their predictions. Ask students to justify their predictions with reasons.

Show students two identical tanks. Measure out the same amount of soil and spread it in the bottom of each tank. Do the same with the compost mixture, and then with the shredded leaves. Make sure that there are no worms in the compost and that the students agree with you. Sprinkle each tank with the same amount of water. Add 12-15 worms to one tank and label it “Worm Tank.” Label the other tank “Worm-free Tank.” Leave the top of the tanks open. A piece of screen could be stretched across each tank.



Ask students to observe the compost tanks and to record their observations in their journals using the guidelines generated in class and any others they added in their journal for what makes good evidence. In 6-8 weeks follow-up. Discuss the observations and measurements that students made over time. Invite students to share. Compare their observations and measurements of the two tanks. Typically students notice that the worm tank appears to have increased in volume and then to have decreased. The worm-free tank typically decreases slowly. The initial increase in the worm tank is due to the burrows that the worms build, which push the organic matter aside.

Ask,

“How can you explain the differences? What do you think is going on?”

Gather ideas.

PREPARATION

Materials

- 2 identical tanks (high and narrow is best)
- Soil (NOT sterilized potting soil)
- Composted leaves and/or other organic matter
- 12-15 worms
- Observation journals
- Measuring Cup

Prep Steps

1. Purchase worms or dig some up in a garden
2. Gather tanks, soil, compost mixture, and leaves for compost tanks.
3. Gather observation journals for each student.
4. Create a schedule for periodically watering the tanks (Give each the same amount and don’t over-water. It drowns the worms.)
5. Place the tanks in a cool, dark location out of direct sunlight.

RECAST ACTIVITY ANALYSIS

What makes this work as a RECAST activity?

Students focus on causes that they can see. Worms are obvious decomposers. However, decomposition is a far more extensive activity that worms can account for. This activity reveals to students that there are non-obvious decomposers, too. Some students are willing to allow for causeless effect. “It just wears down and breaks apart.” However, when matter is getting broken down as they observe over time, it is harder to view it this way. Most students assume that something is causing it to happen. Looking at microbes under a microscope or growing molds on bread are nice ways to offer evidence for the explanation that microbes are at work.