

3rd Grade Core Career Connection

Title: So You're a Decomposer: That Stinks

Core Subject: Science, Social Studies

Standards: Science 3030 - 01 Students will explore ecosystems and discover relationships among living organisms and the nonliving world. Social Studies 6030-03 The students will understand that people use natural resources to meet their basic needs and these resources must be protected and conserved.

Objectives: Science 3030-0102 Identify the relationships among living organisms in a habitat. Identify consumers, producers, and decomposers. Describe different food chains within a given habitat. Experiment to determine the effects of habitat changes. Social Studies 6030-0302 Illustrate ways groups use natural resources in the environment to meet their basic needs. 6030-0303 Describe how groups modify the environment to use and increase the supply of resources.

Abstract/Strategy:

Students will study decomposers and their role in food chains by:

1. Learning what type of organisms act as decomposers.
2. Learning how decomposers are useful in the 'creation' of soil.
3. Creating two different "decomposing chambers" to compare soil decomposition in action.

Occupational Connection: Soil scientist, farmer, gardener

Recommended Materials/Resources:

(this list of materials may be used for a whole class activity or for individual groups)

- 2 Plastic milk jugs or two liter bottles (cut tops off and punch air holes in the bottom)
- 2 C. mulch (may be provided by community resource)
- 4-6 C. soil (not potting soil)
- Strips of newspaper or shredded paper
- Paper towels
- 1/4 C. minced vegetables and fruits
- Water
- Worms (4-6) for only one chamber
- Drop cloths (optional)

Time Allotted: 30-60 minutes (for initial soil observation)
3-4 week observation period of decomposing chambers.

Teacher Role:

1. Invite a soil scientist or farmer or gardener into your classroom for this lesson
2. Review the objectives and activities involved in this lesson with the community resource.
3. Invite the farmer or gardener to bring samples of mulch or other 'decomposing' soil as well as any tools they use to prepare soil.
4. Make sure students can distinguish between living and non-living elements in the local habitat being studied.
5. Have materials available for students to create their 'decomposing chambers.'
6. Prepare students for appropriate safety and behavior considerations.

Activity:

Getting Ready: You may wish to divide students into small groups and place drop cloths under work areas. The following steps may be taught by the community resource and/or the teacher.

1. Show the students a sample of soil. Ask if any of them know how soil is 'made'?
2. Have students spread the soil out on a white paper or sheet. Ask students to identify anything they may see in the soil. (organic matter, bugs, other organisms)
3. Have students spread a sample of mulch out on the white paper or sheet. Ask them to compare differences between the mulch and the soil.
4. Discuss any differences they found as well as the types of organisms they might have found. This is a good time to introduce or build upon students' knowledge of decomposers. Identify common organisms that act as decomposers. Discuss what they each do to be classified as a decomposer.
5. Invite the community resource to talk about the importance of soil in their job and what steps they go through to prepare proper soil. Have them specifically discuss any special methods they use in soil preparation. Do they use specific decomposers to prepare soil?
6. Hand out the rest of the materials to make the 'decomposing chambers.'
(at this point, continue with steps 7-14 or invite the community resource to help you create a mulching project for students to observe the effects of decomposing organisms)
7. Tell the students that you will be making two identical 'decomposing chambers.' In one, you will place an organism that is a decomposer (worms). In the other, you will not add any worms. Tell them that over time, they will observe differences in each chamber and compare.
8. Have students place a damp paper towel on the bottom of the milk jugs.
9. Have students mix the minced vegetables and fruit (organic matter) with the soil.
10. Place one half of the soil in each milk jug.
11. In one milk jug only, place the worms.
12. Cover the soil in each milk jug with shredded paper and dampen with water.
13. Place both containers in a cool location, out of direct sunlight. (the worm container may need supplemental food or water added to maintain an appropriate environment.
14. Observe each container over time, comparing the difference a decomposing organism makes in soil decomposition. Record observations as desired.

Work-based Learning, Community Connection:

USU Extension Office

Local Farmer or gardener

Landfill operator

(anyone who works with mulching and decomposition of materials and soil)

Community Partner Role:

1. Review the objectives and goals of the lesson with the teacher.
2. Bring in samples of material that has/is being decomposed to show students.
3. Be prepared to discuss the importance of decomposer organisms in their jobs.

Suggested Assessment:

Observation of student decomposing chambers' activity.

Observation of student's ability to identify decomposers.