

Lesson 6: Compost and Decomposers

Getting Started

✿ Questions to Explore

- How is the soil dependent on living things?
- How are living things dependent on the soil?

📖 Facts and Definitions

- **Decomposition** is the process by which dead plants and animals are broken down into simpler substances.
- **Decomposers** are the living things that break down dead plants and animals in the soil.

🕒 Skills

- Observe and measure how the quantities and qualities of nutrients, light, and water in the environment affect plant growth. (S)
- Determine how composting recycles discarded plant and animal material. (S)
- Determine the relationship between heat and decaying plant matter in a compost pile. (S)

✂ Materials

- 2-3 earthworms
- blue and red pencils or markers
- gallon zip top bag (kit)
- quart zip top bag (kit)
- small trash bag

Introduction

Ask your child what happens to a plant when it dies. Explain to your child that the plant goes into the earth and breaks apart. This process is called **decomposition**.

Activities

Activity 1: What is Decomposition?

Note: This activity calls for 2-3 earthworms. You can purchase earthworms at a bait shop, or you can try searching the internet for ways to find them in your backyard. If you are not able to find any earthworms, the activity can be completed without them.

Explain that when a plant or animal dies, the minerals and nutrients it once used are broken down and recycled into the soil (this also occurs when living things defecate). This process provides minerals and nutrients to plants that are living.

Encourage your child to gather decomposing materials (from the yard or kitchen) in a gallon zip top bag. Materials can include fruit and vegetable scraps, dead leaves, twigs, old plant stems, dead flowers, and dead insects (use caution). Discuss that it is not safe to pick up dead animal carcasses because they may carry diseases that could make you sick.

Once your child has gathered a variety of decomposing materials in the bag, mix in three or four cups of dirt and two or three earthworms. Leave the unsealed bag outside for two or three weeks as your child

observes what happens during the decomposition process. Explain that the same types of changes occur outdoors in the earth every day. Every two or three days, your child can describe how the materials in the bag have changed. Discuss which materials decompose more quickly than others.

Activity 2: Heat, Moisture and Decomposition

Ask your child to take a cup of her decomposing material and transfer it to a quart zip top bag. Seal the bag and keep it in the freezer. Observe the bag every three or four days and compare it to the bag outside. Discuss the fact that warm, moist climates quicken the process of decomposition. This is why the rainforest has such a wide variety and number of plants. Very cold climates like the arctic and very dry climates like the desert greatly slow down the decomposition process.

Activity 3: Decomposers

Explain to your child that **decomposers** are living organisms that eat dead plants and animals. They return the nutrients from the living things back to the soil. Explain to your child that most decomposers are so small that they can only be seen with a microscope.

Tell your child that without decomposers, dead organisms and waste would pile up, and living things would use up all the raw materials in the environment. But decomposers are organisms that continually recycle valuable material in the soil. Animals that eat other dead animals are called scavengers; these include earthworms, flies, wasps, and vultures. A decomposer finishes whatever is left of the dead body after the scavenger is finished. Bacteria and fungi are the primary decomposers. Decomposers can be found in the soil.

On the page "Decomposers," your child will circle in red the organisms that are decomposers and circle the scavengers in blue. Encourage her to find pictures and information about decomposers online or in an encyclopedia and to read about them and color them on the page. Then, at the bottom of the page, she will write a paragraph that describes the roles of decomposers and scavengers in the circle of life.

As the waste decomposes in the bag from Activity 1, review the role of decomposers in the process.

Activity 4: A Compost Pile

Explain to your child that composting uses organic waste to produce new food. Explain that organic waste is anything that comes from grains, vegetables or fruit that you would normally throw in the trash — banana peels, potato skins, apple cores, egg shells, nuts, seeds, and scraps.

Explain that humus is the compost found naturally in soil. Humus makes up the top layer (dark in color) of most soil and consists of rotting leaves, wood, dead organisms, and animal waste. The decomposition of these materials is facilitated by worms, insects, fungi, protozoa, and bacteria, which break down the matter and use it for food. The waste left behind from this process makes humus, which is rich in nutrients and minerals.

Spend some time learning more about composting and decide, as a family, if an outdoor compost pile or kitchen composter is something that you would like to create together.



Kitchen Composting 101

www.beyondthepage.com/link/10958/

This website from is a good place to start to learn more about kitchen composting.



Teaching Kids How to Compost

www.beyondthepage.com/link/10955/

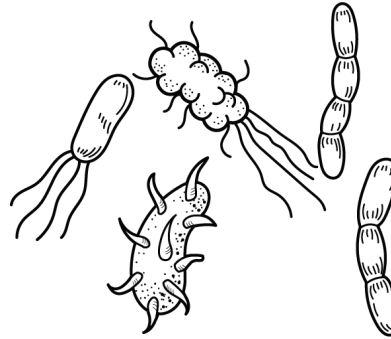
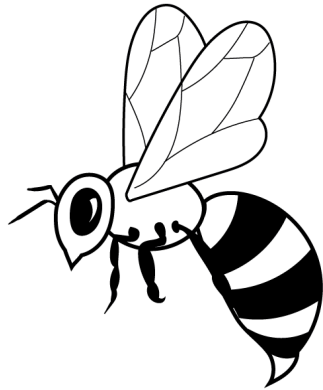
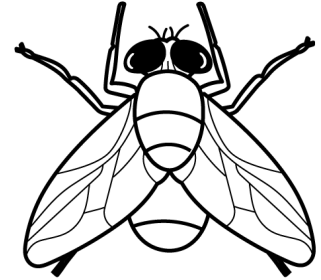
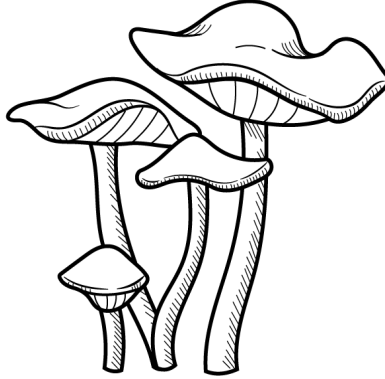
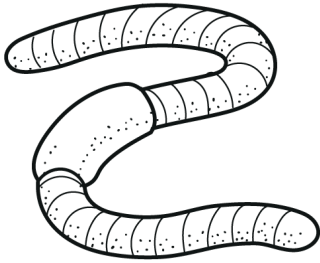
This link will provide you with information about outdoor composting.

Wrapping Up

Ask your child to describe the process of decomposition and why it is an important part of the circle of life.

Decomposers

Directions: Circle the organisms that are decomposers in red and those that are scavengers in blue. At the bottom, write a paragraph that describes the roles of decomposers and scavengers in the circle of life.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.