NatureBridge
Connecting Youth to the Natural World®

The Dirt on Composting

Decomposers Help our Planet

What do millipedes, snails, worms, and mushrooms have in common? They are all decomposers or living things that eat organic matter. Organic matter includes pieces of plants and animals that were once alive and are now rotting, or in a state of decay. This includes leftover food like banana peels, half-eaten sandwiches, and apple cores. When decomposers eat organic matter, they pass it through their bodies and break it down into compost.

Compost looks like dirt, or soil, and is the color of dark chocolate. It is crumbly and smells clean and fresh like the earth after it rains. Compost acts like a vitamin pill—it adds important vitamins or nutrients to the soil. Just like people need vitamins to stay strong and healthy, so do plants! When the soil is full of nutrients, more plants are able to grow. Compost can help produce more food for people in a natural and earth-friendly way.

Nature's Way of Recycling

In nature, decomposers live under logs, rocks, and leaves. They feast on organic matter and leave behind nutrient-rich compost for meadows, forests, and mountains.

This is nature's way of recycling!

Decomposers can live in many places, including our backyards. Since decomposers help in a process called composting—when the natural process of decay is sped up—some people create homes for decomposers by layering leftover food and yard clippings in piles outside. These are called compost piles and with all the different layers, they can look like backyard lasagna!

Earth Builders

Decomposers who live in the compost piles—such as worms and pill bugs—have important jobs. They help keep their piles warm, they dig, they chew, and they digest our leftover food into compost. For instance, earthworms pass food through their bodies and leave behind castings, or nutrient rich pieces of crumbly compost, that provide plants with vitamins. These castings or compost can be added to houseplants, gardens and even to farmland where farmers grow our food.

Food Comes from the Earth

Although the earth is large, only a fraction of our land can be used for growing food. This land is called topsoil. Topsoil is the top six inches of soil that contains nutrients that plants need to grow. Most topsoil is covered by roads, buildings, houses, and parks. Some topsoil is unusable in areas like mountains that are too rocky or steep to grow food crops. Other times, topsoil is blown away by the wind or washed away by rain. In other situations, too much farming in one area, or over-farming, has drained or depleted important nutrients from the soil. Because of this, only a small amount of topsoil is left for growing food to feed the billions of people on Earth.

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Happy Topsoil

Compost keeps our topsoil healthy in different ways. By making it moist, compost adds form or structure to the topsoil so it doesn't blow away with the wind or wash away with water. Compost also aerates, or adds air to the soil, which allows water to sink in and reach plant roots.

If you have ever dug in the dirt, you know it is difficult to do when the dirt is dry and hard. Since most plants can't grow in dry, hard dirt, compost adds air and water to topsoil making it soft and moist. This makes it much easier for plants to grow. By providing moisture, air and nutrients to the soil, compost makes topsoil arable, or able to grow food.

Garbage Graveyards

Composting leftover food not only adds nutrients and structure to the soil, it also saves space in the landfill. A landfill is a big hole in the ground that humans make to fill up with trash. Landfills don't have room for air or water because all the trash is crushed to make space for more trash. Without air and water, decomposers can't survive, so they can't break down the food that ends up there.

Landfills are like graveyards for garbage; once garbage goes there, it stays there for a very long time. In fact, scientists estimate that it takes about eighteen years for one corn cob to decompose in a landfill instead of only a couple of months in a compost pile! When food is composted, it breaks down much faster and recycles itself into new life instead of sitting trapped in the landfill for many, many years.

Trash Gas

Landfills do more than just store garbage; they also leak harmful gases into the air that are changing the temperature of the planet! When leftover food is trapped with no air, a gas called methane is created. Methane is a powerful greenhouse gas that traps heat from the sun. This is important because it keeps our planet warm enough so we can survive. However, if too many greenhouse gases are created, then too much heat gets trapped in the atmosphere. or layer of air surrounding the earth. Over time, this raises the average temperature of the planet and creates serious changes in our weather. This is called global warming or climate change. Scientists agree that global warming is already happening due to human activities like burning oil and gasoline. Dumping garbage in landfills—especially food waste—is another human activity that causes global warming. Since landfills don't have much room for air, a lot of methane is created and released from them. In fact, landfills are the largest source of methane in the country! Fortunately, we can reduce the amount of methane produced just by composting our food instead of tossing it in the trashcan.

Let's Help Nature!

All of Earth's creatures depend on healthy topsoil to survive. Composting is nature's way of recycling leftover food into nutritious compost. By composting whenever possible, we can add nutrients to the topsoil, save space in landfills, and help prevent global warming.

Let's help nature, let's compost! To learn more, visit: www.ciwmb.ca.gov/kidstuff.

National Science Standards Addressed

Grades 9-12: Chemical reactions(12BPS3)
Natural resources (12FSPSP3)
Environmental quality (12FSPSP4)
Human activities can enhance potential for hazards (12FSPSP5.2)
Matter, energy, and organization in living systems (12CLS5)

Grades 5-8: Energy transfer, food webs (8CLS4.3)
Properties and changes of properties in matter (8BPS1)

Grades K-4: Organisms and enviroments (4CLS3)
Types of resources (4FSPSP3)

For more classroom resources, visit:
Garbology.org/teachers

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