

Solid Waste and Recycling Curriculum
Lesson 10

Composting

Objectives:

I will compare and contrast “browns” and “greens”.

I will discover the importance of air, water, organic matter, and “nature’s helpers” in composting.

I will construct a compost column.

Standards:

E.12.C.4 Students know processes of obtaining, using, and recycling of renewable and nonrenewable sources. E/S

N.12.A.2 Students know scientists maintain a permanent record of procedures, data, analyses, decisions, and understandings of scientific investigations. I/S

N.12.A.5 Students know models and modeling can be used to identify and predict cause-effect relationships. I/S

N.12.B Students understand the impacts of science and technology in terms of cost and benefits to society.



SAMPLE ANSWERS

Vocabulary:

- 1. Organic Matter:** *plants or animals that are alive or were once alive. This is the food in the process and it is central to the composting process.*
- 2. Browns:** *items that contain large amounts of carbon. Woody type materials including; dried leaves, dead plants, and paper*
- 3. Greens:** *organic matter that contain large amounts of nitrogen. They can be freshly cut. They can also be food scraps that you would throw away (fruits and vegetables).*
- 4. Nature's Helpers:** *microorganisms, worms, and insects. They all help break down the organic matter in the compost pile. Microorganisms include bacteria, fungus, and enzymes.*

Questions:

- 1. Why is air important in composting?** *Microorganisms need to have air to survive. Decomposition happens when microorganisms break down the organic matter.*
- 2. Why is water important in composting?** *Microorganisms also need water to survive. Worms and other insects are comfortable in moist environments.*
- 3. Why is organic matter important in composting?** *It can improve soil structure, aids in necessary microbial activity in the soil, attracts beneficial insects such as earthworms, can suppress several soil born diseases and holds its nutrients in organic or slow release form, allowing for availability throughout the growing season.*
- 4. Brown material contains a lot of carbon. Name some items that would be considered browns.** *dead grass and leaves, branches that have fallen off a tree, wilted flower petals*
- 5. Green material contains a lot of nitrogen. Name some items that would be considered "greens".** *apple cores, banana peels, old lettuce, leftover rice*
- 6. "Nature's helpers" help with the decomposition process. Name some items that would be considered "nature's helpers".** *red wigglers, fungus, enzymes, other earth worms*
- 7. Compare and contrast "browns" and "greens".** *Browns have large amounts of carbon, while greens have large amounts of nitrogen.*
- 8. What costs and/or benefits could composting have on society?** *Composting reduces the amount of landfill space needed to contain browns and greens. The soil generated through composting can be used for household plants and as a natural fertilizer.*

Look at the following formula:

2 ½ cups bagged salad

½ cup dried leaves

½ cup pencil shavings

1 cup shredded paper

1 cup water

1 cup soil

1 tablespoon starter

9. List the green material in the formula.

bagged salad

10. List the brown material in the formula.

dried leaves, shredded paper, pencil shavings