THE PRACTICES OF ORGANIC FARMING: COMPOST

Summary: This lesson is a part of a four-part series on the practices of organic farming, which includes soil investigations, cover crops, and tillage and cultivation. In this lesson, students will make a compost pile and learn about how composting supports plant growth.

Time: 30-45 minutes

Teacher Notes:

- This lesson is a part of a four-part series on the practices of organic farming, which includes soil investigations, cover crops, and tillage and cultivation.
- Take some time to read the definitions of the two key terms we will be learning today to familiarize yourself or the class with keywords that will be covered in the lesson.
- This lesson encourages you to make a compost pile in your garden. It's important when building compost piles to have done your research on which method is best to ensure your compost pile can effectively breakdown and not attract unwanted pests. Check out our resource section for some helpful resources on garden compost systems. In particular, check out this resource we found from Santa Barbara County Public Works on Backyard Composting.
- The "READ" sections of this lesson plan can be used as talking points or a script to introduce activities. Please note, these sections simply provide brief introductions to the topics. We recommend using your experiences to add more information and context to the topics being covered.

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Teacher Notes Continued:

- If teaching asynchronously or assigning the lesson plan as homework, for the sections that instruct students to READ, consider recording yourself reading the sections aloud and sending the recording to students. This adaptation offers a helpful strategy for differentiating learning that supports all students, especially English Language Learners.
- The "THINK or DISCUSS" sections of the activities provide some great prompts for informal conversations. Consider asking your students these questions as they are gardening. You could also create a "question board" with the different questions and have students informally choose different questions to answer while they garden.
- Optional—as an added activity you could create a public space where students can share the things they notice during each of the rotations. This could take the form of a board with chart paper and markers where students can write down their answers to the questions labeled "NOTICE." This extra activity supports students to glean observations from their classmates and learn from one another.
- For more information on the practices of organic farming, see the Center for Agroecology and Sustainable Food Systems curriculum on Organic Farming and Gardening Skills.
- This lesson is part of Edible Schoolyard Project's Understanding Organic curriculum and is the fourth lesson in the "core lessons" of the curriculum.

References and Resources:

Brown, M.; Miles. A. & Perez. J. (2015) *Teaching Organic Farming and Gardening*. Retrieved from https://casfs.ucsc.edu/about/publications/Teaching-Organic-Farming/PDF-downloads/1.2-tillage.pdf

Your Guide to Backyard Composting (2009). Santa Barbara County Public Works. Retrieved from http://www.lessismore.org/system/files/5/original/SB_Co_Backyard_Composting_Booklet_Complete.pdf

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THE PRACTICES OF ORGANIC FARMING: COMPOST

Student Name: _____

Vocabulary:

- **Biodegradable** refers to a substance or object's ability to be decomposed (broken down) by bacteria and other living organisms.
- **Decomposition** the process of breaking down organic material such as dead plants and food scraps into smaller molecules that are available for use by the organisms of an ecosystem.

ANSWER: Have you heard the word *compost* before? What do you know about composting? What has been your experience with composting?

READ: The word, *compost*, can be used in a few different ways, but it always relates to the process of allowing organic materials like kitchen scraps and garden waste to decompose. One common use of the word is to refer to the kitchen scraps and garden waste *before* they decompose as "compost." For example, "can you take the compost out and put it in the compost pile?" Technically, however, *compost* is the substance left over *after* these organic materials decompose. Fully decomposed compost still contains all the minerals and nutrients of the organic materials it's made from, so it can be added to the soil to help plants grow. Finally, *compost* can also refer to the *process* of creating compost. For example, the compost from the kitchen will be composted into usable compost that will be added to the soil.

Compost benefits the soil in a number of ways. It enriches the soil with nutrients which supports plant growth and helps soil retain moisture and suppress disease and pests. It encourages the production of beneficial bacteria and fungi, increasing the soil's capacity to break down organic matter. Composting also diverts waste that would have otherwise gone into landfills.

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GATHER: There are several ways to compost. Today in the garden, we are going to make what is called a layered compost pile. Let's make sure we have all our materials gathered you will need:

- Garden tools, like a rake and garden fork
- Gloves (optional)
- A place to safely and effectively build a compost pile
- Elements of a compost pile: browns, greens, and water.

READ: All compost piles have three basic elements:

- **Browns: carbon** or carbohydrate-rich materials such as dead leaves, branches, cardboard, non-bleached or dyed paper products, and twigs. Browns in compost piles provide a food source for organisms that work with microbes to break down the materials in your compost pile.
- **Greens:** Organic matter that is still "fresh"/recently growing. These include items such as vegetable and fruit scraps, grass clipping, etc. These materials are rich in **nitrogen** and protein and support the microorganisms that break down the compost pile
- **Water:** It's important that your compost pile stays moist. Active microorganisms (like all living things) require water to survive and to break down organic materials. Water also keeps the temperature of the pile regulated, preventing it from getting too hot. The precise amount of water needed varies depending on the weather, temperature, ingredients in your pile, and other factors, but, in general, healthy compost should feel like a wet sponge that has been wrung out if you squeeze it in your hand.

DO: Now it's time to build your compost pile. Make sure you have a good ratio of greens and browns and that you keep the pile moist.

- Alternate between layering browns and greens.
- Layers should be between 2 and 4 inches thick.
- Sprinkle water on brown layers before adding a green layer on top.
- Build your compost pile between knee and waist high. If it gets taller than that it will be difficult to turn!
- Once your compost pile is built, cover it with burlap, straw, or sheets of cardboard.
- Check back on your compost pile in a few days—use a *compost thermometer* to check the internal temperature. Between 130-160F indicates very active compost!
- You may want to turn your compost every few weeks to introduce more oxygen to assist decomposition.

READ: For every activity, you are going to take the time to notice. What does that mean?

Sometimes when focusing on certain tasks you might not always pay attention to your surroundings. *Noticing* allows you to pay attention to the little things, like what the weather is like, or what can be observed in the soil. While you work, try to take the time to slow down. You will use the questions from the NOTICE section to help you make those observations.

NOTICE: As your make your compost pile, think about or discuss your answers to the following questions:

- What do you notice about the different elements of the compost pile?
- What are the textures, colors, and shapes you see?
- What are the smells in the air?
- How are you feeling? What does it feel like today for you to be in the garden?
- What distinguishes “green materials” from “brown materials”? Describe.
- Why do you think composting is important?
- Do you or your family compost? If not, how come?
- If we take the idea of compost as a metaphor (a figure of speech that, for rhetorical effect, directly refers to one thing by mentioning another) what are some things that you want to compost in your life?