

Composting

Overview Students will study critters found in the soil in areas where organic matter is decaying. They will determine what factors need to be present in order for decomposition to occur and transfer that knowledge to factors they need to assure are present in their compost piles.

Lesson Planner

Time Required	1 hour
Key Concepts/Terms	Nutrients, Compost, Decay
Prerequisites	<ul style="list-style-type: none">• Knowledge of the life cycle of plants• Knowledge of expectations for outdoor classroom conduct.
Setting	<ul style="list-style-type: none">• 20-minute field study outside• Remainder of lesson inside

Standards

DC 4th Grade Science

4.4.7. Explain how soil is made partly from rock weathered by water and wind, and partly from decomposition of plant and animal remains, and that it contains many living organisms.

4.7.7. Explain how in all environments, organisms grow, die, and decay, as new organisms are produced by the older ones.

4.7.9. Explain how dead plants and animals are the food source for many microorganisms.

Objective

The students will identify what is necessary to create compost in order to explain why composting will be important to the school garden.

Materials Required

- Copies of 3-25 from HBF curriculum
- Trowels
- Collection Containers
- Samples of Compost
- Hand Lenses
- Chart Paper

Background Information

The compost pile in the school garden is in need of some TLC. This lesson is designed to give students a better understanding of what is needed in the process of composting and decomposition in order to improve the quality of their compost.

Procedure

Follow the steps in the table below to conduct the activity. **Sentences in bold are suggestions for what teachers might say to students.** *Items in italics are possible teacher answers to questions.*

Phase	Step	Action
Engage	1	<p><u>Review of outdoor learning</u> (5 minutes)</p> <p>If students are unfamiliar with using the schoolyard as a classroom, begin by creating a concept map together as a class to go over rules and expectations for learning outside. Alternatively, create this as a Venn Diagram comparing indoor learning versus outdoor learning or simply create a list.</p> <p>Have in mind some expectations for outdoor learning specific to your schoolyard that you want to be sure students include. For instance,</p> <ul style="list-style-type: none">• <i>Regular school rules still apply (respect each other, listen to the speaker, follow directions, etc.)</i>• <i>No yelling, screaming, tapping on/waving into windows that will disrupt class learning inside the school building.</i>• <i>“Look, learn, and let go” when you see insects.</i>
	2	<p><u>Ten-Minute Review</u></p> <p>What is the life cycle of a plant? Discuss how this is a nutrient cycle.</p> <p>Seeds – Roots – Plant – Reproduce – Death/Decay</p> <p>All these steps use nutrients until the death/decay when nutrients are added back to the soil.</p> <p>Why will compost be important to a school garden?</p>

Explore	3	<p><u>Directions (5 minutes)</u></p> <p>Give students directions for what to do outside. They should work in small groups, pairs, or individually, depending on how many trowels and collection containers are available.</p> <p>You will be conducting a soil study outside. We will study what we find in the soil. If you find any living organisms, you may collect them in your container to bring back inside the classroom. If there is sufficient time, we will also study the compost pile to compare what we find.</p>
	4	<p><u>10-Minute Field Study</u></p> <p>Bring students outside. Have students study the soil and, if there's time, the compost.</p>
Explain	5	<p><u>Compost Pile (10 minutes)</u></p> <p>What is necessary for a compost pile?</p> <ul style="list-style-type: none"> - Student observations - Review the table from HBF curriculum – plant-based, not animal-based
Elaborate	6	<p><u>Next steps (10 minutes)</u></p> <p>What changes do we need to implement with our compost pile? Develop a plan</p>
Evaluate	7	<p><u>Wrap-Up (5 minutes)</u></p> <p>Students create a list of what they will collect and add to the compost pile.</p>

Vocabulary

Understanding of the following terms is required in this activity.

Term	Definition
Nutrients	Sources of nourishment
Compost	a mixture largely of decayed matter of once living things (as grass) or their products (as coffee grinds) and used for fertilizing and conditioning land
Decay	To go through decomposition

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