



Lesson Plan: **In Pursuit of Wonder**

How is green compost different from brown?

Alignment with STEM Framework

Altruist  Designer  Investigator  Conservationist 

Overview

This lesson explores the distinction between green and brown compost. It engages youth in disciplinary practices: collaborative discussion, making conjectures based on evidence, asking questions, devising possible means for better scientific understanding. This lesson provides youth the opportunity to design their own investigations.

Practice Goals

- Making observations, collecting data, making conjectures using that data, asking questions, designing possible investigations to address questions
- Building and caring for vermiculture compost
- Obtaining, evaluating, and communicating about worms, compost and biodegradable material

Content Goals

- Why does some of the organic matter when added to the compost bin break down faster than other organic matter?

Purpose

The purpose of this lesson is to provide a space for youth to share their observations and experiences about their vermiculture compost with each other. This lesson is designed to be a space for scientific inquiry about green and brown compost and an opportunity for youth to conceive of their own investigations based on questions that arise from their experience.

Teacher Background Information

Green compost is fresher wet organic materials such as produce scraps, coffee grounds, green grass clippings which are rich in protein and nitrogen. Green compost assists in the fast multiplication of microorganisms that aid in decomposition. Brown compost is dried out or woody organic materials, carbon or carbohydrate-rich materials, such as dried leaves, dried grass clippings, twigs and small branches, that supply the food source for the organisms in the soil that work together with microbes to decompose the compost pile.



Affinity Goals



I can act like an **Investigator** by making observations, collecting data, making conjectures based on evidence and asking questions about green and brown composting materials and conceptualizing future investigations to address my questions.



I can act like a **Conservationist** by caring for my vermiculture compost bin.



Materials

- Observation notebooks
- Colored pencils
- Jamboard page 1 - T chart notice and wonder
- Photo cards on jamboard of green and brown organic materials
- page 2

Time Needed

30 Minutes

Instructional Sequence

Phenomena

Youth vermiculture bin - What is decomposing?

Youth will:

- Quickly review their predictions about what materials are decomposing the quickest from last week.
 - What surprised them?
 - What did they see coming and how did they know?

Notice and Wonder

- Using jamboard page 1 youth will use sticky notes
 - Blue to write observations about the organic matter, decomposition and the rate of decomposition. Youth will share their sticky notes with each other. Facilitator will guide them to notice what their observations had in common and what might be different and to make conjectures about why.
 - Green to write questions that surfaced from their observations

Exploring Green and Brown compost

- Facilitator will explain how to recognize green and brown compost and share the role each plays in compost.
- Using jamboard page 2 Youth will organize green and brown compost photos
- Facilitator will guide discussion about what the green photos have in common and what the brown photos have in common.
- Youth will return to jamboard page 1 and add to their wonder sticky notes.

Investigation of questions

Youth will:

- Select a single question and begin to devise an investigation to get at how to find the answer to their question. They may want to create diagrams, write steps down or make a list of possible ideas.
- Share their ideas and thoughts with their community

Before you leave

Facilitator will:

- Remind them to continue caring for and observing their vermiculture compost the same way they did last week.