



Lesson Plan: **Soil - sad, so-so or sensational?**

How can we investigate the health of the soil?

Alignment with STEM Framework

Investigator  Conservationist 

Overview

This lesson will explore the content and quality of soil. It will provide youth the opportunity to engage in disciplinary tasks: observation, testing, sharing and using data, making scientific arguments supported with evidence

Practice Goals

- Using data to support scientific argument
- Collecting Data
- Obtaining, evaluating, and communicating information about soil quality Conducting an investigation

Content Goals

- Why is compost so good for plants?

Purpose

The purpose of this lesson is to guide youth to realize the relationship between worms, soil, plants and compost. This lesson is also intended to provide youth with the opportunity to engage in authentic disciplinary work.

Teacher Background Information

[Cornell cooperative extension](#)



Affinity Goals



I can act like an **Investigator** by conducting investigations using scientific equipment, making a scientific argument and using data to support my claim.



I can act like a **Conservationist** by understanding the ecological importance of composting.

Materials

- 6 pack planter with sunflower seed sprouts that were started Week 3
- Data from the last 2 weeks
- Shovel
- 2 pH strips
- Aluminum pan
- Hand lens
- Vermiculture compost
- Potting soil
- popsicle stick

Time Needed

45 Minutes

Instructional Sequence

I. Sharing data

Facilitator will:

- Guide youth in a discussion about the 6 pack planter data collection.
- Guide youth in hypothesizing about the meaning of their data.
 - Are the shoots bigger in certain cells?
 - Did they come up faster?
 - Are there cells in which nothing happened?

Youth will:

- Add their data to the jamboard table - [6 pack planter jamboard data](#)

Soil Investigation

Youth will:

- Make a T chart. One side labeled compost and the other potting soil.
- Place one or two scoops of compost on one side of the aluminum pan.
- Place one or two scoops of potting soil on the other side of the aluminum pan.
- Using the hand lens and a popsicle stick, study the organic material that makes up the compost and potting soil.
- Discuss their observations with each other and document their observations in their notebook.
- Use the pH strip to test the compost and potting soil and document their results in their notebooks.

Youth will:

- Discuss with each other what the implications of the data they just collected in conjunction with the growth data.
 - What does it mean?
 - Why do they think that?
 - What is the evidence?
 - What is the relationship between plants and worms?

Facilitator will:

- Guide students on how to dispose of their vermiculture compost if they do not want to continue to care for it.
- Discuss next steps for the sunflower seedlings.