



Lesson Plan: **Anatomy of a Worm**

How is the well-being of worms, plants and humans interrelated?

Alignment with STEM Framework

Investigator  Conservationist 

Overview

This lesson will consider why the compost is a good habitat for the worms. It will examine the anatomy of a worm and how the anatomy of a work contributes to the quality of the compost. This lesson will investigate the quality of the compost as a growing environment for plants.

Practice Goals

- Investigate the anatomy of worm
- Draw model of a worm
- Theorize about the role worms play in decomposition, soil contributions and the relationship between the vermiculture compost and plants.
- Set up investigation of soil quality and plant growth.

Content Goals

- What is the relationship between worms and plants?

Purpose

This lesson is intended to guide students to make the systemic connections between worms (decomposers) and plants as a source of nutrients for the worms as well as being the recipient of nutrients from the worms through castings.

Teacher Background Information

Worms consume the organic plant matter in the compost. The tunnels they create aerate the soil for the plants providing the plants' roots a setting that is easier to take hold in as well as fertile soil full of rich nutrients. Worm poop, or castings, contains nitrogen, phosphorus, potassium and magnesium. This makes rich soil for plants to grow in. Microorganisms in the castings multiply as organic matter is digested by the worms. Plant growth is facilitated through the cycling of nutrients from organic matter and increase in microorganisms.



Affinity Goals



I can act like an **Investigator** by exploring the anatomy of a worm, investigating how a worm contributes to soil quality and testing the soil quality.



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

Materials

- Observation notebooks
- Colored pencils
- 6 pack planter
- Sunflower seeds
- Soil from vermiculture compost
- Potting soil
- Hand shovel
- Gloves
- Spray bottle filled with water
- 6 popsicle sticks
- Sharpie
- Ruler

Time Needed

45 Minutes

Instructional Sequence

Facilitator will:

- Engage youth in a discussion of earthworm anatomy. Discussion may begin with youth wonderings: Do worms have eyes? How do worms eat? Do worms have a skeleton?
- Share [The Ins and Outs of an earthworm](#)

Youth will:

- Draw a model of the inside and outside of a worm and label it.
- Discuss what they anticipated in their model about the anatomy of a worm.
- Adjust their model with their new understanding.

Facilitator will:

- Ask youth:
 - Why is compost a good habitat for worms? Does compost make a better environment for plants to grow in?

Youth will:

- Set up plant investigation:
 - With sharpie label - 2 popsicle sticks compost 1 and compost 2, 2 popsicle sticks ½ mixture 1 and mixture 2, and 2 popsicle sticks potting soil 1 and potting soil 2
 - In the 6 pack planter fill two cells with soil from their vermiculture compost. Put the popsicle stick with the compost label in each cell.
 - Fill two cells half full of vermiculture compost and half full of potting soil. Use a popsicle stick to stir the mixture. Put popsicle stick with ½ mixture label in each cell.
 - Fill two cells with potting soil. Put popsicle stick with potting soil label in each cell.
 - In each cell make a hole in the center of the soil using your finger.
 - Place one sunflower seed in each hole.
 - Cover the seed with soil.
 - Use your spray bottle to spray each cell with water.
 - Place 6 pack planter in a sunny place.
- Before the lesson ends
 - Youth will prepare for worms and plants partner Part 2 by creating a data collection table in their observation notebooks. Note: When/if seeds sprout observations will include daily measurements of the shoot.

	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
Compost 1							
Compost 2							
½ mixture 1							
½ mixture 2							
Potting soil 1							
Potting soil 2							

Facilitator will:

- Remind youth to continue to care for and observe vermiculture compost.