

# Where Did My Stuff Go?

## Lesson 1 Plan

### Introduction

There are two main types of waste materials that humans generate: organic and inorganic. Organic waste comprises of plant and animal material, such as food waste, fallen leaves, grass etc. This type of waste can be decomposed in nature. This is the same type of waste that is generated in natural ecosystems when plants and animals die and can be completely recycled, contributing to new life.

Inorganic waste is composed of items that are not derived from plant and animal sources. Examples of inorganic waste are plastic, glass and metal. These types of waste are not biodegradable and microorganisms do not consume these. Therefore they do not decompose like organic waste does. Plastic, glass and metal will spend thousands of years in a landfill, and although they may break down into smaller pieces over time, with the help of sun and water, they will not provide nourishment for new life to grow.

In this inquiry-based hands-on activity, teachers can teach students how different kinds of materials decompose.

### Objectives

#### Students will be able to

- differentiate two types of waste: organic and inorganic
- understand how organic waste goes back to nature and inorganic does not
- understand why decomposers are important for the process of composting
- know some examples of decomposers including fungi, microorganisms, and insects

**Eco-School Steps** – Curriculum linkages, Audit, Inform & Involve  
**Curriculum Linkages** – Environmental Studies

### Time required/Duration

Classroom session 1: 20 minutes for a briefing of the activity (Introduction and creating of groups)

Outdoor session 1: 10 minutes at school (once every week) for 12 weeks (the groups can do this activity during recess time) so 120 minutes in total and 10 minutes for debriefing



## Resources Required

- Flags/Markers or indicators
- Gloves
- Garden trowel
- Water
- Spray bottle
- Magnifying lens
- At least one “set” of waste: (waste can consist of daily household items)
  - an apple core/banana peel/fruit peel
  - a piece of plastic
  - one or two leaves or flowers (fallen)
  - a piece of bread
  - a piece of tin or aluminium foil
  - a piece of paper
- Each student will need a notebook for marking observations.
- Resource 1 (Decomposer reference chart with information)
- Magnifying glass



## Classroom Session 1

- Show the objects (leaves, paper, apple core, bread, plastic, foil) to the students. Allow students to carefully observe, touch, and pick up the objects.
- Ask them what do they notice about these objects? They could describe the size-length, width, and height, color, shape. They could also say where the objects come from.
- Then ask them which and how many objects they find in the classroom waste bin?
- Let students record their observation. The teacher can now ask the students about their experience and what they think will happen to those objects.

## Outdoor Session 1

- Divide the class into six groups. Select a patch of land in the garden, (usually off-limits for other students to ensure that the waste put there would remain untouched for at least 2 weeks). The teacher would help students select a patch in the garden.
- Dig a few centimeters of soil using a garden trowel and place each waste item in the patch. Each group of students is entitled to one pit of their own and one type of waste material.
- Cover the item with the dugout soil. Ensure that every item is underneath the surface and is fully covered with soil.
- Add a few glasses of water to induce moisture into the soil. Make sure the water content is just enough to moisten the soil and not to soak the item (a spray bottle works well for this job).

- Place a flag or some marker near each item representing the item and the place where it is buried.
- After two weeks, the students should observe what has happened to the objects they had buried. They will see a tremendous difference in the different materials between the first and the last week.
- Ask the students what else they observe using a magnifying lens for better observations. Why did some waste change and some did not? Prepare an observation table based on their experience.
- Discuss about decomposition and the time it takes for different materials to decompose. Show the illustrated chart (Resource 1)

## Conclusion

Students understand that Decomposition is a natural process and different materials take different periods of time to degrade.

## Evaluation

Discuss which types of material decompose based on the experiment.

## Resource 1: Decomposers

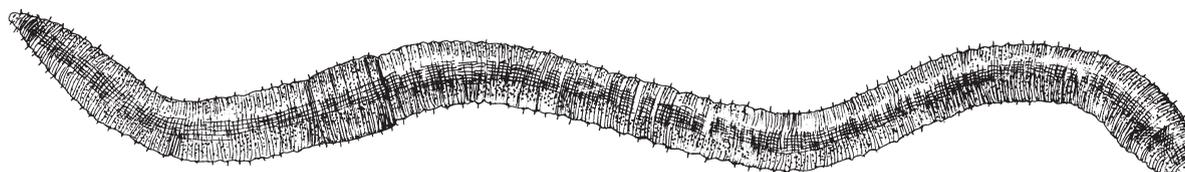
### Beetle

I am an insect with shiny black, tough wings and am about 1/2 inch long. I am a predator and eat slugs, snails and soft insects such as caterpillars. I live beneath stones, boards and other moist places.



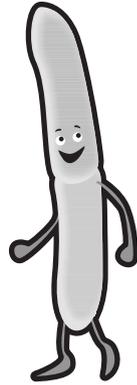
### Earthworm

I am a long, thin soft-bodied animal. My body is made up of little segments. I do not have legs or eyes. I sense light, and I breathe through my skin. I eat bacteria, fungi, and other decaying materials. I like dark, moist places.



## Bacteria

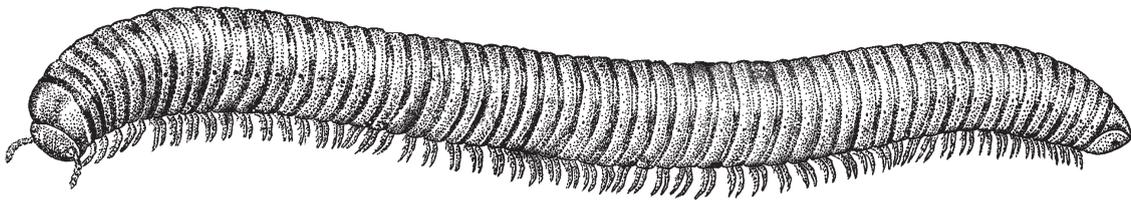
We are so tiny that you can't even see us. We are everywhere. We are colorless and can eat almost anything. Some of us live together in groups and others don't.



## Millipede

I have so many legs, you would have a hard time counting them.

My name means “thousand legs,” but I don't have that many. I am very shy and I roll up into a ball to avoid danger. I am a vegetarian and eat soft, moist, decaying plants. I am dark-red in color and am 1 to 3 inches long.



## Mite

I am tiny. It would take 25 of us to cover an inch-long line. My body is round and fat so it's hard to see my 8 legs. I eat plant materials such as mold and soft tissues of leaves. Some of us eat the manure of other organisms. I am usually white or brown.

