

**Trash Goes To School**  
**Produced by: Cornell Waste Management Institute**  
**1991**

**What Is Biodegradable?**

*(Adapted from Recycle Alaska Activities Handbook,  
Alaska Department of Environmental Conservation, Juneau, AK)*

**GRADE LEVELS:** 4-6

**SUBJECT AREAS:** science

**CONCEPT:** Some materials decompose when buried; others do not. Microorganisms play a vital role in the decomposition process.

**OBJECTIVE:** Students will be able to differentiate between the kinds of material that nature recycles and those it does not.

**MATERIALS:**

ten pieces of each of the following:

glass

paper

steel or other metal

plastic

apple, lettuce, or other fruit or vegetable

ten containers, jars, or flower pots

soil

sterile potting mix

masking tape or labels

handout: [Watching Wastes Rot: Record](#)

**KEYWORDS:** biodegradation, decomposition, microorganisms

**BACKGROUND:** Decomposition occurs everywhere. If everything existed forever, we would be buried in our waste. Our waste products are varied: some are made of easily degradable materials while others will last for thousands of years.

**PROCEDURE:**

Display a piece of glass, paper, metal, plastic, and food. Ask the class to predict which of these substances are biodegradable (capable of rotting or decomposing)? Conduct the following experiment to determine whether their predictions were correct.

Dig enough soil from a garden or vacant lot to fill five containers. (One pound cottage cheese containers would be suitable.) Fill five of the containers half full with soil, and the other five half full with sterile potting mix. Place a piece of each type of waste into each container. Continue

filling the containers with soil or sterile mix, whichever they already contain. Add enough water to all pots so that the soil or sterile mix is damp but not wet to the touch. Cover the containers. Label the containers to indicate the type of waste and whether it contains soil or sterile mix.

After one week, examine the waste in each container. Which wastes are decomposing? Cover the wastes again, and continue to check them once a week for as long as you want. Record your observations.

Check the original predictions and draw conclusions about which substances are biodegradable and under what conditions.

**FOLLOW-UP:**

Explore degradable plastics. Many producers of plastic bags are now producing plastic bags they say will degrade.

There are two types of degradable plastic bags; photodegradable and corn starch biodegradable.

Find out what makes these plastic bags degrade and perform an experiment similar to the one above.

Questions:

1. What makes these plastic bags degradable?
2. Does the whole bag degrade? Are there any waste products left over?

## Watching Wastes Rot: Record

Name: \_\_\_\_\_ Date experiment started: \_\_\_\_\_

Fill in the following table each time you check your pots. Under "Waste", write the name of the item that you buried in the pot. Under "Compost", describe the condition of the item buried in compost each time you check it. Include such things as how decomposed the item looks, what color it is, whether or not you see fungi (spots or thin strands) on it. Under "Sterile Mix", describe in the same way the condition of the item buried in the sterile mix.

Date: \_\_\_\_\_ Time since waste was buried: \_\_\_\_\_

<b>Waste</b>	<b>Compost</b>	<b>Sterile Mix</b>
1.		
2.		
3.		
4.		
5.		

Which items decomposed most quickly?

Which items didn't decompose to all?

In general, did items decompose more quickly in compost or in sterile mix? Why do you think this is true?