

Decomposing Materials in Ecosystems

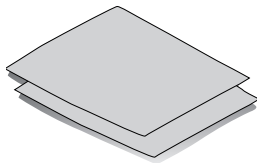
WHAT YOU NEED



1 earthworm



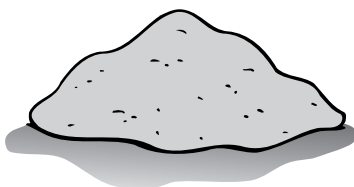
4 apple slices



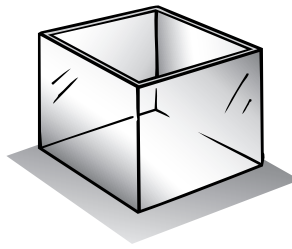
2 small pieces of
brown paper
from paper
lunch bags



2 small pieces of
clear plastic wrap
from plastic sandwich bags



enough soil to fill
the container 3/4 full
natural soil (unfertilized)



1 clear plastic
container,
shoe-box size

Find Out

Do this activity to see how decomposition of a plant part might affect an ecosystem.

Process Skills

Constructing Models
Classifying
Predicting
Observing
Communicating

Time

- 40 minutes the first day
- 30 minutes one week later
- 30 minutes two weeks later

WHAT TO DO

1. With two partners, **construct a model** ecosystem for an earthworm.
2. Place soil in the container.
3. Wrap two small slices of apple in two separate pieces of brown paper. Wrap two small slices of apple in two separate pieces of plastic wrap.
4. Bury the paper-wrapped apples and plastic-wrapped apples in the soil at least 12 cm apart, making sure they are visible through the side and/or bottom of the container walls.
5. Identify variables in the experiment and **predict** what will happen to the apples.
6. **Predict** what the apples will look like after a 7-day period and then after a 14-day period. Keep the soil moist throughout the experiment, but not soggy. If there is too much water, tip the container gently to the side and drain.
7. Place an earthworm on the moist soil. **Observe** its movement and parts—the segments, head, and tail.
8. **Observe** the earthworm's movements as it creates a burrow and moves into the soil. **Record** all observations of this habitat.



Wash your hands after working with soil or worms.



9. After seven days, **observe** and **record** changes in the earthworm's habitat, including the two sections of apples. **Record** any changes in the habitat (apples, earthworm burrows, and so on).
10. **Observe** and **record** changes in the habitat after 14 days. Then, gently remove the soil, a little at a time, and take out the earthworm.
11. **Observe** the two groups of wrapped apples and **record** your observations.

Daily Observations of an Ecosystem

First Day

Notes:

Observations:

After 7 Days

Prediction:

Observations:

After 14 Days

Prediction:

Observations:

Conclusions

1. Were your predictions correct?

Answers will vary, but the apples wrapped in the brown paper bag decompose naturally along with the paper.

2. Which apple pieces decayed naturally and became part of the soil?

The apple wrapped in paper will decompose naturally. There are no barriers to its decomposition.

3. Which materials, placed in the ground, will not decompose quickly?

Answers will vary but may include glass, plastic, some metals, and dyes.

4. Did the earthworm affect the decomposition of the apples?

Answers will vary based on the earthworm's activity.

New Questions

1. How are the soil and the apples important to the earthworm's survival?

The earthworm will eventually use the nutrients from the soil and the apples. If the nutrients are not available in the ecosystem, the earthworm will not survive.

2. In nature, what other animals might be affected by the changes in the earthworm's habitat?

Many other organisms would be affected, including frogs, birds, fish, snakes, and other animals in the earthworm's food chain.





ACTIVITY

Sampling Soil

What do you think you will find out about the soil in sample A and sample B?

Students may predict that the two samples will be similar.

What did you **observe** about the soil in sample A? **Draw** or **record** in the chart what you saw.

Students should indicate different materials, such as small rocks, clumps of dirt, and pieces of grass.

	What I Saw	Color	How It Felt
Sample A			
Sample B			

What did you **observe** about the soil from sample B?

Draw or **record** in the chart what you saw.

Students should indicate different materials, such as small rocks, clumps of dirt, and pieces of grass.

Do you think soil from another part of the country would look like the soils you just observed?

Students may mention that different parts of the country have different kinds of soil.

Activity Journal

Lesson 1 • People's Place in the Ecosystem

Name _____

Conclusions

1 How were the soil samples different?
Answers will vary based on the samples observed.

2 What is soil made of?
pieces of rock, minerals, and humus

3 Did you see any plant or animal matter in either of your soil samples?
Answers may vary but may include bone fragments, plant roots, or insects.

Asking New Questions

1 What else can you learn about soil on the Internet or in the library?
Accept all reasonable answers.

2 Check out one of the sources you found in question 1. List three new things you learned about soil with your source.
Accept all reasonable answers.

Name _____



ACTIVITY

Recycling Paper

At the end of the day, did you have more paper in the *Reuse* box or in the *All Used Up* box?

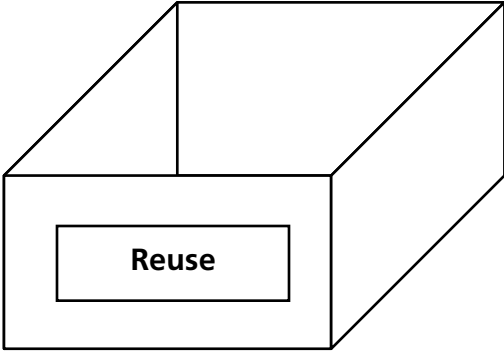
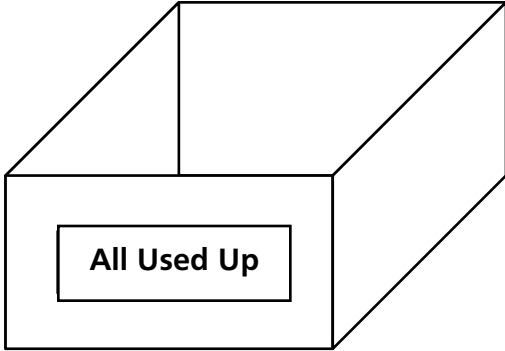
Answers will vary.

Which box do you **predict** will have more paper at the end of the week?

Students' answers will depend on what they found at the end of the first day.

How many sheets of paper were in each box after one week? **Write** the number on the line below each box.

Answers will vary.

 <p>_____</p>	 <p>_____</p>
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Name _____

Conclusions

- ① At the end of the week, see if your prediction was correct.

Answers will vary depending on the prediction and the results

- ② What natural resource have you conserved?
trees

- ③ How much paper might be saved in one school year?

Answers will vary but can be calculated by multiplying the amount of paper saved in one week by the number of weeks in the school year.

Asking New Questions

- ① Are there other things you can do in your classroom to conserve resources like trees?

Answers will vary—they are students' suggestions.

- ② How might you find out about the recycling habits of schoolmates or neighbors?

Answers may include: community newspapers, neighborhood survey, classroom survey.