

Scavengers & Decomposers



Image from raptopolitics.org.

Specific Learning Outcomes

7-1-01: Use appropriate vocabulary related to their investigations of interactions within ecosystems.

7-1-12: Provide examples of scavengers and decomposers, and describe their role in cycling matter in an ecosystem.

7-1-14: Identify beneficial and harmful roles played by micro-organisms

General Learning Outcomes

7-0-1a: Formulate specific questions that lead to investigations.

7-0-3a: Formulate a prediction/hypothesis that identifies a cause and effect relationship between the dependent and independent variable.

7-0-5a: Make observations that are relevant to a specific question.

7-0-6b: Interpret patterns and trends in data, and infer and explain relationships.

7-0-7a: Draw a conclusion that explains results.

7-0-7f: Reflect on prior knowledge and experiences to construct new understanding and apply this new knowledge to other contexts.

Vocabulary

wetland, ecosystem, organisms, food chain, food web, ecological pyramid, scavengers, decomposers

Summary

Students explore the transfer of energy and nutrients through an ecosystem using a food chain and food web. They also investigate the role of scavengers and decomposers in cycling matter through an ecosystem. Students will study the scavenging and decomposition of an apple within their own ecosystem.

Materials

- Projector and computer to present slideshow
- 4 apples (or any other fruits/vegetables)
- 2 onion bags/mesh bags
- String
- 2 signs indicating experimental site. Make your own or print the one provided. Be sure to laminate/waterproof!
- Camera (recommended)

Procedure

Warm Up

Begin by showing the included slideshow presentation, which discusses the concept of a food chain, food web, and the role of scavengers and decomposers. The slideshow briefly introduces the activity.

A wetland is an area of land that holds shallow water, with a maximum depth of two metres. The water makes the soil very moist, so plants who need moist soils will grow in and around the water; this is why a wetland can not be deeper than two metres, because otherwise these kinds of plants drown and do not receive enough sunlight. The water moves slowly because there are so many plants that slow the water down, absorbing some of the water like a sponge and filtering it as it moves through.

An ecosystem is a place on Earth where living things interact with other living things as well as non-living things. In other words, a community of interacting organisms and their physical environment. An ecosystem can be very small or large, ranging from the microscopic to the entire biosphere.

A **scavenger** eats organisms they did not kill themselves. A **decomposer** eats dead or decaying organisms & their waste, and breaks down organic matter into inorganic nutrients.

Activity

The slideshow introduces the concepts of scavengers and decomposers. Explain that you will be observing the action of these organisms as they break down an apple.

This activity will take place over several days/weeks. You may choose to have students take notes throughout the process and write up a final report, or simply observe as a class and discuss the results together.

Before you set up your experiment:

- Wash and dry your apples.
- Place one apple inside each onion bag. The bag will help prevent large scavengers from moving the apple. The other two apples will be freely available to scavengers.

Brainstorm what kind of variables could affect the rate of scavenging/ decomposition with your class. Focus particularly on factors such as weather, habitat, season, presence of other organisms. With your class decide on **two different locations** outside your school to place your apples. We recommend choosing at least one location that has soil and plants. Predict which location will have the highest amount of scavenging and the fastest rate of decomposition.

Set up your apples at your two chosen locations. At **each location**:

- Place one apple (not in onion bag) on the ground.
- Securely tie one onion bag (with apple inside) to a fence/tree.
- Prominently display sign explaining experiment.

Take a picture of each apple, being sure to note which one is which. Return to the sites each day, and observe how they change over time. Look for evidence of scavengers (tooth marks, footprints, scat, etc.) and decomposers (fungal spores, rotten smell, liquification). What different kinds of scavengers/decomposer can you identify?

Wrap Up

Continue observing the apples regularly until decomposition has finished. At the end of the experiment, be sure to take down your sign and collect any remaining materials.

Discuss what you observed with your class. Did the rate of scavenging/ decomposition match your prediction? Why or why not? What factors might have influenced your results? How many different scavengers and decomposers could you find? Review the role of scavengers and decomposers in cycling matter through the food chain, and consider where the energy and nutrients within the apples went.

Conclude by explaining that as a class you will be visiting Oak Hammock Marsh Interpretive Centre, a wetland ecosystem where you will be learning more about the interconnected relationships between organisms and their importance.

Extension:

- Create a weather “control” by placing an apple in a container with small holes in the lid in the classroom. This apple will only be subject to breakdown by decomposers, and can demonstrate how the rate of decomposition is affected by abiotic factors as well as biotic.

- Explore other variables that affect the rate of breakdown:

- *Type of food (fruit, meat, cooked/uncooked)*
- *Size of pieces (whole apple or sliced apple)*
- *On ground/hanging from a tree*
- *Habitat (aquatic or terrestrial)*
- *Buried/exposed*

- Examine the microbial decomposers under a microscope. Swab the apples, and make microscope slides to see what micro-organisms are feeding on the apple. Do the types and variety of micro-organisms change over time?

Science Experiment in

Our Grade 7 Science class is conducting an experiment with these apples. We are examining the roles of scavengers and decomposers in an ecosystem.

PLEASE DO NOT TOUCH THE APPLES

If you have questions or concerns, contact: