

Matter, the Food Chain, and Decomposition

Topic: Environmental Science/Biology

Grade: 5th* - 7th Grade

*target grade

Standards Alignment

PS3.D: Energy in Chemical Processes and Everyday Life	The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1)
LS2.A: Interdependent Relationships in Ecosystems	The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)
LS2.B: Cycles of Matter and Energy Transfer in Ecosystems	Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)
Crosscutting concept: Energy and Matter	Matter is transported into, out of, and within systems. (5-LS1-1)

National Research Council, 2012 <https://www.nextgenscience.org/pe/5-ls2-1-ecosystems-interactions-energy-and-dynamics>

Objectives

Students will be able to:
Define <i>matter</i> , elements of the <i>food chain</i> , and <i>decomposition</i> .
Identify matter that can be decomposed, and organisms that can decompose it.
Research and present their own findings of food chains in different ecosystems.

Materials

1. Computers and/or tablets (1 for each individual student)
2. (Learn) [Introduction: Matter, the Food Chain, and Decomposition](#)
3. (Play) [Beat the Decomposition Clock](#)
4. (Observe & Explore) Under the Scope

- a. [Decomposing leaf](#) (open as a PowerPoint, do not view in Google Slides)
 - b. [Decomposing badger](#)
5. (Research and Present) [Food Chains Across Ecosystems](#)

Optional, Additional Resource for Differentiation

1. <https://online.kidsdiscover.com/unit/ecosystems>

Sequence

(Group) Hook:

- Students enter the classroom and are seated. Teacher may use an appropriate hook to begin the lesson about decomposition (such as asking where the Fall leaves go at the end of the season).
- Teacher then presents the advance organizer to help students anticipate their learning.

(Group) Present:

- Students open up the first section of the module on their individual technological device. With direction from the teacher, the class works through the *(Learn) Introduction: Matter, the Food Chain, and Decomposition* interactive lesson.

(Individual) Practice:

- As practice, the students work through the next two sections of the module, *Play* and *Observe & Explore*, gaining teacher feedback from observations and redirection.

(Small Group) Produce:

- Students will be put into groups and assigned one of 4 ecosystems: Desert, Ocean, Rainforest, or Wetland. They will independently (with their groups) research the assigned ecosystem and design a visual representation of the food chain on google slides.
- *Optional differentiation: For students who may struggle with finding resources, the teacher may provide the following link as a starting point: [Kids Discover Ecosystems](#).*
- After preparing their visual and presentation scripts, the student-groups will present their slide to the class, and the teacher can provide feedback.