

Producers, Consumers, Decomposers
(modified for virtual field trip)

Overview:

Students will hike through the forest at Camp Fraser (through video) and learn to identify producers, consumers, and decomposers.

Learning Objectives:

Students will be able to ...

- identify producers, consumers, and decomposers
- observe organisms in the forest habitat and make connections to the food web

Sequencing:

This supports the outdoor field experience element of the Meaningful Watershed Educational Experience (MWEE). During distance learning, this lesson will serve as one investigation into the forest ecology topics introduced in other lessons. Alternatively, this lesson could serve as an introduction to background needed for an on-site investigation.

Lesson Components:

Grade(s)	4-5 th grade science
Time Required	30 minutes
Location(s)	Classroom or virtual lesson at home
Materials	Forest Ecology Lesson Video

Next Generation Science Standards supported by this lesson:

Performance Expectation:

<p>5-LS2-1</p>	<p>Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]</p>	
<p>Science and Engineering Practices</p>	<p>Disciplinary Core Ideas</p>	<p>Crosscutting Concepts</p>
<p>Developing and Using Models</p> <p>Modeling in 3–5 builds on K–2 models and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> Develop a model to describe phenomena. (5-LS2-1) <p>-----</p> <p><i>Connections to the Nature of Science</i></p> <p>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</p> <ul style="list-style-type: none"> Science explanations describe the mechanisms for natural events. (5-LS2-1) 	<p>LS2.A: Interdependent Relationships in Ecosystems</p> <ul style="list-style-type: none"> 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) <p>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</p> <ul style="list-style-type: none"> 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, 	<p>Systems and System Models</p> <ul style="list-style-type: none"> A system can be described in terms of its components and their interactions. (5-LS

	liquid, or solid) back into the environment. (5-LS2-1)	
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Preparation:

Students should come to the lesson with a background on watershed issues for MWEE students, but the lesson can be completed without that understanding.

Instructor will use a blackboard function to draw the food web.

Vocabulary:

Term	Definition
Producer	An organism that has green leaves to enable the plant to take energy from the sun and make its own food.
Consumer	An organism that feeds on plants or other animals for energy.
Decomposer	An organism that decomposes or breaks down organic material, typically fungus, bacteria, or invertebrates.
Ecology	The scientific study of how organisms interact with each other and with their environment.
Food Web	A system of interlocking and interdependent food chains (a hierarchical series of organisms each dependent on the next as a source of food).

Procedure:

Action	Notes
Engage	
1 Before watching the video, remind students of any Issue Definition lessons you have already completed about ecosystems. Today we are going to go on a hike as we watch a video from Camp Fraser.	
Explore	
2 Watch the video to observe the different producers, consumers, and decomposers that are in the forest at Camp Fraser.	
Explain	
3 Let's review what we saw. At the end of the video, you were asked to spot the producer and the consumer. Did anyone see them? Spider (consumer) in a web above the green plant (producer).	

Elaborate	
<p>4 The green plants in the forest are really important to the whole ecosystem. If something happened to the producers or plants, how would that affect the spider in the web?</p> <p>Start to draw a food chain with a spider and a plant. The spider does not eat plants, but it does eat something that ate nectar from a flower or some fruit, both from plants. What is that something? Add a fly (or whatever students identify as the missing link) in the middle.</p> <p>Plant--->Fly--->Spider</p> <p>So, if there were no plants, flies would not be able to survive here. Then what would happen to the spider? It would also not be able to survive here.</p>	
<p>5 What other consumers in the video would be dependent on this food web? Connect the butterfly to the plant, and the toad to the fly.</p> <p>Plant--->Butterfly Fly--->Toad</p>	
<p>6 What would happen if the decomposers were removed from the food web? Lots of dead trees laying in the forest, nutrients not being used.</p>	
Evaluate	
<p>7 Again, if the producers were missing, how would that affect the other parts of the food web? Make clear that all food webs begin with producers using energy from the sun to make food.</p>	
<p>8 What does this ecosystem and our discussion today have to do with the watershed? Help students make the connection between clean water and healthy, diverse habitats for plants and animals.</p>	<p>Make connections to rest of the MWEE project.</p>