

Food Chains and Food Webs

Grade 4 – Science and Technology



Lesson Details

Grade Level:	4	Curriculum Links:	Science and Technology	Time Needed:	40 minutes – 1 hour
Learning Goal	To understand food chains/webs and how living things are connected in an ecosystem. To become familiar with species in an Ontario wetland and science terminology.				
Success Criteria	By the end of this lesson, students will understand how different living things are connected by a food chain, and a complex food web. Students will be familiar with how different organisms are connected in their ecosystem.				
Specific Expectations	<p><i>Understanding Life Systems: Habitats and Communities</i></p> <ul style="list-style-type: none"> • Build food chains consisting of different plants and animals, including humans; • Use appropriate science and technology vocabulary, including: habitat, population, community, adaptation, and food chain, in oral and written communication; • Demonstrate an understanding of food chains as systems in which energy from the sun is transferred to producers (plants) and then to consumers (animals); • Demonstrate an understanding of a community as a group of interacting species sharing a common habitat; • Classify organisms, including humans, according to their role in a food chain. 				
Materials Needed	Worksheet (attached), Pencil, a Ball of Yarn, Name Tags.				

Lesson Description

Overview	Students will learn about food chains and food webs by exploring a beaver pond food web and the life within it.
Activity	<ol style="list-style-type: none"> 1. Begin by introducing the concept of a food chain and food web. 2. Next, give a name tag to each student and assign them a title of a living organism from the Beaver Pond Food Web found in the attached worksheet (E.g. Beaver, Aquatic Worm, Algae, Snapping Turtle, etc.) 3. Have the students stand in a circle with their name tags on and explain the activity. Optional: This activity can be done as one big group or split into two groups. Note that with multiple groups, multiple balls of yarn will be required. 4. Going around the circle, each student will say aloud what they are from the food web. 5. Then give the ball of yarn to a student, repeating their title, they will then pass (or lightly throw) the ball of yarn to another student whose title as part of the food web they think is somehow directly connected to their own (E.g. a student who has the title of Aquatic Worm would throw the yarn ball to a Bluegill Fish, Painted Turtle, Water Flea, Dragonfly, or Large-Mouth Bass). 6. Make sure that before a student passes the ball of yarn to the next student, they hold onto a piece of the yarn. 7. Once every student is holding onto part of the yarn, the students will have made a food web. 8. Next, have the students sit back in their seats and hand out the attached worksheet to be completed individually.

Lesson Description

Background Information	<p>Wetlands teach us the relationships between the environment, plants, and animals. For example, wetlands have systems to filter water, which benefits turtles. In return, turtles provide valuable services to wetlands, including consuming debris and dispersing seeds. In an ecosystem everything is connected, and we have food chains and webs to help us visualize such connections. Organisms, such as living things like a fish, interact with other living things, but also non-living things, such as water.</p> <p>A simple food chain is made up of four different “levels”: Energy Producer (E.g. Sun), Producer (E.g. Lily Pad), Primary Consumer (E.g. Fish), and Secondary Consumer (E.g. Turtle). If one element of the food chain suddenly disappears there is an increase in the others which often times results in poor conditions for the ecosystem as the organisms are out of balance. A food web shows the complex relationships and interactions between all the organisms in an ecosystem, rather than the few in a food chain.</p>
Blacklist Masters	<ul style="list-style-type: none"> • Worksheet (attached) • Video Link(s): Turtle Food Chains and Food Webs • For more information, please visit https://www.turtleguardians.com/why-saving-turtles-is-important/
Place-Based Learning	<p>Students will reflect on their own community and how local environments are connected through a food chain or web. Having this knowledge will allow the students to become more conscious about environmental conservation and how organisms are connected.</p>
Inquiry-Based Learning	<p>Using Structured Inquiry, students will complete the worksheet and investigate the connections amongst wildlife.</p> <p>Ask the students:</p> <ul style="list-style-type: none"> • What words are associated with a wetland? (E.g. Turtle, Plants, Birds, etc.) • What is a food chain? A food web? • What happens when something is removed from the chain or web?
Turtle Stories	<p>Visit a natural area and create a food web based on the plant and animal life you find. How complex is it? Students are encouraged to share their experiences, pictures, and worksheets on the Turtle Stories website, found here: https://www.turtlestories.ca/</p>
Turtle Guardian Program Links	<p>After completing Level 1 (Ontario Turtle Identification) of the Turtle Guardian Program, students can move onto Level 2 (Wetland Watchers). In this level the students learn the importance of wetland protection and how to protect turtle nests. They then can become official nest sitters and wetland watchers (when accompanied by an adult). For more information, please visit https://www.turtleguardians.com/what-is-a-turtle-guardian/</p>

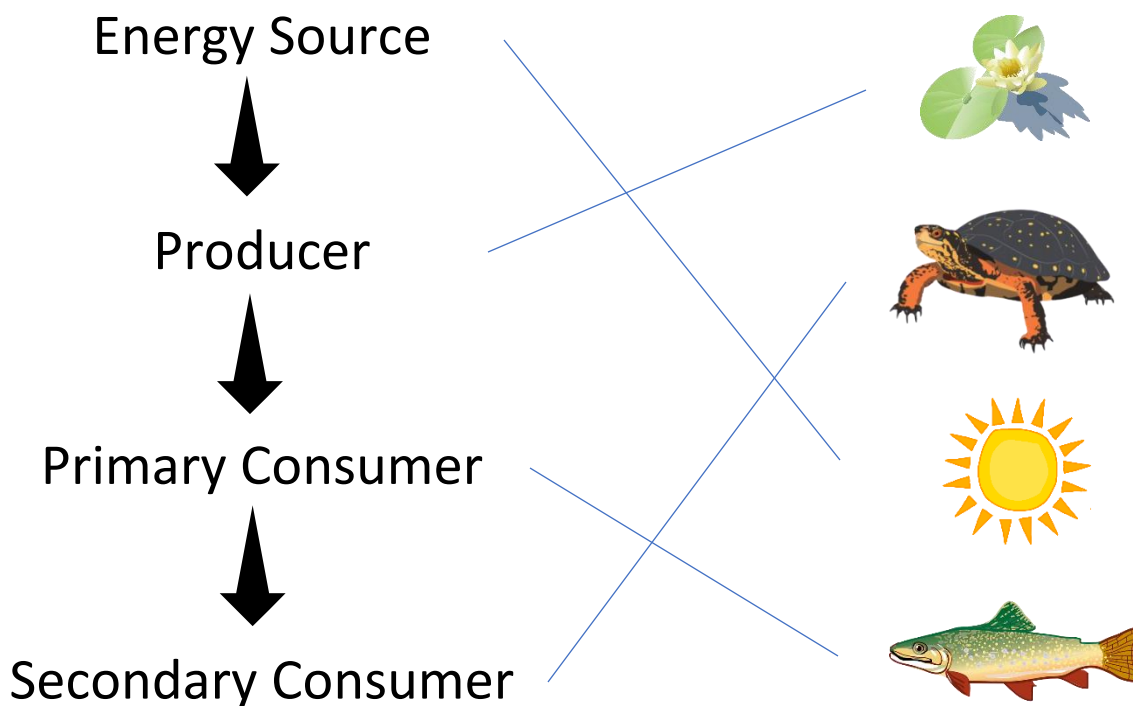
My Notes



Food Chains and Food Webs

Let's explore a wetland that was created by beavers. The beavers dammed up a stream and created a whole new environment. This is called a beaver pond. There are many living things in a beaver pond. The pond is an **ecosystem**, where everything is connected. All of the living things (called **organisms**) interact with each other and with non-living things like the water.

Question 1. Here is a simple food chain in the beaver pond. Match the correct picture with where it belongs in the food chain.



Question 2. During your class activity you passed around a ball of yarn creating a food web. What did you learn from this activity?

A **food chain** shows us the interaction or relationships between a few organisms in the pond. Now we will explore a **food web**, which shows many interactions in the pond. This helps us to understand how everything is connected. Take a look at the food web on page 3 to answer the following questions.

Question 3. Explain a food chain that is in the food web.

Example: Algae → Painted Turtle → Great Blue Heron

Question 4. Take a look at the beaver in the food web. Circle the answer that best fits the following phrase: The beaver is a...

- a) Producer
- b) Primary Consumer
- c) Secondary Consumer

Question 5. The Common Snapping Turtle is a consumer in this food web. It eats the dead stuff on the bottom of the pond. This keeps the pond clean. The Snapping Turtle also eats fish, insects and frogs. Baby Snapping Turtles are food for Herons and large fish like Bass. The Snapping Turtle is a species at risk in Ontario, which means it is in danger of disappearing. If it disappeared from the ecosystem, how do you think it would affect the food web?

The Great Blue Heron would eat more Painted Turtles, Green Frogs, and Garter Snakes which would reduce their population. The Red-sided Dace would increase in population as the Snapping turtle is not longer eating it.

Question 6. Where would a human fit in this food web?

Humans influence many elements of this food web. Humans hunt wolves, they fish, we build human-made dams which can alter how a beaver has designed their pond, ultimately affecting all wildlife within it.

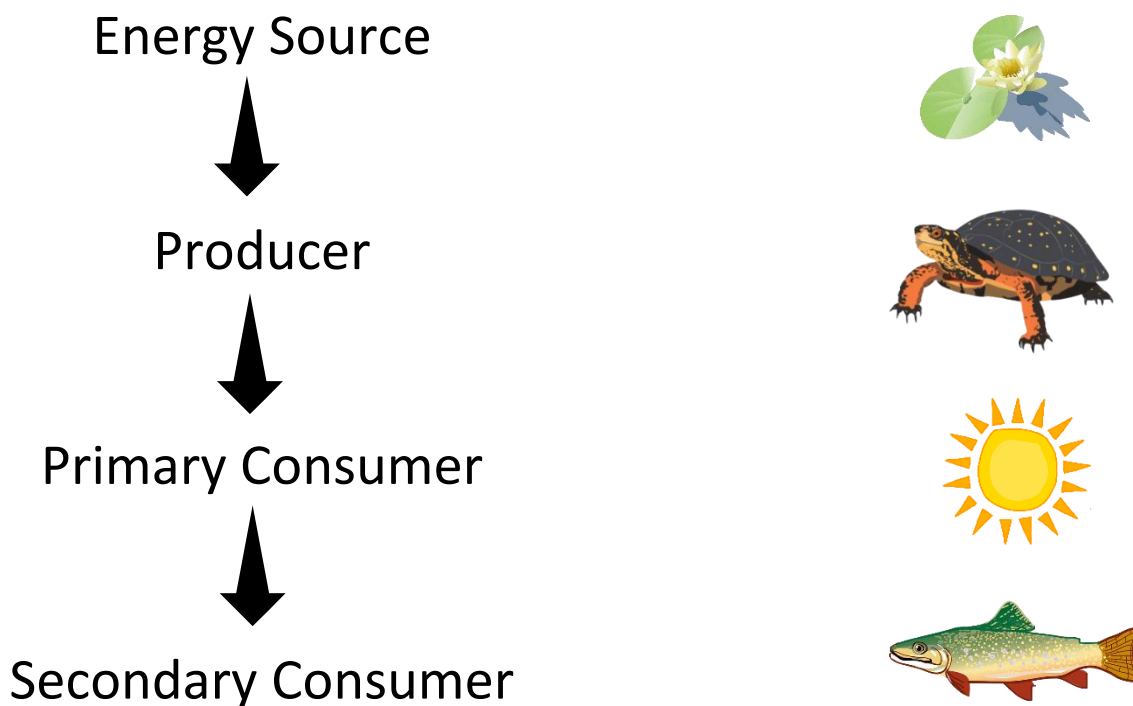




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Beaver Pond Food Web

