

BIODIVERSITY



Grades 3–6

Food Web Biodiversity

Objective: Students will be able to identify why food webs are important and the different roles plants and animals play in the food web and their environments.

Vocabulary: Food Web, Carnivore, Omnivore, Herbivore, Decomposer, Producer

Materials:

- Animal and plant cutouts (If you do not have a printer for the Animal Cutouts, use some paper and draw the animals in pencil or pen. You can also use a variety of plastic/toy animals.)
- Yarn
- Optional: Printout of the sample food web and food chain (included in this lesson)

Lesson:

What is a food web?

All plants and animals need nutrients to survive. All the plants and animals that live in the same habitat are connected to each other in a food web. The different roles in the food web are:

- **Herbivore** - an animal that eats plants (primary consumer)
- **Carnivore** - an animal that eats meat
- **Omnivore** - an animal that eats plants and meat
- **Decomposer** - an organism that breaks down organic material over time
- **Scavenger** - an animal that eats dead animals
- **Producer** - an organism such as a plant that uses the sun's energy to make food
- **Consumer** - an animal that eats producers (plants) or other animals

Food webs are filled with **complex interactions:**

- Animals may play different roles in the food web. An animal may be a predator to a smaller animal, but also prey to another animal.
- Decomposers and Scavengers are important to help recycle dead animals and organic material back into the soil, which helps plants grow.
- To have a healthy food web, you need multiple species of each type (producer, consumer, decomposer) to keep the ecosystem balanced.

What if you remove a species altogether?

Discuss with the students what would happen if part of a food web is broken.

- Example: If you remove all the snakes from the food web, the mice may increase because they lost a predator, but the foxes and owls lose one of their prey sources.

BIODIVERSITY



Grades 3–6

What is a simple food chain?

- Example: Algae/diatoms live in the water, the mayfly eats the algae, the trout eats the mayfly, the osprey eats the trout.

Multiple food chains make up a food web.

Decomposers such as worms break down organic material in the soil and add nutrients back into the soil.

Activity: *Building a Food Web*

Use the cutouts below to create a food web. If you do not have a printer, you can use a paper and pencil or toy animals instead. Remember that the sun provides energy for the plants to grow.

- Place your plants toward the bottom of the food chain.
- Choose an herbivore to eat one of the plants. Place a piece of yarn between the plant and the herbivore as a connector and show the herbivore gets energy from the plant.
- Choose an omnivore or carnivore to eat the herbivore, and place a piece of yarn between them.
- After you build up your connections, take a look at your food web.
 - Are there any other possibilities?
 - What if one of your predators eats something different?
 - What happens if you take one animal out of your food web entirely?

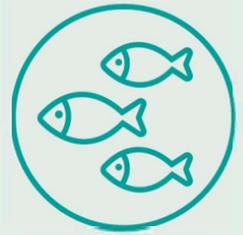
Tools:

- Video:
 - What's a Food Chain?
 - <https://why.pbslearningmedia.org/resource/thnkgard.sci.ess.chain/think-garden-whats-a-food-chain/>

PA Academic Standards:

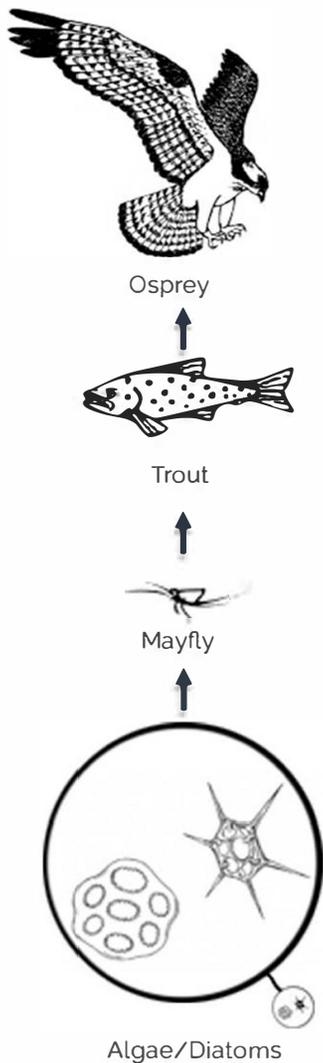
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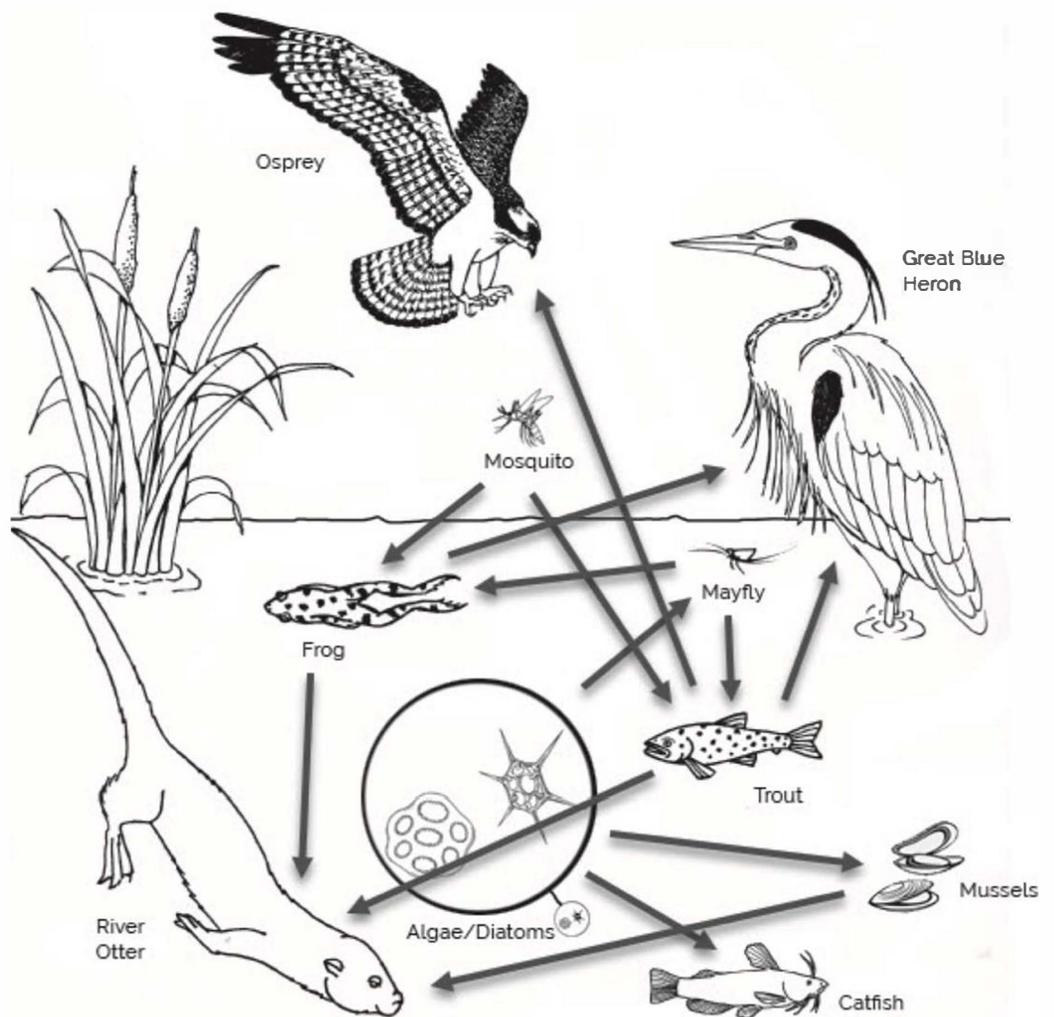


Grades 3-6

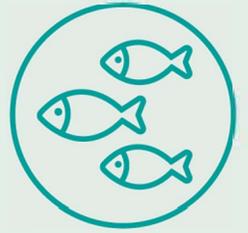
FOOD CHAIN



FOOD WEB

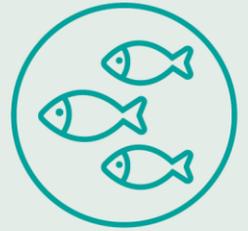


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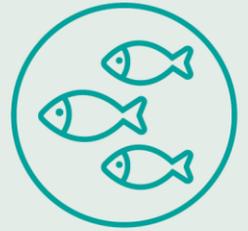
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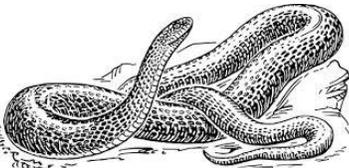
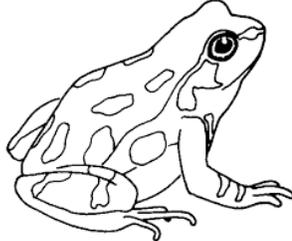
Grades 3–6

<p>Grass</p> A line drawing of a clump of grass with several blades of varying heights.	<p>Leaves</p> A solid black silhouette of a single leaf with a central vein and a pointed tip.	<p>Fruit</p> A line drawing of a raspberry, showing its characteristic cluster of small drupelets.	<p>Seeds</p> A solid black silhouette of an acorn, showing the cap and the nut.
<p>Grasshopper</p> A line drawing of a grasshopper, shown from a side profile, highlighting its large hind legs for jumping.	<p>Ant</p> A line drawing of an ant, shown from a top-down perspective, showing its segmented body and six legs.	<p>Mouse</p> A line drawing of a mouse, shown in profile, with its long, curled tail and whiskers.	<p>Rabbit</p> A line drawing of a rabbit, shown in profile, with its long ears and textured fur.
<p>Black Bear</p> A solid black silhouette of a black bear, shown in profile, walking.	<p>Fox</p> A line drawing of a fox, shown in profile, with its bushy tail and pointed ears.	<p>Skunk</p> A line drawing of a skunk, shown in profile, with its characteristic striped tail.	<p>Great Horned Owl</p> A line drawing of a Great Horned Owl, shown in profile, perched on a branch, with its large, prominent ear tufts.

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Grades 3–6

<p>Snake</p> 	<p>Frog</p> 	<p>Raccoon</p> 	<p>Duck</p> 