

# 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.

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*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:**

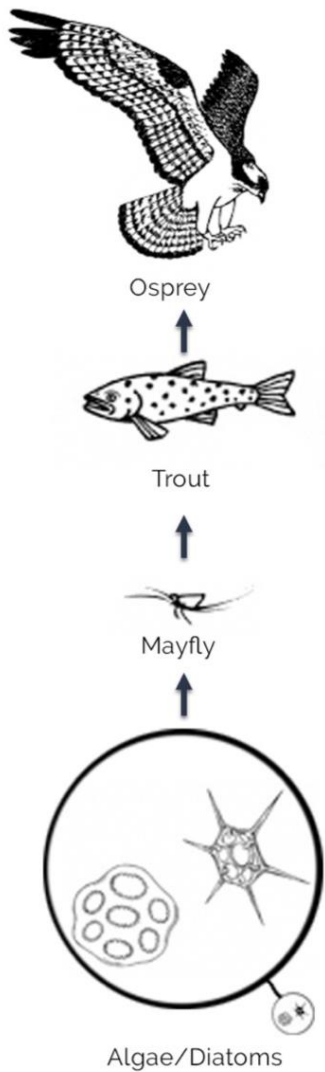
3.1.3.C1, 3.1.3.A3, 3.2.3.B6 3.1.4.B2, 3.3.4.A3, 3.1.4.C1 3.1.5.C1, 3.2..5 B2

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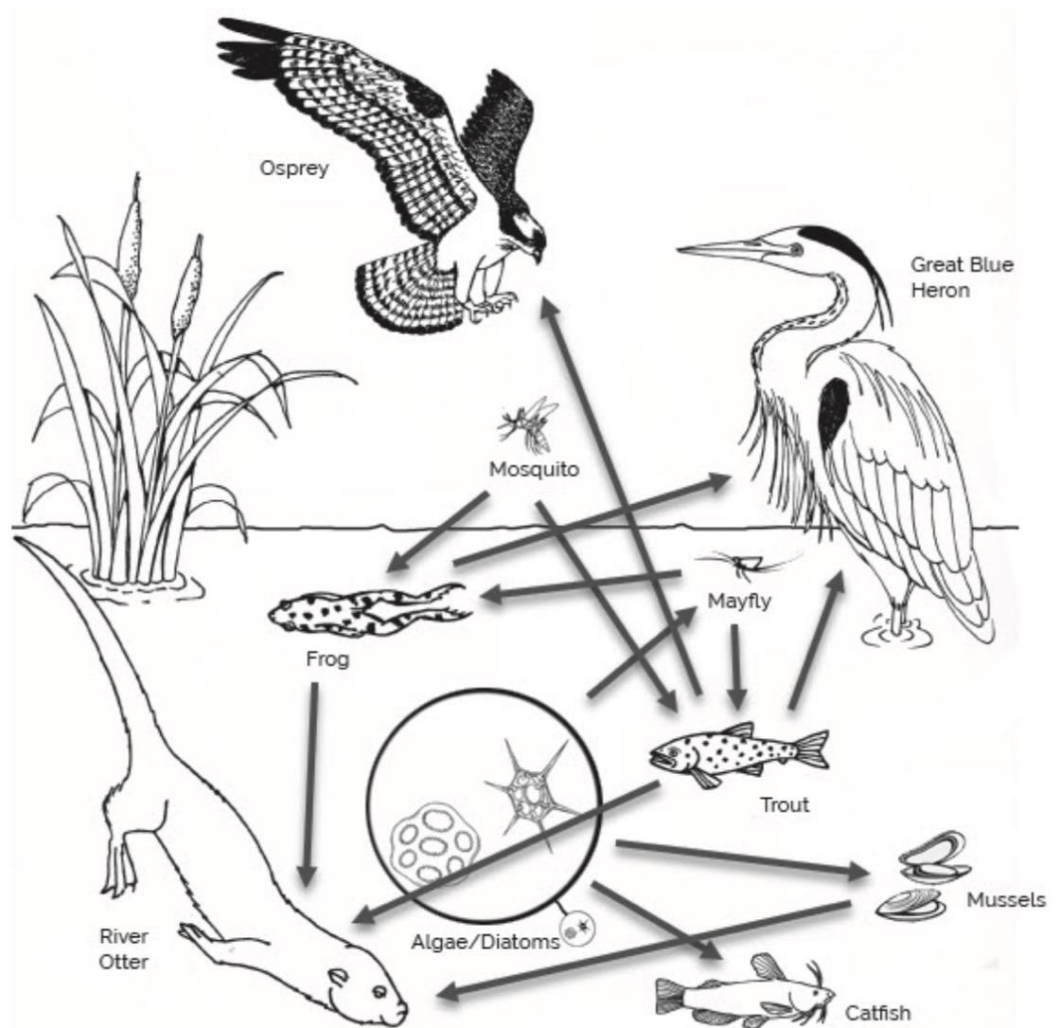


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## FOOD CHAIN



## FOOD WEB



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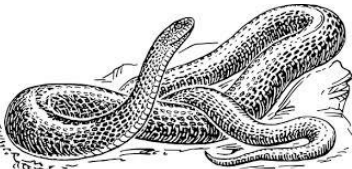


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<p><b>Grass</b></p> A line drawing of a clump of grass with several blades of varying heights.	<p><b>Leaves</b></p> A solid black silhouette of a single leaf with a central vein and a pointed tip.	<p><b>Fruit</b></p> A line drawing of a raspberry,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

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