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.
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.
  o Are there any other possibilities?
  o What if one of your predators eats something different?
  o What happens if you take one animal out of your food web entirely?

Tools:
• Video:
  o What’s 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
BIODIVERSITY

Grades 3–6

FOOD CHAIN

Osprey

Trout

Mayfly

Algae/Diatoms

FOOD WEB

Osprey

Great Blue Heron

Mosquito

Mayfly

Frog

Algae/Diatoms

Otter

River

Trout

Mussels

Catfish

The Academy of Natural Sciences of Drexel University
<table>
<thead>
<tr>
<th>Grass</th>
<th>Leaves</th>
<th>Fruit</th>
<th>Seeds</th>
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<td>Mouse</td>
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<td>Fox</td>
<td>Skunk</td>
<td>Great Horned Owl</td>
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Biodiversity

Grades 3–6

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<tr>
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