

Family Fun

Who Lives in My Backyard?

Enduring Understanding: All animals are part of a food web.

Materials

- “Food Web Investigation” handout

Setup:

1. If doing this activity as a class, find a good outdoor space within walking distance where you can search for wildlife. Your backyard or a local park may work.
2. Print the handout.

Program outline:

Introduction

- Students will learn about the various roles that animals play in food webs. They will then investigate food webs found in local outdoor areas.
- All living organisms, including humans, need energy and nutrients to survive.
- Talk about trophic levels and the roles—producer, consumer, and decomposer—played by different animals in the food web.
 - Think of examples of producers, consumers, and decomposers from ecosystems they’re familiar with.
 - Write down the various trophic levels to reference while doing their investigation.
- Ask students about a plant or animal that they know well.
 - From what does this plant/animal get its nutrients?
 - What other organisms get their nutrients by eating this plant/animal?
 - Discuss the terms “carnivore” (including specialized carnivores, such as insectivores and scavengers), “herbivore,” and “omnivore.” All of these animals are consumers because they depend on other organisms for energy.
 - How is this animal specially built to survive in its environment? What does this animal have on its body that helps it eat? What does it have that protects it from other



Program outline continued:

animals?

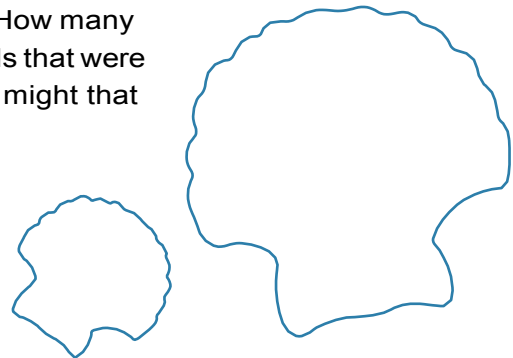
- All animals have special adaptations—parts of their body or behaviors that help them to successfully grow, reproduce, and survive in their environment.
 - How are carnivores and herbivores differently adapted to suit their needs?
 - What kinds of adaptations do humans have to help us survive?
- Before beginning the investigation, go through an example on the “Food Web Investigation” together so you know what to record and where to write it (there is already one example written on the sheet).
 - While explaining the investigation, make sure students know that they are making inferences from their observations. This is a big part of how scientists get their information, by interpreting the data that they collect.
 - Let students know that science often involves making the best guess we can, given the information we have available to us from our observations.

Food web investigation

- After learning about the different roles that animals play in the food web, students will investigate an outdoor area by searching for animals and thinking about how they fit together in a food web.
- This can be done as a class in an outdoor space near the school, or students can take the worksheet home and do this investigation in their backyard or nearby park.
 - At school, students can work in small groups or individually, and you can float among groups, giving them support
- Using the “Food Web Investigation” sheet, students record up to ten animals that they are able to find in a chosen outdoor area.
 - Students record the animal, what they think it eats, what they think eats it, and what trophic level they think it is.
 - If students are having a difficult time with the concept of trophic level, they can write whether the animal is an herbivore, omnivore, or carnivore.
 - Students should think about how all the animals in the area fit together into a food web. They should make observations to support their ideas.

Optional activity

- Using the data they gathered from their first exploration, students can choose a second site to explore and predict what animals they think they will find in the area.
- Students use the same “Food Web Investigation” sheet and record the animals they find at the new site.
- What animals did they predict they would see and why? How many animals were found in both areas? Were there any animals that were different? How were the outdoor sites different and how might that attract different animals?



Program outline continued:

Family discussion

- Once students have finished their investigations and filled out their sheets, gather them in small groups to discuss their findings.
- You can help guide their discussions with some of the following questions.
 - Did you all find the same animals? What did you find that was different?
 - What other animals do they think might be there that they didn't observe?
 - Are there animals that live in burrows or somewhere else they can't see?
 - What about nocturnal animals that only come out at night?
 - Do all the animals stay in one area or do they move around between spaces?
 - Do all areas have their own separate food webs or do food webs overlap throughout the world?
 - How could they investigate more of these questions?



Background information:

The food web consists of three main types of organisms: producers, consumers, and decomposers. Producers are organisms that are able to create their own food and energy through the process of photosynthesis. Consumers are herbivores, carnivores, or omnivores. They can't produce food on their own but need to consume other organisms in order to get energy. Some consumers are generalists, like many omnivores that can eat a wide variety of foods, while others are specialists that eat a small subset of the available food source. For example, insectivores, such as frogs, are another special type of carnivore that eats only insects. There is also a special type of consumer, called a scavenger, that searches for and eats dead animals rather than hunting and killing animals itself. Decomposers, such as bacteria and fungi, eat decaying matter and break down organic material so that its nutrients and minerals can be recycled back into the soil.

Local Examples of Producers, Consumers, and Decomposers

| | |
|--------------------|---|
| Producers | giant kelp, pickleweed, salt grass, phytoplankton, eelgrass |
| Consumers | zooplankton, worms, sand crabs, shrimp, clams, mussels, carpenter ants, duskywing butterflies, spotted cucumber beetles, anchovies, herring, salmon, bass, rockfish, giant Pacific octopus, ochre sea stars, red-legged frogs, brown pelicans, western gulls, western sandpipers, great blue herons, beavers, river otters, California sea lions, spiny dogfish sharks, sevengill sharks, leopard sharks, great white sharks, orca whales |
| Decomposers | bacteria, fungi, warty sea cucumber |

Every animal and plant is specially adapted to survive in its environment, and animals with different roles in the food web have different adaptations to suit them. For example, many herbivores tend to have teeth or mouths that are good for grinding or chewing plants, whereas carnivores tend to have sharper teeth for ripping apart meat. Animals that live in the water will most likely have adaptations that allow them to swim, hold their breath for a long time or breathe underwater, and be able to see underwater. Adaptations can also be behaviors, such as living in groups and raising young together, or coming out at night because it is cooler than during the day. Both plants and animals evolve over time to be well adapted to the environments in which they live.

glossary:

Adaptation: Something on an animal's body, or a behavior, that helps it survive in its environment

Carnivore: Animal that eats other animals

Decomposer: Organism that eats decaying matter and breaks down organic material

Herbivore: Animal that eats only plants

Insectivore: Carnivorous animal that eats only insects

Inference: Reaching a conclusion about something based on information and observations

Observation: Something that you notice or perceive; the scientific process of gathering information by studying a subject firsthand using the senses

Omnivore: Animal that eats both plants and animals

Predator: Animal that hunts other animals

Prey: Animal that is hunted by another animal

Primary Producer: Organism that makes its own food from nutrients in the soil or ocean, usually through photosynthesis

Primary Consumer: Animal that eats other plants in order to get energy

Scavenger: Animal that eats animals that are already dead

Secondary Consumer: Animal that eats herbivorous animals (and possibly also plants) in order to get energy

Tertiary Consumer: Animal that eats other carnivorous and/or omnivorous animals in order to get energy

Trophic Level: Position that a group of organisms occupies in the hierarchy of the food web; these organisms share the same function within the ecosystem and have the same nutritional relationship to the primary sources of energy.

Name: _____

Food Web Investigation

[illegible]