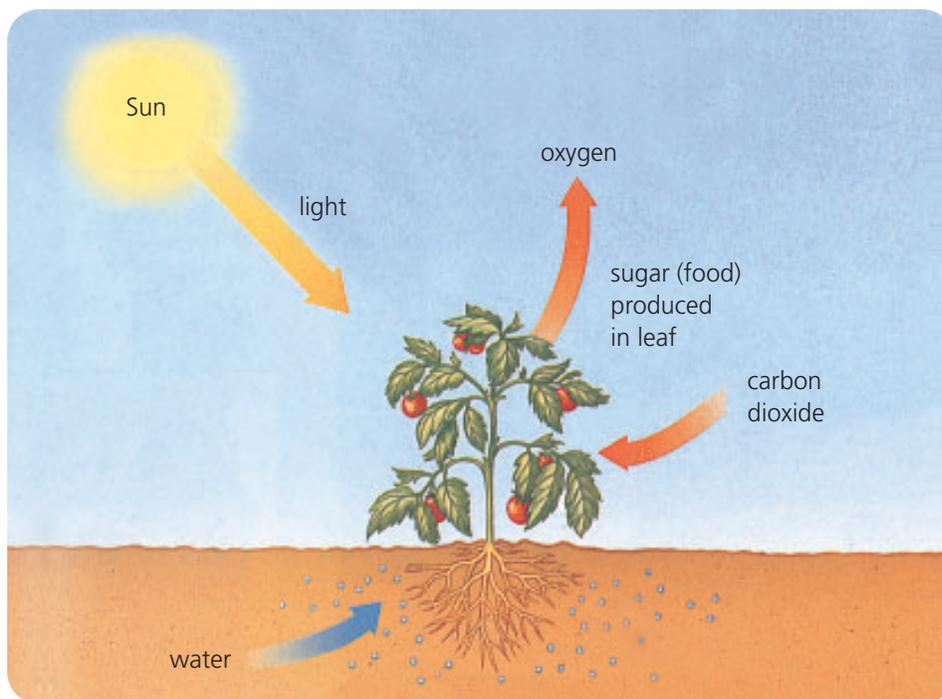


All living things need food. An organism's role in an ecosystem depends on how it obtains its food because this affects how it interacts with other organisms in the ecosystem. The combination of where an organism lives (its habitat), how it obtains its food, and how it interacts with other organisms is called its **niche** [NEESH]. Plants and animals obtain food from their surroundings in two very different ways. Therefore, they have very different roles in an ecosystem.

Producers

Green plants make their own food using materials from the non-living environment. Light energy from the Sun reaches Earth, and plant leaves absorb this energy from the Sun. Along with this energy, plants use water from the soil and carbon dioxide from the air to produce their own food. This process is called **photosynthesis** [foh-toh-SIN-thuh-sis] (Figure 1). The food that plants produce is sugar and starches. Plants also produce oxygen, which is released into the environment. Humans and other animals breathe the oxygen that is produced by plants.



LEARNING TIP

The process of photosynthesis is described in three ways on this page—in words, in an illustration, and in a chemical equation. Check to make sure you understand how each way matches the others.

Figure 1

Plants make food through the process of photosynthesis.



▶ LEARNING TIP

Learning what the parts of words mean can help you remember their meanings. *Vore* means "to eat," *herbi* means "plants," *carne* means "meat," *omni* means "all," and *detritus* means "waste" in Latin.

Organisms that can make their own food from non-living materials are called **producers** (Figure 2). Producers include plants on land and in water.



Figure 2

This tree and this kelp are both producers.

Consumers

Animals cannot carry out photosynthesis. They must get their food from the living environment by eating, or consuming, other organisms. This is why animals are called **consumers**.

Consumers that eat plants are called **herbivores** (Figure 3(a) and (b)). Consumers that eat other animals are called **carnivores** (Figure 4(a) and (b)). Consumers that eat both plants and animals are called **omnivores** (Figure 5(a) and (b)).



Figure 3(a)

Deer are herbivores that feed on producers, such as grass and other plants, on land.

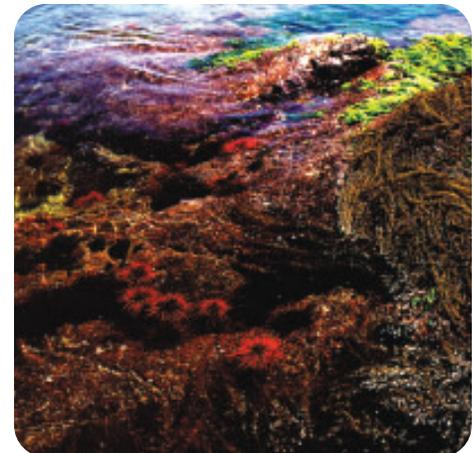


Figure 3(b)

Sea urchins are marine herbivores that feed on marine producers called kelp.



Figure 4(a)

A wolf is an example of a carnivore in a land ecosystem.



Figure 4(b)

An orca is an example of a carnivore in an ocean ecosystem. Why do you think orcas are sometimes called the “wolves of the sea” in Aboriginal legends?



Figure 5(a)

British Columbia's provincial bird, the Steller's jay, is an omnivore that eats insects, eggs, nuts, and seeds.



Figure 5(b)

The bat (or webbed) star is a marine omnivore that eats other sea stars, as well as worms and algae.

Detritivores and Decomposers

Not all plants and animals die because they are eaten. Some just die when their life span is over. Dead plants and animals become food. Organisms that feed on large bits of dead and decaying plant and animal matter are called **detritivores** (Figure 6). Crabs and some sea birds are the detritivores in ocean ecosystems. Earthworms, dung beetles, and wolverines are three examples of detritivores in land ecosystems.



Figure 6

Earthworms are common detritivores in land ecosystems, and crabs are common detritivores in ocean ecosystems.



Even detritivores, however, leave behind some waste materials: parts of the dead plant and animal matter and their own waste. Bacteria and fungi break down these waste materials. Organisms that get their food energy by breaking down the final remains of living things are called **decomposers**. Fruit rotting on the ground, a sandwich moulding in the bottom of a locker, and a shrinking pile of seaweed on the beach are all examples of decomposers at work (Figure 7).



Figure 7
Decomposers at work
in an ecosystem

▶ CHECK YOUR UNDERSTANDING

1. Explain how producers and decomposers link the living and non-living parts of ecosystems.
2. In this section, you learned about six categories of organisms: producers, herbivores, carnivores, omnivores, detritivores, and decomposers. Describe how the organisms in each category obtain food from their environment.
3. In your notebook, make a chart like the one below. List examples of organisms in each category that live on land and in the oceans.

3.	Land	Oceans
producers	tree	
herbivores		
carnivores		
omnivores		Bat Star
detritivores		
decomposers		

4. What type of consumer are you? Are all people the same type of consumer?