

Reflect

Think about different environments. An *environment* includes everything, living and nonliving, surrounding an **organism**. Some examples include: beach environments, desert environments, forest environments, and arctic environments.

organism: a living thing

Every living organism within these types of environments has basic needs. These basic needs must be present in order for the organism to survive. Air, water, shelter, and food are needs that animals have in order to survive and thrive. Plants need air, water, light, space, and nutrients to survive.



Every living organism has these basic needs, but organisms meet these needs differently, depending on their environment. Think about a shark, for example. A shark gets its food, air, water, and shelter from the ocean. Its gills pull the air (oxygen) it needs out of the ocean water. That is very different from how a squirrel gets the air it needs.

The living organisms in a pond environment are **interdependent** on each other. They depend on each other for survival.

What are the roles of an organism in its environment?

Every living organism within an environment has a specific *role* or job that creates an **interdependent** web linking all organisms. Producer, consumer, and decomposer are all important roles that contribute to the well-being of an environment. These roles create the cycle of resources shared by an environment's members while providing them with their basic needs.



Producers are organisms capable of making their food directly from nonliving resources (water, nutrients, light) in their environment. Producers use the energy from sunlight to activate **photosynthesis**, a process that converts carbon dioxide and water into oxygen and carbohydrates. These can be used by consumers and decomposers in their environment. Producers can also provide protection in the form of shelter to other members of an environment. Examples of producers are plants and algae.

Unlike plants, animals are not capable of producing their own food. Therefore, they have to search for food, a basic need, within their environment in order to survive. Animals are called **consumers**. Consumers ingest other organisms to obtain the energy and nutrients they need to survive. The three types of consumers are herbivores, carnivores, and omnivores.

Reflect

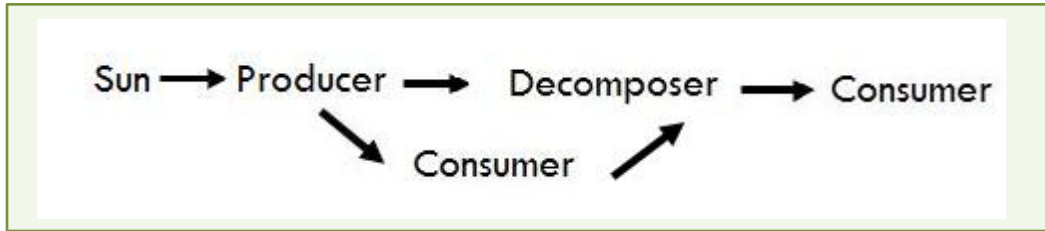
<p>Herbivore: animal that eats only plants</p>	<p>Carnivore: animal that eats only meat</p>	<p>Omnivore: animal that eats both plants and meat</p>
		



Decomposers help an environment by breaking down the matter in dead organisms and recycling the nutrients back into the soil. Producers then use these nutrients when producing their food (photosynthesis). Bacteria and fungi are examples of decomposers.

How do these roles help plants and animals meet their basic needs?

Through their specific roles, plants and animals meet their food needs. These roles create a cycle of resources shared by an environment's members while providing them with their basic needs. This cycle can be illustrated or described by an interdependency web, also known as a food web.



Look Out!

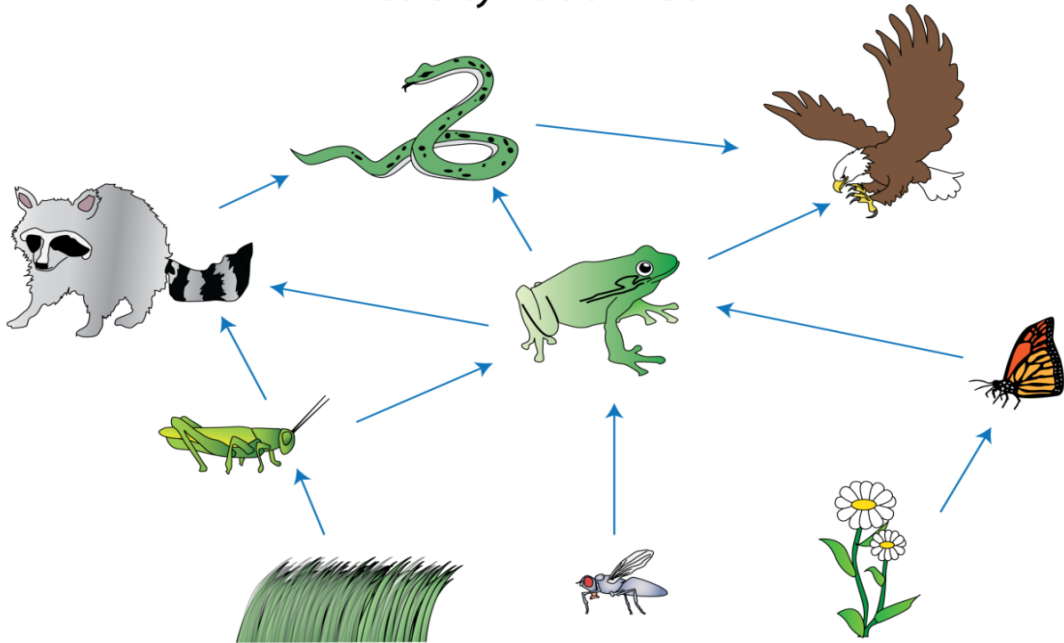
Organisms can only survive in an environment where their basic needs are met. A polar bear cannot survive in the desert for many reasons. Its body is not adapted to live in the heat. Polar bears hunt for fish and fish do not live in the desert because there is little to no water. Polar bears would have a difficult time finding food. With high temperatures, little water, and a lack of an appropriate food source, a polar bear would have a difficult time surviving and thriving in a desert environment. Can you think of other examples of plants or animals that would have a hard time meeting their basic needs outside of the environment in which they are adapted to live?

What Do You Think?

What do you know?

Look at the food web below. Think about how these producers and consumers depend on each other to meet their basic needs of survival. Use the food web to answer the questions that follow.

EcoCity Food Web



1. Which organisms in the diagram are producers?

2. Which organisms in the diagram are consumers?

3. Which organisms in the diagram are herbivores?

4. Which organisms in the diagram are carnivores?

5. What do you think would happen to the frog population if the insect population decreased? How would that then affect the rest of the food web?

Try Now

Take some time to explore the living and nonliving things in your backyard environment.

1. You will need a sheet of paper and a pencil.
2. Go outside to your backyard or to the playground.
3. Write down as many living and nonliving things in your environment as you can.
4. Next to each living thing on your list, write down its basic needs for survival.
5. You might notice that some of the basic needs for each organism may depend on some of the nonliving things you listed from the environment.
6. Once you have completed your list, write a short story about one of the living organisms in your backyard environment. What are its basic needs? What is the organism's role in its environment? How does it help other organisms survive? What would happen if the organism was removed from this environment and placed in an ocean environment?



Connecting With Your Child

A Small Environment

To help your child learn more about environments and the basic needs of organisms found there, you will help construct a 3-D model of the environment of your choice. Examples of environments include beach, forest, desert, arctic, and ocean.

You will need a shoebox, assorted colors of Play-Doh, and various craft materials for decorating your environment. Use the Play-Doh to create 3-D models of various living organisms found within the environment you chose. You can use various craft supplies to create the nonliving things within the environment. Decorate the inside of the shoebox with the living and nonliving things found within your environment.

Here are some questions to discuss with your child:

- Can living organisms survive anywhere? Why or why not?
- Which organisms live in the environment you chose?
- How does the environment support these organisms?
- What kinds of changes might happen to the environment? How might these changes affect the organisms?
- What are the roles of the different organisms found in the environment you chose?