

Reflect

Maybe you enjoyed sizzling bacon and eggs for breakfast and a juicy hamburger for lunch. Possibly, you'll eat a spicy, homemade jambalaya for dinner tonight.



Food can be tasty, but why do you really need to eat? What does food do for you? Food provides you with the energy your body needs to grow, repair itself, maintain your body temperature, and allow you to move.

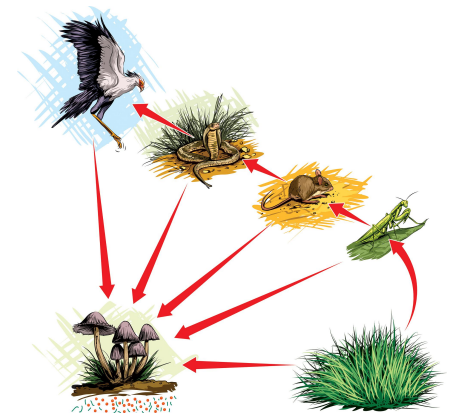


But how does the energy get in the food? How does the energy get to your plate when you sit down for a meal?

How does energy move from one organism to the next?

All the food energy that passes between organisms comes from the Sun. Plants and other organisms use sunlight to make their own food. That energy passes to other organisms when they eat the plants.

For example, grass uses sunlight to make food. A grasshopper gets energy by eating the grass. After that, a mouse gets energy by eating the grasshopper. The snake eats the mouse to get energy, and the hawk eats the snake for energy. Any dead materials left behind are broken down by the mushrooms.



The movement of food energy from one organism to another is called a *food chain*. Take a look at the food chain on the right. The arrows show how energy is passed from one organism to the other.

Look Out!

Just like you enjoy a choice in the foods you eat, organisms eat more than one thing, too! They are a part of many food chains. When many different food chains occur in an environment, they cross each other in several places. This intersection of food chains creates a food web.



Reflect

What are the different parts of a food web?

A group of overlapping or connected food chains is called a *food web*. A food web can be big or small. It can contain many different types of plants and animals or just a few. Whether a food web is big or small, the organisms fall into one of two categories: producers or consumers.

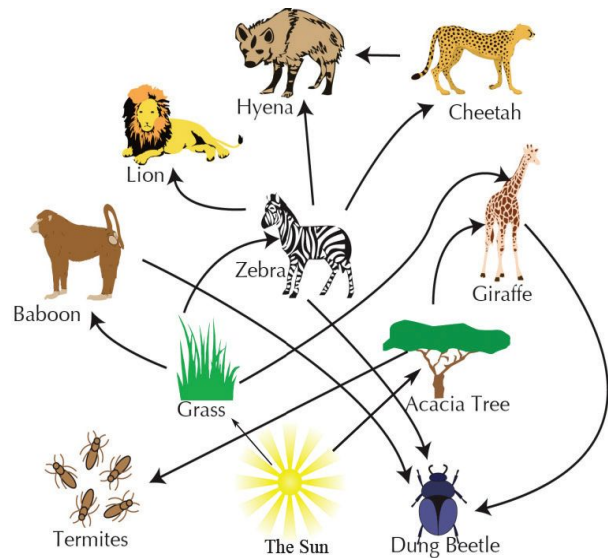
- Producers:** Producers are organisms that get their energy directly from the Sun. They are able to turn sunlight into food through a chemical process. Producers combine carbon dioxide from the air with water and sunlight to produce oxygen and sugar. Other organisms get energy by eating producers. Have you ever eaten lettuce or any other vegetable? If so, you have eaten a producer! The lettuce plant changes sunlight into food your body uses as fuel. Producers are very important to life on Earth. Without them, other organisms would not survive.
- Consumers:** A bald eagle is an example of a consumer. It cannot directly use the Sun's energy to make food. As a consumer, it has to consume, or eat, other organisms for energy. A consumer, such as the deer, may eat producers. Some consumers, such as the bald eagle, may eat other consumers. Consumers that eat only plants are called *herbivores*. Consumers that eat only animals are called *carnivores*. If a consumer eats both plants and animals, it is called an *omnivore*. How would you classify yourself?
- Decomposers:** Decomposers are a special group of consumers. Mushrooms, other fungi, and bacteria are decomposers. This group of consumers eats only dead organisms. They break down the nutrients in the dead organisms and return them to the food web. They may eat dead producers or consumers. Suppose a tree dies in a forest. Bacteria and fungi consume the tree and return the nutrients in the tree to the soil. The grass in the forest absorbs those nutrients and uses them to grow.



Food Webs

How does the energy flow in a food web?

The movement of energy in a food web is similar to a one-way street. The energy flows in one direction from one organism to another. It does not flow backward. For example, in the food web on the right, the zebra gets energy directly from the grass it eats. The grass does not get energy from the zebra. When the zebra dies, a decomposer, such as a dung beetle, will break its body down into nutrients that the grass can use. Remember, the initial source of all this energy is the Sun.



A food web can include many connections. In the food web here, you can see that several animals rely on the zebra as a source of food. The lion, hyena, and cheetah all hunt the zebra. No matter how many connections a food web has, energy flows from the Sun to producers and from producers to consumers. Decomposers help return energy from producers and consumers back to the food web.



ecosystem – all the interacting living and nonliving parts of an environment

Career Connection: Wildlife Biologist

Do you like spending time outside? Do you like watching animals? Then a career as a wildlife biologist might be right for you!





Wildlife biologists research the natural world. For example, a wildlife biologist may study a tropical reef **ecosystem**, keeping track of the different organisms living on the reef and the number of each type that live there.

It is very important for a wildlife biologist to understand the food webs in the ecosystems he or she is studying. Suppose all producers in a reef died.

Many of the fish that depend on the producers for food would be affected, too. Wildlife biologists try to find ways to keep food webs and ecosystems healthy and stable.

Try Now

Study the images in the table below. Decide if the organism in each image is a producer or consumer. Write your answer in the first column of the table. If the organism is a consumer, decide if it is a carnivore, herbivore, or omnivore. Write your answer in the second column of the table. Finally, think about how each organism gets its food energy. Write your answer in the last column of the table.

| Organism | Producer or Consumer? | Carnivore, Herbivore or Omnivore (if a consumer)? | How Does the Organism Get Food Energy? |
|---|-----------------------|---|--|
|  Strawberry bush | | | |
|  Cow eating grass | | | |
|  Hawk eating a snake | | | |
|  Raccoon eating plants and animals from a trash can | | | |