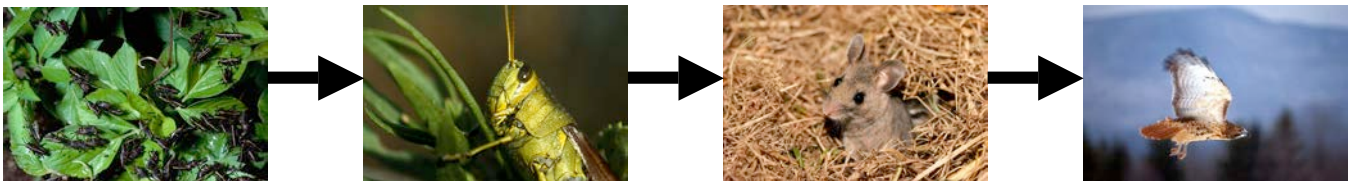


A **food chain** shows how energy moves between organisms. Let's start by looking at an example of a food chain. Suppose a grasshopper eats a plant, then a mouse eats the grasshopper, and a hawk eats the mouse. The arrows in the diagram represent the direction energy moves through the food chain.

Energy continually enters a food chain from the sun as light energy. Plants capture this light energy and use it for photosynthesis. During photosynthesis, plants convert sunlight, water, and carbon dioxide into sugar and oxygen. Plants use the energy from the sugar to grow and reproduce. Because plants make their own food (sugar), they are called **producers**. Plants are the first level of all food chains.

At the second level of the food chain example is the grasshopper. The grasshopper is known as a **consumer** because it cannot make its own food like plants do. It must find food in its environment. A grasshopper is an herbivore, which means that it is a consumer that eats only plants. The grasshopper uses the energy it gets from eating the plant to carry out its life activities, such as moving, growing, and reproducing.

The mouse and the hawk are at the third and fourth levels of the food chain example. Like the grasshopper, they are consumers. However, the mouse and the hawk are consumers called carnivores because they eat other animals. The mouse gets its energy from eating the grasshopper, and the hawk gets its energy from eating the mouse.



Producers are a key part of all food chains because they can change light energy from the sun into food energy. No other organisms on Earth can do this. Without producers to make food energy, consumers would not be able to survive. Even consumers that do not eat producers, such as the hawk in the food chain above, rely on producers.

For example, imagine taking the producer out of the food chain above. Without plants, the grasshopper would not have food to eat—it would starve to death. Without grasshoppers, the mouse

would no longer have a food source. It would also die. Without mice, the hawk would no longer have food to eat. It would not survive, either. Even though grasshoppers are the only organisms that actually eat plants in this food chain, none of the organisms can survive without plants. They all rely on the plants to capture energy from the sun.



Plants capture the sun's energy and turn it into food.