

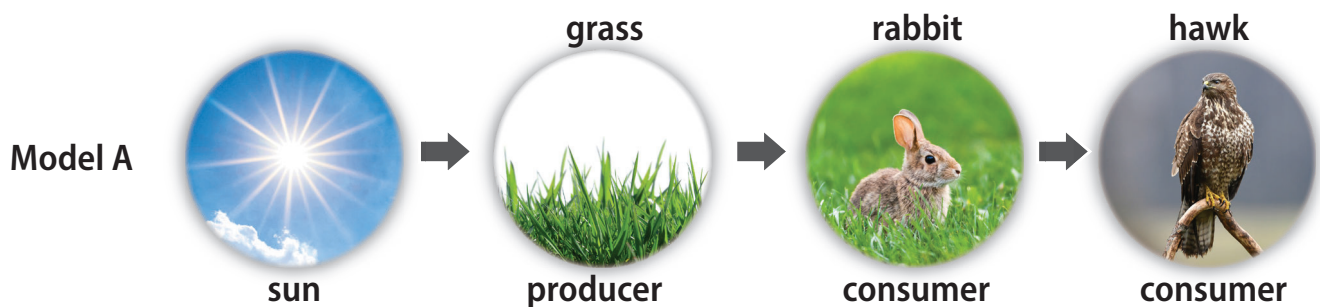
Sample Lesson #2

What does a food chain show?

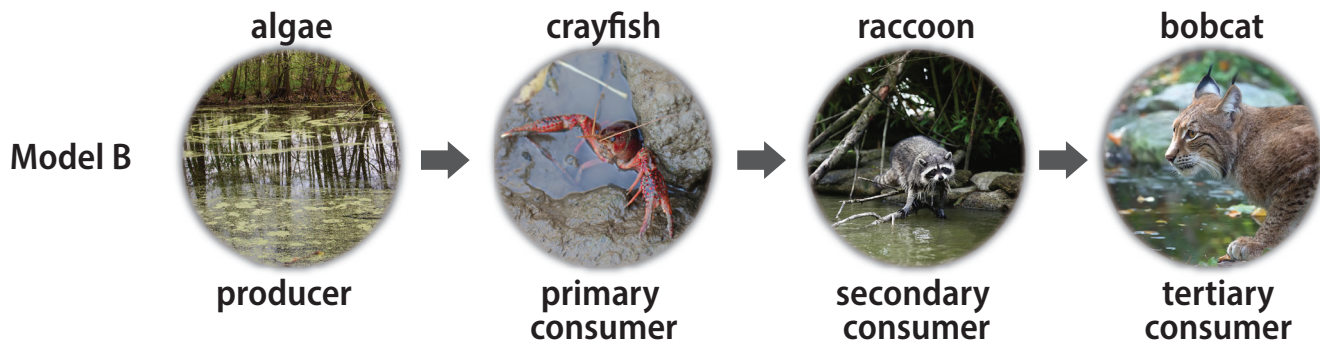
Energy and matter flow from one living thing to the next. Scientists use a model called a **food chain** to show the transfer of energy in an ecosystem. A food chain shows a single pathway, and each picture represents a population. A **population** is all the organisms of the same species in an ecosystem. The arrows in a food chain show the one-way direction of the flow of energy and matter.

All food chains rely on the sun's energy. Sometimes scientists include the sun in their models; sometimes it is not pictured. Plants use energy from the sun to convert air and water to glucose. Because they produce (make) food, plants are called **producers**. In the example below, the producer is grass. A producer is always the first organism in a food chain.

Energy moves from producers to consumers. Since animals consume (eat) other organisms, they are called **consumers**. Herbivores, omnivores, and carnivores are all consumers. In this food chain, both the rabbit and the hawk are consumers.



Below is another example of a food chain. In this food chain, algae are the producers. **Algae** are not plants, but they do have chlorophyll, which allows them to capture the sun's energy and carry out photosynthesis. A crayfish is the first consumer. Another term for the first consumer is **primary consumer**. The crayfish is eaten by the raccoon. In this model, the raccoon is the **secondary consumer**. The raccoon is eaten by the bobcat. The bobcat is the third consumer, and the term for that is **tertiary** (tər shē er ē) **consumer**.



Remember, the energy in a food chain begins with the sun. A producer takes in the sun's energy. Energy moves from a producer to a primary consumer, to a secondary consumer, to a tertiary consumer. In a model, the arrows always show the direction of the energy flow.

- Which type of organism comes first in every food chain?
 consumer producer carnivore herbivore
- In Model B, which organism gets its energy from the raccoon?
 algae crayfish other raccoons bobcat primary consumer
- A term that means “first” consumer is _____ consumer.
 A term that means “second” consumer is _____ consumer.
 A term that means “third” consumer is _____ consumer.
- The arrows in a food chain show the direction of _____.
 A) the energy transfer from organism to organism
 B) animals when they are hunting for food
 C) consumers to producers in a food chain
 D) both B and C
- Each image on a food chain represents a population. A population is _____.
 A) all the animals that live in a forest, desert, or any given area
 B) all the energy that is present in a food chain
 C) all the organisms of a species that live in an ecosystem
 D) both B and C
- Classify each organism. Write **P** for *producer* or **C** for *consumer*.
 _____ tomato plant _____ elephant _____ grass _____ apple tree
 _____ rabbit _____ human _____ sunflower _____ honeybee
- Match each term with its clue.
 _____ model A) shows the flow of energy in an ecosystem
 _____ food chain B) eats plants and animals
 _____ omnivore C) represents something difficult or impossible to observe
 _____ algae D) organisms that contain chlorophyll; producers
- The energy all animals get can be traced back to _____.
 plants other animals water oxygen
- Plants get the energy they need from _____.