

## Interactions within Ecosystems

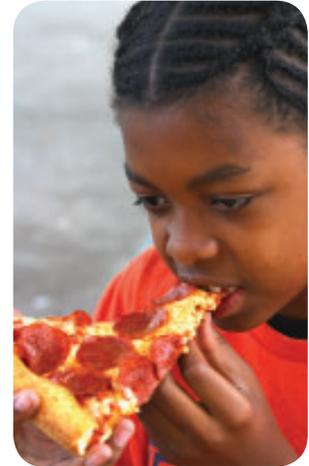
### BIG Ideas

- ✓ Ecosystems are made up of biotic (living) and abiotic (non-living) elements, which depend on each other to survive.
- ✓ Ecosystems are in a constant state of change. The changes may be caused by nature or by human intervention.
- ✓ Human activities have the potential to alter the environment. Humans must be aware of these impacts and try to control them.

### Looking Back

Organisms have different roles in ecosystems.

- The role each organism plays is related to the way in which it obtains energy.
- Producers make their own food. Consumers must eat other organisms to obtain energy.
- Herbivores eat plants; carnivores eat animals; omnivores eat both plants and animals.
- Scavengers eat dead animals; detritivores and decomposers eat dead plants and animals and their wastes.



Food chains and food webs show how energy from the Sun is passed from one organism to another in an ecosystem.

- Food chains start with a producer and end with a consumer. Food chains show the feeding patterns of organisms in an ecosystem.
- Food webs show how the food chains in an ecosystem are interconnected. A food web may contain several food chains.
- Changing any part of a food chain or food web affects all the organisms in that chain or web.
- Energy is lost at each level in a food chain.
- Ecological pyramids are visual representations of the loss of energy at each level in a food chain. Number pyramids show the number of organisms at each level of a food chain or web.



**The skills of scientific inquiry can be used to model and investigate food webs.**

- A model food web can be used to investigate the interactions between the biotic and abiotic elements in an ecosystem.
- Changes in food webs can be observed by using a model ecosystem.

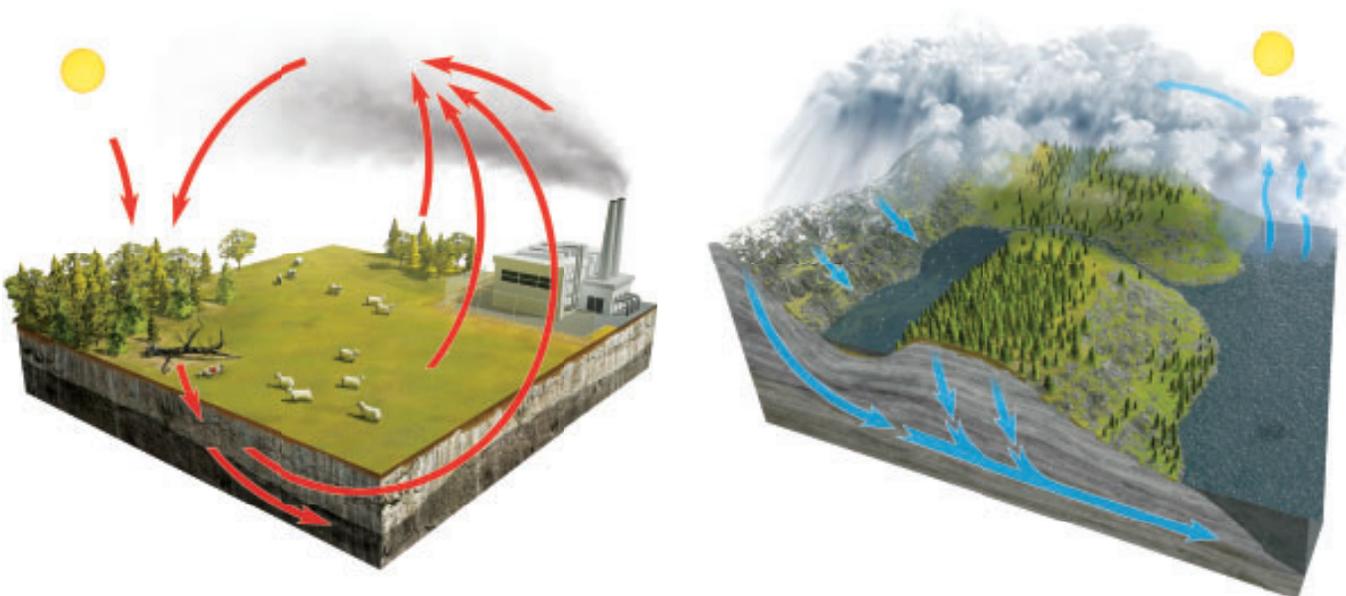


**VOCABULARY**

- photosynthesis, p. 122
- producer, p. 122
- consumer, p. 123
- herbivore, p. 123
- carnivore, p. 123
- scavenger, p. 123
- omnivore, p. 123
- detrivore, p. 124
- decomposer, p. 124
- food chain, p. 126
- food web, p. 127
- pyramid of numbers, p. 133
- closed system, p. 135
- cycle, p. 135
- sustainable, p. 136
- evaporation, p. 138
- condensation, p. 138
- precipitation, p. 138

**Matter is constantly recycled in an ecosystem.**

- Carbon, water, and oxygen are recycled in ecosystems. Both detritivores and decomposers are critical to the recycling of matter.
- Detritivores break down decaying plant and animal matter into small pieces. Decomposers further break down the matter, releasing nutrients back into the environment for use by organisms.
- The continuous recycling of matter makes ecosystems sustainable.



**Investigation skills can be used to examine the biotic and abiotic interactions in a composter.**

- Only certain types of matter decompose in a composter.
- Biotic elements help matter in a composter decompose.