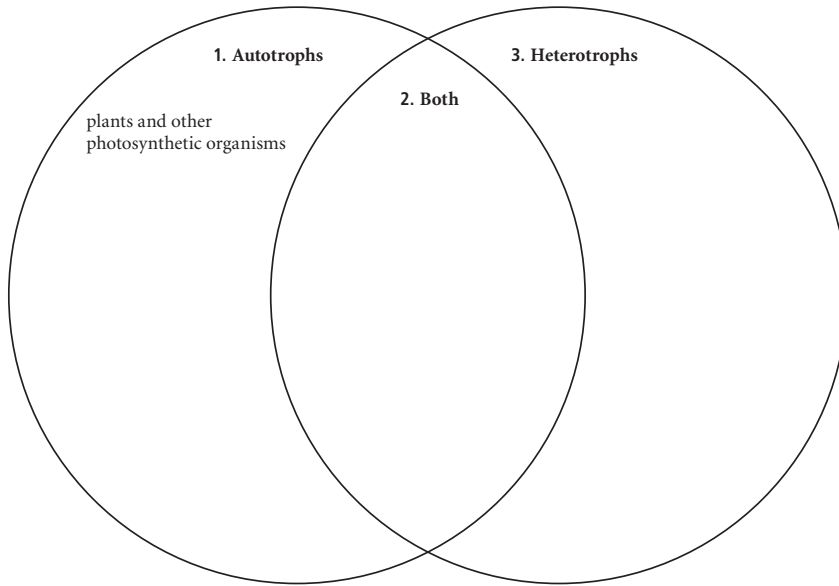


# Concept Mapping

## CHAPTER 2 Organisms and Energy

Complete the Venn diagram about how organisms get energy. These terms may be used more than once: are described by their energy source, carnivores, consumers, detritivores, form the base of all ecological pyramids, herbivores, make organic molecules from inorganic molecules, part of food chains and food webs, producers, some absorb nutrients from dead organisms, some eat other organisms.



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# Study Guide

## CHAPTER 2 Section 1: Organisms and Their Relationships

**In your textbook, read about ecology.**

Read each statement. If it describes the study of ecology, write yes. If not, write no.

- \_\_\_\_\_ 1. Ecology is the study of interactions among organisms.
- \_\_\_\_\_ 2. Ecologists mainly study green plants.
- \_\_\_\_\_ 3. Most experiments in ecology are quick and done in a lab.
- \_\_\_\_\_ 4. Models help ecologists control the many variables in their studies.

**In your textbook, read about the biosphere and levels of organization.**

Match the definition in Column A with the term in Column B.

- | Column A  | Column B           |
|---|--------------------|
| _____ 5. made up of individual organisms of the same species      | A. abiotic factors |
| _____ 6. all nonliving things in an environment                   | B. biosphere       |
| _____ 7. made up of the organisms and nonliving things in an area | C. biotic factors  |
| _____ 8. portion of Earth that supports life                      | D. ecosystem       |
| _____ 9. all living organisms in an environment                   | E. population      |

**In your textbook, read about the ecosystem interactions and community interactions.**

Complete the table by checking the correct column(s) for each interaction.

| Interaction      | Involves Abiotic Factors | Involves Biotic Factors |
|------------------|--------------------------|-------------------------|
| 10. Commensalism |                          |                         |
| 11. Competition  |                          |                         |
| 12. Habitat      |                          |                         |
| 13. Mutualism    |                          |                         |
| 14. Niche        |                          |                         |
| 15. Predation    |                          |                         |

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### Section Quick Check

## CHAPTER 2 Section 1: Organisms and Their Relationships

After reading the section in your textbook, respond to each statement.

1. **Recall** what portion of Earth is included in the biosphere.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. **Discuss** how to recognize the predator and the prey in a predation relationship.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. **Indicate** how individuals relate to populations in the organization of the biosphere.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. **Compare and contrast** mutualism and parasitism.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. **Infer** why green plants or algae are good indicators of the distribution of living organisms in an area.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Enrichment

## CHAPTER 2 Diagramming: A Food Web

Studying the flow of energy in an ecosystem is one way that ecologists learn about the relationships between the different organisms in the ecosystem. Ecologists try to determine how the organisms obtain the energy they need and thereby identify the trophic level of each organism. Most ecosystems are complex, and it is often difficult or impossible to trace all the energy pathways between organisms. Ecologists use models, called food chains and food webs, to help them study the flow of energy in an ecosystem.

**Food Chains** A simple model of the energy flow in an ecosystem is a food chain. A food chain represents the one-way flow of energy, which starts with an autotroph and moves to heterotrophs. An example of a simple food chain is:

grass → rabbit → hawk

Arrows represent the direction of the energy flow.

**Food Webs** More complex and realistic energy flows within ecosystems are modeled by food webs. Because most organisms use more than a single source of food, food webs more closely model the relationships in ecosystems. In the preceding example, rabbits are not the only herbivores that consume grass, and hawks eat other organisms besides rabbits.

### Directions

In the space below, draw a diagram that shows an example of a food web in a terrestrial ecosystem. The organisms in the ecosystem include the following: fungi, snakes, rabbits, grass, mountain lions, mice, shrubs, seed-eating birds, trees, hawks, bacteria, and deer. Use arrows to represent the flow of energy in this ecosystem. Also indicate the trophic level of each organism: decomposer, autotroph, or heterotroph. Use your text and other resources as references. Be sure to label all the organisms in the food web, as well as their trophic levels.