

Section 3–2 Energy Flow (pages 67–73)

This section explains where the energy for life processes comes from. It also describes how energy flows through living systems and how efficient the transfer of energy is among organisms in an ecosystem.

Introduction (page 67)

1. What is at the core of every organism’s interaction with the environment?

Producers (pages 67–68)

2. What source of energy do organisms use that don’t use the sun’s energy?

3. What are autotrophs? _____

4. Why are autotrophs also called producers? _____

5. What do autotrophs do during photosynthesis? _____

6. For each of the following, write which kind of autotroph is the main producer.

a. Land: _____

b. Upper layers of ocean: _____

c. Tidal flats and salt marshes: _____

7. What is chemosynthesis? _____

8. Where do bacteria that carry out chemosynthesis live? _____

Consumers (pages 68–69)

9. Heterotrophs are also called _____.

10. Plant and animal remains and other dead matter are collectively called

_____.

11. Complete the table about types of heterotrophs.

TYPES OF HETEROTROPHS

Type	Definition	Examples
Herbivore		Cows, rabbits
	Heterotroph that eats animals	
Omnivore		Humans, bears, crow
Detritivore		
Decomposer		

Feeding Relationships (pages 69–71)

12. How does energy flow through an ecosystem? _____

13. Complete the table about feeding relationships.

FEEDING RELATIONSHIPS

Relationship	Description
Food Chain	
Food Web	

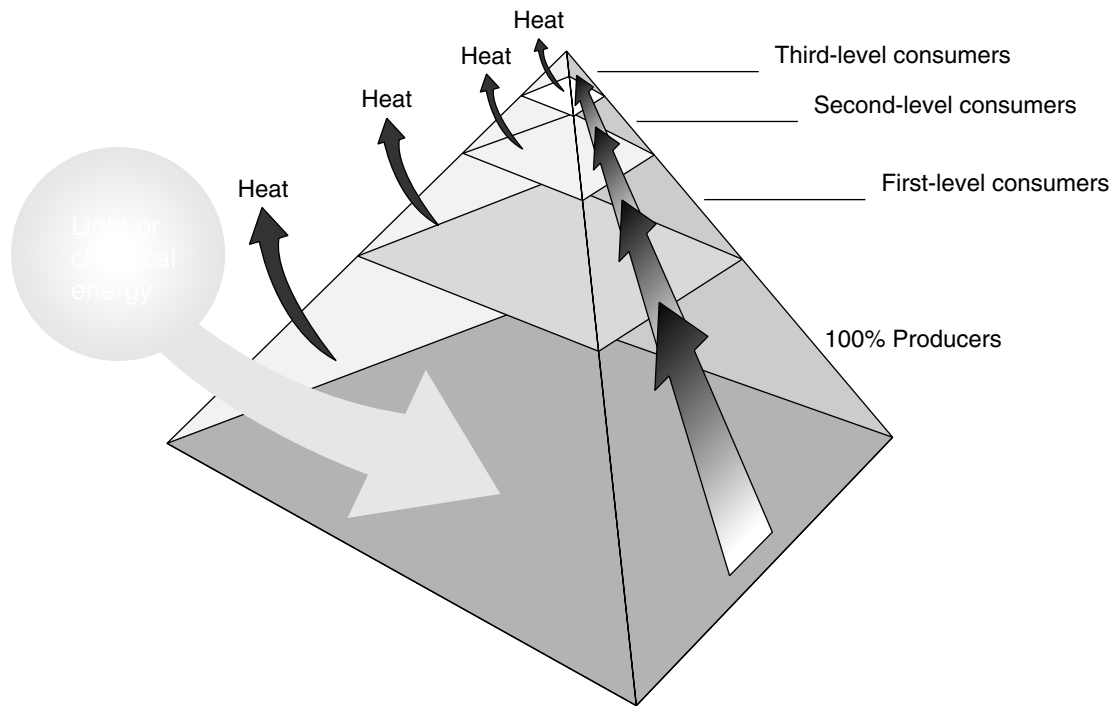
14. What does a food web link together? _____
 15. What is a trophic level? _____
 16. In a food web, what organisms make up the first trophic level? _____
 17. What does a consumer in a food chain depend on for energy? _____

Ecological Pyramids (pages 72–73)

18. What is an ecological pyramid? _____

 19. Why is it that only part of the energy stored in one trophic level is passed on to the next level? _____

20. Complete the energy pyramid by writing the source of the energy for the food web and how much energy is available to first-, second-, and third-level consumers.



- 21. What is biomass? _____

- 22. What does a biomass pyramid represent? _____

- 23. What does a pyramid of numbers show? _____

- 24. Why can each trophic level support only about one tenth the amount of living tissue as the level below it? _____

Reading Skill Practice

When you read about complex topics, writing an outline can help you organize and understand the material. Outline Section 3-2 by using the headings and subheadings as topics and subtopics and then writing the most important details under each topic. Do your work on a separate sheet of paper.