

Ch 3.The Biosphere.Biology.Landis

You go by the moniker _____

Section 3–1 What Is Ecology? (pages 63–65)

This section identifies the different levels of organization that ecologists study. It also describes methods used to study ecology.

Interactions and Interdependence (page 63)

1. What is ecology?
2. What does the biosphere contain?
3. Complete the table about levels of organization.

Level	Definition
Species	
	A group of individuals that belong to the same species and live in the same area
Community	
Ecosystem	
	A group of ecosystems that have the same climate and dominant communities

Ecological Methods (page 65)

4. What are the three basic approaches scientists use to conduct modern ecological research?
5. Why are many ecological phenomena difficult to study?

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)

6. What is at the core of every organism's interaction with the

Ch 3. The Biosphere. Biology. Landis

environment?

Producers (pages 67-68)

7. What source of energy do organisms use that don't use the sun's energy?
8. What are autotrophs?
9. Why are autotrophs also called producers?
10. What do autotrophs do during photosynthesis?

Consumers (pages -69)

11. Heterotrophs are also called
12. Complete the table about types of heterotrophs.

TYPES OF HETEROTROPHS

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

Feeding Relationships (pages 69-71)

13. How does energy flow through an ecosystem?
14. Complete the table about feeding relationships.

Ch 3. The Biosphere. Biology. Landis

FEEDING RELATIONSHIPS

Relationship	Description
Food Chain	
Food Web	

15. What is a trophic level?

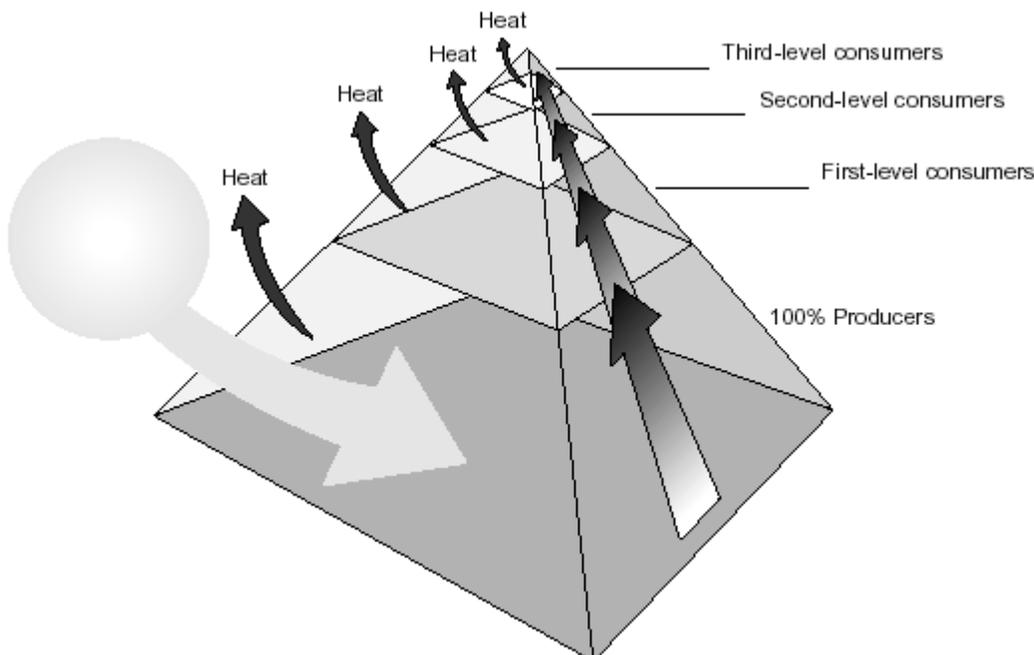
16. In a food web, what organisms make up the first trophic level?

17. What does a consumer in a food chain depend on for energy?

Ecological Pyramids (pages 72-73)

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

19. 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.



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

Section 3-3 Cycles of Matter (pages 74-80)

Ch 3. The Biosphere. Biology. Landis

This section describes how matter cycles among the living and nonliving parts of an ecosystem. It also explains how nutrients are important in living systems.

Introduction (page 74)

21. What are the four elements that make up over 95 percent of the body in most organisms?

Recycling in the Biosphere (page 74)

22. How is the movement of matter through the biosphere different from the flow of energy?

The Water Cycle (page 75)

23. Circle the letter of each process involved in the water cycle.

a. precipitation

b. evaporation

c. runoff

d. fertilization

Nutrient Cycles (pages 76-79)

24. What are nutrients?

25. What are the three nutrient cycles that play especially prominent roles in the biosphere?

26. What is nitrogen fixation?

Nutrient Limitation (page 80)

27. What is the primary productivity of an ecosystem?

28. If a nutrient is in short supply in an ecosystem, how will it affect an organism?

29. When is a substance called a limiting nutrient?

30. What is the typical limiting factor in streams, lakes, and freshwater environments?

31. When an aquatic ecosystem receives a large input of a limiting nutrient, what is often the result, and what is this result called?

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