
BIOLOGY

Study Guide: Chapters 3 -4

Ecology - Ecosystems and communities

Know the following terms.

Abiotic Factor	Decomposer	Omnivore
Autotroph	Diversity	Plankton
Biomass	Ecosystem	Population
Biotic Factor	Estuary	Predator / prey
Carnivore	Food chain	Producer
Climate	Food Web	Succession
Competition	Habitat	Symbiosis
Commensalism	Herbivore	Taiga
Community	Limiting Factor	Temperate
Consumer	Mutualism	Trophic Level
Deciduous	Niche	

Chapter 3.1 - What is Ecology?

1. Explain how Ernst Haeckel came up with the word *Ecology*.
2. What is the extent of the Biosphere?
3. Describe each of the levels of organization listed and shown in the picture on page 64.
4. Tell how each of the following methods are used to study the living world.
Observing - Experimenting - Modeling

Chapter 3.2 - Energy Flow

5. Explain what a food chain is. Then make a food chain using organisms in the food web on page 71.
6. What is the difference between a food chain and a food web?
7. Based on your food chain in question 5, make an energy pyramid, a biomass pyramid, and a number pyramid. You will have to guess and approximate on the mass and numbers.
 - a. How much energy is lost in each step of an energy pyramid?

Chapter 3.3 - Cycles of Matter

8. What is meant by Biogeochemical cycles?
 9. Draw simple diagrams of the Water cycle, Carbon cycle, Nitrogen cycle, and phosphorus cycles.
 10. What is a limiting factor?
 - a. What is the limiting factor of most ecosystems?
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Chapter 4.1 Role of Climate

11. What is the *Greenhouse effect*? Is it good or bad that the earth has a greenhouse effect?

12. What causes the earth to have three climatic zones? Describe each of the zones.

13. Besides latitude, what two factors influence climate?

Chapter 4.2 What shapes an ecosystem?

14. What is the difference between an organism's habitat and its niche?

15. Describe briefly each of the community interactions discussed on pages 92 and 93.

16. What is ecological succession? Tell the differences between primary and secondary succession.

Chapter 4.3 Biomes

17. Define Biome.

18. What are the two most important factors that determine what type of the Biome will exist?

19. Complete the Biome Chart. (to be handed out in class)

Chapter 4.4 Aquatic Ecosystems

20. What determines the nature of an aquatic ecosystem?

21. Briefly describe the two main types of Freshwater Systems.

22. What is an estuary? Explain the difference between a Salt Marsh and a Mangrove Swamp.

23. Marine ecosystems are divided into the photic zone and the aphotic zone. What is the difference?

24. Complete the chart on Aquatic Ecosystems.

To learn the Vocabulary, go to Quizlet.com. in the search box type OlyBiology – from the dashboard, find

Biology Chapters 3-4 and study the words. After you have studied and know the words, you can extra credit by:

Extra Credit – Go to Canvas – Biology then go to quizzes, and complete the Vocabulary Quiz 3-4. You will have 10 minutes to complete the quiz and one attempt, so know the words before you try the quiz. If you score 15 or better, you can keep the points you earn on the quiz.
