

Unit 2 Test Review

The Unit 2 test will include:

- **22 multiple choice questions**
- **2 free response questions**

Overview: the Unit 2 test will cover everything we've covered in class thus far:

- Unit 1 stuff: how to keep a scientific notebook and write a formal lab report, scientific method, principles of sustainability, "Tragedy of the Commons", renewable and nonrenewable resources
- Feedback loops
- Types and Structures of Matter (Chemistry stuff): elements, compounds and atoms
- Changes in matter: balancing simple chemical equations
- Energy and Energy Laws
- Ecosystem structure and function (figure 3.2 in text)
- Biotic and abiotic factors
- Photosynthesis and Respiration
- Food Webs
- Biodiversity
- Energy Flow in ecosystems
- Matter/Nutrient Cycling in ecosystems (C, N, P, and Hydrologic Cycles)
- **Know all bolded vocabulary from Chapters 2 and 3 from the sections above!**

The Unit 2 test will also cover the following information from Chapters 2 and 3

CHAPTER 2 REVIEW

Keep these questions in mind as you review Chapter 2:

1) What is a *feedback loop*? Distinguish between a *positive feedback loop* and a *negative feedback loop*, and give an example of each.

2) What are the basic forms of matter, and what makes matter useful as a resource? Distinguish among matter, elements, compounds, and molecules.

3) What is the *law of conservation of matter*? Explain why there is no "away" as in "to throw away waste items" or "to put away pollutants."

4) Distinguish between the *first law of thermodynamics* and the *second law of thermodynamics*, **and** give an example of each law in action.

5) Use the second law of thermodynamics to explain why energy cannot be recycled.

CHAPTER 3 REVIEW

Keep these questions in mind as you review Chapter 3:

- 1) What is *ecology*? What five levels of the organization of matter do ecologists focus on?

- 2) Distinguish between the *abiotic* and *biotic* components of ecosystems, and give three examples of each. What happens to energy in an ecosystem?

- 3) Distinguish between *primary consumers (herbivores)*, *secondary consumers (carnivores)*, *tertiary consumers*, *omnivores*, *scavengers*, *detritivores*, *detritus feeders*, and *decomposers*. Why are decomposers important, and what would happen if they disappeared?

- 4) What is *photosynthesis*, and why is it important to both producers and consumers?

- 5) What is the *pyramid of energy flow* for an ecosystem? What is *ecological efficiency*? What is the effect of the second law of thermodynamics on the flow of energy through an ecosystem and on the amount of food energy available to top carnivores and humans?

- 6) What happens to matter in an ecosystem?

- 7) Describe the *carbon cycle* and explain the roles of photosynthesis and aerobic respiration in this cycle. Why is carbon a component of nature's thermostat? List two human activities that alter the carbon cycle.

- 8) Describe the *nitrogen cycle*. Explain why the level of nitrogen in soil often limits plant growth. List six ways in which humans alter the nitrogen cycle.

- 8) Describe the *phosphorus cycle*. Explain why the level of phosphorus in soil often limits plant growth on land and why phosphorus also limits the growth of producers in many freshwater streams and lakes. List three ways in which humans alter the phosphorus cycle.