

**Chapter 3 The Biosphere**

**Section Review 3-1**

**Reviewing Key Concepts**

**Matching** *On the lines provided, write the letter of the term on the right that best matches each description.*

- |  |               |
|--|---------------|
| _____ 1. groups of individuals that belong to the same species and live together                   | a. population |
| _____ 2. different populations that live in a defined area   | b. biosphere  |
| _____ 3. all organisms in an area, including the non-living parts of their environment             | c. ecosystem  |
| _____ 4. a geographical region containing several ecosystems with the same climate and communities | d. biome      |
| _____ 5. the combined portions of the planet in which all life exists                              | e. community  |

**Short Answer** *On the lines provided, answer the following questions.*

6. In what way is observation important in ecological inquiry?  
\_\_\_\_\_  
\_\_\_\_\_
7. Why do scientists use experimenting as a method of research?  
\_\_\_\_\_  
\_\_\_\_\_
8. How is modeling helpful to scientists?  
\_\_\_\_\_  
\_\_\_\_\_

**Reviewing Key Skills**

9. **Applying Concepts** Explain the relationship between interactions and interdependence.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
10. **Comparing and Contrasting** Observing and experimenting are two ways that ecologists can answer scientific questions. What are some differences between these two approaches?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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**Chapter 3 The Biosphere** **Section Review 3-2**

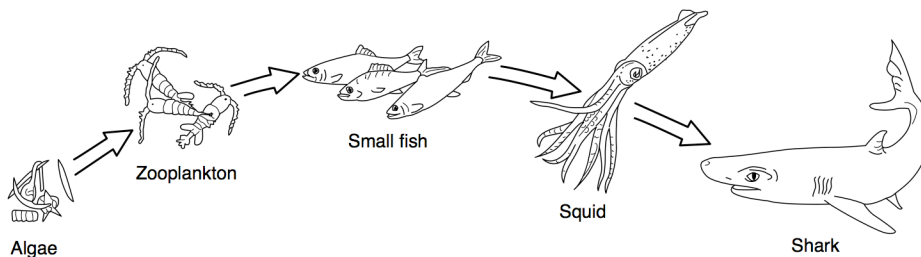
**Reviewing Key Concepts**

**Short Answer** *On the lines provided, answer the following questions.*

1. What is the main source of energy for life on Earth?  
\_\_\_\_\_
2. From what other source can organisms draw energy?  
\_\_\_\_\_
3. Describe the one-way path of energy through an ecosystem.  
\_\_\_\_\_
4. About how much of the energy within any level of a food chain is available to the next level?  
\_\_\_\_\_

**Reviewing Key Skills**

**Interpreting Graphics**



5. Name the producer(s) in the food chain. \_\_\_\_\_
6. Name the consumer(s) in the food chain. \_\_\_\_\_
7. **Applying Concepts** Explain how autotrophs are producers.  
\_\_\_\_\_  
\_\_\_\_\_
8. **Comparing and Contrasting** Compare and contrast the following types of consumers: herbivores, carnivores, and omnivores.  
\_\_\_\_\_  
\_\_\_\_\_
9. **Comparing and Contrasting** How does a food chain differ from a food web?  
\_\_\_\_\_  
\_\_\_\_\_
10. **Calculating** If producers in an energy pyramid produce ten million Calories of energy, how many Calories of energy would be available at the fourth trophic level?  
\_\_\_\_\_

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**Chapter 3 The Biosphere**

**Section Review 3-3**

**Reviewing Key Concepts**

**Short Answer** *On the lines provided, answer the following questions.*

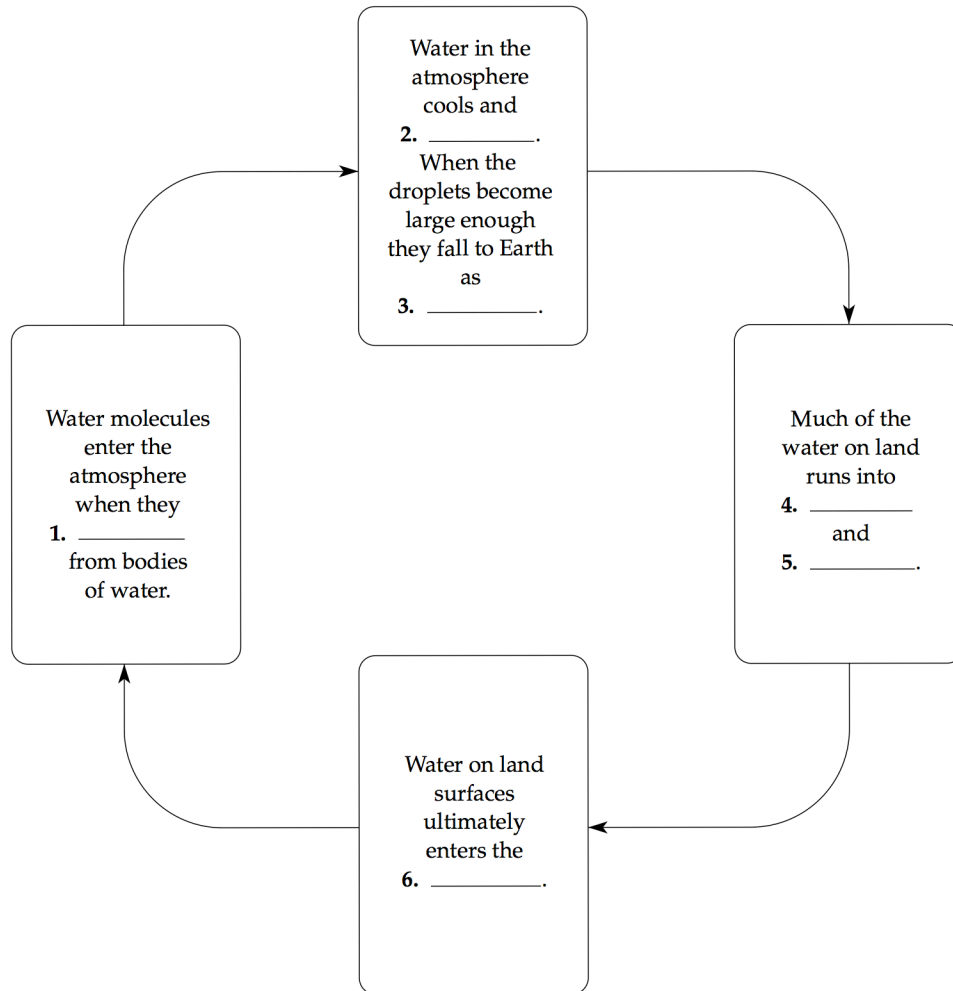
1. How are the flow of matter and the flow of energy through ecosystems different?  
\_\_\_\_\_
2. Describe how nutrients are passed between organisms and the environment.  
\_\_\_\_\_

**Reviewing Key Skills**

3. **Applying Concepts** What role does the land have in the water cycle?  
\_\_\_\_\_  
\_\_\_\_\_
4. **Inferring** What are the main sources of carbon dioxide in the atmosphere?  
\_\_\_\_\_  
\_\_\_\_\_
5. **Predicting** What would happen if the bacteria that cause denitrification were removed from the nitrogen cycle?  
\_\_\_\_\_  
\_\_\_\_\_
6. **Inferring** What is the importance of nitrogen fixation?  
\_\_\_\_\_  
\_\_\_\_\_
7. **Applying Concepts** How are bacteria important to the nitrogen cycle?  
\_\_\_\_\_  
\_\_\_\_\_
8. **Comparing and Contrasting** How does organic phosphate move through a food web?  
\_\_\_\_\_  
\_\_\_\_\_
9. **Comparing and Contrasting** What is one way that the phosphorus cycle differs from the carbon and nitrogen cycles?  
\_\_\_\_\_  
\_\_\_\_\_
10. **Comparing and Contrasting** Compare the typical limiting nutrient in saltwater and freshwater environments.  
\_\_\_\_\_  
\_\_\_\_\_

**Cycle Diagram**

Use information from the chapter to complete the cycle diagram below. If there is not enough room in the cycle diagram to write your answers, write them on a separate sheet of paper.



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