

## Chapter 4 Ecosystems and Communities

### Section 4-1 The Role of Climate (pages 87-89)

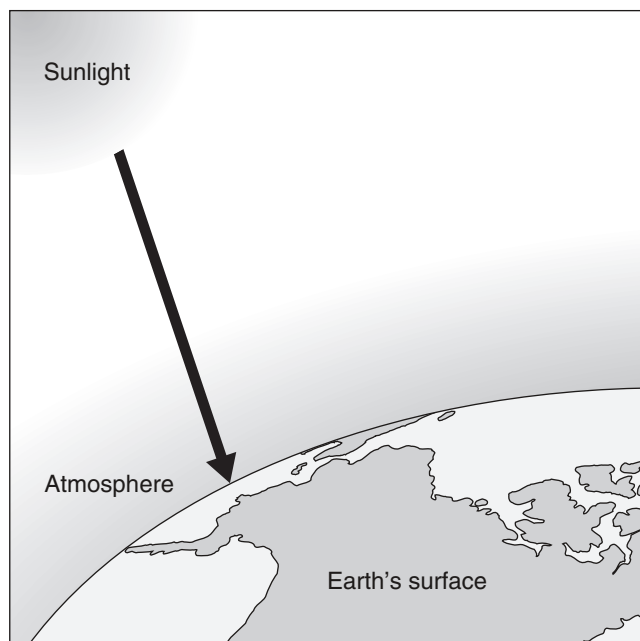
This section explains how the greenhouse effect maintains the biosphere's temperature range. It also describes Earth's three main climate zones.

#### What Is Climate? (page 87)

1. How is weather different from climate? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. What factors cause climate? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### The Greenhouse Effect (page 87)

3. Circle the letter of the world's insulating blanket.  
a. oxygen    b. the atmosphere    c. the oceans    d. solar energy
4. Complete the illustration of the greenhouse effect by showing in arrows and words what happens to the sunlight that hits Earth's surface.



5. What effect do carbon dioxide, methane, and a few other atmospheric gases have on Earth's temperature? \_\_\_\_\_
6. What is the greenhouse effect? \_\_\_\_\_

**The Effect of Latitude on Climate** (page 88)

7. Why does solar radiation strike different parts of Earth's surface at an angle that varies throughout the year? \_\_\_\_\_
8. Circle the letter of where the sun is almost directly overhead at noon all year.  
 a. the North Pole   b. China   c. the equator   d. the South Pole
9. Why does Earth have different climate zones? \_\_\_\_\_
10. Complete the table about Earth's three main climate zones.

**MAIN CLIMATE ZONES**

Climate Zone	Location	Climate Characteristics
	Areas around North and South poles	
	Between the polar zones and the tropics	
	Near the equator	

**Heat Transport in the Biosphere** (page 89)

11. What force drives winds and ocean currents? \_\_\_\_\_
12. The process in which water rises toward the surface in warmer regions is called \_\_\_\_\_.
13. Circle the letter of each sentence that is true about ocean currents.
  - a. Patterns of heating and cooling results in ocean currents.
  - b. Ocean currents transport heat within the biosphere.
  - c. Surface water moved by winds results in ocean currents.
  - d. Ocean currents have no effect on the climate of landmasses.