Section 6–4 Charting a Course for the Future (pages 157–160)

This section describes two types of global change that are of concern to biologists.

Ozone Depletion (pages 157–158)

1. What is ozone? It is a gas made up of molecules that consist of three oxygen atoms.

2. Where is ozone concentrated in the atmosphere? It is concentrated between 20 and 50 kilometers above Earth’s surface.

3. Over what continent has a “hole” in the ozone layer been growing larger and lasting longer over the last 20 years? Antarctica

4. What is causing the problem of ozone depletion? It is caused by compounds called chlorofluorocarbons, or CFCs, which were once widely used as propellants in aerosol cans, in the production of plastic foams, and as coolants in refrigerators, freezers, and air conditioners.

Global Climate Change (page 159)

5. What is global warming? It is the increase in the average temperature of the biosphere.

6. What is the most widely accepted hypothesis about the cause of global warming? Human activities have, at least in part, caused global warming by adding carbon dioxide and other greenhouse gases such as methane to the atmosphere.

7. Circle the letter of each sentence that is true about global warming.
   a. The burning of fossil fuels pulls carbon dioxide from the atmosphere.
   b. Some scientists think it is part of natural variations in climate.
   c. The 1990s was the warmest decade ever recorded.
   d. Cutting and burning forests adds carbon dioxide to the atmosphere.

8. If global warming continues at the current rate, how might sea level be affected? Sea level could rise enough to flood some low-lying coastal areas.
9. What goods and services do a healthy biosphere provide to us? **Goods** include the raw materials for foods, medicines, and many other products. **Services** include temperature control, water purification, and soil formation.

10. What is the first step in charting a course that will improve living conditions without harming the environment? The first step is understanding that humans are part of the ecosystems they inhabit.

**WordWise**

Complete the sentences using one of the scrambled terms below.

deforestation
global warming
renewable resource
monoculture
biodiversity

1. The loss of forests is _______ [deforestation].
2. The increase in the average temperature of the biosphere is _______ [global warming].
3. A resource that can regenerate and therefore is replaceable is a(an) _______ [renewable resource].
4. The agricultural method in which large fields are planted with a single crop year after year is _______ [monoculture].
5. The sum total of the genetically based variety of all organisms of the biosphere is _______ [biodiversity].