Section 2.3
Effects of Bioaccumulation on Ecosystems
Check Your Understanding

Checking Concepts

1. Provide several reasons to explain why amphibians are disappearing.

2. Describe how synthetic chemicals become biomagnified in organisms.

3. What factors determine whether or not a chemical will bioaccumulate?

4. What are PCBs?

5. List some sources of PCBs.

6. Give an example of a persistent organic pollutant (POP).

7. How does DDT bioaccumulate?

8. Explain what 2 ppm means.

9. Which is more toxic—a chemical with a toxic level of 3 ppm or a chemical with a toxic level of 0.03 ppm? Explain.

10. What effect does DDT have on humans?

11. Explain why the effect of biomagnification is so great in killer whales.

12. List three health effects of methylmercury.

13. (a) What type of heavy metal poisoning is caused by smoking?

    (b) Explain how this heavy metal can harm the human body.

14. What is bioremediation?

Understanding Key Ideas

15. Scientists study the health of amphibians, such as frogs, in order to evaluate the health of an ecosystem. Explain why.

16. Create a chart to summarize the environmental effects of the heavy metals lead, cadmium, and mercury. Use the following headings in your chart: Natural Sources, Human-made Sources, Effects on Plants and Animals, Effects on Humans.

17. Explain why a chemical with a long half-life may create problems in the environment.

18. A persistent organic pollutant is estimated to have a half-life of 30 y. If 3 tonnes of the chemical exists in a polluted area today, how much of the chemical will remain after 120 y?

19. Explain how an organism could be affected by a persistent organic pollutant when the chemical was applied 1000 km from the organism's habitat.

20. How can plants be used for bioremediation?

21. Design an experiment to determine what level of a new synthetic insect killer called Beegone is lethal to geraniums.

Pause and Reflect

You are a journalist writing a story about the effects of bioaccumulation of certain synthetic chemicals. What questions would you ask a group of scientists who have recently announced a new chemical discovery?