

For each question, select the best answer from the four alternatives.

- Which statement accurately describes bioaccumulation? (4.5) **K/U**
 - Species build up a resistance to certain pesticides over time.
 - Pesticides in the soil, air, and water become sources of pollution.
 - A substance, such as a pesticide, collects in the body of an organism.
 - The concentration of a substance increases as it moves up the food chain.
- Which of the following is an example of a synthetic fertilizer? (4.2) **K/U**
 - ammonia
 - manure
 - compost
 - rotenone
- Which of the following is true of no-tillage agriculture? (4.2) **K/U**
 - Farmers use fewer pesticides to control weed populations.
 - Farmers leave the ground undisturbed after harvesting crops.
 - Farmers avoid planting crops in the same area every year.
 - Farmers plant crops that are suited to local growing conditions.
- Which of the following is a characteristic of natural fertilizers as compared to synthetic fertilizers? (4.2) **K/U**
 - Natural fertilizers release nutrients relatively quickly.
 - Natural fertilizers have high concentrations of nutrients.
 - Natural fertilizers are a recent agricultural development.
 - Natural fertilizers can improve the structure of soil.

Indicate whether each of the statements is TRUE or FALSE. If you think the statement is false, rewrite it to make it true.

- In general, humans use natural ecosystems more intensively than engineered ecosystems. (4.1–4.8) **K/U**
- Integrated pest management is a system that uses organic farming methods as well as synthetic pesticides and fertilizers. (4.5) **K/U**

Copy each of the following statements into your notebook. Fill in the blanks with a word or phrase that correctly completes the sentence.

- Farms, golf courses, and urban centres are all examples of _____ ecosystems. (4.1) **K/U**
- Some farms use _____, the system of growing only one crop in a certain area every year. (4.2) **K/U**
- Fertilizers can contaminate groundwater through the process of _____. (4.2) **K/U**
- _____ is a form of agriculture that avoids the use of synthetic pesticides and fertilizers. (4.5) **K/U**

Match each term on the left with the appropriate definition on the right.

- | | |
|------------------------|--|
| 11. (a) altered timing | (i) using predatory species to get rid of pests |
| (b) biological control | (ii) changing the location of monocultures each year |
| (c) crop rotation | (iii) scheduling planting and harvesting to avoid pests |
| (d) baiting pest | (iv) confusing mating insects with pheromones (4.5) K/U |

Write a short answer to each of these questions.

12. Name two ways that communities can reduce their collective ecological footprint. (4.7, 4.8) **K/U**
13. Why is soil compaction a problem for plant growth? (4.2) **K/U**
14. How does the food web in a monoculture compare with the food web in a natural ecosystem? (4.1) **K/U**
15. Farmers use either natural or synthetic fertilizers to improve their crop yields. (4.2) **T/I C**
 - (a) Do you think that natural fertilizers are better than synthetic fertilizers? Write a short argument explaining your opinion.
 - (b) How might food production be affected if farmers stopped using fertilizers?
16. Create a chart showing the advantages and disadvantages of using pesticides. (4.4, 4.5) **K/U**
17. Consider the ecosystems in and around your community. (4.7) **A**
 - (a) Name three natural ecosystems in your area. What are some native species that live in these ecosystems?
 - (b) Name three engineered ecosystems in your area. How do these ecosystems show signs of human influence?
18. Which ecosystem is more sustainable: a natural forest or a farm with corn crops? Explain your answer. (4.1) **T/I**
19. The trout population in a local pond has decreased over the past year. At the same time, the growth of algae in the pond has increased. Explain what may be causing these changes in the pond ecosystem. (4.2) **T/I A**
20. (a) What are the benefits of spending time in natural ecosystems?
(b) How could you encourage friends and family members to spend more time in natural ecosystems? (4.7) **T/I C**
21. How could the agricultural method of crop selection benefit farmers as well as the environment? (4.2) **T/I**
22. Name and describe some steps your community has taken to promote sustainability. (4.7, 4.8) **A**
23. (a) Explain why the term *pest* does not apply to natural roles in ecosystems.
(b) Do you think any species would consider humans to be pests? Explain your answer. (4.1) **T/I**
24. Your local supermarket does not yet offer organic products. Write a letter to the manager of the supermarket explaining why he should consider selling organic products. (4.5) **C**
25. Use a Venn diagram or a table to compare the distinctive and shared features of natural and engineered ecosystems. (4.1) **K/U**
26. Why would a farmer choose to use synthetic rather than natural fertilizers? (4.2) **K/U A**
27. What are the three main chemical soil nutrients? (4.2) **K/U**
28. Explain the difference between bioaccumulation and bioamplification. Provide an example of each. (4.5) **K/U**
29. Many cities and towns in Canada and around the world are working to reduce their ecological footprints. (4.7, 4.8) **K/U T/I**
 - (a) Name three actions that a community could take to reduce its ecological footprint.
 - (b) Explain how each action can help to make the community more sustainable.
30. (a) Explain what function air spaces serve in soil.
(b) Describe how compaction negatively affects the ability of soil to support life. (4.2) **K/U**