

## What Do You Remember?

- In your notebook, write the word(s) needed to complete each of the following sentences. **K/U**
  - Any unwanted organisms can be considered a(n) \_\_\_\_\_. (4.4)
  - Manure and ground-up bone meal would be considered \_\_\_\_\_ fertilizers. (4.2)
  - Toxins that kill plants, insects, and rodents are all examples of \_\_\_\_\_. (4.4)
  - Some pesticides and other environmental toxins build up or \_\_\_\_\_ in living organisms. (4.5)
  - \_\_\_\_\_ pesticides kill only a limited variety of living things. (4.4)
  - \_\_\_\_\_ uses a number of different techniques to control pests. (4.5)
  - A(n) \_\_\_\_\_ is a large concentration of a single species growing in one area. (4.1)
  - A(n) \_\_\_\_\_ ecosystem is one that is designed by humans. (4.7)
- Identify whether each of the following conditions best represents a monoculture or a natural ecosystem. (4.1) **K/U**
  - numerous species of herbivores present
  - food web is almost eliminated
  - sustainability requires frequent human intervention
  - only one plant species is not considered a weed species
  - a small number of herbivores are abundant
  - few carnivores are present
- Examine Figure 1 and list the distinguishing features of an urban environment. (4.7) **K/U T/I**



Figure 1

- Match the term on the left with the appropriate definition on the right. (4.1, 4.4) **K/U**

(a) DDT	(i) pesticide that remains in the environment for a long time
(b) narrow spectrum	(ii) pesticide that originated in bacteria
(c) piscicide	(iii) pesticide that kills fish
(d) persistent	(iv) pesticide that kills only a few target species
(e) Bt	(v) pesticide that is banned for use in Canada
- List ten non-native and five native human food sources produced in Canada. (4.1) **K/U**

## What Do You Understand?

- List the advantages and disadvantages of broad-spectrum and narrow-spectrum pesticides.
  - Identify different cases for which each of these might be preferred. (4.4) **K/U A**
- Describe two key innovations that have allowed humans to dramatically alter their natural environments. (4.1) **K/U**
- Does most human food come from natural or engineered ecosystems? Suggest reasons for this. (4.1) **K/U C**
- Examine Figure 2. List six important differences between these two ecosystems. (4.1) **K/U T/I**

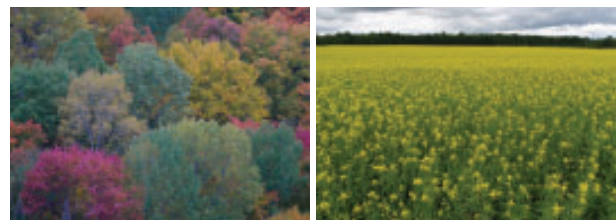


Figure 2

- People think of soil as nothing but non-living bits of rock. Provide a more accurate and detailed description of soil composition. (4.2) **K/U**
- Explain how leaching can cause problems for both farmers and ecosystems. (4.2) **K/U**

12. Under what conditions do farmers need to control water availability? Describe two technologies used to accomplish this. (4.2) **K/U**
13. Figure 3 illustrates the most common way of applying pesticides to fields and forests. List the environmental concerns associated with this application method. (4.4) **K/U A**

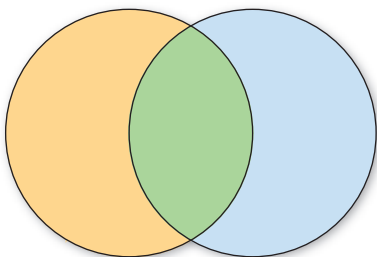


**Figure 3**

14. What are the advantages of not using pesticides to control pests? (4.5) **K/U**
15. Why have some farmers decided to use no-tillage techniques? Explain. (4.2) **K/U**
16. Draw a diagram to illustrate the process of bioamplification. (4.5) **K/U C**
17. Explain why monocultures are not sustainable on their own, while complex natural ecosystems are sustainable without any human intervention. (4.1) **K/U C**

### Solve a Problem

18. Construct a Venn diagram (such as Figure 4) to compare the features of natural and engineered ecosystems. (4.1) **K/U C**



**Figure 4**

19. Brainstorm a list of five situations in which you would consider an organism to be a pest. For example, a mouse in your cottage could be a pest. For each pest, suggest a way of controlling the pest. (4.1) **A C**

20. There seems to be “dirt” everywhere you go outdoors. Does this mean that soil is an abundant resource? Explain your reasoning. (4.2) **A C**
21. London, Ontario, recently banned the sale of water in plastic bottles in city facilities. This sets an example but represents only a small share of the bottles consumed in the city. Should plastic bottles be banned everywhere? Explain your answer. (4.6, 4.7) **A C**

### Create and Evaluate

22. Should golf courses be exempt from recent Ontario legislation regarding cosmetic pesticide use? Explain your answer. (4.5) **A C**
23. If organic products are grown without the addition of expensive pesticides, hormones, and fertilizers, why do these products cost more? (4.5) **A C**
24. Urban centres cause harm to the environment, but they also have benefits. Brainstorm some environmental problems that might arise if more people lived in rural settings instead of cities. (4.7) **T/I A**

### Reflect on Your Learning

25. What aspects of human-engineered ecosystems do you think are the least sustainable? Explain. (4.1–4.8) **K/U C**
26. What choices do you think are most important in making communities more sustainable and environmentally friendly? Explain your reasoning. (4.7) **A**
27. Has what you have learned influenced your thinking on the use of pesticides or fertilizers? If so, describe how. (4.4, 4.5) **C**

### Web Connections

28. Some wild animals benefit from living in an urban environment. These animals also have impacts as their populations increase. Research the impacts Canada geese or raccoons have in an urban environment. (4.7) **T/I C A**



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