

## CHAPTER 1 REVIEW ANSWERS

### Reviewing Key Terms

- (a) Biotic means living. Abiotic means non-living.  
(b) A community is made up of all of the interacting populations that live in an area. A population is a group of individuals of the same species, living together in one ecosystem.  
(c) An ecologist is a scientist who studies the interactions occurring between biotic and abiotic elements. An ecosystem is all of the biotic and abiotic interactions in an area.  
(d) Mutualism is a symbiotic relationship where both parties benefit. Parasitism is a symbiotic relationship where one partner benefits and the other partner is harmed.
- Students' answers will vary. There are many examples in the student textbook, or students may come up with their own examples.
- Students' answer may vary but they should use the definition given on page 23. This includes the idea that a niche is a place. A niche is a role that plants and animals play in their community, or the way they make their living. Examples of niches in a community include: producer, consumer, herbivore, carnivore, predator, prey, omnivore, scavenger, decomposer, parasite, host.
- (a) (iii)  
(b) (v)  
(c) (iv)  
(d) (ii)  
(e) (i)

### Understanding Key Ideas

- Quadrats are used to sample ecosystems because they cover a precise, manageable area that can be examined in a short time.
- A biological community includes all the interacting populations in an area. An ecosystem includes the interactions of biotic and abiotic elements in an area. So the community in a lake would include the populations of sunfish, bass, crayfish, and aquatic plants. The lake ecosystem would include these, but also the water, the rocks and mud on the bottom, and the sunlight shining on the surface.
- The main parts of an ecosystem are the biotic elements (anything alive) and the abiotic elements (anything non-living). Students' examples will vary.
- The hawks are carnivores, the field mice are herbivores, and the corn is a producer.

- Ecology is the study of interactions among organisms, as well as the interactions between organisms and their environment. These things are not found inside a classroom or laboratory, which is why they need to be studied out of those settings.
- Aboriginal peoples are considered to be the first ecologists because they studied and learned about interactions among organisms and the interactions between organisms and their environment long before modern ecology came into being. Understanding environments, and everything that lived in those environments, helped Aboriginal peoples meet all of their needs and create complex cultures and societies before the arrival of non-native settlers to North America.
- (a) Scavengers and decomposers are important because they get rid of dead and decaying plant and animal material.  
(b) Decomposers differ from scavengers because they do not actually eat dead materials. Instead they penetrate dead or waste materials and slowly break down the cells.
- Abiotic parts include elements such as air, water, sunlight, temperature, soil, and rocks. Answers should reflect how the abiotic parts help or hamper the organism's survival.

### Developing Skills

13. Ensure that students have guidance about your expectations for this question so they can create appropriate representations.
14. Students' representations should include reference to the climate in each biome, as well as the major types of vegetation found in each.
15. A model of an ecosystem would have to include biotic and abiotic features. Producers, consumers, decomposers, or scavengers would need to be included. As well, soil, light, and water would need to be added.
16. **Problem Solving** Students' answers will vary depending on the type of animal they choose.
17. Students' answers will vary depending on the organisms that they choose. Some of the organisms will fill more than one niche, so ensure that students' answers are complete.
18. Students' answers will vary, but examples include corporate sponsors for events. The event gets money and the sponsor gets advertising and exposure.
19. **Critical Thinking**
  - (a) The plant is pollinated. The bee gets nectar. This is an example of mutualism.
  - (b) A dog is bitten and scratches. The flea gets a home and food. This is an example of parasitism.
  - (c) The bat gets food. The cactus is pollinated. This is an example of mutualism.
  - (d) The bird eats insects on the buffalo's back and from the grass that the buffalo disturbs. The water buffalo has insects removed from its back. This is an example of mutualism.