Worksheet 1: Abiotic and Biotic Factors

Additional Practice Questions

Directions: Select the best answer for each of the following questions. Answers are found at the end of this document.

Life Science: Explain the interaction of abiotic and biotic factors within an ecosystem:

Biotic, Abiotic and Biomes

PLOs B1a – B1c

1. Which of the following components in a rainforest is an abiotic factor?

A. soil  
B. fungi  
C. animals  
D. bacteria

2. What term is used to describe a region that contains similar biotic components such as plants and similar abiotic components such as temperature and rainfall?

A. community  
B. ecosystem  
C. habitat  
D. biome
3. **Use the 2008/2009 Data Pages to answer this question.**

Using data from Data Page 6 (Biomes of the World), identify the combination that contains Canadian biomes.

A. temperate rain forest, tundra, desert  
B. temperate rain forest, grassland, desert  
C. boreal forest, temperate rain forest, permanent ice  
D. boreal forest, temperate deciduous forest, tropical rain forest

4. Which Canadian biome is characterized by low temperatures and low amounts of precipitation?

A. tundra  
B. grasslands  
C. boreal forest  
D. temperate deciduous forest

5. Which term best describes how an organism cares for its young, hibernates, and has a characteristic way of mating?

A. physiological adaptation  
B. behavioural adaptation  
C. structural adaptation  
D. metabolic adaptation

6. Which of the following is a correct characterization of tundra?

A. In summer, the tundra is alive with insects and birds.  
B. All precipitation in the tundra is permanently frozen, hence the name "permafrost."  
C. The landscape of pools and swamps in the tundra is due to a high amount of precipitation.  
D. The long periods of darkness prevent trees and other photosynthetic producers from growing.
7. **Use the following graph to answer this question.**

![Climate Graph for Winnipeg, Manitoba](climate_graph.png)

In which biome did you find Winnipeg?

A. tundra  
B. desert  
C. grassland  
D. boreal forest

8. Which pair is mismatched?

A. temperate deciduous forest-cougars  
B. boreal forest-evergreen trees  
C. tundra-arctic hares  
D. grasslands-orchids

9. An ecosystem consists of what two components?

A. plants and animals  
B. habitats and niches  
C. water and temperature  
D. biotic and abiotic factors
10. This ecological term is described as being made of a community of organisms plus its physical environment. Which ecological term best matches this description?

A. niche  
B. habitat  
C. ecosystem  
D. trophic level

11. Which of the following is a biotic factor in an ecosystem?

A. food chains  
B. temperature  
C. water availability  
D. inorganic nutrients

12. What is the definition of trophic level?

A. how much biomass is in a population  
B. how much energy is produced by an ecosystem  
C. energy loss from heterotrophs to consumers  
D. where an organism is located on the food chain

13. What are primary consumers that feed on green plants called?

A. producers  
B. omnivores  
C. herbivores  
D. carnivores
14. Which of the following organisms could be considered a decomposer?

A. bird  
B. mushroom  
C. green algae  
D. caterpillar

15. Energy flow in an ecosystem begins with which of the following groups of organisms?

A. herbivores  
B. decomposers  
C. primary producers  
D. primary consumers

16. Why is energy flow in an ecosystem not considered to be cyclic?

A. Energy is evenly spread out over many organisms.  
B. Energy increases as you go up the energy pyramid.  
C. Energy is converted to many kinds of useful energy.  
D. Energy is no longer useful when it is converted to heat.

17. What happens to the amount of energy while going up a food pyramid?

A. The amount of energy increases.  
B. The amount of energy decreases.  
C. The amount of energy stays the same.  
D. The amount of energy first decreases and then finally increases.
18. Which of the following pairs are primary producers in terrestrial and aquatic ecosystems, respectively?

A. green plants, algae  
B. algae, green plants  
C. producers, consumers  
D. autotrophs, heterotrophs

19. Spanish moss lives in, but does not harm, trees. This is an example of which ecological process?

A. mutualism  
B. parasitism  
C. competition  
D. commensalism

20. Which adaptations help predators become effective hunters?

I. excellent eyesight  
II. great sense of smell  
III. sharp teeth  
IV. spines in their fur

A. I  
B. I and II  
C. I, II, and II  
D. I, II, III, and IV
21. **Use the following graph to answer this question.**

![Biome Climate Data Graph]

Which biome has an average annual precipitation of 75 cm and an average annual temperature of 25°C?

A. grassland  
B. boreal forest  
C. tropical rainforest  
D. temperate deciduous forest

22. **Use the 2008/2009 Data Pages to answer this question.**

Canada's latitudinal area lies within what area?

A. north of equator and south of Tropic of Cancer  
B. south of North Pole and north of Tropic of Cancer  
C. north of equator and north of Tropic of Capricorn  
D. south of North Pole and north of Tropic of Capricorn
23. Which abiotic factor causes temperatures to lower because the atmosphere is thinner and retains less heat?

A. wind  
B. latitude  
C. elevation  
D. ocean currents

24. What are the two most important factors that influence the characteristics and distribution of biomes?

A. temperature and latitude  
B. latitude and precipitation  
C. precipitation and elevation  
D. precipitation and temperature

25. What happens when moist air is blown inland toward mountains?

A. Precipitation occurs on both sides.  
B. On the windward side, a dry land area is created; on the leeward side, precipitation occurs.  
C. The clouds blow over the mountains and it rains in the interior.  
D. On the windward side, precipitation occurs; on the leeward side, a dry land area is created.

26. Which of the following statements is not true about biomes?

A. They vary according to climate.  
B. They are the smallest communities on land.  
C. They are communities of similar populations.  
D. They vary according to latitude and altitude.
Answers

1. A
2. D
3. C
4. A
5. B
6. A
7. C
8. D
9. D
10. C
11. A
12. D
13. C
14. B
15. C
16. D
17. B
18. A
19. D
20. C
21. A
22. B
23. C
24. D
25. D
26. B