

BC Science 10 Workbook Answers

Unit 1: Sustaining Earth's Ecosystems

Chapter 1 Biomes and ecosystems are divisions of the biosphere.

Section 1.1 Biomes

Cloze Activity

Biomes and ecosystems

Page 4

1. biotic
2. abiotic
3. biome
4. terrestrial
5. temperature; precipitation
6. latitude
7. elevation
8. ocean currents
9. climatograph
10. adaptations
11. structural; physiological; behavioural

Applying Knowledge

Various biomes

Page 5

BIOME	LOCATION(S)	PHYSICAL FEATURES
tundra	upper northern hemisphere	<ul style="list-style-type: none"> • layer of permanently frozen soil (permafrost) • flat terrain cold and dark most of year
boreal forest	northern hemisphere	<ul style="list-style-type: none"> • short summer growing season • many marshes, shallow lakes, and wetlands soil is very wet
temperate deciduous forest	eastern Canada, eastern United States, eastern Asia, and western Europe	<ul style="list-style-type: none"> • large seasonal changes • four distinct seasons • long warm growing season • enriched soil
temperate rainforest	coast of Chile, northwest coast of North America, New Zealand, southern Australia	<ul style="list-style-type: none"> • narrow strips along coastlines backed by mountains • ocean winds • large amounts of moisture on windward side of mountains

BIOME	LOCATION(S)	PHYSICAL FEATURES
Grassland (temperate and tropical)	temperate: centre of North America (prairies) and in Russia (steppes) tropical: north and south of equator in Africa, South America, northern Australia	<ul style="list-style-type: none"> • flat land • strong winds • temperate: rich, fertile soil • tropical: heavy rain • precipitation followed by dry period
tropical rainforest	around the equator: northern South America, Central America, central Africa, and southeast Asia	<ul style="list-style-type: none"> • poor soil • heavy rain • limited plant growth on forest floor due to canopy
desert (hot and cold)	every continent	<ul style="list-style-type: none"> • hot desert: <ul style="list-style-type: none"> • very little rainfall or a lot in very short time period • salty soil • cold desert: <ul style="list-style-type: none"> • snow and spring rain • salty soil, little erosion
permanent ice (polar ice)	polar land masses and ice caps of Arctic, Greenland, and Antarctica	<ul style="list-style-type: none"> • strong winds • little soil • limited fresh water • very cold year round

Interpreting Illustrations

Climatographs

Page 6

- A. permanent ice
- B. boreal forest
- C. temperate rainforest
- D. grassland
- E. desert (hot)
- F. tropical rainforest

Assessment

Biomes

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1. C 2. B 3. E 4. D 5. F 6. A 7. D 8. B 9. C 10. A 11. B 12. C

Section 1.2 Ecosystems

Comprehension

Parts of an ecosystem

Page 10

1. An ecosystem has abiotic components that interact with biotic components, while a habitat is the place in which an organism lives.
2. Three main abiotic components of ecosystems are (any three of) oxygen, water, nutrients, light, and soil.
3. A population refers to all the members of a particular species within an ecosystem, while a community is all the populations of different species within an ecosystem.
4. Symbiosis is the interaction between members of two different species that live together in a close association.
5. Commensalism is a symbiotic relationship in which one species benefits and the other species is not helped or harmed.
6. Mutualism is a symbiotic relationship in which both organisms benefit, while parasitism is a symbiotic relationship in which one species benefits and the other is harmed.
7. Predation is where one organism eats all or part of another organism.

Interpreting illustrations

Biotic interactions in ecosystems

Page 11

1. I. organism
II. ecosystem
III. population
IV. community
V. biosphere
2. Largest Biosphere
 Ecosystem
 Community
 Population
Smallest Organism
3. Lists will vary but should include a variety of plants and animals.

Applying Knowledge

Symbiotic relationships

Page 12

1. Term: Mutualism
Explanation: Both organisms benefit. The ant gets its food and shelter while the plant is protected from insects.

2. Term: Competition

Explanation: Harmful interaction between two or more organisms as they compete for the same resource. The knapweed prevents other species from populating the soil by releasing a chemical.

3. Term: Predation

Explanation: One organism (predator) eats all or part of another organism (the prey). The lynx is the predator and the snowshoe hare is the prey.

4. Term: Commensalism

Explanation: One species benefits and the other species is not helped or harmed.

The Spanish moss captures nutrients and moisture from the air with no harmful effects on the trees.

5. Term: Parasitism

Explanation: One species benefits and another is harmed. The pine beetle has its food source and the pine tree is destroyed.

Assessment

Ecosystems

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1. D 2. E 3. B 4. F 5. A 6. C 7. G 8. B 9. D 10. C

Chapter 2 Energy flow and nutrient cycles support life in ecosystems.

Section 2.1 Energy Flow in Ecosystems

Cloze activity

Energy flow

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1. biomass
2. energy flow
3. photosynthesis
4. consumer
5. decomposition
6. biodegradation
7. decomposers
8. food chains; trophic
9. primary producers
10. primary consumers; secondary consumers
11. tertiary consumers
12. food webs; food pyramids

Interpreting Illustrations

Food chains, food webs, and food pyramids

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1. bunchgrass, algae