

## INTEGRATION QUESTIONS

### The ecosystem and trophic relationships

1. True or false?

- |  |               |
|--|---------------|
| a) Decomposers are autotrophic organisms.  | <u>False.</u> |
| b) The lynx that eats a rabbit is a second-order consumer.                         | <u>True.</u>  |
| c) Fungi are producers.  | <u>False.</u> |
| d) A trophic network is the representation of a single food chain in an ecosystem. | <u>False.</u> |
| e) Decomposers transform organic matter into inorganic matter.                     | <u>True.</u>  |
| f) A heterotrophic organism can produce its own food.                              | <u>False.</u> |
| g) A carnivore cannot be a first-order consumer.                                   | <u>True.</u>  |
| h) A squirrel that eats nuts is a first-order consumer.                            | <u>True.</u>  |

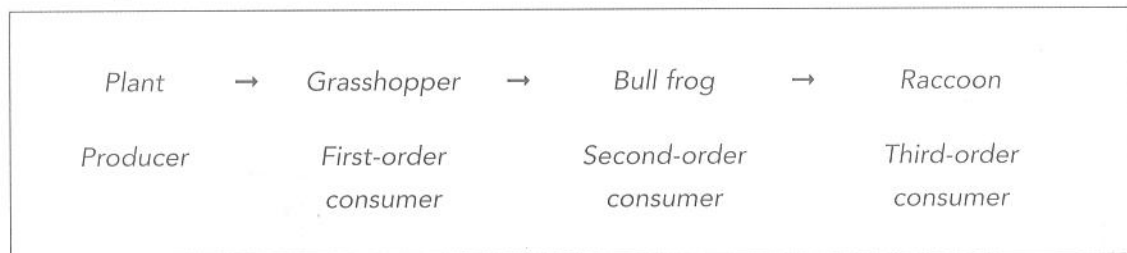
2. Name the trophic level of each of the following organisms or types of organisms.

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|----------------|--------------------|
| a) Heterotroph | <u>Consumer.</u>   |
| b) Herbivore   | <u>Consumer.</u>   |
| c) Detrivore   | <u>Decomposer.</u> |
| d) Autotroph   | <u>Producer.</u>   |
| e) Water-lily  | <u>Producer.</u>   |
| f) Carnivore   | <u>Consumer.</u>   |
| g) Fungus      | <u>Decomposer.</u> |

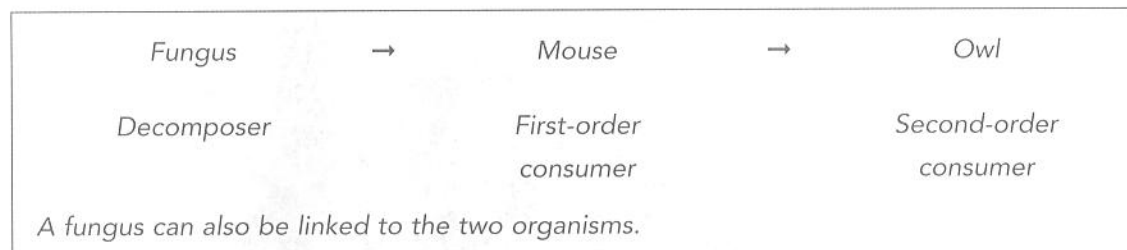


3. Using the following organisms, build a food chain. Specify the trophic level of each of the organisms.

- a) Grasshopper                      Raccoon                      Bull frog                      Plant



- b) Owl                      Fungus                      Mouse



## INTEGRATION QUESTIONS

### Ecosystem dynamics and disturbances

1. True or false?

- a) The energy in an ecosystem is recycled. False. \_\_\_\_\_
- b) The new biomass includes the matter produced by producers and consumers. False. \_\_\_\_\_
- c) In an ecosystem, a part of the energy is lost in the form of heat. True. \_\_\_\_\_
- d) Matter is always circulating in the ecosystem, nothing is lost. True. \_\_\_\_\_
- e) A natural disturbance is always less serious than a human disturbance. False. \_\_\_\_\_
- f) The ecological footprint serves to measure the impact of human activities on ecosystems. True. \_\_\_\_\_
- g) No ecosystem is immune to disturbances. True. \_\_\_\_\_
- h) The flooding of land by a beaver dam is a natural disturbance. True. \_\_\_\_\_

2. What would happen if there were no more decomposers?

*Chemical recycling would no longer take place, which means that there would be no inorganic matter for the producers. The entire ecosystem would collapse.*

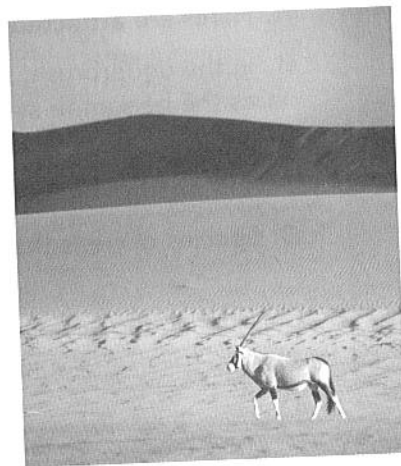
3. Circle the element which is not usually found in biomass.

- Trees      Rabbits      Rocks      Fish      Lady bugs

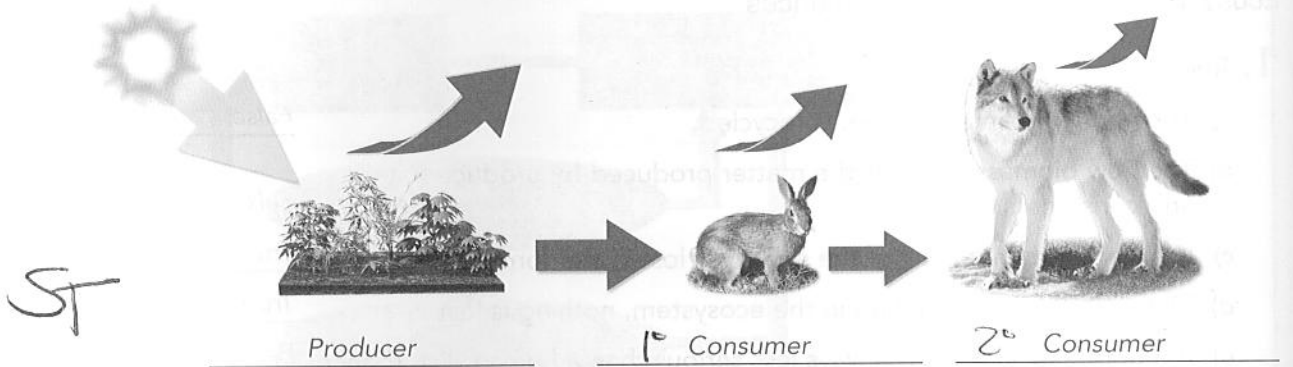
*Rocks do not usually contain organic matter.*

4. What is the link between the primary productivity of an ecosystem and the number of animals in that ecosystem?

*Primary productivity represents the quantity of new biomass available for first-order consumers. The more new organic matter the habitat creates, the more animals will live there and the more productive the ecosystem will be.*



5. Examine the following illustration.



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- Name the trophic level of each organism in the illustration above.
- What does each colour used for the arrows indicate?

*The yellow arrow represents the radiant energy of the sun.*

*The blue arrows show the transfer of energy from one organism to another.*

*The red arrows illustrate the energy lost into the atmosphere at each level.*

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6. Indicate if each of the following statements is a natural disturbance (N) or a human disturbance (H).

- |   |       |
|---|-------|
| a) Land flooded by the construction of dams.            | _____ |
| b) A forest fire is caused by lightning.                | _____ |
| c) The ocean level rises as a result of global warming. | _____ |
| d) A late frost kills the first flowers of spring.      | _____ |

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7. Put the various possible steps in an ecological succession following a forest fire in order.

- |  |   |
|--|---|
| A. Hares are attracted by the plants and the young tree shoots.  | 3 |
| B. In the underbrush, species of trees that tolerate shade, such as the balsam fir start to appear.                        | 4 |
| C. Herbaceous plants that like intense light and adapt to disturbances grow and provide humus on the ground when they die. | 1 |
| D. Species of trees that like a lot of light take root.  | 2 |

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8. Considering the ecological footprint, name an advantage linked to recycling and composting.

*Answers will vary. Examples. Recycling means we use fewer resources to produce new goods, therefore, a smaller surface of the Earth and less water are used. Also, recycling and composting serve to reduce the surface of the Earth and the quantity of water needed to eliminate waste.*

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