



The National  
Orthodox School  
Shmaisani

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Subject: Biology

Ecology worksheet

Name:

Date:

Grade 9 IB

### Circle the correct answer

1. [1 mark]

What is a community?

- A. A group of individuals of the same species in a given area
- B. A group of animals that interact socially
- C. A group of organisms interacting with the abiotic environment
- D. A group of populations interacting with each other within a given area

2a. [2 marks]

Compare and contrast the mode of nutrition of detritivores and saprotrophs.

	Detritivores	Saprotrophs
Similarity	Heterotrophs / Feed on nutrients from dead organic matter	
Difference	Internal digestion	external digestion.

3. [1 mark]

Which organism would be classified as a saprotroph?

- A. A single-celled eukaryote that obtains its carbon compounds by photosynthesis and ingestion of other single-celled organisms
- B. A jellyfish that uses the stinging cells in its tentacles to paralyse its prey, which is passed to an internal gastric cavity through a single opening
- C. A fungus that feeds by secretion of digestive enzymes onto its food and absorption of digested material
- D. A dung beetle that feeds on the fecal material left behind by other animals

4. [1 mark]

Which level(s) of ecological complexity involve(s) biotic factors but not abiotic factors?

- I. Community
- II. Ecosystem
- III. Population

- A. I only
- B. II only
- C. I and II only
- D. I and III only

5. [1 mark]

What is the ecological term for a group of different types of organisms that live together and interact with each other?

- A. Community
- B. Domain
- C. Ecosystem
- D. Population

6. [1 mark]

Hummingbirds eat flower nectar and small insects. To which nutritional group do they belong?

- A. Autotrophs
- B. Consumers
- C. Detritivores
- D. Saprotrophs



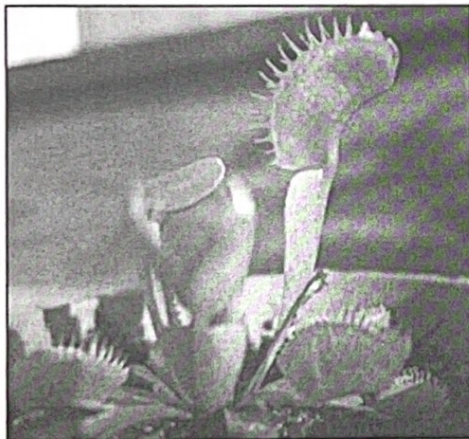
7. [1 mark]

The Australian pitcher plant (*Cephalotus follicularis*) is a green plant that traps and feeds on flies and other live insects. What is this plant's mode of nutrition?

- A. Producer and saprotroph
- B. Autotroph and detritivore
- C. Autotroph and heterotroph
- D. Consumer and saprotroph

8. [1 mark]

The Venus flytrap (*Dionaea muscipula*) is a photosynthetic plant. It obtains nitrogen but not energy by digesting captured insects.



[Source: adapted from [www.flytrapcare.com](http://www.flytrapcare.com)]

Which term describes this plant?

- A. Secondary consumer
- B. Autotroph
- C. Primary consumer
- D. Saprotroph

9. [1 mark]

The three-toed sloth, *Bradypus variegatus*, lives in tree tops where it feeds on leaves. It also feeds on algae and fungi which live in its fur.



In which trophic group should the three-toed sloth be classified?

- A. Autotroph
- B. Consumer
- C. Detritivore
- D. Saprotroph

10. [1 mark]

Which processes occur in an ecosystem?

- I. Biomass increases in each successive trophic level.
- II. Inorganic nutrients are recycled.
- III. Chemical energy is stored in carbon compounds.

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II and III



11. [1 mark]

In an area of forest measuring 100 m by 100 m, samples were taken to estimate the number of silver maple (*Acer saccharinum*) trees in the forest. The number of trees counted in each of five areas of 400 m<sup>2</sup> was recorded.

	3			
			5	
4		5		
			8	

$$\frac{25}{5} = 5$$

$$5 \rightarrow 400 \text{ m}^2$$

$$? \leftarrow 10000 \text{ m}^2$$

$$\frac{10000 \times 5}{400} = 125$$

Approximately how many silver maple trees are in the 10000m<sup>2</sup> area of forest?

- A. 5
- B. 25
- C. 125
- D. 625

12. [4 marks]

Describe how detritivores obtain nutrition and the effects they have in ecosystems.

1. By removing large waste / cleans

up the ecosystem

2. Improve soil conditions

13. [3 marks]

Explain how plants capture and use light in photosynthesis.

Plants convert light energy into chemical energy.  
photosynthesis takes place in chloroplasts.  
Glucose is produced by photosynthesis.  
Organic / Carbon Compounds / glucose provide  
food / stored energy.