What Is an Ecosystem?

Name: _____ Class: _____ Date: _____

Part A – Multiple Choice (8 marks)

1. What is an ecosystem?

A. A group of animals of the same species
B. All the living and non-living components interacting in an area
C. A place where only plants grow
D. A collection of non-living objects

2. Which of the following is a biotic component?

A. Sunlight
B. Water
C. Mushroom
D. Temperature

3. Which of the following is an abiotic component?

A. Grass
B. Bacteria
C. Earthworm
D. Soil temperature

4. Which ecosystem is mainly characterized by salt water?

A. Desert
B. Marine ecosystem
C. Grassland
D. Freshwater pond

5. Which organism is a producer in most ecosystems?

A. Grass
B. Rabbit
C. Fox
D. Mushroom

6. What would most likely happen if an ecosystem received much less rainfall than usual?

A. All organisms would immediately disappear
B. The amount of sunlight would increase automatically
C. Plant growth and water availability could decrease
D. Abiotic factors would no longer matter

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7. Which statement best describes dynamic equilibrium in a healthy ecosystem?

A. Nothing in the ecosystem ever changes
B. All organisms remain at exactly the same population size
C. Organisms stop interacting with their environment
D. Populations and environmental conditions may fluctuate while the system continues functioning

8. Why are decomposers important?

A. They produce all the sunlight needed by plants
B. They break down dead material and recycle nutrients
C. They prevent all animals from dying
D. They remove all abiotic components

Part B – Biotic or Abiotic? (6 marks)

Classify each component as biotic (living or once-living) or abiotic (non-living physical or chemical factor).

Component	Biotic or Abiotic?
A tree	
Sunlight	
Water	
Bacteria	
A fallen dead leaf	
Air temperature	

Part C – Matching (6 marks)

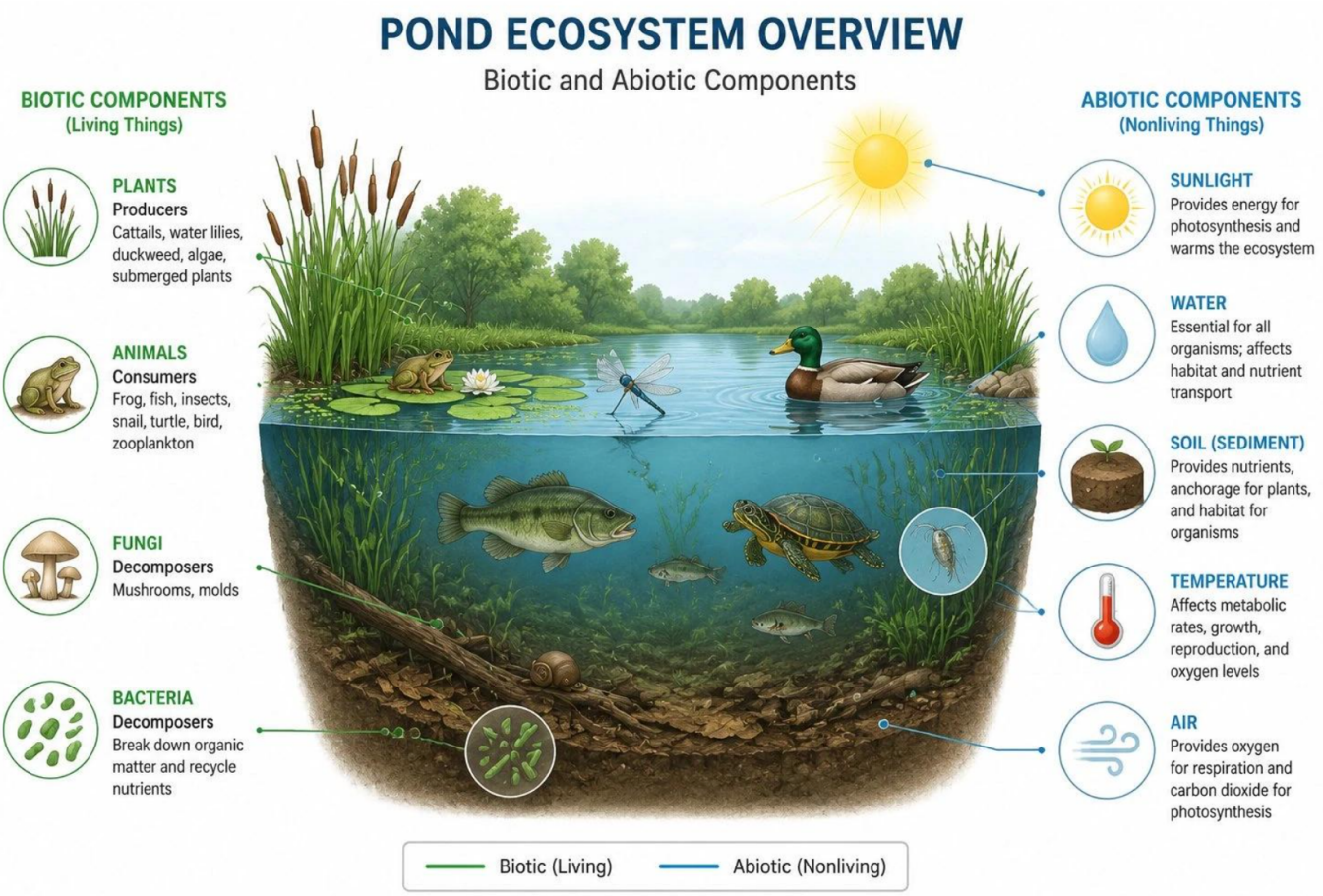
Match each term with its correct description. Write the letter beside the term.

Term	Answer	Descriptions
1. Ecosystem	_____	A. An organism that obtains energy by eating other organisms
2. Producer	_____	B. The place where an organism normally lives
3. Consumer	_____	C. A non-living physical or chemical component of the environment
4. Decomposer	_____	D. Living organisms and non-living components interacting in an area
5. Habitat	_____	E. An organism that breaks down dead organic material
6. Abiotic factor	_____	F. An organism that produces its own food, usually using sunlight

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Part D – Ecosystem Investigation (8 marks)



1. Identify two biotic components of the pond ecosystem. (2 marks)

2. Identify two abiotic components of the pond ecosystem. (2 marks)

3. Explain how sunlight supports life in the pond ecosystem. (2 marks)

4. Imagine that a chemical pollutant enters the pond and kills many aquatic plants. Describe one possible effect on the animals living there. (2 marks)

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Part E – Comparing Ecosystems (6 marks)

Examine the three ecosystems below.







1. Which ecosystem usually receives the least rainfall? (1 mark)

2. Which ecosystem contains organisms adapted to living in salt water? (1 mark)

3. Describe one difference between the abiotic conditions of a rainforest and a desert. (2 marks)

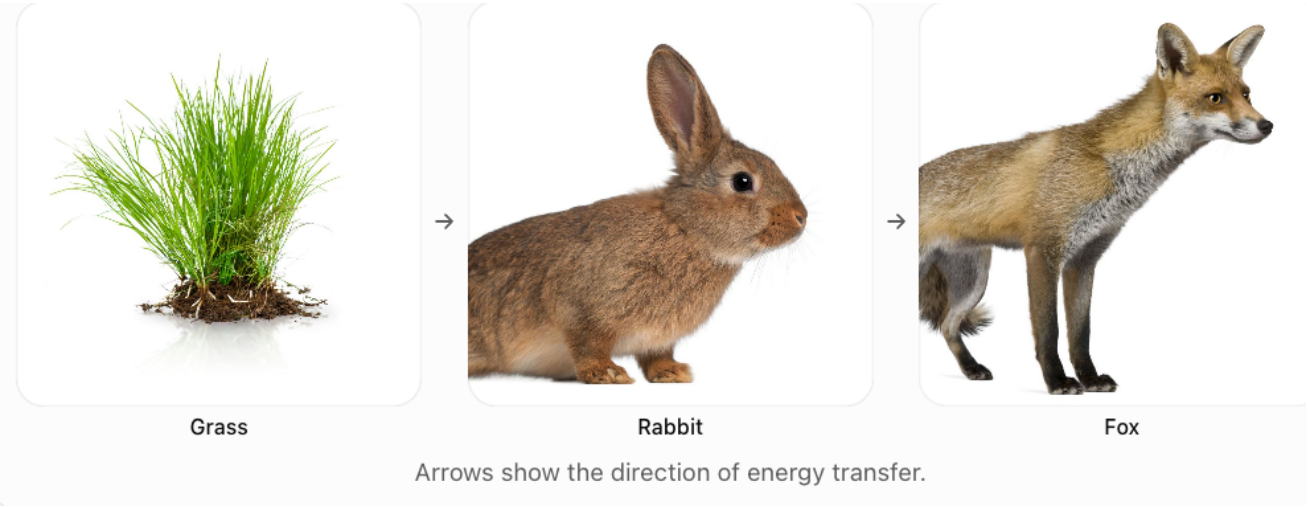
4. Explain why different ecosystems support different types of organisms. (2 marks)

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Part F – Ecosystems as Interconnected Systems (6 marks)

Consider this simple food chain:



1. Identify the producer in this food chain. (1 mark)

2. Explain what the arrows represent. (1 mark)

3. Predict what might happen to the rabbit population if most of the grass died during a drought. Explain your answer. (2 marks)

4. Explain how the drought could indirectly affect the fox population. (2 marks)

Extension Challenge – Think Like an Ecologist

A new road is built through a forest. Some trees are removed, the soil becomes compacted, and animals have difficulty moving between different parts of the forest.

Explain how this single human activity could affect at least three different components of the ecosystem. Include both biotic and abiotic factors in your answer.

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break

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Teacher Answer Key

Part A – Multiple Choice
1. B; 2. C; 3. D; 4. B; 5. A; 6. C; 7. D; 8. B.

Part B – Biotic or Abiotic
Tree – biotic; Sunlight – abiotic; Water – abiotic; Bacteria – biotic; Fallen dead leaf – biotic (once-living organic material); Air temperature – abiotic.

Part C – Matching
1. D; 2. F; 3. A; 4. E; 5. B; 6. C.

Part D – Pond Investigation
1. Any two: fish, frog, aquatic plants, insects. 2. Any two: water, sunlight, rocks, temperature, dissolved oxygen. 3. Sunlight allows aquatic plants and algae to photosynthesize, producing food and releasing oxygen. 4. Fewer plants may reduce food, shelter or oxygen availability for pond animals.

Part E – Comparing Ecosystems
1. Desert. 2. Coral reef. 3. Rainforests generally receive much more rainfall and have higher humidity than deserts. 4. Differences in temperature, water, light, salinity and other abiotic conditions favour organisms with different adaptations.

Part F – Interconnected Systems
1. Grass. 2. Direction of energy transfer as one organism is eaten by another. 3. Rabbit numbers may decrease because less grass is available for food. 4. Fox numbers may decrease or foxes may seek alternative prey because fewer rabbits are available.

Extension: Accept explanations involving habitat fragmentation, reduced food or shelter, soil compaction, altered water infiltration, changes in animal populations, or disrupted food webs.

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