

## Introduction

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Welcome to the Ecosystem Explorers Worksheet!

*This activity is designed for 11-13 year old students to evaluate their understanding of biotic and abiotic factors in ecosystems, trophic relationships, and ecological balance.*

## Section 1: Multiple Choice Questions

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### Question 1

*What is the primary source of energy for most ecosystems?*

1. a) Sunlight
2. b) Water
3. c) Soil
4. d) Air

### Question 2

*Which of the following is an example of a biotic factor in an ecosystem?*

1. a) Temperature
2. b) Humidity
3. c) Plants
4. d) Rocks

### Question 3

*What is the term for the process by which plants convert sunlight into energy?*

1. a) Respiration
2. b) Photosynthesis
3. c) Decomposition
4. d) Fermentation

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## Section 2: Short Answer Questions

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### Question 1

*Describe the difference between a producer and a consumer in an ecosystem. Provide an example of each.*

### Question 2

*Explain the concept of ecological balance and provide an example of how human activities can disrupt this balance.*

## Section 3: Project-Based Task

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### Ecosystem Explorer Project

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*Imagine you are a biologist tasked with creating a balanced ecosystem in a controlled environment. Using a diagram or model, design an ecosystem that includes:*

- At least 3 biotic factors (plants, animals, microorganisms)
- At least 2 abiotic factors (light, water, temperature)
- A clear example of trophic relationships (producer-consumer-decomposer)
- A description of how you would use technology tools to monitor and maintain the ecosystem

[Space for project work]

## Section 4: Critical Thinking Questions

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### Question 1

*How do human activities affect the ecological balance of an ecosystem? Provide examples.*

### Question 2

*What are some ways to maintain ecological balance in an ecosystem? Explain your answer.*

## Section 5: Creative Activity

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### Ecosystem Diagram

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*Create a diagram of an ecosystem, including biotic and abiotic factors, and trophic relationships. Use colors, symbols, and labels to make your diagram clear and easy to understand.*

[Space for diagram]

## Conclusion

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### Congratulations!

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*You have completed the Ecosystem Explorers worksheet! Remember to review your answers and reflect on what you have learned about ecosystems and ecological balance.*

## Assessment Rubric

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### Evaluation Criteria

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- Multiple Choice Questions (15 points)
- Short Answer Questions (10 points)
- Project-Based Task (20 points)
- Critical Thinking Questions (10 points)
- Creative Activity (15 points)



## Note to Teachers

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### Teaching Instructions

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*Please allow students 45 minutes to complete the worksheet. Encourage students to use technology tools, such as species identification apps, to aid in their design. Provide feedback to students on their understanding of biotic and abiotic factors, trophic relationships, and ecological balance.*

