

Chapter 18: Biodiversity and ecosystems

Knowledge organiser

Biodiversity

Biodiversity is the variety of all the _____ species of organisms (plant, animal, and microorganism) on Earth, or within a specific _____.

High biodiversity ensures the stability of an ecosystem, because it reduces the dependence of one _____ on another in the ecosystem for _____ or _____ maintenance.

The future of the human species depends on us _____ a good level of biodiversity. Many human activities, such as _____, are reducing biodiversity, but only recently have measures been taken to try to _____ this.

Global warming

Levels of _____ and _____ in the atmosphere are increasing due to human _____, contributing to _____ and climate change. Global warming is the gradual increase in the average _____ of the Earth.

This scientific consensus is based on systematic reviews of thousands of peer-reviewed publications.

Global warming has resulted in

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Waste management

Rapid growth of the human population and increases in the standard of living mean humans are using more resources and producing more _____.

Waste and chemical materials need to be properly handled in order to reduce the amount of _____ they cause. Pollution kills plants and animals, and can accumulate in food chains, reducing _____.

Pollution can occur in

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-
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Land use

_____ population growth has led to humans using much more _____ for building, quarrying, farming, and dumping waste. This reduces the area in which animals can live and can further destroy _____ through pollution.

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For example, the destruction of _____ (areas of partially decayed vegetation) to produce garden compost has decreased the amount of this important habitat, and the biodiversity it supports. The decay or _____ of peat for energy also releases _____ into the atmosphere, contributing to **global warming**.

Deforestation

Large-scale deforestation in tropical areas has been carried out to provide land for _____ and _____, and to grow crops for _____.

This has resulted in

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Farming techniques

Sustainable methods of food production need to be developed if we are going to feed the Earth's human population.

Intensive farming techniques make food production more efficient by restricting energy transfer from food animals to their environment.

This can be done by:

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In order to also maximise yield from animals and crops, farmers also:

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The role of biotechnology

Scientists can use new technologies to solve the problem around food production for a growing population. The fungus *Fusarium* is used to make _____, a protein-rich alternative to meat. *Fusarium* is cultured in _____ conditions in _____.

Sustainable fisheries

_____ stocks in the oceans are declining. It is important to maintain fish stocks to ensure _____ continues, or certain species may disappear altogether in some areas.

To avoid this happening, _____ (bigger holes to stop young fish being caught) and _____ (how many fish can be caught) are controlled in many places.

Food security

Food security is having enough food to feed a population.

Biological factors threatening human food security include:

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The role of biotechnology

Scientists can use new technologies to solve the problem around food production for a growing population. The fungus *Fusarium* is used to make _____, a protein-rich alternative to meat. *Fusarium* is cultured in _____ conditions in _____.

Advantages of intensive farming	Disadvantages of intensive farming
•	•
•	•
•	•
•	•

Key terms

Make sure you can write a definition for these key terms.

biodiversity	biofuel	deforestation	food security
global warming	intensive farming	peat bog	pollution

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Retrieval questions

Answer the following questions using the information from the knowledge organiser.

B18 questions		Answers
1	What is biodiversity?	
2	What is the advantage of high biodiversity?	
3	How are humans trying to maintain biodiversity?	<ul style="list-style-type: none">•••••
4	Why are more resources being used, and more waste produced, by humans?	
5	Where does pollution occur?	
6	How are humans reducing the land available for other organisms?	
7	What are the negative impacts of the destruction of peat bogs?	<ul style="list-style-type: none">••
8	Why have humans carried out large-scale deforestation in tropical areas?	<ul style="list-style-type: none">••
9	What is food security?	
10	What are the biological factors threatening human food security?	<ul style="list-style-type: none">••••••
11	How can the efficiency of food production in farming be increased?	<ul style="list-style-type: none">•••••
12	What gases are increasing in atmospheric levels and contributing to global warming?	
13	How can fish stocks be maintained at a sustainable level?	
14	How is biotechnology used to maintain the growing human population?	<ul style="list-style-type: none">•••