

# OCR (B) Biology GCSE

Topic B6.4: How is biodiversity  
threatened and how can we protect it?

Flashcards

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# What is biodiversity?



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Biodiversity is a combination of:

- Species diversity (variety of living organisms)
- Genetic diversity (number of different genes)
- Ecosystem diversity (range of ecosystems)



# Why are humans having an increasing impact on biodiversity?



# Why are humans having an increasing impact on biodiversity?

- Increasing population size
- Greater urbanisation and industrialisation
- Globalisation



Describe the negative impact that humans are having on biodiversity



# Describe the negative impact that humans are having on biodiversity

- Habitat destruction (farming, building etc.) reduces biodiversity
- Globalisation, such as giant seed corporations promoting monocultures, reduces biodiversity
- Pollutants (e.g. sewage) can contaminate water sources, disrupting food chains. Pesticides can also cause eutrophication.
- Greenhouse gas production has been linked to global warming. If temperatures change too rapidly, species may become extinct.



# How can humans more positively impact biodiversity?





# How can humans more positively impact biodiversity?

- Protection of endangered species e.g. making hunting illegal, breeding programmes increase population sizes
- Conservation schemes to protect entire ecosystems e.g. national parks
- Sustainable farming e.g. fishing quotas, fewer pesticides
- Minimising global greenhouse gas production



# What does it mean to employ more sustainable practices?



What does it mean to employ more sustainable practices?

Meeting the needs of the population without compromising biodiversity or the ability to meet future requirements



# Why is it important for humans to maintain biodiversity?



# Why is it important for humans to maintain biodiversity?

- Ensures future food requirements can be met by maintaining food chains essential to humans
- Reduces damage to food chains
- Many plant species are yet to be discovered and may contain chemicals that could be used in future medicines
- Safeguarding valuable future resources e.g. fuels, paper



# Describe the economic issues linked to maintaining biodiversity



## Describe the economic issues linked to maintaining biodiversity

- Conservation schemes are expensive
- A fine balance exists between selling a country's natural resources to benefit the economy and the conservation of ecosystems



Describe the moral issues linked to  
maintaining biodiversity





# Describe the moral issues linked to maintaining biodiversity

- Should developing countries be prevented from selling their natural resources?
- Should we conserve species that do not directly benefit humans?
- Is culling one species acceptable in order to conserve another species?



Describe the ecological issue linked to  
maintaining biodiversity



Describe the ecological issue linked to maintaining biodiversity

Conservation programmes may have unforeseen consequences on other aspects of an ecosystem



Describe the political issues linked to  
maintaining biodiversity



## Describe the political issues linked to maintaining biodiversity

- Getting many countries to work in cooperation may be challenging
- Small communities may raise objections to conservation schemes if they are adversely affected



Give an example of an environmental change that may affect the distribution of organisms (biology only/higher)



Give an example of an environmental change that may affect the distribution of organisms  
(biology only/higher)

- Temperature
- Water availability
- Atmospheric gases



# What is food security? (biology only)





What is food security? (biology only)

Ensuring that populations have access to adequate amounts of safe and nutritious foods



List the biological factors affecting food security (biology only)



# List the biological factors affecting food security (biology only)

- Rising human population
- Changing diets in wealthier populations
- New pests and pathogens
- Environmental change
- Sustainability
- Cost of agricultural inputs



Describe how the rising human  
population affects food security  
(biology only)



Describe how the rising human population affects food security (**biology only**)

As human population increases, global food production must also increase in order to meet the growing demand for food.



Describe how changing diets in wealthier populations affects food security  
(biology only)



## Describe how changing diets in wealthier populations affects food security (biology only)

- Greater consumption of meat in wealthier populations
- Livestock use land for grazing
- Livestock are fed crops that could otherwise be used for human consumption
- Overall, less food is available for humans
- Reduction in food security



Describe how new pests and pathogens  
affect food security (biology only)





Describe how new pests and pathogens affect food security (biology only)

Pests and pathogens can reduce or destroy crop yields, negatively impacting food security.



Describe how sustainability affects food security (biology only)



Describe how sustainability affects food security  
(biology only)

Using unsustainable farming methods  
disrupts food chains, compromising the  
ability to meet future food requirements



Describe how the cost of agricultural inputs affects food security (biology only)



Describe how the cost of agricultural inputs affects food security (biology only)

Due to the high input costs, many LEDCs lack the resources (fuel, chemicals, animal feed etc.) to initiate or maintain modern farming methods. This negatively impacts food security.



What farming methods can be used to  
improve agricultural yields?  
(biology only)



# What farming methods can be used to improve agricultural yields? (biology only)

- Improved nutrition for plants (e.g. fertilisers) and livestock (e.g. nutritional supplements)
- Treatment with vaccines and antibiotics to reduce disease
- Use of pesticides, herbicides etc.
- Use of hormones in plants to increase crop yield and in livestock e.g. to increase meat production
- Selective breeding (breeding organisms with desired characteristics)



# How can genetic engineering be used to improve agricultural yields?

(biology only)





# How can genetic engineering be used to improve agricultural yields? (biology only)

Crops can be genetically modified to have pest-resistance, disease-resistance, drought-resistance, herbicide-resistance etc. in order to increase crop production as global food requirements increase.

