

CIE Biology GCSE

21 - Human Influences on Ecosystems

Flashcards



Give 4 ways that modern technology has aided food production



Give 4 ways that modern technology has aided food production

- New efficient machines can work over larger areas
- Improved fertilisers to boost crop yields
- Insecticides prevent crops from being destroyed by insects
- Herbicides stop competition from weeds for resources
- Desirable features chosen through selective breeding



Give one reason why monoculture is bad
for ecosystems



Give one reason why monoculture is bad for ecosystems

Monoculture reduces biodiversity significantly



State the negative impacts of intensively farming livestock



State the negative impacts of intensely farming livestock

- Water pollution
- Soil and land quality is decreased
- Reduction in biodiversity



State 2 social issues with providing sufficient food for a growing human population (Higher/Supplement)



State 2 social issues with providing sufficient food for a growing human population (**Higher/Supplement**)

- Land used for agriculture could be used for housing or leisure facilities
- Machinery used for agriculture can be loud and may become an issue for people who live nearby



State 2 economic issues with providing sufficient food for a growing human population (Higher/Supplement)



State 2 economic issues with providing sufficient food for a growing human population (Higher/Supplement)

- Some less economically developed countries may not be able to establish efficient food production infrastructure
- More people will be living in harsher climates and therefore the cost of staple foods as imports will be greater



State 2 environmental issues with providing sufficient food for a growing human population (Higher/Supplement)



State 2 environmental issues with providing sufficient food for a growing human population
(Higher/Supplement)

- Farming equipment and processing facilities can produce extra greenhouse gas emissions
- Monoculture decreases biodiversity



State 4 factors that can lead to famine
(Higher/Supplement)



State 4 factors that can lead to famine (Higher/Supplement)

- Natural disasters (flooding/drought)
- Unequal distribution of food
- Rapidly increasing population
- Poverty



Describe 3 human activities that cause habitat destruction



Describe 3 human activities that cause habitat destruction

- Deforestation for timber production, housing and farming
- Extraction of natural resources requires clearing land and large machinery
- Marine pollution from oil spills, waste, eutrophication and plastic waste is damaging to aquatic life and the habitat they live in



Describe how sewage in waterways can affect aquatic life



Describe how sewage in waterways can affect aquatic life

Microorganisms that decompose sewage will use up the oxygen in the water so that there is not enough oxygen left for respiration for other aquatic organisms



Give 4 undesirable effects of
deforestation



Give 4 undesirable effects of deforestation

- Extinction
- Erosion of soil
- Increased risk of flooding
- Increased atmospheric carbon dioxide



Explain how deforestation causes
extinction (Higher/Supplement)



Explain how deforestation causes extinction (Higher/Supplement)

- Deforestation removes food and shelter for animals
- Animals without food or shelter are less likely to survive, leading to extinctions



Explain how deforestation leads to soil erosion (Higher/Supplement)



Explain how deforestation leads to soil erosion (Higher/Supplement)

- Tree roots anchor soil and the trees shelter and protect the soil which prevents erosion
- Deforestation leaves the soil exposed and erosion happens more quickly



Explain how deforestation leads to an
increased risk of flooding
(Higher/Supplement)



Explain how deforestation leads to an increased risk of flooding (**Higher/Supplement**)

- Trees absorb water which evaporates off their leaves, leaving the ground drier and able to absorb more water
- Less trees increases surface runoff and the risk of flooding



Explain how deforestation leads to
increased carbon dioxide levels
(Higher/Supplement)



Explain how deforestation leads to increased carbon dioxide levels (Higher/Supplement)

- Trees take in carbon dioxide from the atmosphere during photosynthesis which decreases atmospheric carbon dioxide levels
- When trees are cut down, the atmospheric carbon dioxide is no longer absorbed and so level remain higher



State 5 sources of water pollution



State 5 sources of water pollution

- Insecticides
- Herbicides
- Sewage
- Waste (plastics, chemicals, metal)
- Nuclear fallout



State 4 sources of air pollution



State 4 sources of air pollution

- Vehicle exhaust
- Home heating
- Industrial fossil fuel burning for generating power
- Manufacturing processes



State 4 sources of land pollution



State 4 sources of land pollution

- Agriculture
- Improper handling of waste
- Sewage leaks
- Industrial pollution (chemicals, paints, plastics)



What is eutrophication? (Higher/Supplement)



What is eutrophication? (Higher/Supplement)

An excess of nutrients in a body of water, often due to fertilisers in the water source



Why is eutrophication bad for aquatic life? (Higher/Supplement)



Why is eutrophication bad for aquatic life?
(Higher/Supplement)

It causes an 'algal bloom' which decreases oxygen supplies in the water and degrades the water quality



Describe the process of eutrophication
(Higher/Supplement)



Describe the process of eutrophication

(Higher/Supplement)

- Often caused by leaks of fertilisers containing nitrate and other ions into the water source
- Increased growth of producers (e.g. algae which is called an algal bloom)
- Increased decomposition after death of producers (due to lack of light) by decomposers which use up dissolved oxygen during respiration
- Organisms that need the oxygen in the water begin dying



What is meant by non-biodegradable waste? (Higher/Supplement)



What is meant by non-biodegradable waste?
(Higher/Supplement)

Waste which cannot be broken down naturally in the environment (e.g. by erosion or decomposers)



Describe the effects of non-biodegradable plastics (Higher/Supplement)



Describe the effects of non-biodegradable plastics (Higher/Supplement)

- Chemicals in the plastics can leach out and cause damage to organisms
- Animals can get trapped in plastics, leaving them vulnerable (e.g. to predators or starvation)
- Animals can swallow plastics, causing blockages and often death



State 3 sources of methane in the atmosphere



State 3 sources of methane in the atmosphere

- Biomass burning
- Livestock production systems
- Decaying matter in landfills



What does excess atmospheric methane and carbon dioxide cause?



What does excess atmospheric methane and carbon dioxide cause?

- Methane and CO_2 are greenhouse gases
- Excess greenhouse gases lead to the greenhouse effect where heat is trapped by the gases
- This leads to global warming



State 3 negative consequences of global warming



State 3 negative consequences of global warming

- Sea level rise caused by melting icebergs
- Disrupted farming and agriculture
- Increased spread of diseases in warmer climates



What detrimental impacts can sulfur dioxide have on the environment?
(Higher/Supplement)



What detrimental impacts can sulfur dioxide have on the environment? (Higher/Supplement)

- Formed when fossil fuels containing impurities are burnt
- Sulfur dioxide can dissolve in water to form acid rain which can erode buildings and pollute water sources



State 3 negative effects of acid rain
(Higher/Supplement)



State 3 negative effects of acid rain (Higher/Supplement)

- Acid rain accumulates in waterways, polluting water and harming organisms
- Acid rain damages plants and trees
- Acid rain erodes buildings and infrastructure



How is the amount of sulfur dioxide
production reduced?
(Higher/Supplement)



How is the amount of sulfur dioxide production reduced? (Higher/Supplement)

- Switch to renewable energy sources
- Sulfur dioxide can be removed from waste gases
- Sulfur impurities can be removed from fuels before they are burnt



How can the impact of acid rain be reduced? (Higher/Supplement)



How can the impact of acid rain be reduced?
(Higher/Supplement)

Reduce the acidity of soil and water by adding powdered limestone or slaked lime



Explain how excess methane and carbon dioxide causes global warming
(Higher/Supplement)



Explain how excess methane and carbon dioxide causes global warming (**Higher/Supplement**)

- The gases accumulate in the atmosphere and absorb the thermal energy from the sun
- This traps the extra heat energy in the atmosphere and warms the earth



Describe the negative impacts of female
contraceptive hormones in water
supplies (Higher/Supplement)



Describe the negative impacts of female contraceptive hormones in water supplies (Higher/Supplement)

- Oestrogens can change the behaviour of fish by altering their genes
- Contraceptive hormones can cause male fish to produce eggs and can no longer reproduce (feminisation)



What is a sustainable resource?



What is a sustainable resource?

A resource which is produced as rapidly as it is used up so that it does not run out



What is sustainable development? (Higher/Supplement)



What is sustainable development?

(Higher/Supplement)

Development to meet the growing needs of the human population without damaging the environment



Why is it necessary to conserve fossil fuels?



Why is it necessary to conserve fossil fuels?

Because fossil fuels are non-renewable and so will run out with continued use



State 2 resources that can be maintained



State 2 resources that can be maintained

- Timber
- Fish stocks



How can forests and fish stocks be sustained? (Higher/Supplement)



How can forests and fish stocks be sustained?

(Higher/Supplement)

- Teaching people about the need for conservation
- Legal quotas that define a limit to the amount of fishing
- Replanting trees when they have been cut down
- Captive breeding programs



State 4 resources that can be recycled



State 4 resources that can be recycled

- Paper
- Glass
- Plastic
- Metal



Describe how sewage is treated



Describe how sewage is treated

- Large debris is removed
- Sand and grit is removed as it sinks to the bottom as sludge
- Bacteria that break the waste down are introduced and oxygen is supplied to provide aerobic conditions
- Chemicals like chlorine are then added to kill microorganisms



How can sustainable development be achieved? (Higher/Supplement)



How can sustainable development be achieved? (Higher/Supplement)

- By managing conflicting demands (e.g. for resources by ensuring the use of resources does not damage the environment and resources are used in moderation)
- By cooperating at local, national and international levels and implementing government schemes



Give 5 causes of extinctions



Give 5 causes of extinctions

- Climate change
- Destroying habitats
- Hunting/poaching
- Pollution
- The introduction of a foreign species



What are the risks to a species if the population size drops considerably?
(Higher/Supplement)



What are the risks to a species if the population size drops considerably? (Higher/Supplement)

- A smaller population size means that there will be a smaller gene pool
- A smaller gene pool means that the population are not able to adapt to change as easily and are at a higher risk of extinction



Give 4 ways that species can be conserved



Give 4 ways that species can be conserved

- Monitoring and protecting species and habitats
- Teaching people about why species are going extinct and how to prevent extinction
- Captive breeding programmes within zoos and wildlife reserves with the aim of increasing the population size before reintroduction into the environment
- Seed banks to preserve genetic diversity



Why is conservation important? (Higher/Supplement)



Why is conservation important? (Higher/Supplement)

- It prevents the extinction of species
- It protects vulnerable environments
- It ensures that ecosystems can still provide useful resources like medicines, food and fuel

