

Human influences on the environment: practice questions

6 questions · 21 marks · mark scheme at the back

For Edexcel International GCSE Science (Double Award) 4SD0.

Name

Total / 21

1 Why is carbon monoxide harmful to humans? [1 mark]

- A. ☐ It dissolves in blood plasma and makes it acidic
- B. ☐ It combines with haemoglobin so less oxygen is carried
- C. ☐ It destroys white blood cells
- D. ☐ It blocks the alveoli with mucus

2 Explain how burning fuels that contain sulfur can kill fish in a lake. [3 marks]

3 Name two greenhouse gases other than carbon dioxide. For each one, describe a human activity that increases the amount of it in the atmosphere. [4 marks]

4 Explain how an increase in carbon dioxide in the atmosphere may lead to global warming. [4 marks]

5 Untreated sewage is released into a river. Explain why the number of fish in the river falls. **[3 marks]**

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6 Fertiliser is spread on a field next to a lake. After heavy rain, many fish in the lake die. **[6 marks]**
Explain how the fertiliser could have caused the death of the fish.

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Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

B B: carbon monoxide binds to haemoglobin, reducing oxygen transport (1)

2. [3]

- sulfur dioxide is released (1)
- it dissolves in rain water to form acid rain (1)
- acid rain lowers the pH of the lake so fish cannot survive (1)
- allow acidic / acidity for acid

3. [4]

- first gas named: methane / nitrous oxide / CFCs / water vapour (1)
- a human activity that matches the first gas (1)
- second gas named (1)
- a human activity that matches the second gas (1)
- activities: methane – cattle / rice paddy fields / landfill; nitrous oxide – (nitrogen) fertilisers / vehicle exhausts; CFCs – old refrigerators / aerosols / air conditioners; water vapour – burning fuels
- reject carbon dioxide; the activity must match the gas named; ignore 'pollution' or 'factories' alone

4. [4]

- the Earth's surface gives out infrared radiation (1)
- greenhouse gases / carbon dioxide absorb infrared radiation (1)
- and radiate it back towards the Earth (1)
- more carbon dioxide means more heat is trapped, so the average temperature rises (1)
- allow heat for infrared radiation; reject answers based on the ozone layer

5. [3]

- sewage contains organic matter / is food for decomposers, so decomposers / bacteria increase (1)
- they use up oxygen in respiration (1)
- fish die from lack of oxygen (1)
- ignore 'sewage poisons the fish'

6. [6]

Level 3 5-6	A clear, logical and complete sequence from leaching of minerals to the death of fish, including algal bloom, loss of light, death of plants, increase in decomposers and loss of oxygen.
Level 2 3-4	A sequence with most stages, but with one or two missing or unclear links, for example no mention of decomposers or of light being blocked.
Level 1 1-2	One or two correct but isolated points, such as that fertiliser makes algae grow, without explaining how fish are affected.

Indicative content

- heavy rain leaches nitrates / minerals from the fertiliser into the lake
- extra nitrates cause rapid growth of algae (algal bloom) on the surface
- the algae block light from plants lower down
- plants cannot photosynthesise and die
- decomposers / bacteria feed on the dead plants and algae and increase in number
- decomposers use up oxygen in aerobic respiration
- low oxygen concentration so fish die / suffocate
- biodiversity falls