AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 5.10.1.3

Waste water treatment

Past-paper questions

Tier	**Higher**
Question groups	**2**
Available paper years	**2020–2022**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

5.10.1.3 Waste water treatment

Question 01

November 2020 | 8464/C/2H | Original Q3

0 3 This question is about pollutants.

0 3 . 1 Waste water has harmful substances removed before being released into the environment.

Complete the sentences.

[2 marks]

Agricultural waste water requires the removal of harmful

_____ .

Industrial waste water may require the removal of harmful

_____ .

0 3 . 2 How is sewage sludge treated before being released into the environment?

[1 mark]

Tick (✓) **one** box.

- Aerobic biological treatment ☐
- Anaerobic digestion ☐
- Grit removal ☐
- Screening ☐

5.10.1.3 Waste water treatment

Question 01 · continued

0 3 . 3 Hydrocarbons are used to make polymers. Polymers are used to make plastic bags.

In one year 8.0 billion plastic bags were used.

The next year there was a charge for plastic bags and only 1.3 billion plastic bags were used.

Calculate the percentage decrease in the number of plastic bags used.

[3 marks]

Percentage decrease = _____ %

Question 3 continues on the next page

5.10.1.3 Waste water treatment

Question 01 · continued

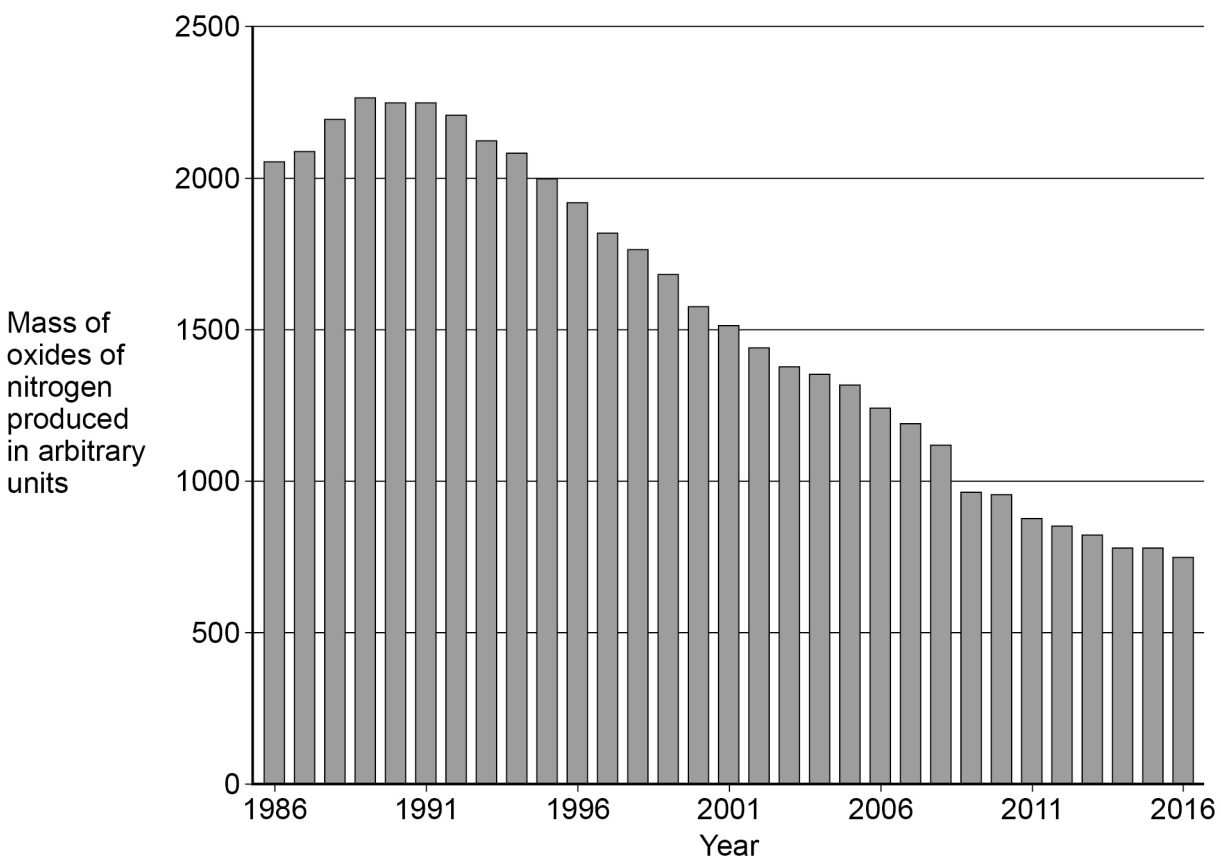
Oxides of nitrogen are pollutants formed in car engines.

0 3 . 4 Give **one** problem oxides of nitrogen cause.

[1 mark]

0 3 . 5 **Figure 3** shows the mass of oxides of nitrogen produced from car engines from 1986 to 2016.

Figure 3



Suggest why the mass of oxides of nitrogen produced from car engines increased and then decreased.

[2 marks]

Increased _____

_____

Decreased _____

_____

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5.10.1.3 Waste water treatment

Question 02

June 2022 | 8464/C/2H | Original Q2

0 2 . 1 Water that is safe to drink is called potable water.

Compare how easily potable water can be obtained from:

- waste water (sewage)
- ground water (fresh water).

[6 marks]

Question 2 continues on the next page

5.10.1.3 Waste water treatment

Question 02 · continued

A scientist produced potable water from 150 cm^3 of salty water.

0 2 . 2 Which process can be used to produce potable water from salty water?

[1 mark]

Tick (✓) **one** box.

- Distillation ☐
- Electrolysis ☐
- Filtration ☐
- Sterilisation ☐

0 2 . 3 The salty water contains sodium chloride.

The scientist collected 2.40 g of sodium chloride from 150 cm^3 of salty water.

Calculate the concentration of sodium chloride in grams per dm^3

[3 marks]

Concentration of sodium chloride = _____ g/dm^3

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