**AQA - Common atmospheric pollutants and their sources – GCSE Combine Science Chemistry**

**1.** May/2020/Paper_8464/2H/No.3

This question is about pollutants.

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

_____ .

How is sewage sludge treated before being released into the environment?

**[1 mark]**

Tick (✓) **one** box.

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

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 = _____ %

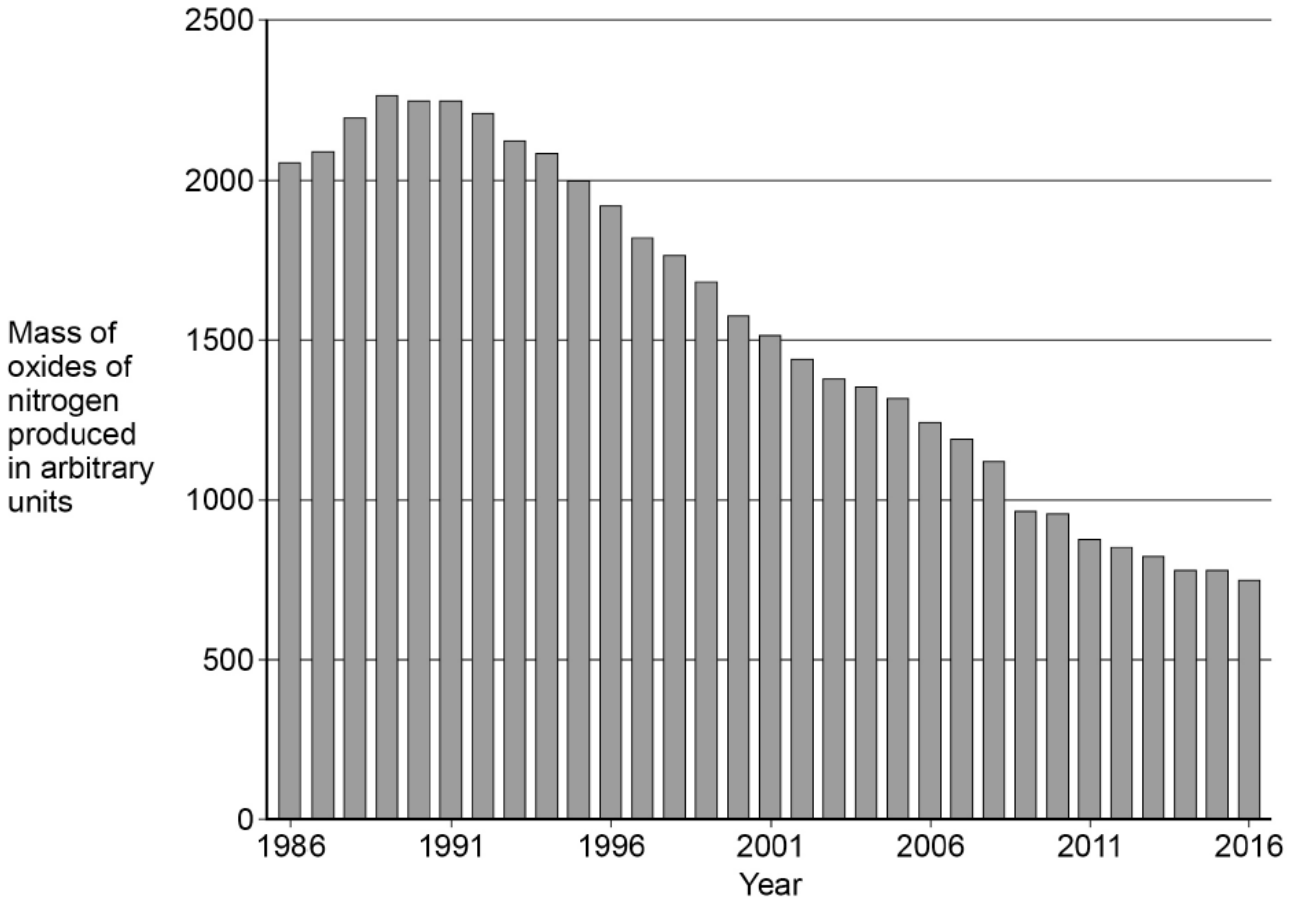
Oxides of nitrogen are pollutants formed in car engines.

Give **one** problem oxides of nitrogen cause.

**[1 mark]**

**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 _____

_____

**2.** Jun/2019/Paper_8464/2F/No.7

This question is about atmospheric pollutants from fuels.

Fuel burns in a car engine.

Describe how oxides of nitrogen are produced in a car engine.

**[2 marks]**

**Table 3** shows the carbon footprint during the manufacture and use of three cars.

**Table 3**

| Car | Mass of $CO_2$ produced during manufacture in kg | Mass of $CO_2$ produced when driving in kg per km | Total mass of $CO_2$ produced from manufacture and 40 000 km driving in kg | Total mass of $CO_2$ produced from manufacture and 100 000 km driving in kg |
|---|---|---|---|---|
| **Car A** | 14 000 | 0.123 | 18 920 | 26 300 |
| **Car B** | 20 000 | 0.085 | 23 400 | 28 500 |
| **Car C** | 23 000 | 0.044 | 24 760 | 27 400 |

Evaluate the carbon footprint of the cars.

Use information from **Table 3**.

**[6 marks]**

**3.** Jun/2019/Paper_8464/2H/No.2

This question is about atmospheric pollutants from fuels.

Fuel burns in a car engine.

Describe how oxides of nitrogen are produced in a car engine.

**[2 marks]**

**Table 1** shows the carbon footprint during the manufacture and use of three cars.

**Table 1**

| Car | Mass of $CO_2$ produced during manufacture in kg | Mass of $CO_2$ produced when driving in kg per km | Total mass of $CO_2$ produced from manufacture and 40 000 km driving in kg | Total mass of $CO_2$ produced from manufacture and 100 000 km driving in kg |
|---|---|---|---|---|
| **Car A** | 14 000 | 0.123 | 18 920 | 26 300 |
| **Car B** | 20 000 | 0.085 | 23 400 | 28 500 |
| **Car C** | 23 000 | 0.044 | 24 760 | 27 400 |

Evaluate the carbon footprint of the cars.

Use information from **Table 1**.

**[6 marks]**

**4.** Jun/2019/Paper_8464/2H/No.4.1

Copper is extracted from low-grade ores by phytomining.

Describe how copper metal is produced by phytomining.

**[4 marks]**