AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.7.2.2

How materials are cycled

Past-paper questions

Tier	**Higher**
Question groups	**2**
Available paper years	**2019–2022**

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.

4.7.2.2 How materials are cycled

Question 01

June 2019 | 8464/B/2H | Original Q2

0 2 There has been a rapid increase in the percentage of carbon dioxide in the atmosphere since 1960.

0 2 . 1 Carbon dioxide is a greenhouse gas that contributes to global warming.

Name **one** other greenhouse gas.

[1 mark]

_____

0 2 . 2 Global warming causes climate change.

Give **two** effects of climate change.

[2 marks]

1 _____

_____

2 _____

_____

Question 2 continues on page 10

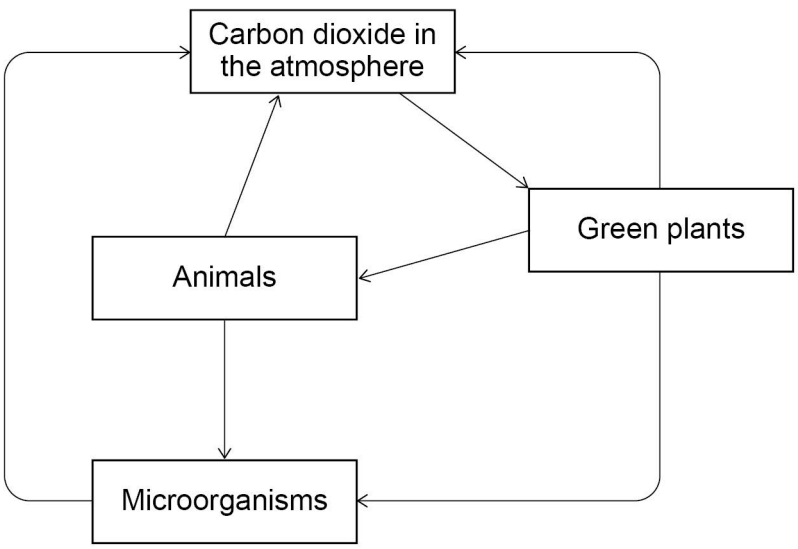
4.7.2.2 How materials are cycled

Question 01 · continued

0 2 . 3 Plants take in carbon dioxide from the atmosphere.

Figure 2 shows part of the carbon cycle.

Figure 2



Describe how carbon from the atmosphere is cycled through living organisms.

[6 marks]

4.7.2.2 How materials are cycled

Question 02

June 2022 | 8464/B/2H | Original Q1

0 1 This question is about the cycling of water and carbon in ecosystems.

0 1 . 1 Which reaction produces water?

[1 mark]

Tick (✓) **one** box.

Aerobic respiration ☐

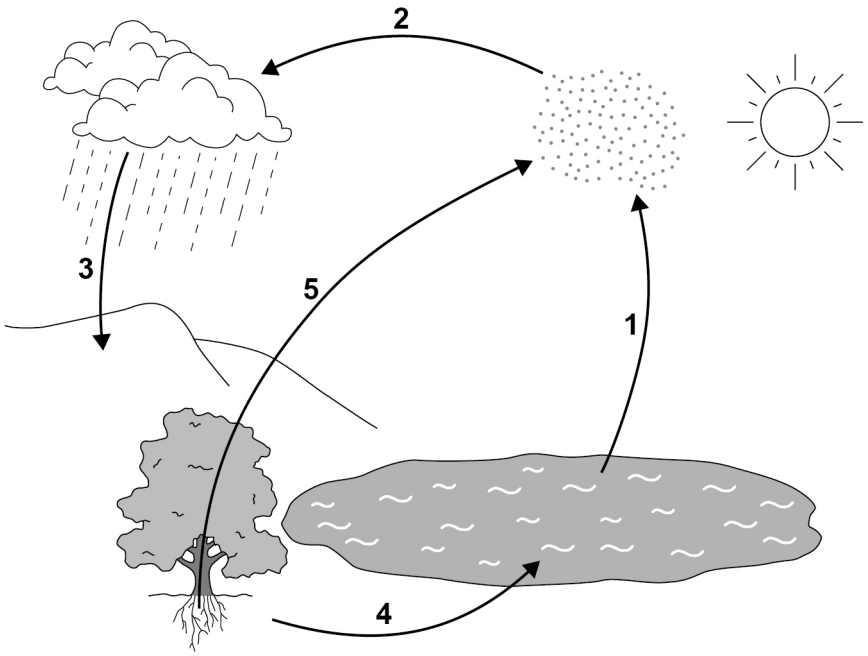
Anaerobic respiration ☐

Photosynthesis ☐

The water cycle provides water for plants and animals on land before the water goes into lakes and seas.

Figure 1 represents the water cycle.

Figure 1



4.7.2.2 How materials are cycled

Question 02 · continued

0 1 . 2 Name the processes **1** to **5** shown on **Figure 1**.

[5 marks]

1 _____

2 _____

3 _____

4 _____

5 _____

0 1 . 3 In 2007 the population of the world was 6 000 000 000

A study found that 4.5% of the population had severe water shortage.

Calculate how many people had severe water shortage.

Give your answer in standard form.

[3 marks]

_____

_____

_____

_____

_____

Number of people (in standard form) = _____

Question 1 continues on the next page

4.7.2.2 How materials are cycled

Question 02 · continued

0 1 . 4 Why do more people have severe water shortage now than in 2007?

[2 marks]

Tick (✓) **two** boxes.

- Climate change has increased the area of deserts. ☐
- Each person drinks less water. ☐
- More water is used to grow crops. ☐
- Sea levels have risen because the ice caps are melting. ☐
- Some countries have built de-salting factories for seawater. ☐

Leaves on a tree contain carbon compounds.

In autumn the leaves fall to the ground.

0 1 . 5 Microorganisms in the soil recycle carbon from the leaves so that the carbon is used for new plant growth.

Explain how.

[4 marks]

4.7.2.2 How materials are cycled

Question 02 · continued

0 1 . 6 What is **one** benefit of fallen leaves for living plants?

[1 mark]

Tick (✓) **one** box.

- Energy is released for living plants. ☐
- Insect pests in the soil are killed. ☐
- Nitrates are released into the soil. ☐
- Oxygen is supplied to root cells. ☐

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Turn over for the next question