



Science Department

2023/2024

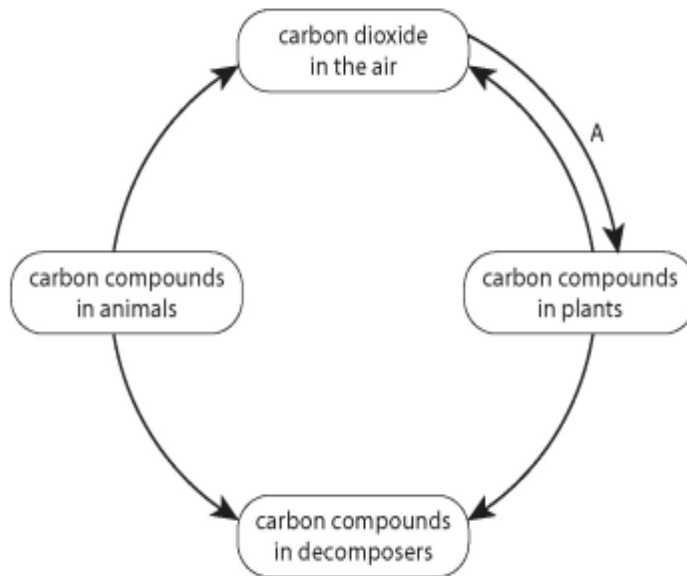
Year 8

Challenging Questions

Name:

Class:

1 The diagram shows part of the carbon cycle.



a Write down the name of the process labelled A. [1]

b Draw **one** arrow onto the diagram to show how animals get carbon. [1]

c What are decomposers? [1]

d Explain how some of the carbon in carbon compounds in animals is returned to the air. [3]

.....
.....

- e The quantity of carbon dioxide in the air is increasing. How will this affect the Earth?

Tick [✓] **two** correct answers.

[1]

The temperature of the Earth will decrease.

Sea levels will rise.

There will be more flooding in some countries.

There will be fewer extreme weather events.

- 2 Marcus did an experiment to find out how different colours of light affect how quickly a plant photosynthesised.

He shone different coloured lights onto an aquatic plant. He counted the number of bubbles that the plant produced in one minute.

The table shows his results.

Colour of light	Number of bubbles produced per minute
green	2
red	18
orange	34
blue	10

- a What should Marcus keep the same in his experiment?

Tick [✓] **two** boxes.

[1]

The colour of the light.

The distance of the lamp from the plant.

The temperature of the water the plant is kept in.

The number of bubbles produced per minute.

- b Name the gas that is that is present in the bubbles produced by the plant.

[1]

c Marcus wrote this conclusion:

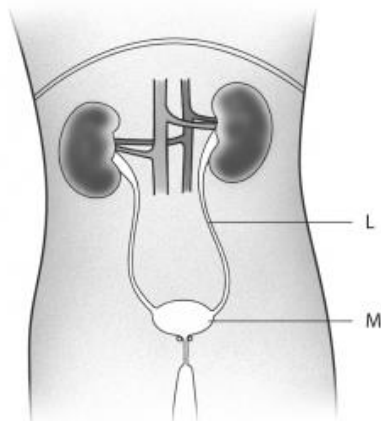
The plant photosynthesised most quickly in orange light.

Is Marcus correct? Use the results of his experiment to explain your answer. [1]

d What can Marcus do to make his results more reliable? [1]

e Explain why plants need light for photosynthesis. [1]

3 The diagram shows the human excretory system.



a Write down the name of each of the labelled parts. [2]

L _____

M _____

b Complete the sentences. Choose words from the list. [1]

chlorophyll	nicotine	urea	urine
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The kidneys remove _____ from the blood.

This dissolves in water and is passed out of the body as _____

2 a Diamond and graphite are both giant structures formed from the element carbon. Write these facts in the correct column of the table below. [3]

The carbon atoms in this substance are arranged in layers; the bonds between the layers are weak.
The carbon atoms in this substance form a lattice structure and each carbon atom has four strong covalent bonds.
This substance is the hardest material on Earth.
This substance is very soft.
This substance has a low melting point.
This substance has a very high melting point.

Diamond	Graphite

b State **one** use of diamond and **one** use of graphite. [2]

Diamond: _____

Graphite: _____

3 Write the word equation for:

a the reaction between magnesium carbonate and hydrochloric acid [1]

b the reaction between potassium and water. [1]

4 Write the chemical equation for:

a the reaction between copper oxide and sulfuric acid [1]

b the reaction between sodium hydroxide and hydrochloric acid. [1]