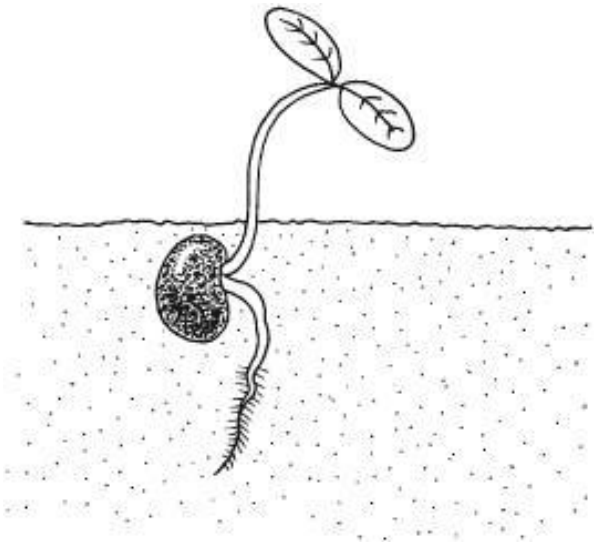
Name _ **Class** ____ **Date** ____

1 The drawing shows a new plant starting to grow.



(a) Which structure does the new plant grow from? Tick **one** box.

- ☐ A root
- ☐ B seed
- ☐ C fruit
- ☐ D stem

(1)

(b) The new plant has a root. A plant uses roots to absorb water. Describe **one** way that a root is adapted to absorb water.

_____

_____

(1)

(c) A new plant only starts to grow if the resources it needs come from the surroundings. Water is one of these resources and oxygen is another. State why a plant needs oxygen to grow.

_____

(1)

(d) State **one** more resource that seeds need to help them start growing quickly.

_____

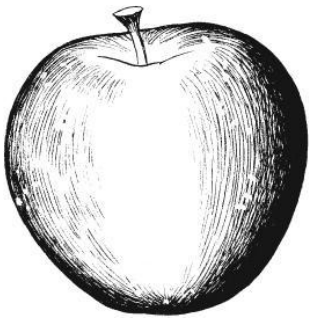
_____

(1)

(Total for Question 1 = 4 marks)

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2 There are different varieties of apple tree. The varieties produce apples with different characteristics.



Suggest **two** characteristics a farmer may want apples to have.

—

—

—

—

(Total for Question 2 = 2 marks)

3 Plants need light for the process shown in the word equation.

gas **X** + water → glucose + gas **Y**

(a) Name this process.

_____

(1)

(b) State where this process happens.

_____

(1)

(c) Gas **X** is needed for this process. What is gas **X**? Tick **one** box.

☐ **A** hydrogen

☐ **B** oxygen

☐ **C** nitrogen

☐ **D** carbon dioxide

(1)

(d) Gas **Y** is produced in this process. What is gas **Y**? Tick **one** box.

☐ **A** hydrogen

☐ **B** oxygen

☐ **C** nitrogen

☐ **D** carbon dioxide

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(1)

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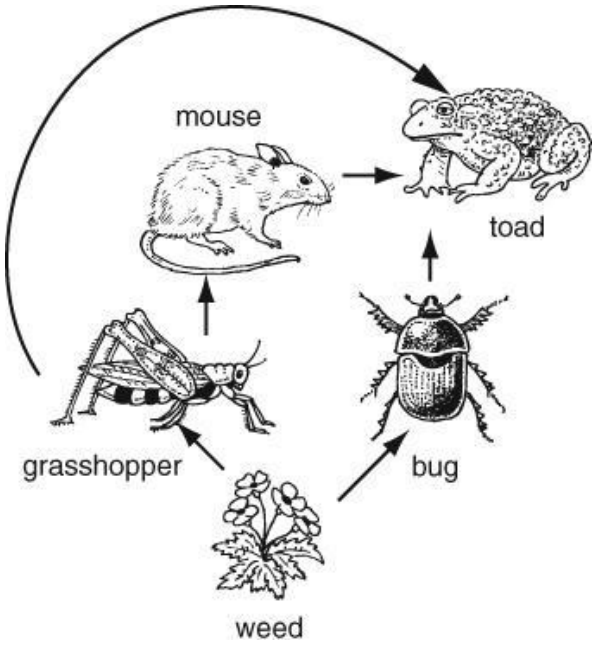
(e) List the organs the water travels through to get to the part of the plant where this process happens. List the organs in the correct order, starting where water enters the plant.

_____

(1)

(Total for Question 3 = 5 marks)

4 Look at the food web below.



(a) Farmers may spray herbicides on their fields. Which organisms in the food web will a herbicide kill immediately? Tick **one** box.

- ☐ **A** the mice
- ☐ **B** the grasshoppers
- ☐ **C** the bugs
- ☐ **D** the weeds

(1)

(b) Explain how a herbicide could affect the number of herbivores.

_____

_____

(2)

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(c) Explain how spraying a field with herbicide could help a farmer's crop.

_____

_____

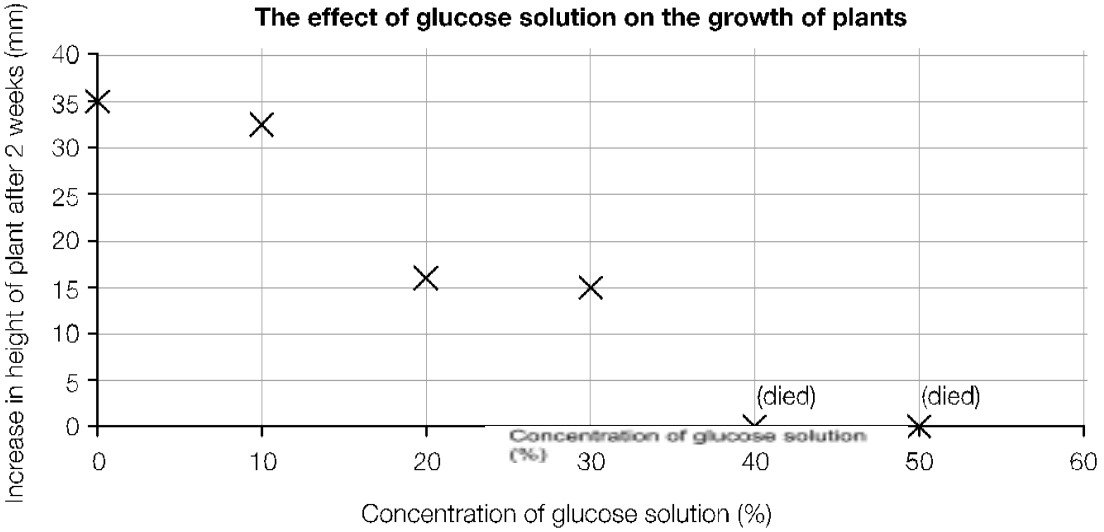
(2)

(Total for Question 4 = 5 marks)

5 A student knows that plants use a sugar called glucose to release energy. He wants to find out how glucose solution affects plant growth.

He chooses six plants and pours a different concentration of glucose solution over each plant.

The graph shows his results.



(a) Complete the sentence to describe the relationship is shown in the graph.

As the concentration of the glucose solution increases,

_____

_____

(1)

(b) Suggest **one** reason why the student's data are not very good.

_____

_____

(1)

(c) Name the process plants use to release energy from glucose.

_____

(1)

(d) In the space below, write the word equation to summarise the process of releasing energy from glucose.

(1)

(Total for Question 5 = 4 marks)

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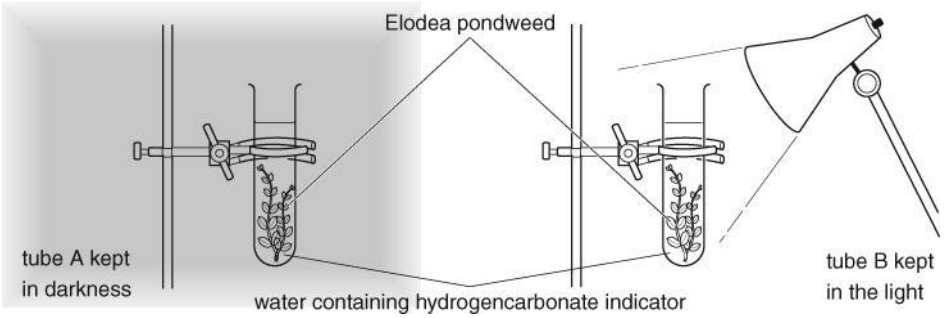
6 Hydrogencarbonate indicator can be used to show changes in the concentration of carbon dioxide in a solution.

The indicator is red in distilled water.

The indicator goes purple if the water loses carbon dioxide.

The indicator goes yellow if the water gains more carbon dioxide.

This experiment is set up and left for 2 days.



(a) What colour would you expect to see in tube A after 2 days? Tick **one** box.

- ☐ **A** red
- ☐ **B** purple
- ☐ **C** yellow
- ☐ **D** blue

(1)

(b) Explain why the indicator would be this colour.

_____

_____

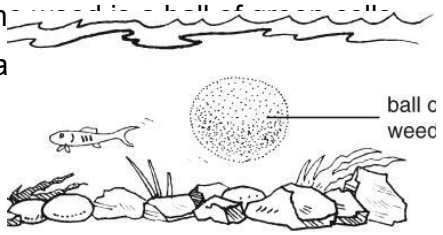
_____

(2)

(Total for Question 6 = 3 marks)

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7 The drawing on the right shows a plant called Marimo weed. Marim
During the day, a gas collects inside the ball of cells and causes the ba



(a) Name the substance that makes these cells green.

_____

(1)

(b) What is the function of the green substance in these cells? Tick **one** box.

- ☐ **A** to camouflage the plant
- ☐ **B** to trap oxygen
- ☐ **C** to trap fish
- ☐ **D** to trap energy transferred by light

(1)

(c) Explain why the ball of cells floats higher on a sunny day than on a cloudy day.

_____

_____

_____

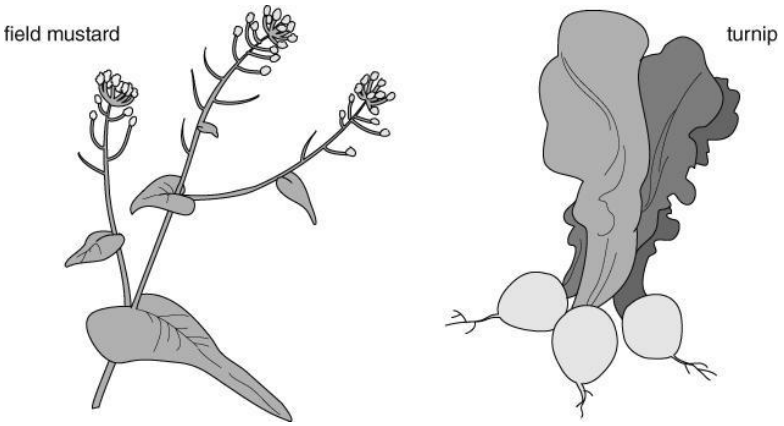
(2)

(Total for Question 7 = 4 marks)

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8 Turnips are root vegetables. Turnips have been selectively bred from a wild plant called field mustard.

Field mustard plants do not have big, round roots like turnips.



Explain how turnips have been selectively bred from field mustard.

(Total for Question 8 = 3 marks)

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