



Rewarding Learning

General Certificate of Secondary Education
2024

Centre Number

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Candidate Number

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Double Award Science: Biology

Unit 7 Practical Skills
Booklet B
Foundation Tier



[GDW72]

GDW72

TUESDAY 11 JUNE, MORNING

TIME

30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Do not write outside the boxed area on each page or on blank pages.

Complete in black ink only. **Do not write with a gel pen.**

Answer **all four** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 35.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in Question **4(a)**.



- 1 (a) A student used a light microscope to view a slide of cheek cells and a slide of onion cells.



The slide was placed on part **A** of the microscope.

- (i) Name part **A**.

[1]

The eyepiece lens of the microscope magnifies $\times 10$.

The student used the high power objective lens that magnifies $\times 40$.

- (ii) Calculate the overall magnification the student used.

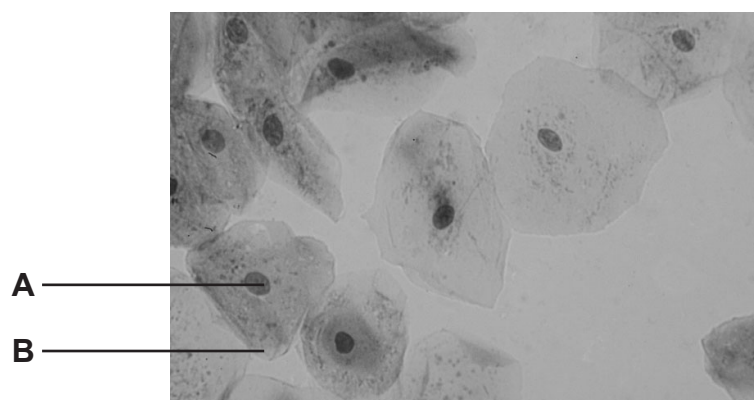
_____ [1]

- (iii) Give **one** advantage of viewing cells using a high magnification.

_____ [1]



(b) The photograph shows cheek cells viewed using a light microscope.



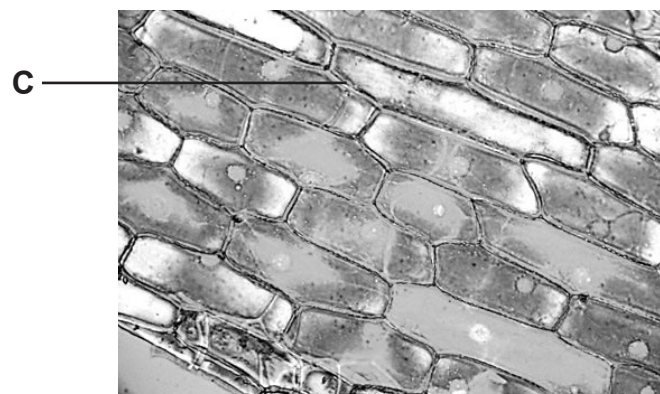
(i) Name structures **A** and **B**.

A _____

B _____

[2]

The photograph shows onion cells viewed using a light microscope.



(ii) Name structure **C** that is present in onion cells but **not** present in cheek cells.

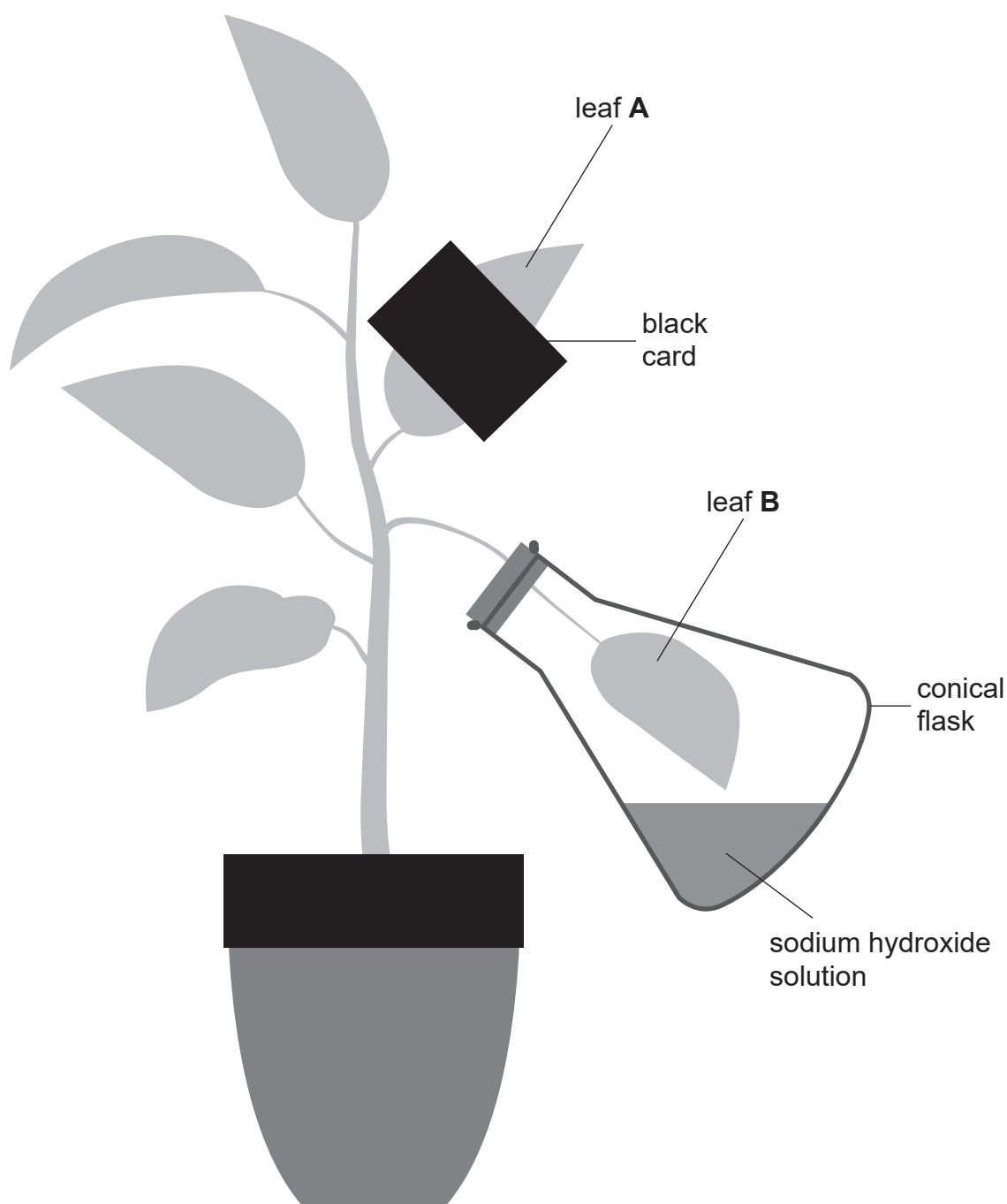
[1]

[Turn over]



- 2 (a) A student carried out an investigation into two factors needed for photosynthesis in a plant.

The diagram shows the set-up of her experiment.



- (i) The student placed the plant in a dark cupboard for 48 hours before the start of her experiment.

Explain why.

_____ [1]

- (ii) The sodium hydroxide, shown in the diagram, removed a substance from the conical flask.

Name the substance removed.

_____ [1]



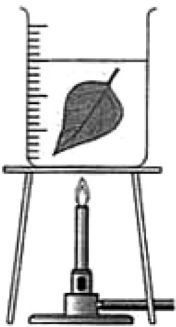
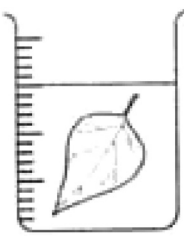
(b) The student then left the plant in bright light for 48 hours.

After 48 hours, she cut leaves **A** and **B** from the plant and removed the black card from leaf **A**.

She carried out the starch test on each leaf.

The table shows the first three steps of the starch test.

(i) Complete the table about the starch test by writing in the empty boxes.

Step	Diagram	Description	Explanation
1			Stops the reactions in the leaf / kills the leaf
2		Place the leaf into a boiling tube containing hot alcohol	
3		Place the leaf into hot water	

[3]

(ii) What safety precaution was taken before step 2 was carried out?

[1]



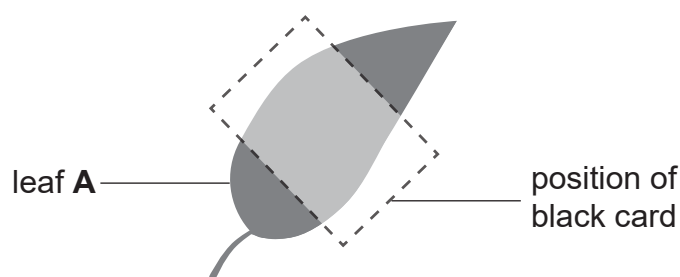
After step 3 the student added a solution to each leaf.

(c) Name this solution, used to test for starch.

[1]

(d) The diagram below shows leaf **A** after the starch test.

The dotted line shows the position of the black card during the experiment.



(i) Explain why the area **inside** the dotted line on leaf **A** did **not** test positive for starch.

_____ [1]

(ii) Describe and explain the result of the starch test for leaf **B**.

Description _____

Explanation _____

_____ [3]

[Turn over]



- 3 Sand dunes can be found near a beach.
They consist of soil made up of sand and humus.
Many different plant species grow on sand dunes.

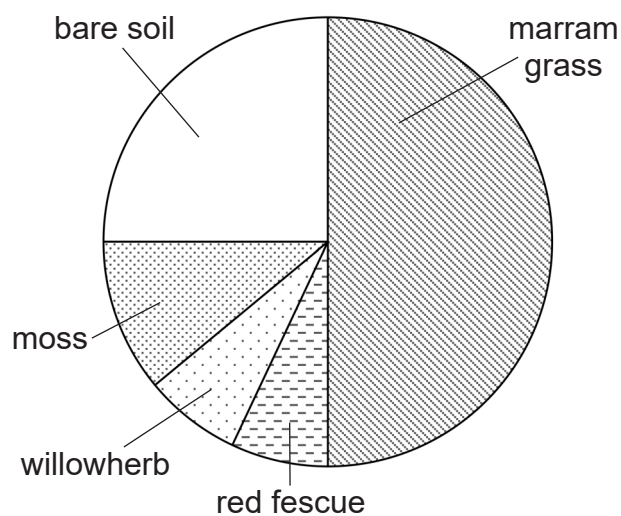
A student used a quadrat to measure the percentage (%) cover of different plant species and bare soil in two areas on a sand dune.

Area 1: near the sea

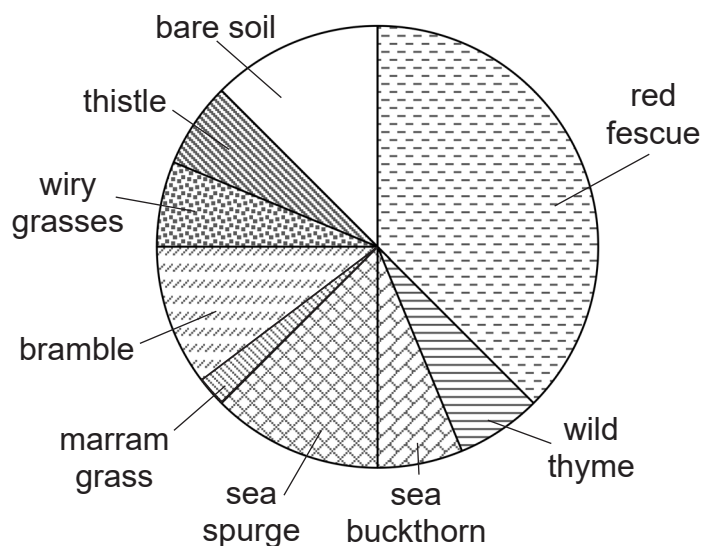
Area 2: further inland (away from the sea)

- (a) The pie charts show the results for the percentage (%) cover of different plant species and bare soil in the two areas.

Near the sea



Further inland (away from the sea)



(i) How many different plant species are there:

near the sea _____

further inland? _____

[1]

(ii) 12.5% of the quadrat in the area further inland was bare soil.

What percentage (%) of the quadrat in the area near the sea was bare soil?

_____ % [1]

(iii) Name the plant species that shows an **increase** in percentage (%) cover from the area near the sea to the area further inland.

[1]

(iv) Name the plant species that shows the **biggest decrease** in percentage (%) cover from the area near the sea to the area further inland.

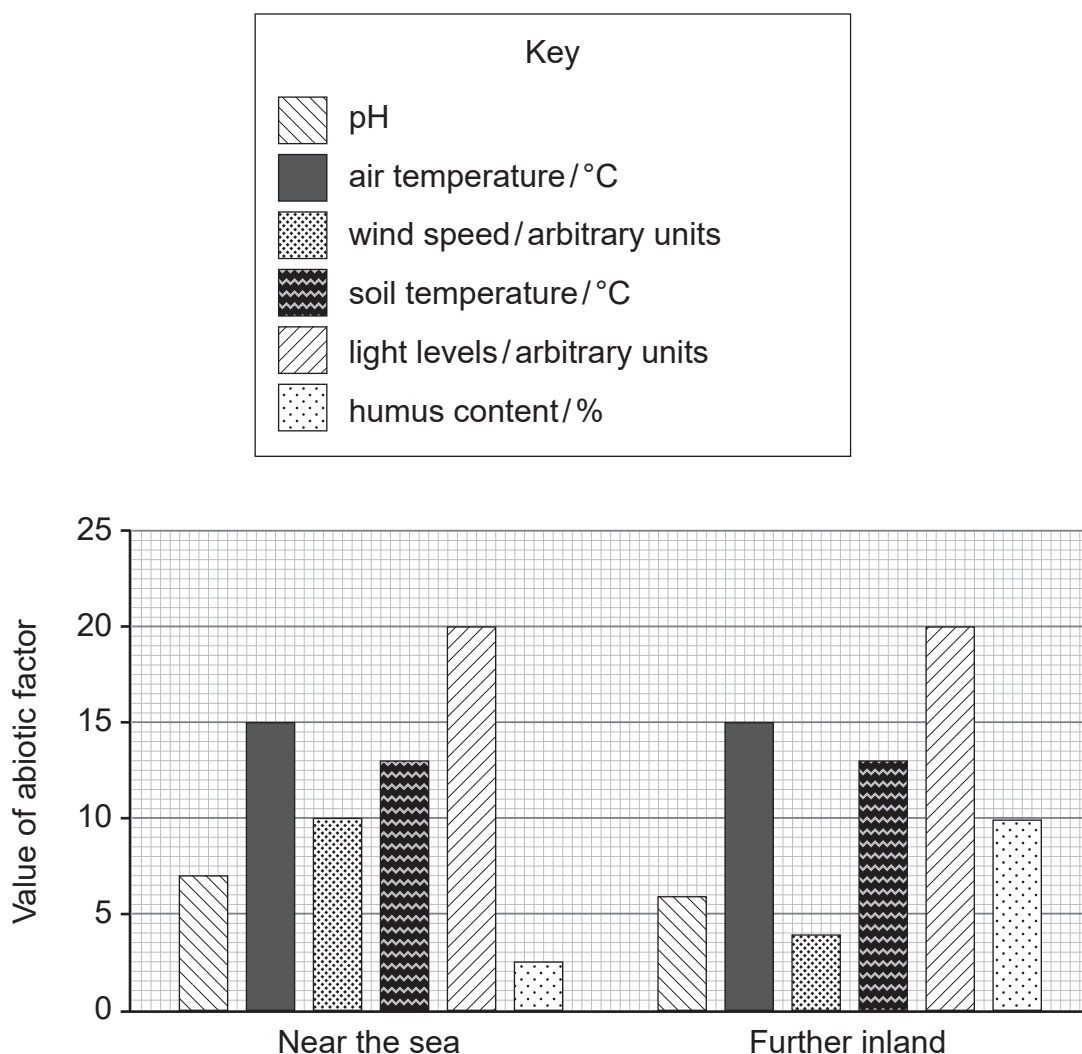
[1]

[Turn over



(b) The student also measured several abiotic factors in the two areas.

The bar chart shows his results for the abiotic factors measured near the sea and further inland.



(i) Which of these abiotic factors is measured using an anemometer?

[1]



(ii) Bramble grows further inland but not near the sea.

Use the bar chart to **describe** the three conditions that allow bramble to grow further inland.

1. _____

2. _____

3. _____

_____ [3]

(c) (i) The student found humus in the soil in both areas.

What is humus formed from?

_____ [1]

(ii) Name **one** type of microorganism involved in the formation of humus.

_____ [1]



- 4 The photographs show some of the aseptic techniques carried out when inoculating an agar plate with one type of bacterium.

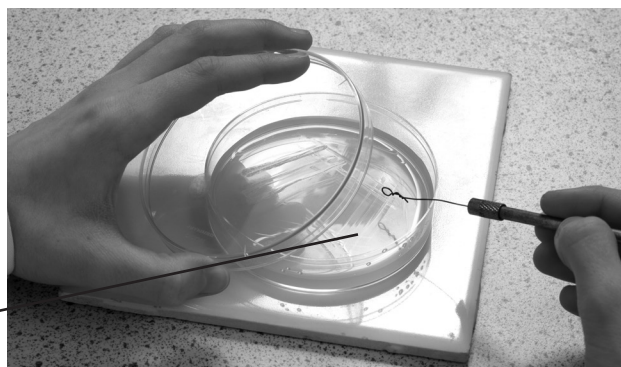
Photograph A

culture bottle
containing one
type of bacterium



Photograph B

agar plate



- (a) Use the photographs and your knowledge to describe the aseptic techniques used to safely:

- remove the bacteria from the culture bottle
- inoculate the agar plate with the bacteria from the culture bottle.

In this question you will be assessed on the quality of your written communication skills, including the use of specialist scientific terms.



[illegible]

- [illegible]

-
-
-
-
-
-
-
-
-
-
- [6]

[6]

14020



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- (b) Give the correct temperature needed to **safely** grow the bacteria on the agar plate.

Circle the correct answer in the list.

2 °C	20 °C	30 °C
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[1]

- (c) It is important to clean work surfaces after working with bacteria.

Explain why.

[1]

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Question Number	Marks
1	
2	
3	
4	

Total Marks	
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Examiner Number

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