



Rewarding Learning

General Certificate of Secondary Education
2022

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

WEDNESDAY 15 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** 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 prepared a microscope slide of cheek cells from the inside of her mouth.

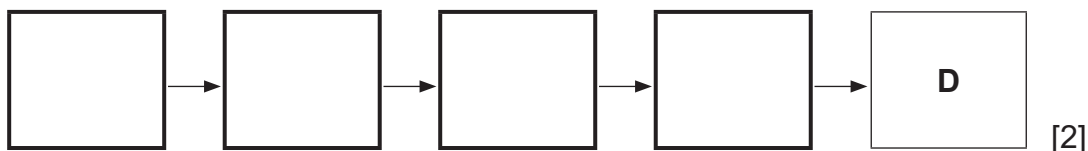
The list below gives the steps (**A** to **E**) used to prepare the microscope slide.

The steps are **not** in the correct order.

- A** Rub the cotton bud with the cheek cells onto the microscope slide.
- B** Add one drop of methylene blue onto the slide to stain the cheek cells.
- C** Gently scrape the inside of the mouth with a cotton bud.
- D** Place the slide on the microscope stage and view under low magnification.
- E** Carefully lower a coverslip onto the slide at a 45° angle.

- (i) Write the correct letter in each empty box below, to show the order of steps followed by the student to prepare the microscope slide.

The last box has been completed for you.



- (ii) What is the purpose of step **E**?

_____ [1]

- (iii) The student used an eyepiece lens $\times 10$ and an objective lens $\times 4$ to view the microscope slide under low magnification.

What is the total magnification the student used?

Circle the correct answer in the list below.

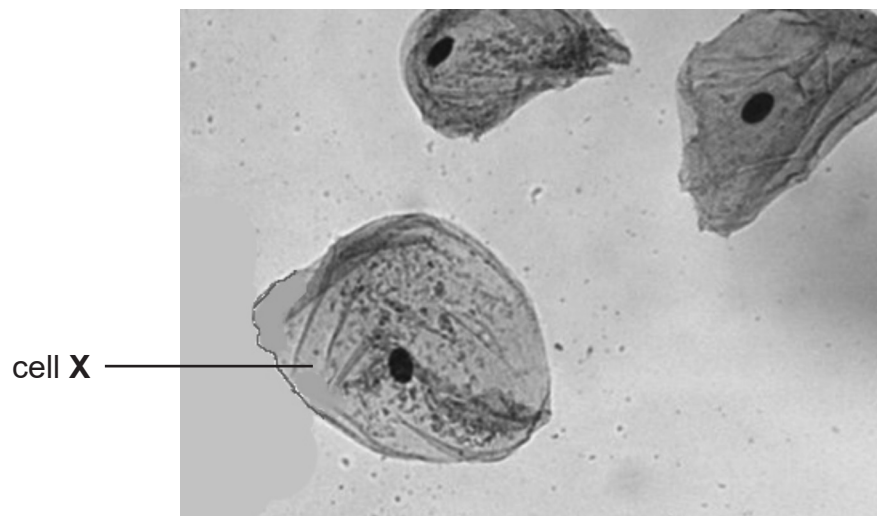
$\times 6$	$\times 14$	$\times 40$
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[1]



The student then viewed the cheek cells under high magnification.

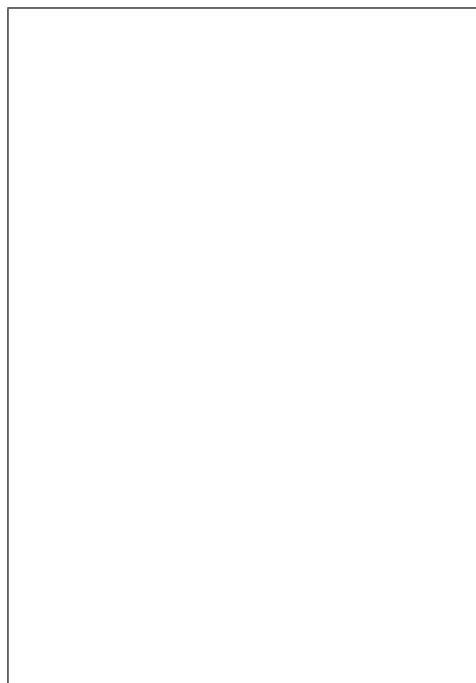
The photograph below shows some of these cheek cells.



Source: Adapted © Getty Images

- (b) In the box below, draw the **outline** of cell **X** the **same size** as it is in the photograph.

Add the nucleus of cell **X** to your drawing.



[3]

[Turn over



- 2 A school canteen sells vegetarian pizza and tuna sandwiches.

Students carried out three food tests on samples of the vegetarian pizza.

They found that three different biological molecules **were present**.

The table shows some information about their food tests.

- (a) Complete the table below by writing the correct answers in the empty boxes.

Reagent	Biological molecule	Initial colour of reagent	End colour of reagent
	protein	blue	lilac/purple
ethanol	fat	colourless	
	reducing sugar (glucose)	blue	

[4]



- (b) The table below shows some nutritional information for the vegetarian pizza and the tuna sandwich.

Type of food	Protein /g	Fat /g	Carbohydrate /g
vegetarian pizza	5	22	26
tuna sandwich	10	2	26

The recommended daily fat intake for a 15-year-old is 55g.

- (i) Calculate the **percentage** (%) of the recommended daily fat intake, for a 15-year-old, in the vegetarian pizza.

Show your working.

_____ % [3]

The students concluded that the tuna sandwich is the healthier option for a 15-year-old.

- (ii) Use **only** the information in the table to explain their conclusion.

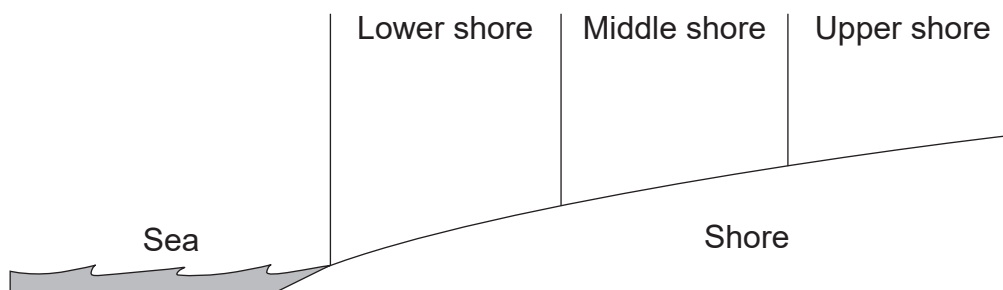
_____ [2]

[Turn over



- 3 (a) A group of students investigated the distribution of four types of seaweed at different distances from the sea on a shore.

The diagram below shows the areas of the shore where the four types of seaweed were found.



- (i) Name the apparatus the students used to sample the seaweed.

[1]

- (ii) Name the sampling method the students used.

[1]

The students used an anemometer to measure an abiotic factor on this shore.

- (iii) Name this abiotic factor.

[1]

- (iv) How could the students improve the reliability of their results?

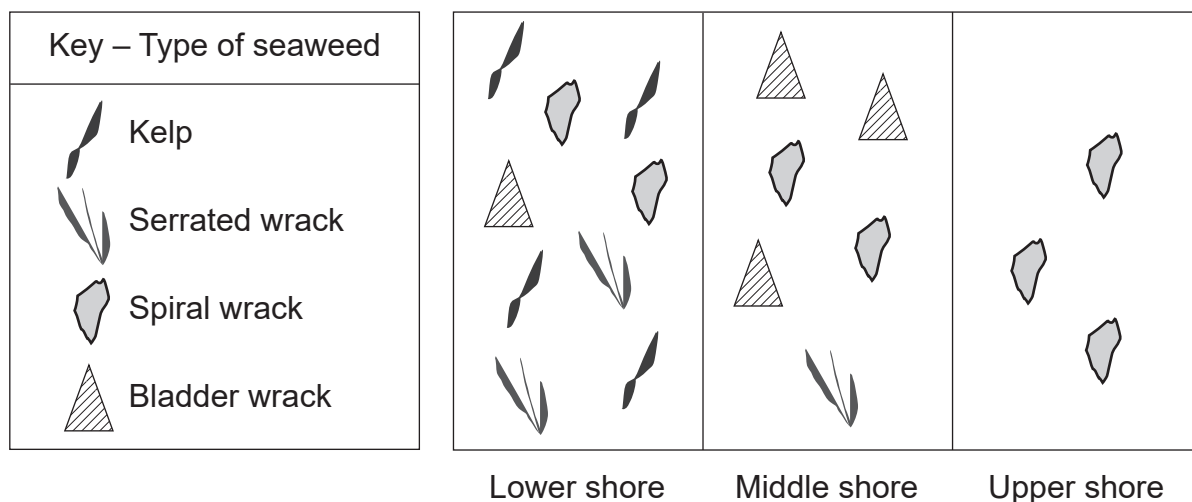
[1]



(b) The students used a key to identify the four types of seaweed sampled.

One of the students drew a diagram to show the presence of the different types of seaweed on the lower, middle and upper shores.

The diagram below shows the student's results.



Source: Principal Examiner

(i) Use **only** the diagram to give a conclusion about the distribution and number of **spiral wrack** on the shore.

Distribution _____

Number _____ [2]



- (ii) Describe the trend in the number of types of seaweed found between the lower shore and the upper shore.

Give **one** piece of data to support your answer.

[2]

- (iii) The list below gives the three areas of the shore.

Draw a circle around the area which has the **greatest** biodiversity.

lower shore	middle shore	upper shore
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[1]

Flat periwinkles are animals that feed on **bladder wrack** and **kelp**.

- (c) Predict the area of the shore, lower, middle or upper, where you would expect to find the **fewest** flat periwinkles.

Use the information in the diagram on page 8 opposite to explain your answer.

Area of shore _____

Explanation _____

[2]

[Turn over



- 4 The photograph below shows a geranium plant with variegated leaves.



Source: Principal Examiner

A student destarched the geranium plant and then placed it in bright light for 48 hours. He then carried out a starch test on **one variegated leaf** from the geranium plant.

- (a) Describe and explain **the results** the student obtained when he carried out the starch test on the **variegated leaf**.

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

Results for green area _____



Results for white area _____

[6]

(b) Suggest the best growing conditions for variegated geranium plants. Explain your answer.

[2]

THIS IS THE END OF THE QUESTION PAPER

DO NOT WRITE ON THIS PAGE

For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	

Total Marks	
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Examiner Number

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