



General Certificate of Secondary Education
2025

Centre Number

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Candidate Number

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Double Award Science Biology

Unit 7: Practical Skills

Booklet A
Foundation Tier



GDW71

[GDW71]

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Write your answers in the spaces provided in this question paper.
Answer **all** parts of Question 1.

INFORMATION FOR CANDIDATES

The total mark for this paper is **15**.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
Follow all health and safety instructions.
You may not have access to notes, textbooks and other materials to assist you.
The apparatus and materials required to complete the task(s) are provided.
You will require a calculator.

For Examiner's
use only

Mark

Remark

Biology
(15 marks)

Chemistry
(15 marks)

Physics
(15 marks)

Total
(45 marks)

For Examiner's
use only

Question
Number

Marks

1

Total
Marks

Investigating the process of osmosis in potato cylinders

Eye protection must be worn during the practical part of this assessment.

- 1 (a) Write the initial masses of the potato cylinders (recorded in **Table 1** in your Confidential Candidate Set-Up Instruction Sheet) in the column in **Table 2** (at the bottom of this page) with the heading '**Initial mass of potato cylinder /g**'. [1]

Instructions

- 1 Remove the potato cylinder from beaker 1 and pat it dry with a paper towel.
- 2 Use a balance to find the mass of this potato cylinder. This is the final mass of the potato cylinder.
- 3 Write this mass to **one decimal place** in the column in **Table 2** below with the heading '**Final mass of potato cylinder /g**'.

- (b) Repeat steps 1, 2 and 3 in the instructions above for the potato cylinders in beakers **2, 3 and 4**. [1]

- (c) Calculate the change in mass of each potato cylinder. Write each change in mass to **one decimal place** in the column in **Table 2** below with the heading '**Change in mass of potato cylinder /g**'. [1]

- (d) In the last column in **Table 2**:

Write a '+' in front of the change in mass of the potato cylinder if it increased.

Write a '-' in front of the change in mass of the potato cylinder if it decreased. [1]

Table 2

Beaker	Concentration of sucrose solution /%	Initial mass of potato cylinder /g	Final mass of potato cylinder /g	Change in mass of potato cylinder /g
1	0 (water)			
2	5			
3	10			
4	20			

Instructions

- 4** Copy your group's results for the change in mass of the potato cylinder, from **Table 2**, into the column in **Table 3** below with the heading '**My group**'.
- 5** Collect one other set of results for the change in mass of the potato cylinder from one other group in your class.

- (e) Write the other set of results in the column in **Table 3** below with the heading '**Group 2**'. [1]

You must complete the remainder of this paper on your own.

Table 3

Concentration of sucrose solution /%	Change in mass of potato cylinder /g		
	My group	Group 2	Average
0 (water)			
5			
10			
20			

- (f) Calculate the average change in mass of the potato cylinder for each concentration of sucrose solution.

Give your answers to **one decimal place**.

Write your answers in the column in **Table 3** above with the heading '**Average**'. [2]

Show your working out.

Examiner Only

Marks Remark

The table below gives three variables in this investigation.

- (g) Place a tick (✓) in the correct box to identify if each variable is a controlled, dependent or independent variable.

Variable	Type of variable		
	Controlled	Dependent	Independent
final mass of potato cylinder			
concentration of sucrose solution			
time between weighings			

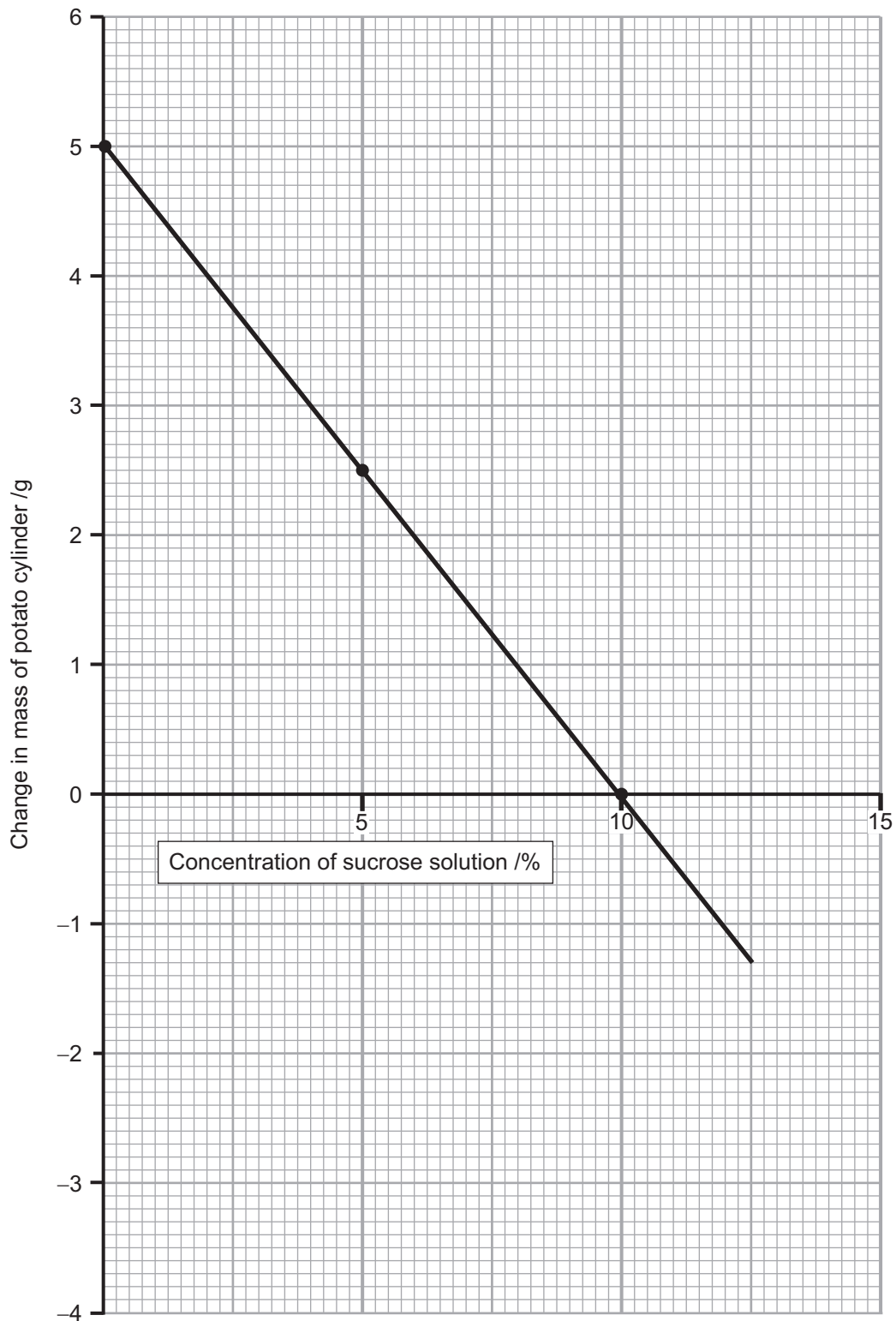
[3]

Examiner Only	
Marks	Remark

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(Question continues overleaf)

A group of students carried out another investigation into the process of osmosis in potato cylinders.

The graph shows some of their results.



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Rewarding Learning

Centre Number

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Candidate Number

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**General Certificate of Secondary Education
2025**

Double Award Science Biology

Unit 7: Practical Skills

Confidential Candidate Set-Up Instruction Sheet

Foundation Tier

[GDW71]

INSTRUCTIONS TO CANDIDATES

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

INFORMATION FOR CANDIDATES

This Set-Up Instruction Sheet tells you how to set up the practical.

You will have access to this Set-Up Instruction Sheet when completing Booklet A.

Any information recorded during the set-up of the practical is not assessed at this stage.

The time taken by you to set up this practical is not part of the 1 hour allocated for completing Booklet A.

This Set-Up Instruction Sheet must be returned to your teacher at the end of this session.

Investigating the process of osmosis in potato cylinders

Candidate set-up instructions

Eye protection must be worn during this practical set-up.

There are four beakers on your desk labelled **1, 2, 3** and **4**.

Each beaker contains 100cm³ of a different concentration of sucrose solution as shown in **Table 1**.

- 1** Write your group's initials on each of the four beakers using a marker pen.
- 2** On a white tile/board, cut four potato cylinders from a potato using a cork borer.
- 3** Cut off any potato skin from the ends of the potato cylinders using a knife.
- 4** Cut each potato cylinder to a length of 40mm.
- 5** Use a balance to find the mass of the 1st potato cylinder.
This is the initial mass of the potato cylinder.
Write this mass to **one decimal place** in **Table 1** below for beaker **1**.
Place this potato cylinder into beaker **1**.
- 6** Repeat step 5 for beakers **2, 3** and **4**, using the 2nd, 3rd and 4th potato cylinders.
- 7** Leave the potato cylinders in the beakers for 24 hours or for a time specified by your teacher.

Table 1

Beaker	Concentration of sucrose solution /%	Initial mass of potato cylinder /g
1	0 (water)	
2	5	
3	10	
4	20	



Rewarding Learning

**General Certificate of Secondary Education
2025**

Double Award Science Biology

Unit 7: Practical Skills

Booklet A

Foundation Tier

[GDW71]

APPARATUS AND MATERIALS LIST AND CONFIDENTIAL INSTRUCTIONS

To be accessed by Head of Department only

It is the responsibility of the centre to ensure that appropriate risk assessments are carried out for all practical skills assessments.

Investigating the process of osmosis in potato cylinders

Apparatus and Materials for Each Class for practical set-up (based on 10 groups)

- Balances (for both practical set-up and completion of Booklet A) to measure mass /g to one decimal place (balances may be shared among groups)
- 10 × large white potatoes
- 1000cm³ of water (0% sucrose solution)
- 1000cm³ of each sucrose solution - 5%, 10% and 20%
- Measuring cylinder(s) to measure 100cm³

Each group will need the following on their desk for Practical Set-Up

- Confidential Candidate Set-Up Instruction Sheets
- 4 beakers labelled 1, 2, 3 and 4, each containing 100cm³ of the following sucrose solutions:
 - beaker 1 - 0% sucrose solution (water)
 - beaker 2 - 5% sucrose solution
 - beaker 3 - 10% sucrose solution
 - beaker 4 - 20% sucrose solution
- 1 × permanent marker pen (to label the beakers with the group initials)
- 1 × large white potato
- 1 × cork borer (for cutting potatoes to recommended diameter 10-14 mm)
- 1 × white tile/board (to cut potatoes on)
- 1 × knife
- 1 × ruler with mm scale
- Eye protection

Each group will need the following on their desk for Booklet A

- Eye protection
- Completed Confidential Candidate Set-Up Instruction Sheets
- Beakers labelled 1, 2, 3 and 4 used during their practical set-up
- Paper towels

Safety Advice

- Candidates must wear eye protection during the practical part of the assessment.
- Care must be taken with cork borers and knives.
- CLEAPSS Safety Sheet 64 must be read by the teacher before starting the practical set-up.

Confidential Instructions

This practical will need to be set up the **day before** the practical assessment.

Candidates will need to cut up potatoes and place potato cylinders in sucrose solutions the day before the practical assessment.

Time suggested for leaving potato cylinders in the sucrose solutions is 24 hours. This may be changed as appropriate.

If cork borers are not available, candidates should cut potato chips of approximate dimensions $15 \times 15 \times 40\text{mm}$.

Candidates will require a calculator to complete Booklet A.

Trials

Teachers should trial the practical assessment and keep a set of results and repeats.

