



Rewarding Learning

General Certificate of Secondary Education
2025

Centre Number

--	--	--	--	--

Candidate Number

--	--	--	--	--

Double Award Science: Physics

Unit 7 Practical Skills
Booklet B
Higher Tier



[GDW78]

GDW78

MONDAY 16 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 questions in black ink and use a dark HB pencil for drawings and graphs.

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.

You may use a scientific calculator.

Quality of written communication will be assessed in Question **1(a)**.



- 1 (a) A student is asked to find the density of an irregular shaped stone as shown.



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

Give the names of the two measuring instruments needed.

1. _____

2. _____

Describe how to find the volume of the stone.

Give a precaution taken to ensure the experiment is accurate.

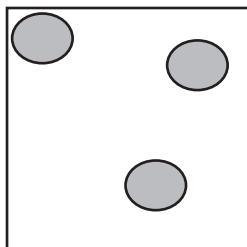
State, **in words**, the equation for density.

[6]

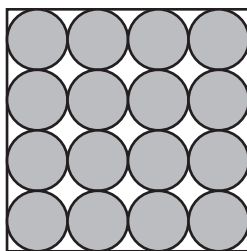


(b) Kinetic theory is used to describe the arrangement of particles in solids, liquids and gases.

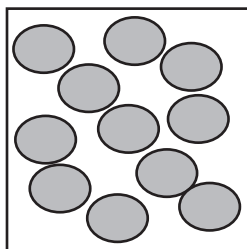
Write the state of matter (**solid**, **liquid** or **gas**) that matches the particle arrangement shown in the boxes below.



State of matter _____



State of matter _____



State of matter _____

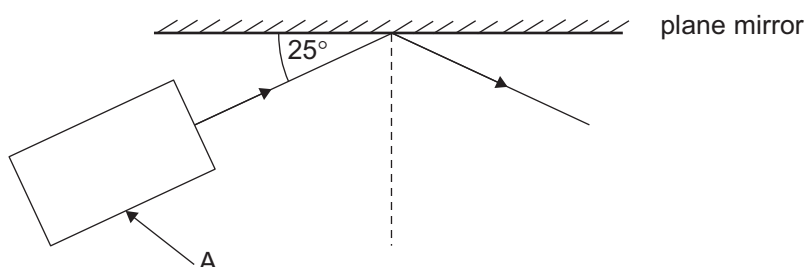
[3]

[Turn over



- 2 A student carries out an experiment on how the angle of incidence and the angle of reflection are related as a ray of light strikes a plane mirror.

A diagram of the apparatus is shown below.



(a) (i) Name the piece of apparatus labelled A. _____ [1]

(ii) On the diagram above label the normal with the letter **N**. [1]

(iii) What is the size of the angle of incidence? _____ ° [1]

The student then measures the angle of reflection for different angles of incidence.

(iv) What instrument is used to measure the angle of reflection?
_____ [1]

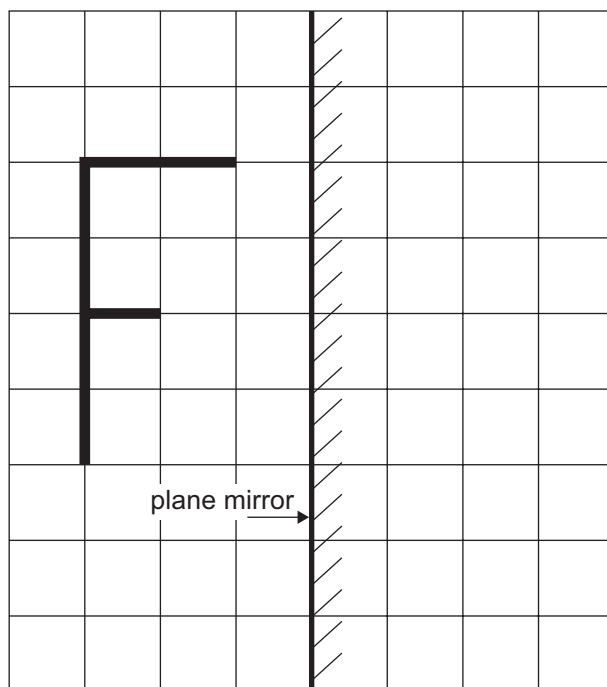
(v) What is the relationship between the angle of incidence and the angle of reflection in a plane mirror?

_____ [1]

(b) State the advantage in repeating an experiment to find an average result.
_____ [1]



The student then draws the letter F on a grid of squares and a plane mirror is placed on the squares as shown below:



(c) Draw the image of the letter F on the grid.

[2]

[Turn over



- 3 An investigation is carried out to determine how the resistance of a wire depends on its length.

The table below shows the results obtained:

Length / m	Resistance / Ω
0.2	1.4
0.4	2.8
0.6	4.2
0.8	5.6
1.0	7.0

You are asked to plot a graph of the resistance of the wire (vertical axis) against the length of the wire (horizontal axis).

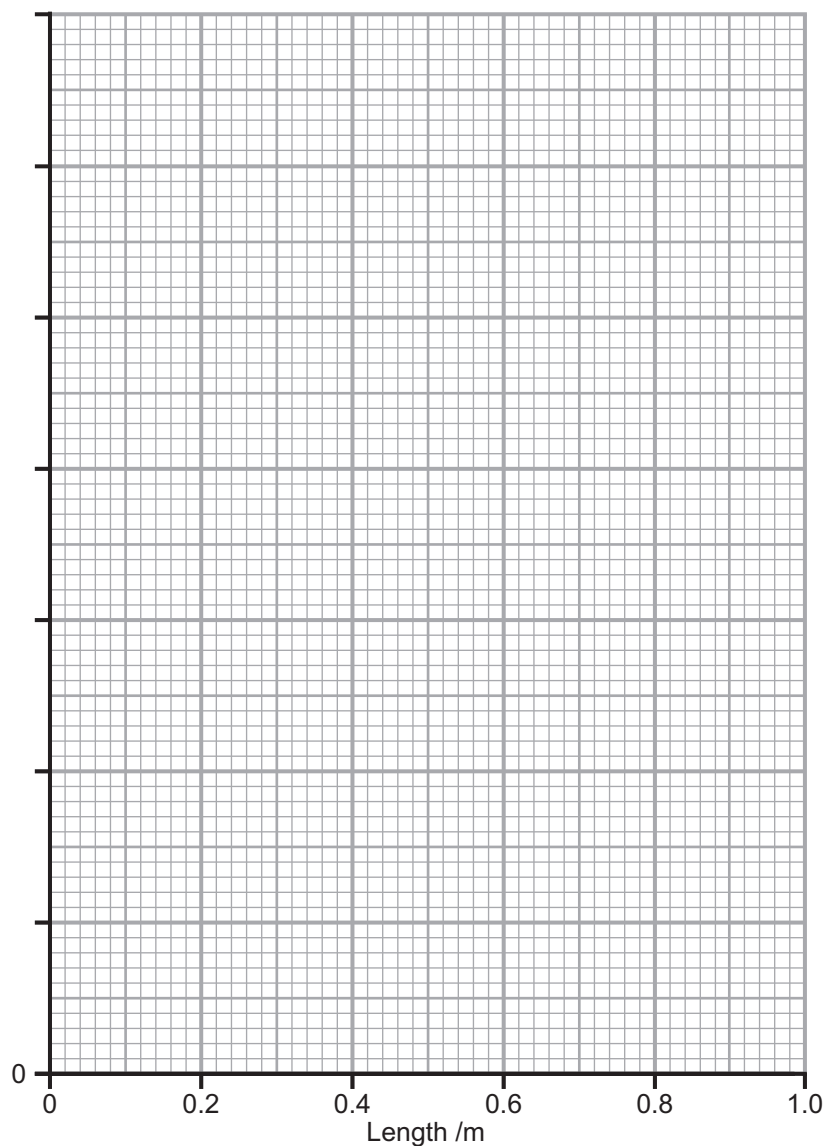
- (a) Choose a suitable scale for the vertical axis and label it.

Plot the points.

Draw a straight line of best fit.

[5]





(b) Calculate the gradient of the line.

Include the unit in your answer.

Show your working out.

Gradient of the line = _____ Unit = _____ [4]

[Turn over



- 4 A student uses a uniform beam to investigate the Principle of Moments. A diagram of the apparatus is shown below.



The point X is the centre of gravity of the uniform beam.

- (a) Define the term centre of gravity.

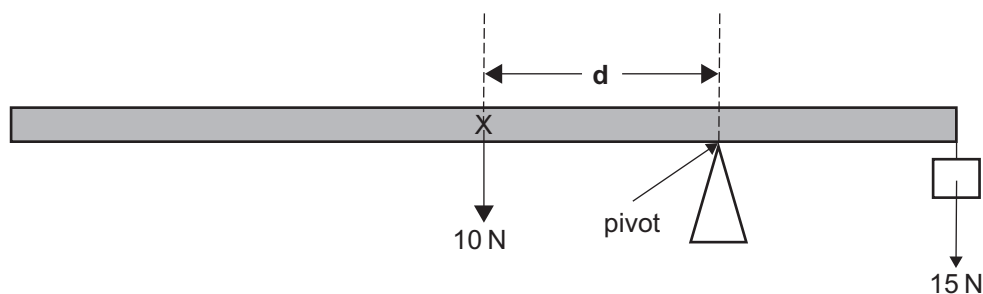
[1]

- (b) State the Principle of Moments.

[3]



The student hangs 15 N at the end of the uniform beam. He moves the pivot towards the 15 N weight, as shown below, so that the beam is balanced.



The length of the uniform beam is 40 cm and its weight is 10 N.

- (c) (i) State the size of the force the pivot exerts on the beam and give its direction.

Size of the force = _____ N

Direction of the force = _____ [2]

- (ii) Calculate the distance, d .

Remember the length of the uniform beam is 40 cm.

Show your working out.

Distance, d = _____ cm [3]

THIS IS THE END OF THE QUESTION PAPER



BLANK PAGE
DO NOT WRITE ON THIS PAGE

14724



12GDW7810



BLANK PAGE

DO NOT WRITE ON THIS PAGE

14724



12GDW7811



Source:

Q1a.....© Getty images

DO NOT WRITE ON THIS PAGE

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

Total Marks	
-------------	--

Examiner Number

Permission to reproduce all copyright material has been applied for.
In some cases, efforts to contact copyright holders may have been unsuccessful and CCEA will be happy to rectify any omissions of acknowledgement in future if notified.

GDW78/8
297470

