



Rewarding Learning

General Certificate of Secondary Education
2025

Centre Number

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Candidate Number

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Double Award Science: Physics

Unit 7 Practical Skills
Booklet B
Foundation Tier



[GDW74]

GDW74

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 **3(a)**.



- 1 A uniform beam is positioned in two different ways, A and B, on a table as shown below.



- (a) In which position is the uniform beam most stable?

Give **one** reason for your answer.

[2]

A student carries out an experiment to investigate the Principle of Moments using a different uniform beam.

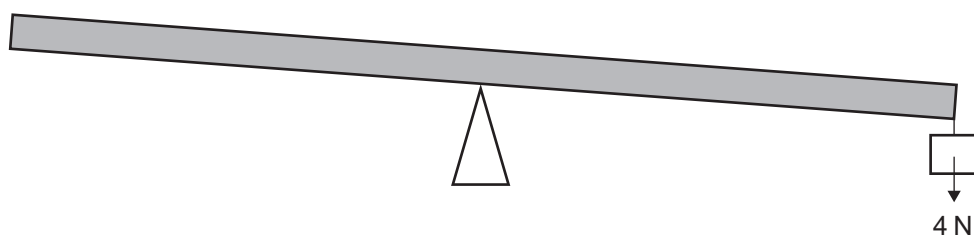
A pivot is placed at the middle of the uniform beam, as shown below.

- (b) Mark with an X, on the diagram below, the centre of gravity of the uniform beam.

[1]



The student places a weight of 4 N at the end of the uniform beam as shown below.

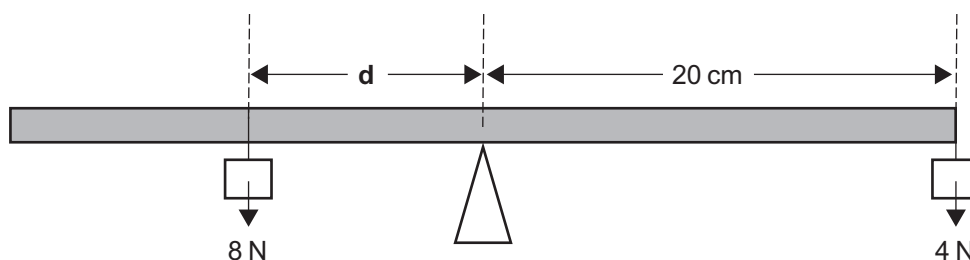


(c) What is the direction of the moment created by the 4 N weight?

State a unit for the moment created by the 4 N weight.

_____ [2]

The student adds an 8 N weight, as shown below.



The uniform beam has a total length of 40 cm.

(d) Using the Principle of Moments, calculate the distance, **d**, at which the 8 N weight must be placed so that the uniform beam is balanced.

Show your working out.

Distance, **d** = _____ cm [4]

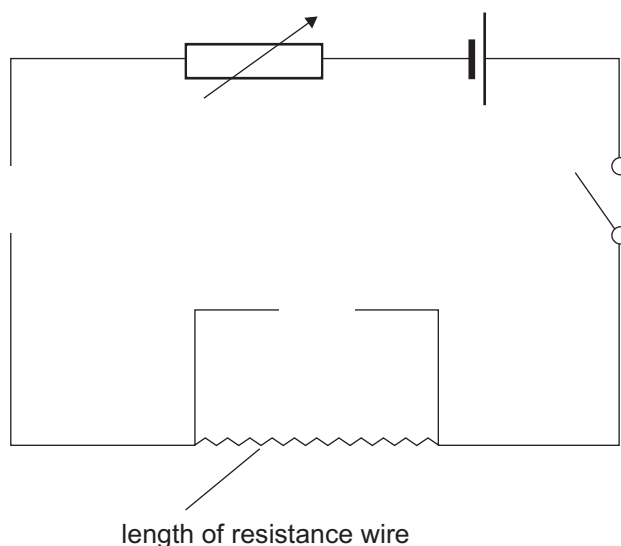
[Turn over]



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

- (a) The resistance is calculated by measuring the voltage and current using a voltmeter and an ammeter.

In the spaces below, complete the circuit diagram showing the correct positions of the voltmeter and ammeter. [2]



- (b) Name one controlled variable for this investigation.

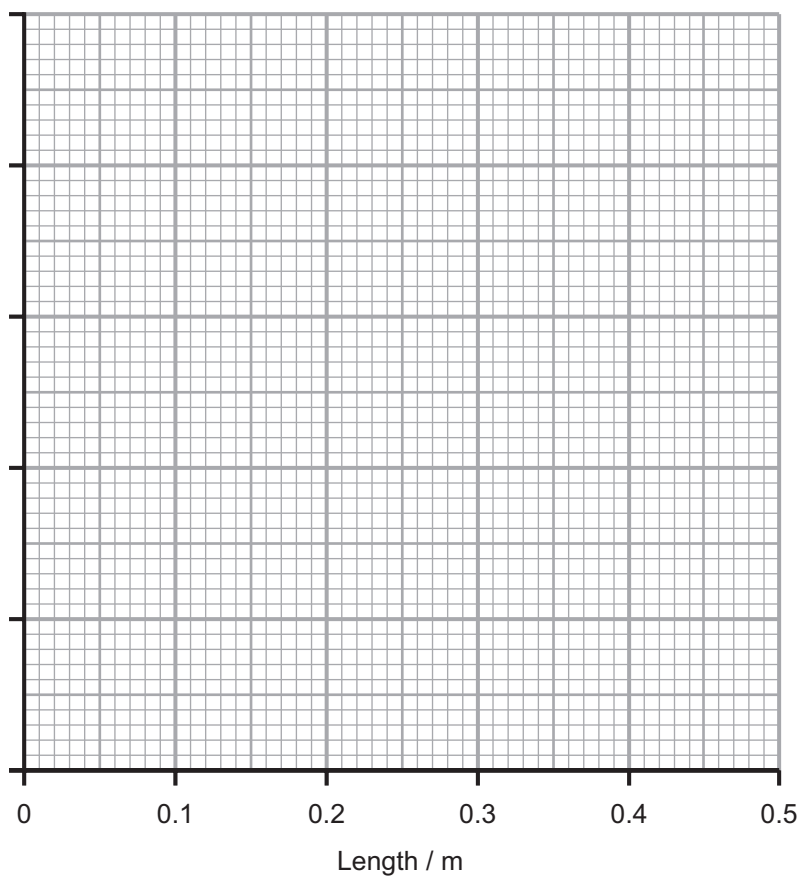
_____ [1]

The table below shows the results obtained:

Length / m	Resistance / Ω
0.1	2.0
0.2	4.0
0.3	6.0
0.4	8.0
0.5	10.0



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



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

Plot the points.

Draw a straight line of best fit.

[5]

(d) State the relationship between the resistance of a wire and its length.

[1]



- 3 (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.

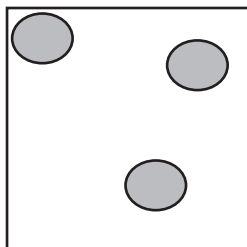
State, **in words**, the equation for density.

[6]

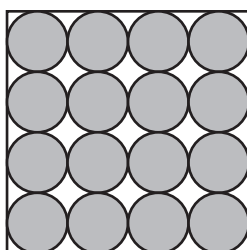


(b) Kinetic theory is used to describe the arrangement of particles in solids, liquids and gases.

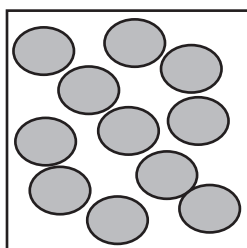
Write the state of matter (**solid**, **liquid** or **gas**) that matches the particle arrangement shown in the boxes below.



State of matter _____



State of matter _____



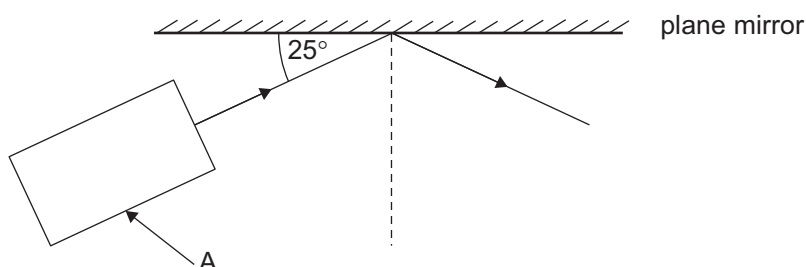
State of matter _____

[3]



- 4 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]

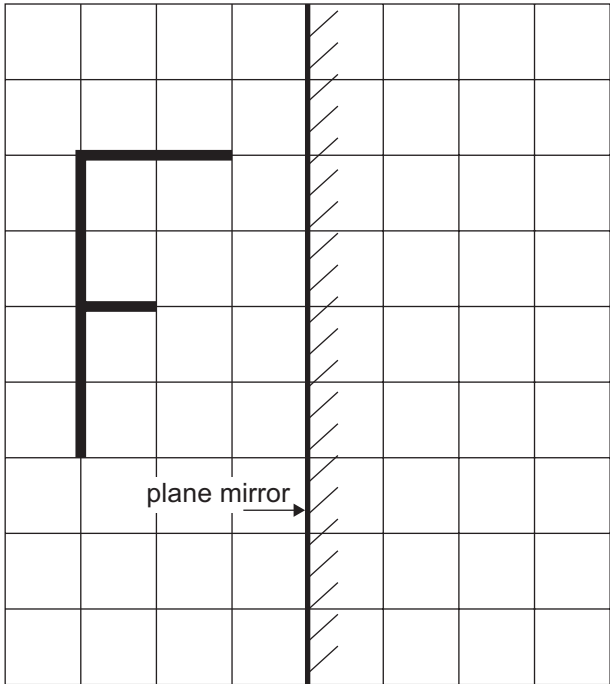
(v) What is the relationship between the angle of incidence and the angle of reflection in a plane mirror?

_____ [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]

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Question Number	Marks
1	
2	
3	
4	

Total Marks	
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Examiner Number

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