

Surname	Centre Number	Candidate Number
First name(s)		0



GCSE



S25-3430U70-1F

MONDAY, 6 JANUARY – FRIDAY, 21 FEBRUARY 2025

SCIENCE (Double Award) – Unit 7 (3430U70)

PRACTICAL ASSESSMENT

**INVESTIGATING THE EFFECT OF DROP HEIGHT
ON THE SIZE OF AN IMPACT CRATER**

SECTION B

1 hour

For Examiner's use only		
	Maximum Mark	Mark Awarded
Section B	24	

ADDITIONAL MATERIALS

A calculator and your Section **A** exam paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The total number of marks available for this section of the task is 24.

The number of marks is given in brackets at the end of each question or part-question.

This task is in 2 sections, **A** and **B**. You will have completed Section **A** in a previous lesson.



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SECTION BAnswer **all** questions.

2. (a) (i) State the independent variable in this experiment. [1]

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- (ii) State the range of the independent variable. [1]

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- (iii) State the dependent variable in this experiment. [1]

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- (iv) State **one** variable that was controlled in this experiment **and** explain why it was controlled. [2]

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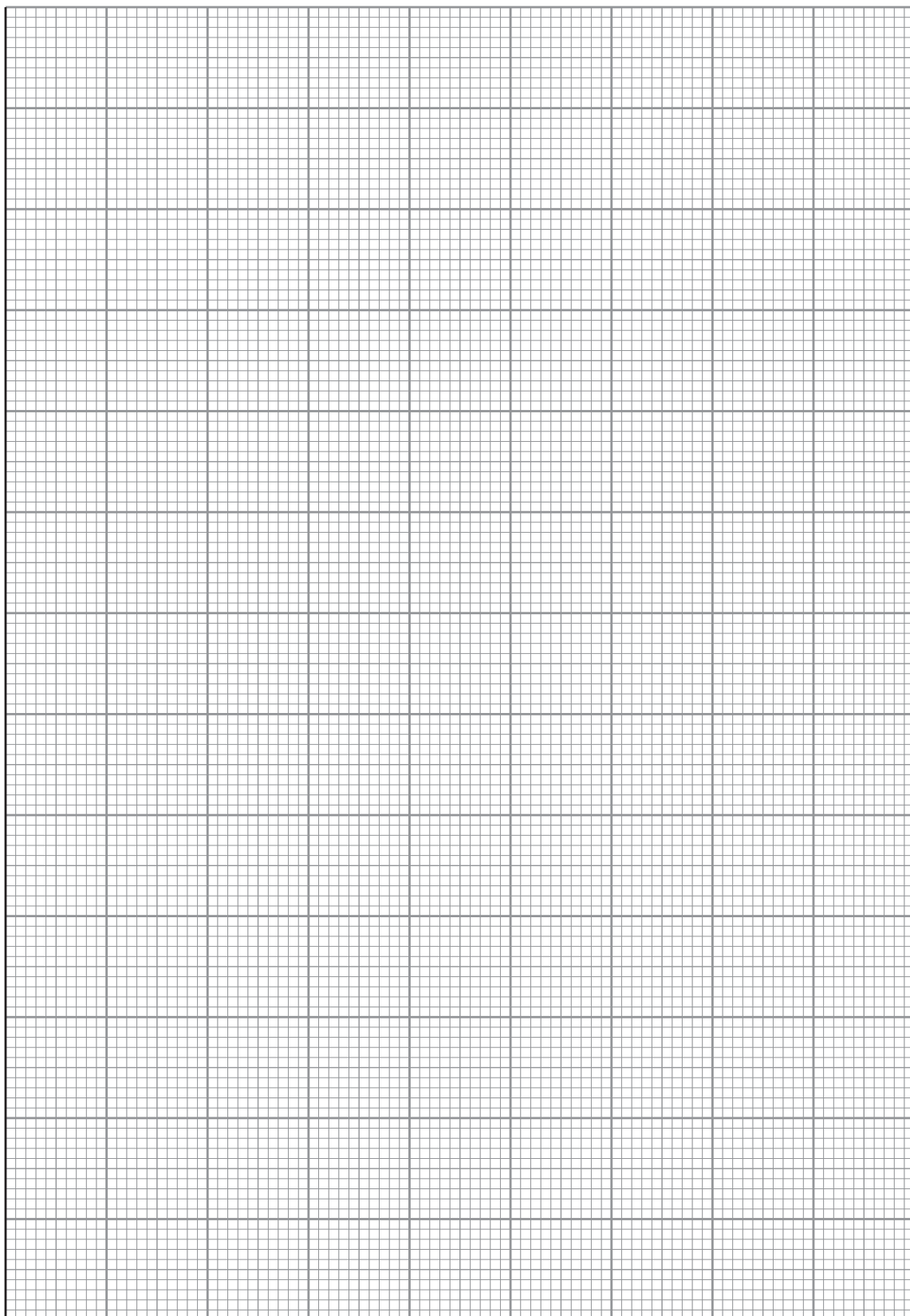
- (b) A group of students carried out a similar experiment with a steel ball and the following results were obtained.

Drop height (cm)	Mean diameter of the crater (cm)	Mean area of the crater (cm ²)
0	0.0	0.0
25	3.5	9.6
50	4.2	13.9
75	4.7	17.3
100	5.0	19.6
125	5.3	22.1
150	5.5	23.8

- (i) Use the results above to draw a graph of the mean area of the crater (vertical axis) against the drop height (horizontal axis) on the grid opposite. [5]
Include a plot at (0,0).



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- (ii) Use your graph to describe the relationship between the drop height and the mean area of the crater. [2]

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- (iii) Before it is dropped the steel ball stores potential energy.
Suggest why dropping the steel ball from a greater height increases the area of the crater. [1]

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- (iv) One of the students concludes that as the drop height doubles from 25 cm to 50 cm the area of the crater doubles.
Explain whether you agree. [2]

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- (v) The students also took readings for a drop height of 175 cm and measured the mean diameter, d , to be 4.9 cm.

- I. Use the equation:

$$A = \frac{\pi d^2}{4}$$

to determine the area, A , of the crater at 175 cm. ($\pi = 3.14$) [2]

area = cm²

- II. Suggest why the students did not include the data for 175 cm in their results table. [1]

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- (c) (i) Evaluate the repeatability of your results from Section **A**. [2]

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- (ii) State how the reproducibility of the experiment in Section **A** could be checked. [1]

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- (iii) I. Identify **two** inaccuracies in the method used in Section **A**. [2]

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- II. Suggest an improvement to reduce **one** of these inaccuracies. [1]

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