

# GCSE Physics

1<sup>st</sup> Feb 2021 – Hooke's Law Practical

Suitable for ALL exam boards



This session looks at a simple practical where a spring is extended, data is taken and a graph is plotted.

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Question taken from:

**Edexcel IGCSE Physics – June 2015 - Paper 1P (4PH0/4SC0) – Question 5**

5 A student uses this apparatus to investigate forces stretching a spring.



She uses a ruler to measure the vertical distance  $h$  between the bottom of the mass hanger and the base of the stand.



(a) Suggest two ways that the student can measure distance  $h$  more accurately.

(2)

1 .....

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2 .....

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(b) The student continues her investigation by loading the spring with different masses.

The table shows her results.

Mass in g	Force in N	Distance $h$ in cm
20	0.2	4.6
40	0.4	3.9
60	0.6	3.1
80	0.8	2.3
100	1.0	1.6
120	1.2	0.9

(i) Name the dependent variable in this investigation.

(1)

(ii) Explain how the force values in the table are calculated.

(2)



(iii) Plot a graph of distance  $h$  against force, and draw the line of best fit.

(5)



(iv) Use your graph to find the force for which  $h$  is zero.

(2)

force = ..... N

(v) Explain whether the spring obeys Hooke's law.

(2)

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**(Total for Question 5 = 14 marks)**

