G483

Practical Skills in Physics 1

Quantitative Task Prep

Objectives

- **Demonstrate** and **describe** safe and skilful practical techniques for a quantitative experiment.

- Make, record and **communicate** reliable measurements with appropriate precision and accuracy.

- **Analyse** the experimental results.

- **Interpret** and **explain** your experimental results.

Learning Outcomes (you will be able to...)

- Measure length without parallax error
- Use significant figures and decimal figures appropriately
- Link significant figures in the final quantity to all measured values
- Draw an appropriate graph with a line of best fit
- Calculate a gradient with units
- Determine the y intercept by substituting in values and using the gradient
- Recognise y = mx +c and fit this to new equations
- Use 'm' and 'c' to calculate a physical constant

Task

- You are to set up the equipment provided, record appropriate results in a table, plot a graph and calculate the gradient with units.

- You will investigate how **extension** is related to **force** for a steel spring.

[30 minutes]

Table

- Column headings for:
    - Mass / kg   3dp
    - Weight / N   3dp
    - Length / m   3dp
    - Average length / m   3dp
    - Extension / m   3dp
- At least six results recorded
- All values calculated correctly

Graph

- Correctly labelled x and y axis, with units
- Plotted area greater than half the page
- Points plotted to the nearest mm
- Appropriate straight line of best fit that goes through the origin
- Triangle drawn onto graph greater than half the length of the line of best fit
- Calculation shown for working out the gradient

Gradient

- Triangle drawn onto graph greater than half the length of the line of best fit

- Calculation shown for working out the gradient

- Calculated value given to 3 significant figures

- Appropriate units, e.g. Nm^{-1}

Reading

- OCR Practical Skills Handbook

  Just chapter 10

- Physics 1 for OCR

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