

Revision Tasks for February Half-Term

These tasks relate to extended response exam questions you will see on the Exploring physics and Unified physics exam papers in the February mocks.

The materials you need are on the google classroom.

The tasks ask you to use the EMERGE Model for planning practical work.

- E Use the *equation* to identify the independent, dependent and control variables
- M *measurements* and *method*
- E *Equipment* named for each measurement taken
- R *Results* and *range* of results
- G *Graph* to be plotted
- E *Evaluation* of expected shape of line, gradient and intercept and what they tell you. may or may not include uncertainty calculations

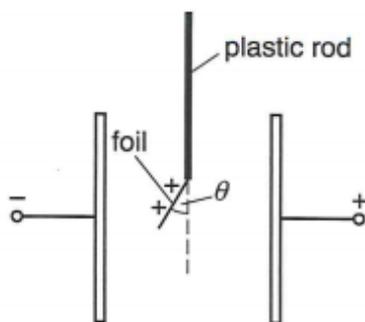
Task 1

4.4.1 f ii	Can you list and describe techniques and procedures used to demonstrate wave effects using a ripple tank?
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Read the knowledge organiser on this experiment.

What measurements could be taken to determine whether a suggested relationship between *wave speed* and *water depth* in a ripple tank is followed? Use the 'emerge' model to plan an experiment.

Task 2



It is suggested that a positively charged foil will deflect through angle θ where

$$\tan \theta = qE/W$$

Where q is the charge, E is the field strength and W is the weight of the foil.

Use the EMERGE model to plan an experiment to test this. (You do not need to discuss uncertainties or evaluation of results.)

Task 3 Efficiency Experiments

Complete the exam question on the efficiency of a motor and mark it using the answers provided.

Read the candidate exemplars provided with the mark scheme.

Extend the experiment to plan a practical to investigate the relationship between efficiency and the mass of the load.

Task 4 $n\lambda = d\sin\theta$

Answer the exam question and mark it using the answer provided.

Read the practical instructions for a diffraction grating experiment to determine λ

Write a plan for an experiment to find λ using the EMERGE model, including analysis of percentage uncertainty in λ .

Task 5

Complete the exam question on the Faraday Torch.