

## Experiment 11: Magnetic force in a contracting spring

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It is suggested that a spiral metal spring will undergo a small contraction if an electric current is passed through it.

Design an experiment to investigate this effect. You should include a diagram showing the arrangement of the apparatus and describe the procedure to be followed.

Mention briefly some of the difficulties that you may expect to encounter.

When giving your account you should pay particular attention to the following points:

- (i) the stiffness of the spring that is to be used,
- (ii) the magnitude of the current to be passed through the spring,
- (iii) the method of measuring the contraction of the spring (given that it is likely to be quite small).

Format for Report.

Title : Magnetism.

Aim / Hypothesis.

Apparatus.

Preamble : State the Scientific principle on which the investigation is based. Provide an explanation for the initial observation.

Procedure : Give a detailed account of your approach. Include labelled diagrams.

Diagrams should be in pencil, neat and proportional.

Your procedure should include details about the measurements you will make, the instruments you will use, the variables, the methods used to control variables and how the measurements will be used.

Discussion : Discuss the difficulties that could be encountered while performing the experiment and state how they could be solved.