A Physics Name_____

Enrichment – Magnetism

Instructions

For this experiment, you will probably need to come into McKeon's class and use her materials. Please plan and schedule accordingly. Complete the following questions on a separate sheet of paper.

In class we discussed two different types of current balances, shown below.

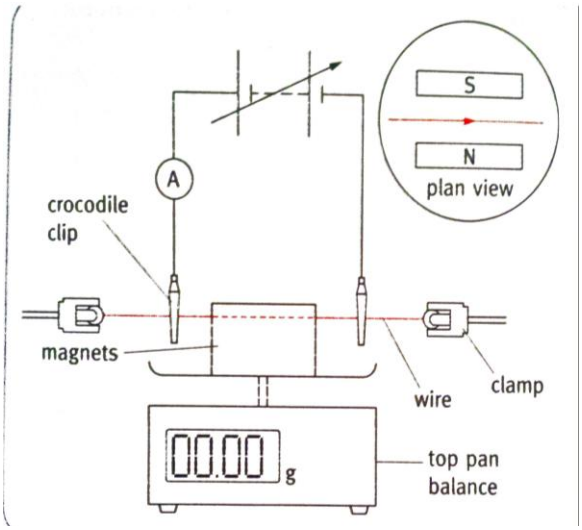

Fig. 1

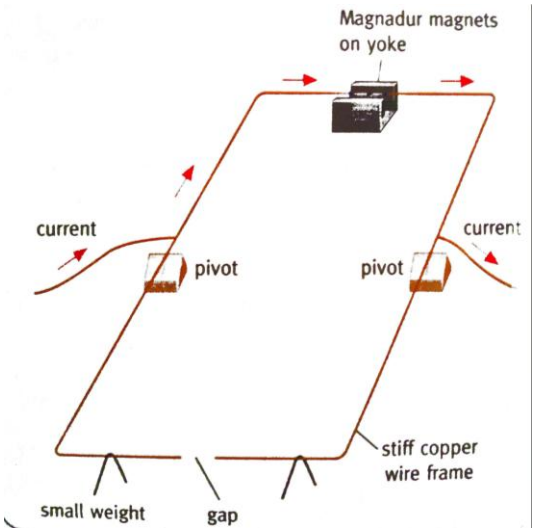

Fig. 2

Experiment and Analysis

1. Write a ***detailed*** analysis of how the current balance in Fig. 1 works.
2. Write a ***detailed*** analysis of how the current balance in Fig. 2 works.
3. Design and carry out a lab to build the current balance in Fig. 2 to calculate the strength of the magnetic field.
    a. Describe the procedures for your lab.
    b. Describe any precautions you will need to take when performing your lab.
    c. Record data from your lab. Include absolute uncertainties in your measurements.
    d. Calculate the magnetic field strength. Include a percentage uncertainty for your final answer. Show work for all calculations.
4. Design and carry out a lab to build the current balance in Fig. 1 to calculate the strength of the magnetic field.
    a. Describe the procedures for your lab.
    b. Describe any precautions you will need to take when performing your lab.
    c. Record data from your lab. Include absolute uncertainties in your measurements.
    d. Calculate the magnetic field strength. Include a percentage uncertainty for your final answer. Show work for all calculations.
5. Calculate the percent difference between the results from your two experiments.