



Electricity and Magnetism

Lab 1

Electric Charge

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Overview

- Discussion of laboratory work
- Equipment

Why we do lab work

To confirm or disprove hypotheses

To get insights for new hypotheses

Integrity is very important.

Guidelines for lab books

- Put your name and section number on the outside front cover.
- Lab books stay in the lab.
- Save the first two pages for a table of contents.
- Number the rest of the pages of the lab book (one side only) in the top right corner for your table of contents; do this now! Complete your table of contents as the lab progresses.

Guidelines for lab books

- Write only in pen. Pencil can only be used to plot points on your graphs.
- Do not erase anything you have written in your lab book. If you think you've made a mistake, then cross out what you wrote (so you can still read it!) and re-write the correct version near it.
- No scratch paper is to be kept outside of your lab book.
- When a graph is required, it should be drawn while the data is taken.
- Plot **big** graphs.

Safety

Power supplies used in circuits labs can give you a shock.

Be careful not to touch exposed components when using high currents and potential differences (voltages).

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Be careful not to touch exposed components when using high currents and potential differences (voltages).

You can also damage equipment if you put too much currents and/or potential difference through it.

Always turn current and voltage knobs back to zero when you are not using the power supply.

Always turn multimeters off when not in use.

If you are concerned about anything, ask me first!

Purpose of the Lab

To measure charge on objects and investigate how charge is produced.

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You will measure charge indirectly, by measuring **potential difference**.

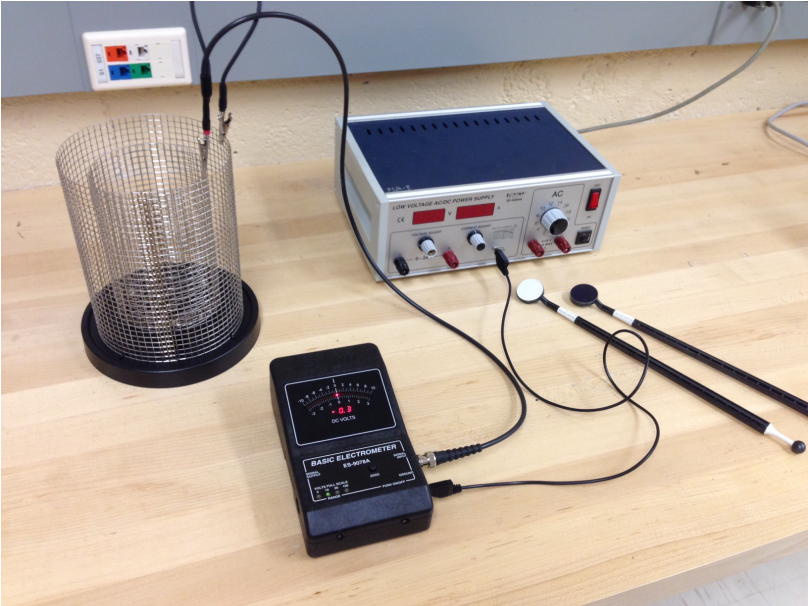
Potential difference is also called voltage.

Its symbol is V , and the units are Volts, V .

Electrometer: for measuring charge / voltage



Equipment

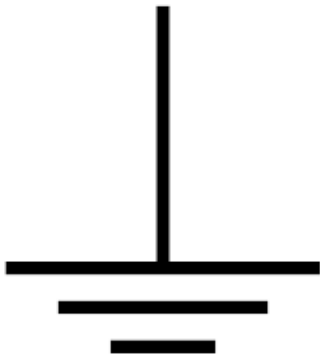


Grounding

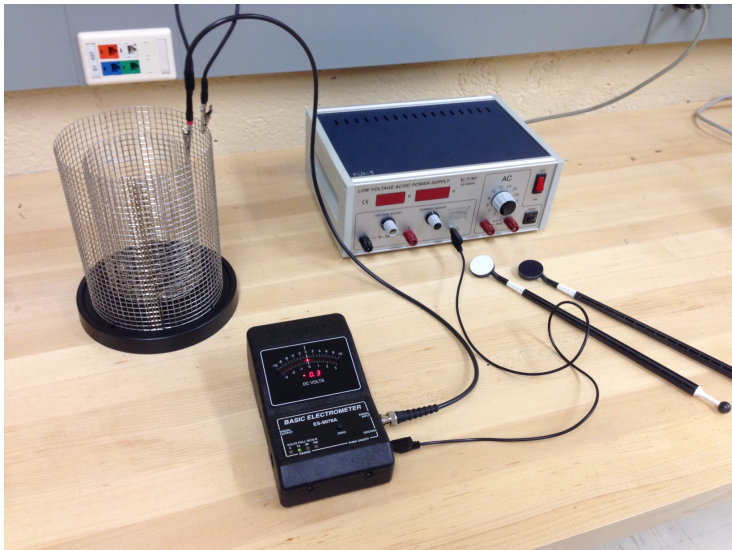


Grounding

Symbol for a ground connection:



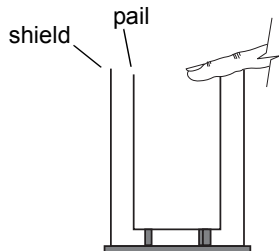
Equipment



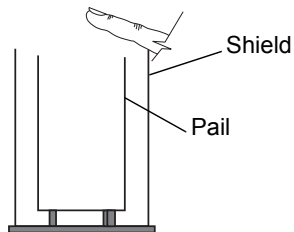
Make sure to ground the electrometer!

Grounding the Faraday Ice Pail

Touch both the pail and the shield at the same time



Lift finger from pail, then from shield



Sampling charge



