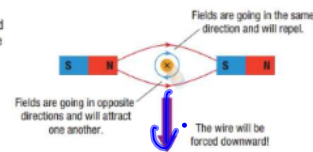
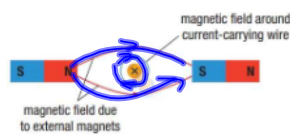
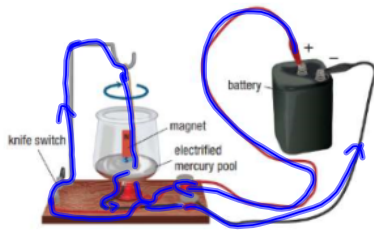


SPH3U 12.5 The Motor Principle

1. The motor principle

Faraday's experiment:

he made a wire move continuously in a circle by placing it near a magnet and running current through it.



The motor principle:

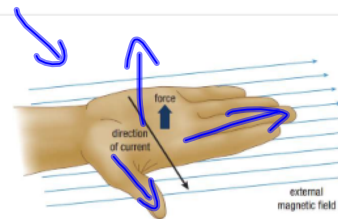
a current-carrying conductor in a magnetic field experiences a force perpendicular to both the magnetic field and the electric current.

Right-hand rule #3:

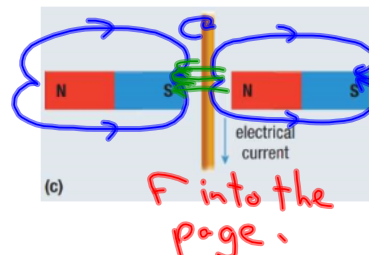
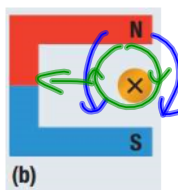
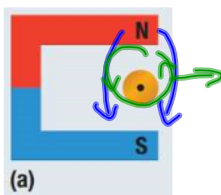
this is the last one!

Right-Hand Rule for a Moving Charge in a Magnetic Field

If you point your right thumb in the direction of the velocity of the charge (\vec{v}), and your straight fingers in the direction of the magnetic field (\vec{B}), then your palm will point in the direction of the resulting magnetic force (\vec{F}_M).



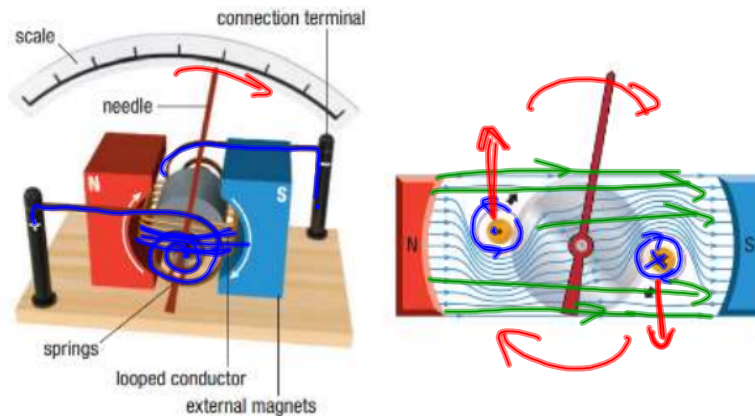
Draw the magnetic field lines of both the magnet and the conductor. Then determine the direction of the force on the conductor.



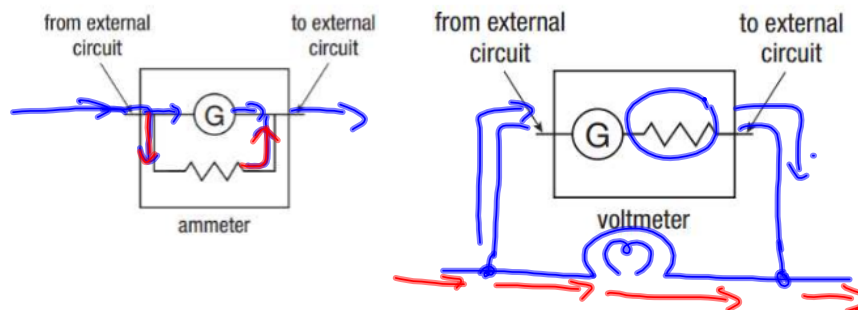
Analog: physically moving (not digital).

2. The analog meter

The galvanometer:	analog scale that can measure current by how much it <u>twists</u> as a result of a magnetic field.
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Ammeter:	galvanometer with a resistor in parallel
Voltmeter:	galvanometer with a resistor in series.



Homework: page 566: #1-3, 5-6