

Electrostatic and Magnetic?

Electromagnetism

Papers From Tuesday

- Objectives Sheet
- Magnetism Study Sheet (graded, due Tuesday February 28th)
- What is a Magnet? Sheet
- Warning: we are using magnets and electricity in this unit so any and all electronic devices are strongly discouraged to bring to class!

Quiz!!!

Questions

1. Draw a bar magnet and draw the magnetic field lines of the bar magnet.
2. What four elements are magnetic?
3. What three categories do we put magnetic material in?
4. What is a magnetic domain?
5. How can you ruin a magnet?
 - a) Explain why this ruins a magnet (only one way needed to explain)



2. Fe, Ni, Co, Gd

3. Ferromagnetic, Diamagnetic
Paramagnetic

Demos

- Magnet down copper tube.
- Magnet down wire wrapped tube.
- Coil of wires put in a strong magnetic field.
 - Volunteers needs to take the keeper off.

Magnetic Flux

- This is just how many magnetic field lines are in a given region.
- A change in the density/compactness of the magnetic field lines causes a current in the wire.
- A change in the magnetic flux causes a current in the wire.

Current and Magnetic fields

- Any wire carrying current causes a magnetic field.
- This is what causes electromagnets.

Hands-on Activity

- Be careful with these hand generators.
- Create light by cranking.
- What happens when you hook up the crank to another crank?
 - Try it but make sure both you and your partner aren't holding onto the crank.

What keeps the magnet in the copper wire up?

- Which way does the magnetic field produce by the current in the wire point?
- The magnet is kept up because the current in the wire causes a magnetic field that resists the change in magnetic flux.

Lenz's Law

- Any closed loop will oppose the change in magnetic flux by producing current in the closed loop which in turn produces the magnetic field that opposes the change in magnetic flux.

Electronics and Magnets

- Using the idea presented today, why do you not want to put magnets near any electronics?

Core Movie!!

Tomorrow's Lab

- We are able to make a motor with just current in a wire and a magnet.
- We are going to try to do this tomorrow, but this is going to require some skill and it is difficult to pull off.