

Magnetism Webquest

Name _____

<http://www.ndt-ed.org/EducationResources/CommunityCollege/MagParticle/Physics/Magnetism.htm>

- 1) What causes magnetism inside the atom?
- 2) Why are unpaired electrons more significant than paired electrons in terms of magnetic properties?
- 3) What causes a material to be classified as “ferromagnetic”? Name some examples of ferromagnetic materials.
- 4) What is a magnetic domain? Sketch two images of a material that has magnetic domains, one that is magnetized and one that is unmagnetized.
- 5) Sketch a bar magnet. Label the poles of the magnet with an “N” and an “S”. Draw magnetic field lines

1. _____
2. _____
3. _____
4. _____

5.

Read the link: <http://science.howstuffworks.com/electromagnet1.htm>

1. Now read the history: History of electromagnets

- A. What happens when an electric current passes through a wire?
- B. How was that fact discovered?

2. Now read the introduction: [Introduction to how electromagnets work](#)

- A. What is the difference between a permanent magnet and an electromagnet?
- B. What makes these two types of magnets different?

BBC Electricity and Magnetism

http://www.bbc.co.uk/schools/ks3bitesize/science/energy_electricity_forces/magnets_electric_effects/activity.shtml

Questions:

1. Why is an iron core needed in an electromagnet?
2. How are electromagnets different to either temporary or permanent magnets?
3. What happens when you add more coils to the wire in an electromagnet? What else can you do to increase the magnetic field of an electromagnet?

Electromagnet Simulation

<http://www.fossweb.com/modules3-6/MagnetismandElectricity/activities/electromagnet.html>

This is an interactive simulation of an electromagnet. **Your goal is to test the different factors** that can change the **strength of the magnet (i.e. how many fillings it can pick up)**. For each factor that you test you must decide on a standard to compare it against. **This means that all other factors must remain the same while you test only one of them.**

1. What is the effect of changing the....

- a. Type of Wire:
- b. Thickness of the wire:
- c. AC or DC power supply

d. Voltage:

e. Number of Turns in the wire:

2. Can you make the electromagnet pick up all of the iron filings? What conditions did you need?

Uses for electromagnets:

Describe how an electric bell works and provide a diagram

http://www.bbc.co.uk/bitesize/standard/physics/using_electricity/movement_from_electricity/revision/1/

Diagram	How it works