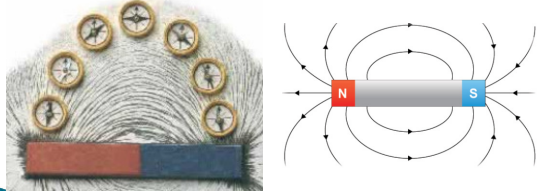


Magnetism

Mr. Sudbury

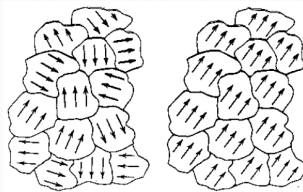
Magnets

- ▶ *Magnetic poles* produce *magnetic fields*.
- ▶ A **magnetic field** is the space around the magnet where a magnetic force is exerted.



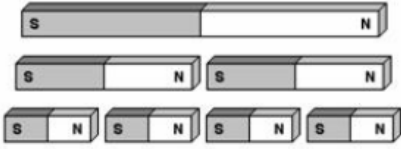
Magnetic Domain

- ▶ Fe, Ni, & Co are the only substances that are magnetic or can be made to be magnetic.
- ▶ They can be magnetized naturally by the earth or magnetism can be induced by placing it close to a magnet.
- ▶ Magnetic domains are properties of these atoms, when they align, they are magnetic.



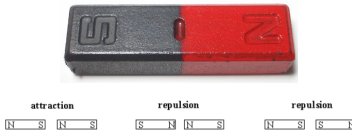
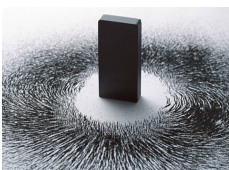
Magnetic Poles

- ▶ If a magnet is broken in half, the two resulting pieces establish their own North and South poles.

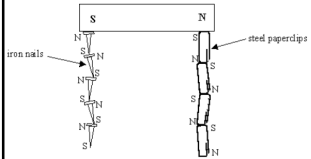



Magnetic Poles

- ▶ North & South Poles
- ▶ Opposite poles attract.
- ▶ Like poles repel.

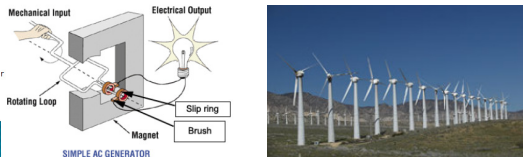
Inducing Magnetism

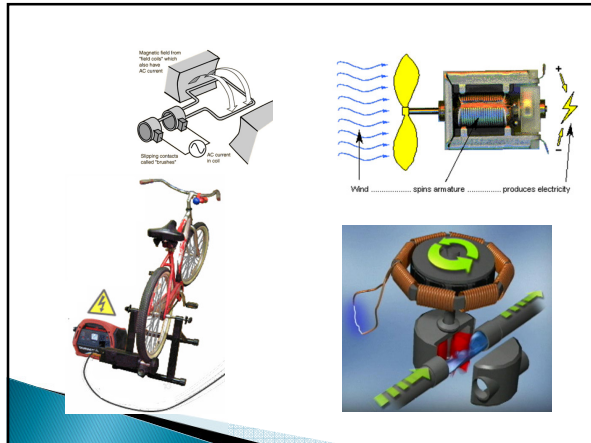
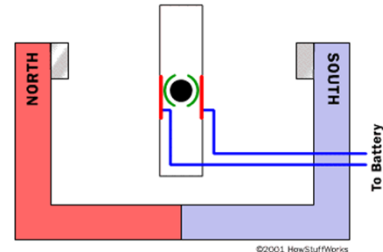
- ▶ When a magnet is close or in contact with Fe, Ni, or Co, it can induce those items to become temporarily magnetic.
- ▶ It aligns the magnetic domains of the objects.

Using Magnetism & Electricity

- ▶ Electromagnetic Induction is a process where you use magnetic fields to produce a voltage.
- ▶ You can use a magnet to make current.
 - Spin a coil of wire in a magnetic field, and you will generate current. (*Hint: generator*)

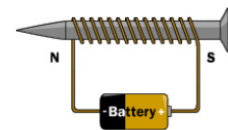


Generator



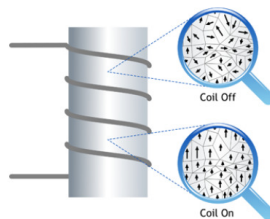
Using Magnetism & Electricity

- ▶ Electromagnetic Induction is also a process where you use current through a wire to produce a magnet.
- ▶ You can use current to make a magnet.
 - Wrap a current carrying coil of wire around a Fe, Co, or Ni core, and you will generate temporary magnetism. (*as long as there is current*)



Electromagnet

- ▶ The current in the wire temporarily aligns the magnetic domains.
- ▶ How do you make it stronger?
 - Use iron core
 - More coils of wire
 - More current (bigger V battery)



The End

- ▶ Magnetism

