

Faraday Law

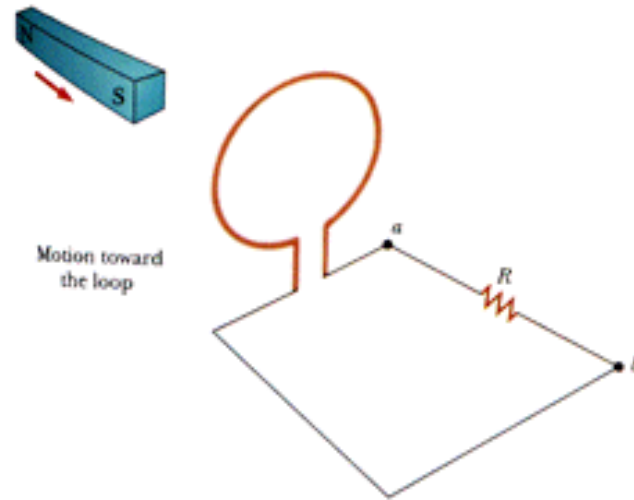
$$E \propto \frac{dB}{dt} N$$

B – Magnetic field

t- Time

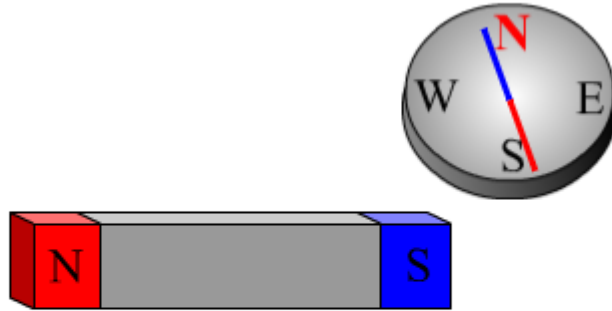
d/dt – Change in Magnetic Field with time

N – No. of turns in coil.



Compass and Magnet

- Testing Magnetic Field around Magnet





- 1791 – 1867
- British physicist and chemist
- Great Experimental Scientist
- Contributions in early science include
- 1. Invention of motor, generator and transformer
- Electromagnetic Induction
- Laws of electrolysis

Faraday's law of induction looks at the way changing magnetic fields can cause current to flow in wires. Basically, it is a formula/concept that describes how potential difference (voltage difference) is created and how much is created. It's a huge concept to understand that the changing of a magnetic field can create voltage.

Example : generators

$$E = dB/dt$$

"E" is the value of voltage induced (the old name for voltage was "ElectroMotive Force", or EMF. That's the "E" in the equation). The change in time for the experiment is "dt". Time is measured in seconds. Last is "dB" which stands for the change in magnetic flux. The magnetic flux is the field lines of the magnetic field. The flux is equal to BA, where B is the magnetic field strength, and A is the area. This formula is a bit harder than those you may have seen before.

In English: The amount of voltage created is equal to the change in magnetic flux divided by the change in time. The bigger the change you have in the magnetic field, the greater amount of voltage.

