

Science Study Guide

Electromagnetism and Magnetism

Vocabulary

Nonrenewable resource energy from fossil fuels

North-seeking pole the end of a magnet that points North when the magnet is freely suspended

Attract each other unlike magnetic poles

Magnetite lodestone

Magnetic field the region influenced by a magnet

Repel each other like magnetic poles

Earth's magnet field effects the alignment of the domains in iron bar that can make it magnetic.

Aurora Northern Lights in the Northern Hemisphere

Solar wind streams of electrically charged particles flowing at high speeds from the sun

Magnetic declination the angle between geographic north and the north to which a compass needle points

Electromagnets their magnetism can be turned off and on.

Commutator a device used to change the direction of current in an electric motor

Solenoid an iron core wrapped in a coil. The ends of the solenoid act like poles.

Generator a device that uses a magnet to change mechanical energy to electrical energy.

Electric motor a device that converts electrical energy into mechanical energy

Transformer a device that includes primary and secondary coils

Galvanometer a device used to measure small currents

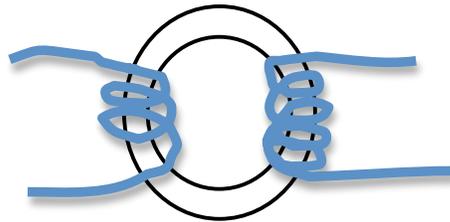
Direct current current produced by a battery

Turbine a device that supplies the mechanical energy to turn the armature of the generator.

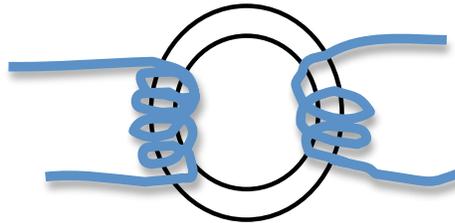
Induction the process of generating an electric current from the motion of a conductor in a magnetic field

Electrical energy the energy associated with electric currents

Step-up transformer a device for changing an alternating current into one of higher voltage



Step-down transformer a device for changing an alternating current into one of lower voltage



Primary coil the coils where power or voltage comes into the transformer and produce a magnetic field.

Secondary coil the coils where power or voltage goes out of the transformer. Current is generated in the secondary coils by electromagnetic induction

Motor electrical energy is converted to mechanical energy when a current-carrying wire is placed in a magnetic field

When you break a magnet in half each half will be a new magnet each with its own north and south poles.

An iron bar is magnetized because the domains are aligned or are lined up in the same direction.

A generator makes electric energy and a motor uses it

Batteries convert chemical energy to electrical energy.

To increase the strength of an electromagnet you increase the number of coils, the voltage, or the size of the iron core.

The ratio of voltage to coils is

$$\frac{\text{Volts in}}{\text{Volts out}} = \frac{\text{Primary coils}}{\text{Secondary coils}}$$

If when someone borrowed your magnet, he returned it unmagnetized what could have happened?

The magnet was probably hit very hard or dropped. The domains of the magnet were jarred became unaligned.