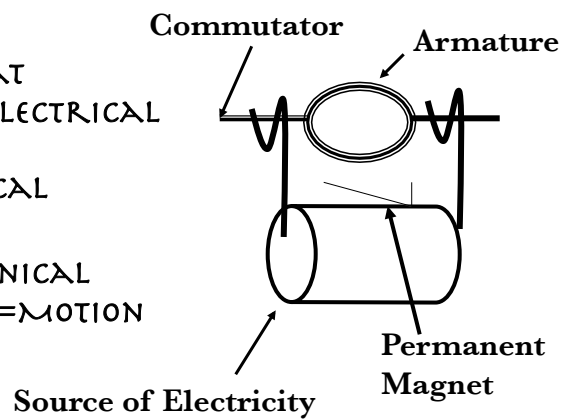


ELECTRICITY AND MAGNETISM AT WORK

ELECTRIC MOTOR

- DEVICE THAT CHANGES ELECTRICAL ENERGY TO MECHANICAL ENERGY
 - MECHANICAL ENERGY=MOTION

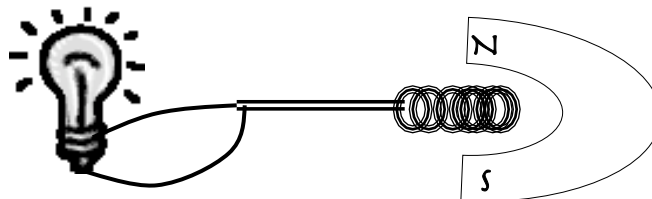


Armature: The moving part of an electric motor, consisting of dozens or hundreds of loops of wire wrapped around an iron core.

Commutator: A device that controls the direction of the flow of current through an electric motor.

ELECTRIC GENERATOR

- A DEVICE THAT USES A MAGNET TO CHANGE MECHANICAL ENERGY TO ELECTRIC ENERGY.
 - WHEN A COIL OF WIRE MOVES THROUGH A MAGNETIC FIELD AN INDUCED ELECTRIC CURRENT IS PRODUCED.
 - A DEVICE THAT CHANGES MECHANICAL ENERGY INTO ELECTRICAL ENERGY





MEASURING ELECTRIC CURRENT

- AMMETER: MEASURES AMPS
- VOLTMETER MEASURES VOLTS
- GALVANOMETER: MEASURES SMALL AMOUNTS OF VOLTS



ALTERNATING CURRENT: (AC)

A CURRENT CONSISTING OF CHARGES THAT MOVE BACK AND FORTH IN A CIRCUIT

E.G. THE CURRENT IN YOUR HOUSE.

DIRECT CURRENT: (DC)

A CURRENT CONSISTING OF CHARGES THAT MOVE IN ONE DIRECTION

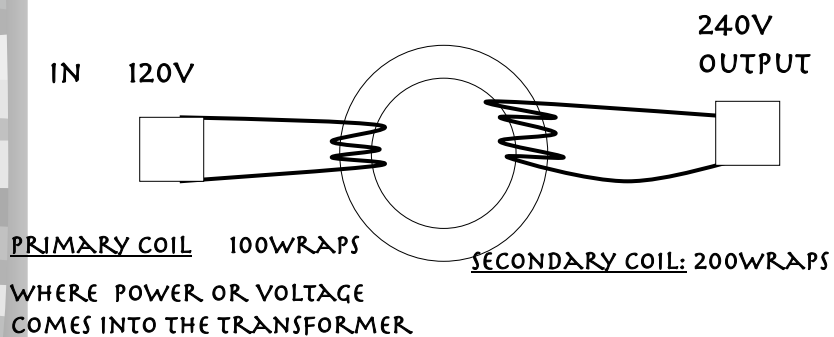
E.G. A BATTERY

TRANSFORMER

- A DEVICE THAT INCREASES OR DECREASES VOLTAGE.
- TWO SEPARATE COILS OF INSULATED WIRE WRAPPED AROUND AN IRON CORE.
 - PRIMARY COIL: CONNECTED TO A CIRCUIT IN WHICH AN ALTERNATING CURRENT FLOWS
 - SECONDARY COIL: CONNECTED TO A SEPARATE CIRCUIT THAT DOES NOT CONTAIN A VOLTAGE SOURCE
 - AN ALTERNATING CURRENT FLOWING IN PRIMARY COIL PRODUCES A MAGNETIC FIELD. AS THE CURRENT ALTERNATES THE MAGNETIC FIELD CHANGES, INDUCING AN ALTERNATING CURRENT IN THE SECONDARY COIL.

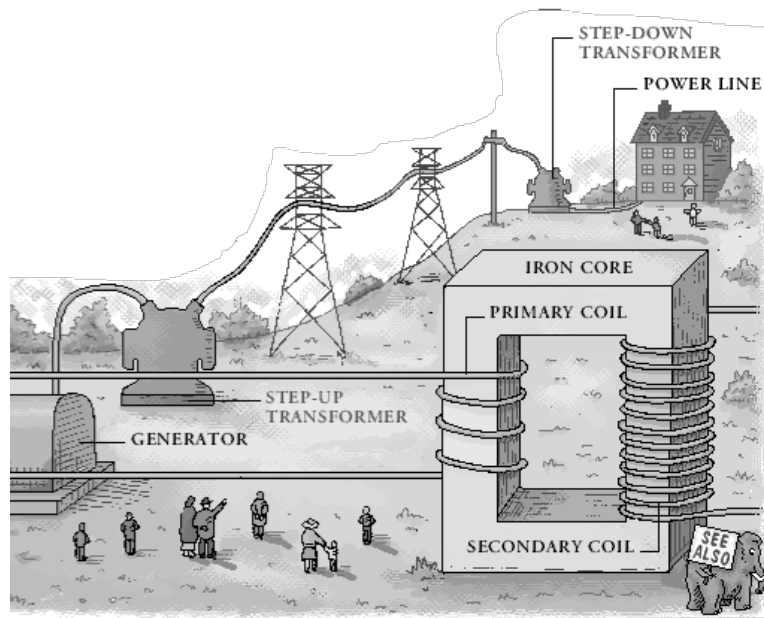
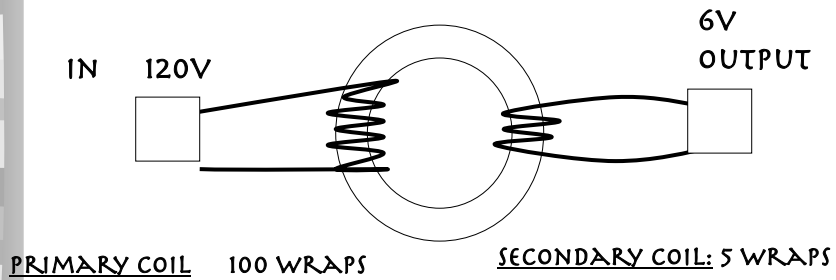
STEP-UP TRANSFORMER

- WHEN A SMALL NUMBER OF COILS LEAD TO A LARGE NUMBER OF COILS. THIS INCREASES VOLTAGE. (e.g. NEON SIGN)



STEP-DOWN TRANSFORMER

- WHEN A LARGE NUMBER OF COILS LEAD TO A SMALL NUMBER OF COIL., THIS DECREASES VOLTAGE. (e.g. toy trains, gameboy)

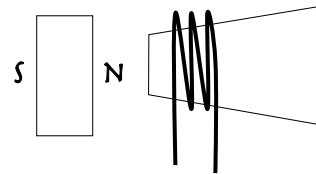


LOUDSPEAKERS



- USE AN ELECTRIC COIL AND A PERMANENT MAGNET TO VIBRATE A PAPER CONE. THIS PRODUCES SOUND

WHEN ELECTRICITY CHANGES DIRECTION, IT REVERSES N AND S OF ITS ELECTROMAGNETIC FIELD



THEN IT PUSHES AND PULLS THE PAPER CONE, PRODUCING SOUND.

