Electricity and Magnetism - Study Guide

Vocabulary:

charge electric cell conductor

static electricity insulator resistor

electric charge series circuit parallel circuit

electric current magnet magnetic poles

circuit magnetic field electromagnet

Static Electricity

Two Kinds of Charge (E90)

 Positive and negative charges

 Charge, static electricity

Separating Charges (E91)

 Only the negative charges move from one object to another.

Electric Forces (E92)

 The push or pull between objects is an electric force.

 Electric field

Electric Currents

Moving charges (E96)

 An electric current needs a circuit in order to flow.

 Electric current, circuit, electric cell

Controlling Current (E97)

 Conductor, resistor, insulator

 A switch uses conductors and insulators to make and break a circuit.

Series and Parallel Circuits (E98)

 Series circuit = only one path for the current to flow

 Parallel circuit = has more than one path for the current to flow.

Magnets

Two Poles (E102)

 Magnet, magnetic poles

Magnetic Forces (E103)

 Magnetic field

 Opposite magnetic poles attract and like poles repel.

 The pull of the magnet is the strongest at the poles.

Compasses (E104)

 A compass needle (free-moving) points along an imaginary line connecting the North and South Poles.

 Earth is like a magnet.

Electromagnets

Current Makes Magnets (E108)

 Electromagnet is a temporary magnet because it has a magnetic field only when there is an electric current in the wire.

Best ways to control an electromagnet(E110-111)

* Turn the current on and off
* Add coils of wire around the core
* Decrease or increase the amount of current

Motors and Generators (E112)

 Motor and generators have in common

1. Coil of wire
2. A magnet
3. Electric current
4. Motion

Motor – use electromagnets to produce motion from current

Generator – used electromagnets to produce current from motion