Name: KEY

Unit 6 Study Guide: Electrostatics and Electric Current

1. Know your science vocabulary for this unit! Charge, conductor, Coulomb's Law, coulomb, conservation of charge, electrostatics, induction, insulator, semiconductor, superconductor, polarization, alternating current, direct current, ohm, Ohm's Law, potential difference, ampere, and voltage.
2. Be able to use the following formulas to find voltage, current, and resistance in electric current problems.

$$V = IR \qquad I = \frac{V}{R} \qquad R = \frac{V}{I}$$

What does V stand for? What are the units?
VOLTAGE VOLTS
What does R stand for? What are the units?
RESISTANCE OHMS
What does I stand for? What are the units?
CURRENT AMPS
What law relates these variables? What does the law state?
OHM'S LAW - THE CURRENT IN A CIRCUIT IS DIRECTLY PROPORTIONAL TO THE VOLTAGE AND INVERSELY PROPORTIONAL TO THE RESISTANCE.
What is the resistance of a wire carrying 20 amperes of current in a 120 volt circuit?

$R = \frac{V}{I}$ $\quad \frac{120\,V}{20\,A} = 6$ OHMS

A 110 volt wall outlet supplies power to a strobe light with a resistance of 2200 ohms. How much current is flowing through the strobe light?

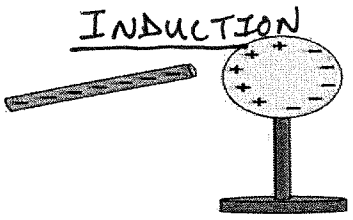
$I = \frac{V}{R}$ $\quad \frac{110\,V}{2200\ \text{OHMS}} = .05$ AMPS

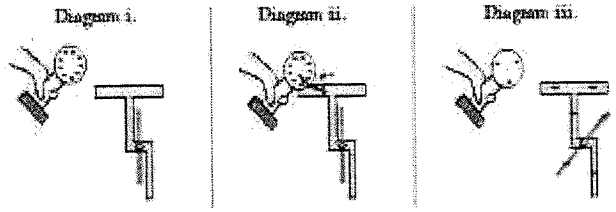
A CD player with a resistance of 40 ohms has a current of 0.1 amps flowing through it. Calculate how many volts supply the CD player?

$V = IR$ $\quad .1\,A \cdot 40\ \text{OHMS} = 4$ VOLTS

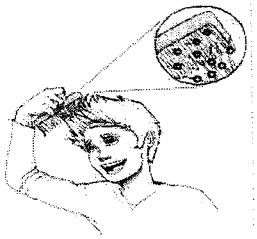
3. State whether the charges attract or repel: + + REPEL
- + ATTRACT - - REPEL

4. Label the pictures with the proper charge type:


INDUCTION



CONTACT


FRICTION