

Topic: Circuitry

Teacher Information

Teacher Background

An atom has a nucleus of protons and neutrons with outer “shells” of orbiting electrons. Metals have electrons in their outermost shell which tend to move from one atom to another quite freely.

One type of battery uses two different metals in one acid solution to produce a movement of electrons from the metal containing more electrons to the metal containing fewer electrons. This can only be accomplished through the use of a metal wire which conducts the electricity (or allows the transfer of electrons through it) from the negative terminal to the positive terminal. This wire allows the flow of electrons to continue in a circle. The electrons traveling through resistors in the circuit create heat and light.

The flow of electrons through a wire also causes a magnetic field around that wire. When this occurs, the wire can be coiled and used with another magnet to turn a motor.

Materials

(per group)

- (8) 4" x 6" lined index cards
- (1) single-hole punch
- (1) roll cellophane tape
- (1) sheet 12" x 12" aluminum foil
- (4) pairs of scissors
- (1) Mars Fact Sheet
- (1) stapler*
- (1) circuit tester*

** These items may be shared among groups.*

Procedure

1. Make circuit testers.
2. Cut sheets of aluminum foil.
3. Copy Lab Instruction Sheets (pages 3 & 4 of this activity)
4. Mars Fact Sheet.

Extension

Have students make their own circuit testers. This will take approximately 15-30 minutes depending on how much preparation is done in advance. This activity should be done prior to the “CIRCUITY” activity. See “MAKING A CIRCUIT TESTER” activity sheet.