ASSESSMENT

Student Assessment Activities

1. Discuss what the observations teach about electromagnets, and when they might be useful.

2. If time allows, let students research what current technologies use electromagnets.

3. Ask students to use the lab and their research to think out of the box and suggest other uses that would assist in daily life. This should be reported in a paragraph, and presented to the class.

TEACHERS GUIDE

GRADE LEVEL 3+

ELECTROMAGMET
ITEM # 3165-01

ENERGY - MAGNETISM

Model of lifting magnet used in industry, such as scrap metal lifter. Consists of two plastic bobbins wound with enameled copper wire and mounted on each arm of a soft iron U-core. Each of the bobbins is fitted with two 5/32” (4mm) socket binding posts.

Materials

- One electromagnet
- a direct power source
- weights

Goals & Objectives

Students will:

- demonstrate the basic structure of the electromagnet
- demonstrate the basic theories of the electromagnet

Discussion

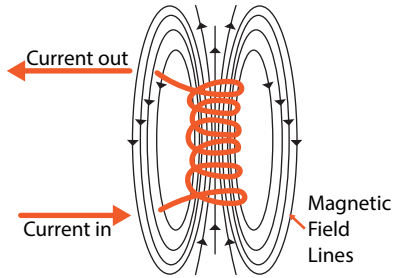
Optional Study and Discussion

1. How can you turn the natural attraction of a magnet on and off to benefit your situation?
2. When is it beneficial to turn attraction on and off?

Activities

1. For Suction Force Experiment:

   As the teacher, be sure the direct power supply of the working voltage does not exceed 3V, and the working current does not exceed 650MA.



2. Students can:

   a. Connect the direct power supply with the two connecting poles of the magnet. (Connecting poles can be in series or in parallel.)

   b. Electrify a little to create attraction between the armature and the pothook in the middle of the two magnetic poles.

   c. Put the heavy weights (weight<=250g) on the hanging cleats, and then adjust the voltage of the loop to produce a current up to 650MA. (Voltage for hanging the weight shall <=3V.)

3. For Surplus Magnetic Force Experiment:
   This experiment will be done after the suction experiment, without cutting off the power, and without changing the weight.

   a. Make sure that the total weight of the weight plus the armatures are 270g.

   b. Cut off the power supply.

   c. Find the armatures will break away from the iron core automatically.

Note

It is always best to DO an experiment ahead of time to be able to best present it to the class.