

IN THIS LAB YOU WILL ROTATE AROUND TO SEVERAL DIFFERENT STATIONS TO GAIN SOME INSIGHT INTO ELECTROMAGNETISM. FOLLOW THE DIRECTIONS AT EACH STATION AND MAKE THE APPROPRIATE DRAWING OR NOTE YOUR OBSERVATIONS. STAY AT THAT STATION UNTIL TOLD TO ROTATE.

Station 1. A number of items are scattered on the lab table. Bring a bar magnet close to each item and observe.

List the items attracted.

List the items not attracted.

Are there any similarities in the items that were attracted?

Station 2. A bar magnet is hanging from a support bar by a string. Approach the magnet with a second bar magnet and record your observations. Approach the magnet with a horseshoe magnet and record your observations.

What general rule can you devise that relates what you observed?

Station 3. Place a white sheet of paper over a single bar magnet and sprinkle some iron filings on the paper around the magnet. Sketch your observations below. Pour the filings into the beaker and replace the bar magnet with the horseshoe magnet and again sprinkle with iron filings. Make your sketch below. Pour the filings into the beaker.

Station 4. Place the north pole of each magnet toward each other with about an inch between them. Cover the magnets with the white paper and sprinkle iron filings over the paper. Sketch your observations below. Pour the filings into the beaker. Turn one of the magnets so the opposite poles are 1 inch apart and again sprinkle with filings. Record your observations below. Pour the filings into the beaker.

Station 5: A piece of copper wire has been run through a piece of cardboard and connected to a power supply. The two wires with alligator clips will act as your switch. Connect the clips to complete the circuit and sprinkle iron filings on the cardboard, around the wire and note your observations below. Move a compass around the copper wire and observe.

Station 6. A coil of wire is connected to a galvanometer. Insert the south end of a bar magnet into the coil and observe the meter. Remove the magnet and observe the meter. Record all observations below. Move the magnet back and forth in the coil and record your observations. Insert the north pole of the magnet into the coil and record your observations.

Station 7. One coil of wire is connected to a power supply and the second to a galvanometer. Insert the coil connected to the power supply into the one connected to the galvanometer and close the switch. Observe the meter. Open the switch and observe the meter. Record your observations below. Repeatedly open and close the switch and observe. Insert the soft iron core inside the inner coil and close and open the switch. Record your observations below.