

# Station 01 - Static Electricity

1. Make Balloon negatively charged (rub against Hair or Wool)
2. Get two pieces of tape to repel each other. (place one on the other and separate quickly)
3. Which tape is Positive? (The one that is Attracted to the balloon)
4. Can you pick up paper “holes”?

# Station 02 - Static Electricity @work

Make the soda can walk across the counter. To do this:

1. Rub the tube with the fur to give it a negative charge.
2. Lead the can (but do not touch) with the tube.
3. Can you pick up paper “holes”?

# Station 03 – Current Carrying Wire

1. Place a compass near the wire.
2. Attach the wire to the battery
3. Observe the direction the compass is pointing

Battery, wire and compass



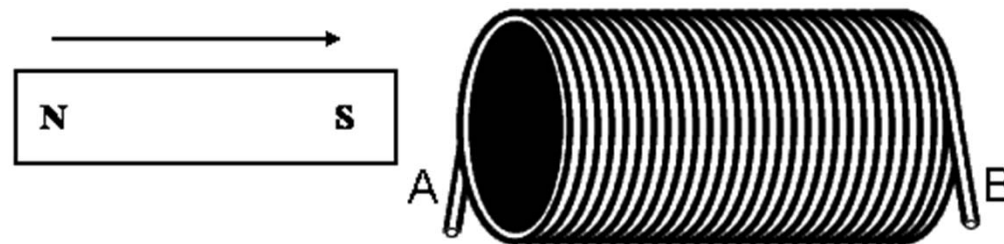
# Station 04 – Tangent Galvanometer

1. Place a compass in the barrel.
2. Attach the wire to the battery
3. Observe the direction the compass is pointing
4. Reverse the polarity. (turn the battery around)
5. Observe the direction the compass is pointing.

Current has an effect on magnetism

# Station 05 – Solenoid

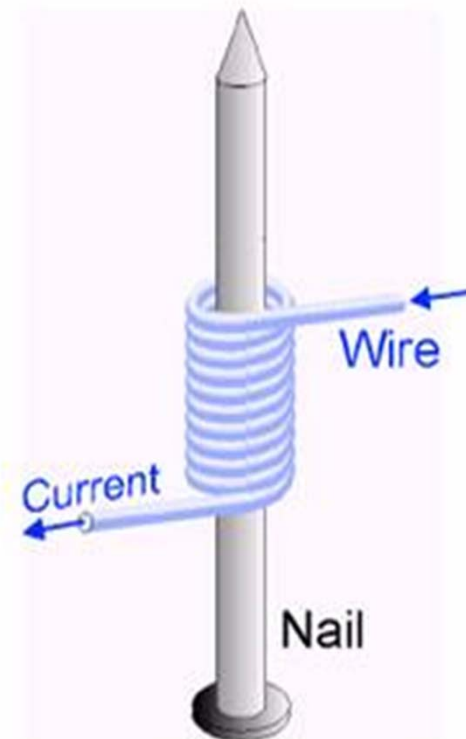
1. Barrel with coiled wire is connected to an ammeter.
2. There is NO current in the wire.
3. Quickly move a magnet into the barrel. Current results.
4. Let the magnet stay still in the barrel. There is NO current.
5. Quickly move the magnet out of the barrel. Current in the opposite direction results.



Magnetism has an effect on current

# Station 06 – Electromagnet

1. Connect the battery
2. See how many paper clips you can pick up
3. See how many paper “holes” you can pick up



Battery, wire, nail and paperclips

# Station 07 – Motor vs Generator

A motor converts electrical energy to mechanical energy

1. Connect the motor to the battery and observe the rotational motion

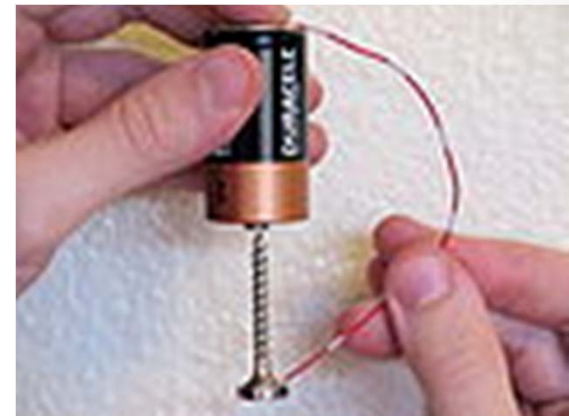
A generator converts mechanical energy to electrical energy.

1. Wrap the string around the post.
2. Pull the string quickly
3. Look at the current shown on the ammeter.

# Station 08 – Single pole motor

The motor converts electrical energy to mechanical energy. Electrical current through a wire will set up a magnetic field that “pushes” off of the field from the real magnet.

1. Put magnet on nail head.
2. Put nail point on bottom of battery. (the nail is a temporary magnet because of the strong real magnet)
3. Hold one end of the wire to the top of the battery.
4. Hold the other en of the wire against the magnet, and the nail will spin!

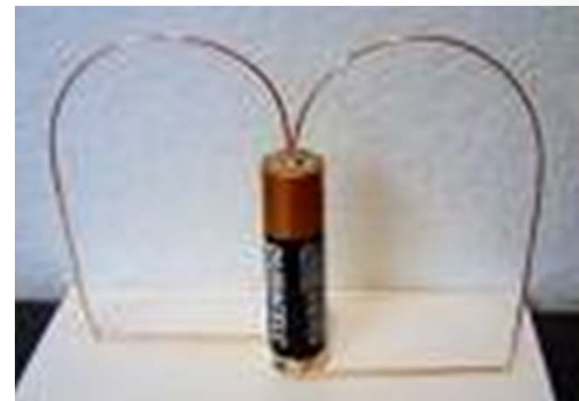


# Station 09 – Single pole motor

The motor converts electrical energy to mechanical energy. Electrical current through a wire will set up a magnetic field that “pushes” off of the field from the real magnet.

1. Put magnet on top of battery and place the battery upside down on the table
2. Balance Wire on top of the battery , with the “ends” on either side of the battery.
3. The wire will spin until it loses balance.

**--- DO NOT BEND THE WIRE ----**



# Station 10 – Two-pole motor

With this delicate motor, the direct current through the wire sets up the opposing magnetic field, but to spin, the current needs to be turned on and off. Your teacher will tell you how it works.

1. Put wire with loop up on its stand.
2. Give it a gentle push without bending the wire
3. The wire will spin until it loses contact or balance.

**--- DO NOT BEND THE WIRE ----**



# Station 11 – Field Lines

Observe the patterns made in the iron filings by the magnets.

1. DO NOT OPEN BAG – that would make the experiment dangerous.
2. Place the bag over a magnet and observe the pattern.
3. Put two magnets near each other and observe the pattern
4. Reverse one of the magnets and observe the pattern
- 5. Do you know when the poles were different?**

# Station 12 – Magnetic Flux

This shows the field lines around a cylindrical cow magnet.

1. Pick up the plastic cylinder.
2. Place the magnet inside the cylinder.
3. Observe the movement of filings as the magnet moves.