

Force Field Fun

Materials: button magnets, horseshoe magnet, magnet marbles

Hold two button magnets together. Turn one magnet over and try again. What do you feel between the two magnets?

Place two magnet marbles on a table. Can you make them spin by pushing one towards another?

Slide a ring magnet on to the pencil. Add a second ring, then turn one of the rings around and try again.

What can a magnet field do?



How a Magnetic Field can Attract and Repel

Materials: Bar Magnet, Iron Filings, Paper

Place a bar magnet flat on a piece of paper. Place some iron filings on the paper around the magnet. Sketch what you see.

Experiment with two magnets. Place some iron filings on the paper around the two magnets. Sketch what you see.

Repeat above step by placing the magnets so they repel each other about 2 cm apart. Sketch what you see.

What is the relationship between the iron filings and the magnetic field?

Exploring Magnetic Poles



Materials: Magnet, Paper Clips

Try to hang paper clips at different points along the magnet.

Where do the paper clips hang the tightest?

Where do they fall off?

The pole tip strength can be estimated by hanging paper clips from the magnet. Hang paper clips on one side of the magnet. Hang paper clips on the opposite pole. Can you hang the same number of paper clips on either side?

Making a Magnet



Materials: Bar Magnet, Nail

Pull a nail over a bar magnet ten times or more in the same direction.
Use the nail to try and pick up a paper clip and iron filings.

What has happened to the nail?

How is the magnetized nail different from a magnet?

ELECTROMAGNET



Materials Needed:

1 three foot long wire

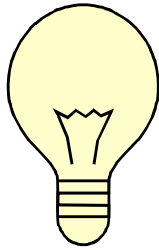
1 nail

1 battery

Paper clips

Procedure:

1. Wrap the wire around the whole length of the nail. Wrap all of the wire but about 6 inches at each end.
2. Try to pick up the paper clips by touching them with the nail. What happens?
3. Hook up the batteries so that electricity is running through the wire.
4. Try again to pick up the paper clips. What happens? Why?
5. Now disconnect the battery and try the paper clips again. Does the same thing happen as in Step 2? What has happened to the nail?
6. Experiment with different gauge wire. Experiment with the number of coils around the nail. What happens?



Build a Simple Circuit

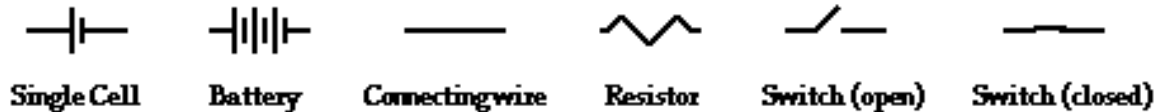


Materials:

- 1 battery
- 1 light bulb
- Insulated Wire
- Paper Clips

1. Figure out how to make the light bulb light.

2. Draw a “schematic” of your circuit. Use the following conventional symbols for drawing your circuit.



3. See how many different ways can you get the bulb to light? Draw the different ways on the back of this paper.

4. What things are necessary in your circuit for the bulb to light?