# Simple
Motor
Directions

You will be building a simple motor using the materials you have been provided. This will require you to make a circuit (which you did when you made the light bulb light up), use the permanent magnet and make an electromagnet.

1. Use the enamel wire. Leaving a 3 cm tail on either side, wind the wire into a coil with a diameter slightly larger than 1 cm. Wrap each tail a couple times around the coil to hold it together. The wooden spool allows you to coil and make the finish wrap in its slots.
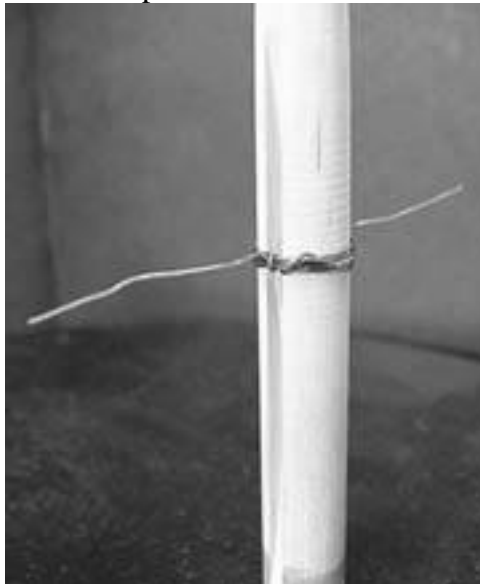
2. Remove the enamel from the top of both tails. If you place the spool with the wire coil on it in the groove of the wooden base you can scrape the enamel off of both sides using the sandpaper board.

3. Secure the safety pins to the battery ends with tape or a rubber band. Place the magnet on top of the battery and position the wire coil through the hinged ends of the safety pins that should be sticking above the magnets.
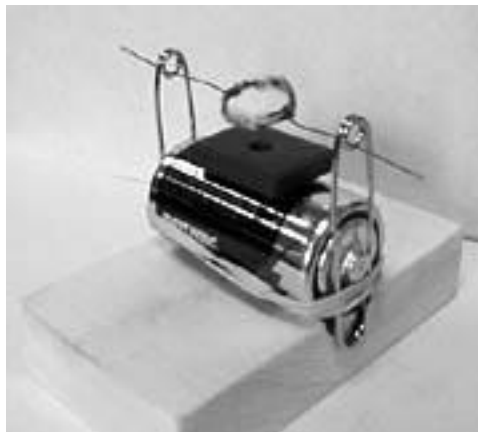
4. Troubleshooting:
    *   If your wire just rocks adjust the balance. Balance is crucial so try bending/straightening the coil and tails. You can also add a small piece of tape to the coil to adjust the balance.
    *   If your wire coil does not spin, make sure that enough enamel is removed from the tops of both tails. You may have to scrape the wire with the sandpaper some more.
    *   If your wire coil does not spin, make sure that the enamel is removed from just one side of each tail and that it is the same side. NOTE: If you took off too much enamel, you can use a permanent marker to replace the missing enamel. Just draw a mark where you want to replace enamel.