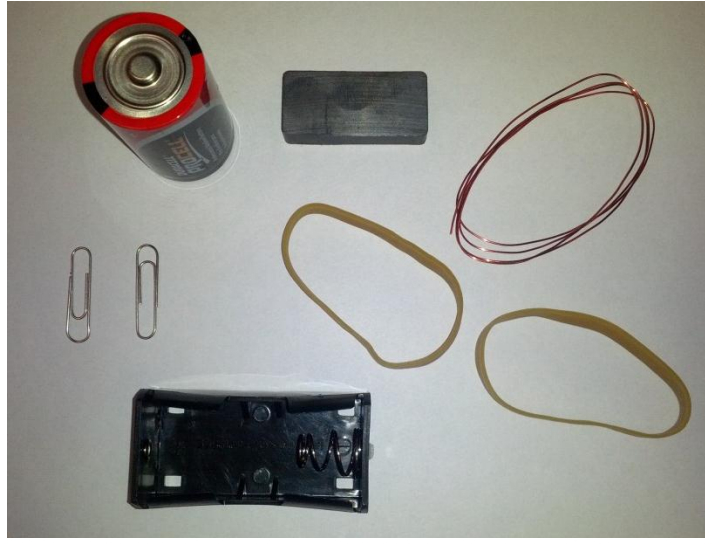# How to Make a Simple DC Motor
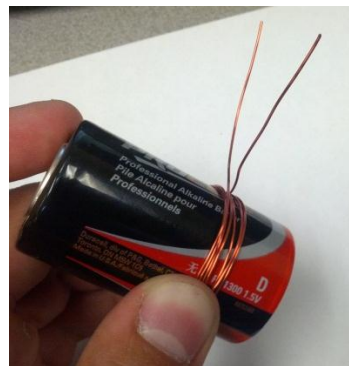

Equipment Needed:

- A 'D' size 1.5 V battery
- A magnet
- A piece of copper wire
- A 'D' sized battery case with spring
- Two paper clips
- Two rubber bands

Instructions:

1. Take copper wire and wrap it around the battery. Be sure to leave around 2 inches on each end of the copper wire unwrapped.

2. Slide the copper wire of the battery keeping it in a circle. Orientate it so the ends of the wires are on opposite sides.
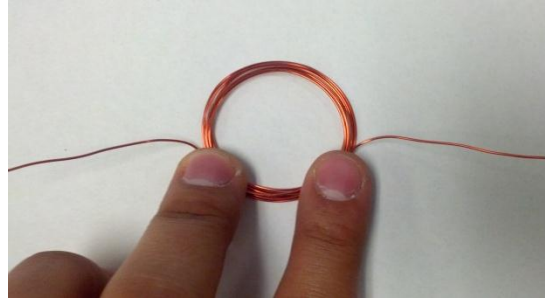
3. Wrap the ends of the wire around the loop several times to hold the structure of the loop and to keep the wire wound together.
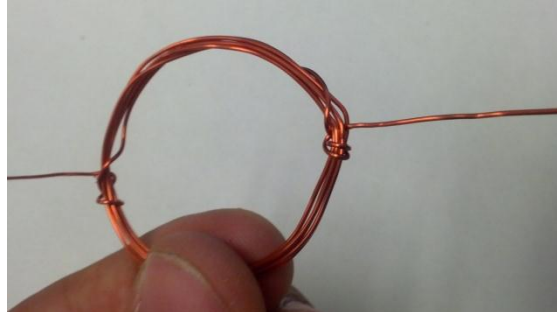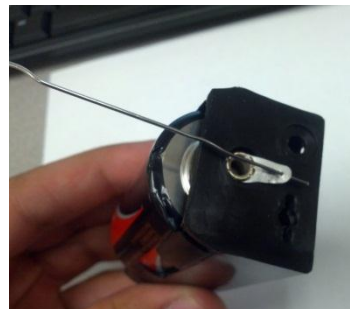
4. Take both paper clips and bend them to look like the ones shown in the picture. These will be used to hold up the copper wire wound in a circle from previous the steps.
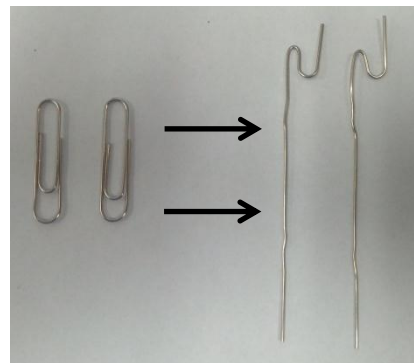
5. Place the battery into the battery case. Make sure the '+' from the battery is lined up with the '+' from the case.

**6.** Take bent paper clips and stick them through the holes on each side of the battery case.

7. To hold the bent paperclips in place stretch both rubber bands around the base of the battery case.

8. For each end of the wound copper wire scraped off the outer coating, if scraped off at the wrong side the motor will not work. Very important to only scrape of the sides like shown in the picture.
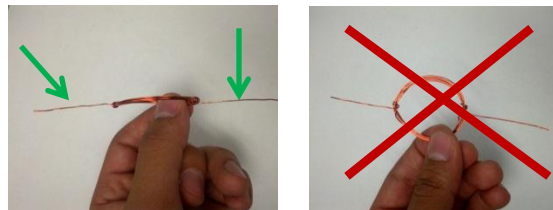
   The purpose of scraping off the coating is so a complete circuit can be made with the battery and the copper wire. This complete circuit needs to be made when the position of the wire is like the one shown to the right. This will create a magnetic pole through the loops of the copper wire making the bottom portion of the wire want to push away from the magnet, thus making it spin.
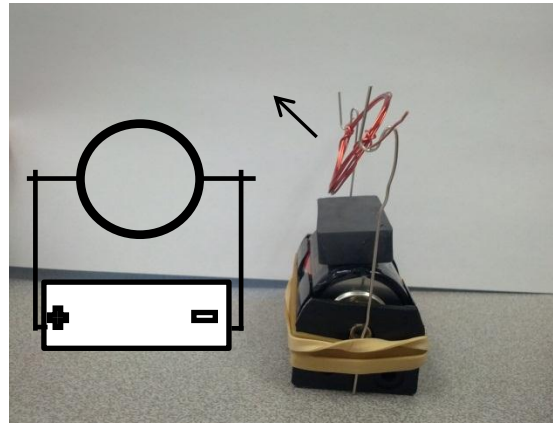
9. Place magnet on top of battery. Rest the ends of the copper wire on the bent paper clips so the wound of wire is placed above the magnet and battery. Little foam balls can be used to hold wire in place like shown in the picture.