

# Homopolar Motors



K-2



3-5



6-8

## Safety:

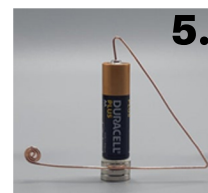
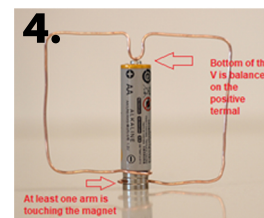
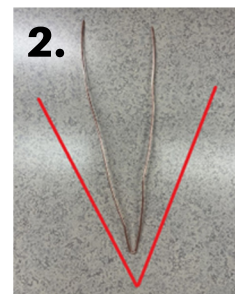
- Working with sharp wires.
- Working with current running through the wire. Things get hot quickly. The wire and the battery can get very hot. Do not run the homopolar motor for more than 10 seconds at a time. Let the motor cool down between each run.

## Materials:

- Legos & Rubber Bands

## Instructions:

1. Attach the neodymium magnet to the bottom (- negative terminal) end of the battery
2. Take the copper wire. Bend the wire in half. This creates a V-shape.
3. Take the two arms from the V, and use your creativity to bend the wire into different shapes. The bottom of the V needs to be able to balance on the positive terminal, while at least one arm of the wire touches the side of the magnet.
4. Balance the piece of wire on the top (+ positive terminal) of the battery. Make adjustment as needed. Make sure the bottom of the V sits on the positive terminal, and at least one of the bottom wires touch the side of the magnet. Your setup should look similar to the picture. Your motor should be able to spin on its own once you let go!



5. Challenge! Try bending the wires in the different shapes!