

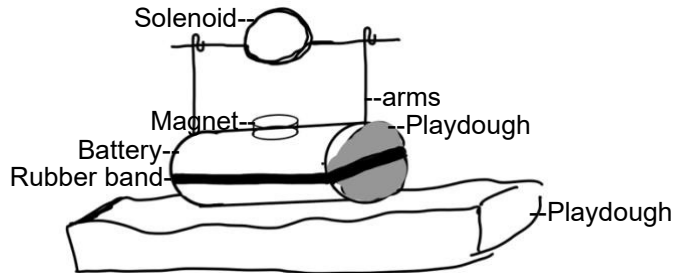
## Electric Motor

**Safety Advisory:** When the motor is fully assembled energy is running through it and it can start to get really hot. If you notice the motor is getting really warm please take it apart and be careful with your fingers. Please do not leave the motor assembled. If you are not using it take it apart.

**Martin Lab YouTube Video:** <https://youtu.be/ob6JmqSWMbl>

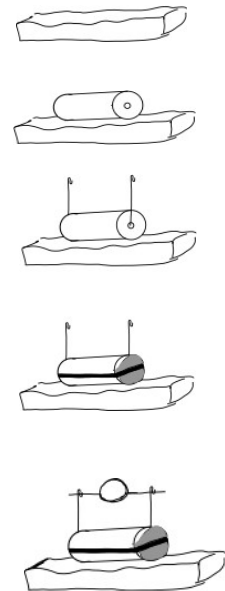
### Materials:

- Battery
- Playdough
- Rubber bands
- Metal arms
- Solenoid
- Magnet



### Instructions

1. Find a flat, smooth, clean surface to work on. Take about a 1/4 of the play dough and place it on your clean work area. Shape the playdough into a rectangular platform your battery can lay on.
2. Put your battery on the platform
3. To connect the arms of the motor you will need the two arms, two chunks of playdough, and the rubber bands. Hold one arm on each end of the battery how you would like it to look in the end. Try to make them the same height. Carefully place playdough over the arms trying to keep the arms in place, but it is okay if they move around, you can fix it after. Now take the rubber band and wrap it around the play dough and arms to secure them in place. Adjust your arms so they are even.
4. Place the solenoid on top
5. Place the magnet on the battery below the solenoid
6. Gently tap the solenoid to make it start spinning. You may need to adjust your set up to get it to work.



If it's not working here are some ways you can adjust it to get it to work.

### Troubleshooting tips:

- Tighten the rubber band
- Place more playdough over the arms to insulate them.
- Move the arms so they are more in the center of the battery
- Add another magnet