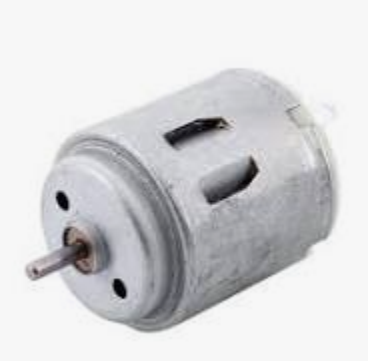
**Phys 2.4 Building a Motor**

**Introduction:** In a commercially produced motor, the working parts are hidden. In this activity you will build a motor and test it. You will demonstrate a variety of energy transfers that include batteries, solar panels and magnets.



Questions?

1.

2.

**Problem**

All over the world, countries are searching for new and better energy sources. Potentially, the use of electric vehicles, appliances and heating systems will reduce greenhouse gasses and power the modern way of life. Electric motors are central to the use of electricity as an energy source. How does a motor work and how can it be carbon free?

**Procedures**

1. You will watch a video showing the building of a simple motor.. https://www.youtube.com/watch?v=WI0pGk0MMhg
2. The materials you need will be provided. Plan on watching the video more than one time, or watch it one step at time. Draw a sketch of the motor here and label the materials:

3. Build the motor and test it with the battery. Based on the spin rate of the coiled copper wire, how successful is this energy transfer? Rate: (slow, medium, fast) If you have a phone with a slow down mode, you may be able to count spins per minute or second)

4. Test the solar panel under a light source and measure its output with a multimeter.

5. Now remove the battery and add your solar panel. The styrofoam brick is available to hold the paper clips.

6. Make changes to the motor that you think will improve its performance. You have a variety of materials available. What did you do?

7. Test your revised motor with the solar panel. How well did your change work? New spin rate:

8. Plan on reporting your results to the class.