

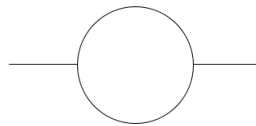
In today's activity, you will be building a simple motor out of components you would find around the house.

**Materials:**

- magnet wire
- D cell battery
- two paper clips
- magnet
- scissors
- tape

**Procedure:**

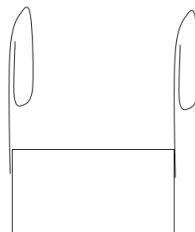
- a. Wrap the magnet wire around your D cell battery (or any other round object) about 10 times. Make sure there is wire sticking out on each end, like "wings" from the center of the hoop, looking like this:



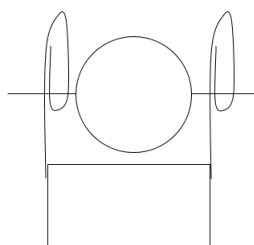
- b. Take your scissors, and, using one blade, scrape off the coating of the magnet wire on the top half of each of the "wings."  
c. Next, take the paper clips and unfold the outermost bend, like this:



- d. Then, attach each paper clip to each pole of the battery by the unfolded segment.



- e. Finally, slide the wire wings into the holders created by the paper clips.



Name:

Date:

1. Now it's time to get your motor moving! Grab your magnet, and slightly push your wire hoop with your free hand to get it rotating. Move the magnet close to the wire hoop. Does the hoop continue to rotate, or does it slow to a stop when the magnet is close?

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2. Arrange your magnet so that the hoop does the opposite of what it did previously (i.e., if it continued to move, make the hoop stop, and if it stopped, make it continue to move). How did the arrangement of the magnet differ in this case?

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3. When the exposed side of the wings are in contact with the paper clips, there is a current flowing through the hoop that induces a magnetic field. Based on your observations, do the magnet and the hoop attract or repel one another when the loop continues to move?

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4. Find someone in the class that has a wire hoop with a different number of loops in it. When you put your magnet near their hoop, does it rotate at the same rate, at a greater rate, or at a lower rate? Explain why you think this is relative to their number of loops.

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