

Build an electric motor

Power Smart for Schools

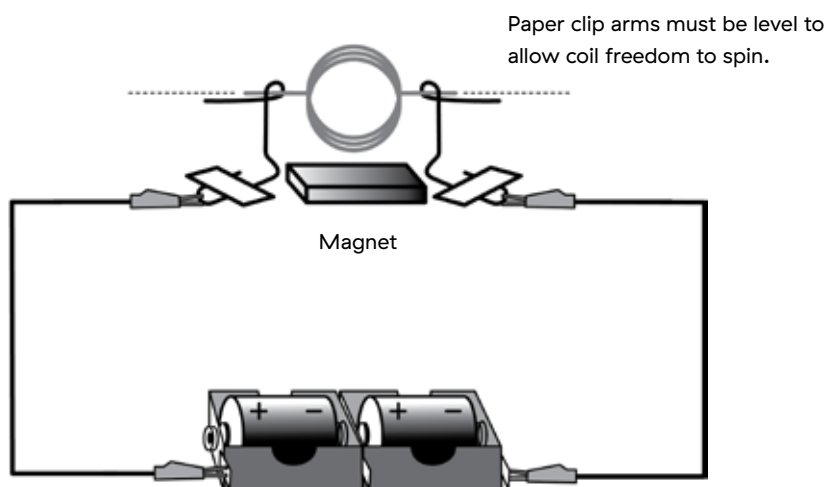
Name: _____

Date: _____

Instructions

Step 1: Make a coil

- Make a coil by wrapping the wire tightly around the marker until you have 6 cm of wire free at each end (about 20 times around).
- Use the sandpaper to scrape away 2 cm of the coating on each end of the wire.
- Loosen the coil wraps slightly and remove the coil from the marker. **Tip:** Hold the coils loosely together with one hand to stop them unwinding as you take them off the marker with your other hand.
- Holding the coils close together, twist each wire end around the coils to keep them together.
- Set up the circuit as shown.



Step 2: Create movement

- Give the coil a spin to get it moving. **Tip:** The paper clip arms must be the same level to allow the coil to move.

Problem-solve

Things to try if the coil doesn't spin:

- Make the paper clip arms level so the coil can balance evenly.
- The ends of the wire help the coil to balance over the magnet – try moving the coil to make it balance evenly.
- Try moving the magnet slightly.
- Check connections – the paper clips need to connect with the scraped ends (not insulated) or electricity cannot flow.
- Use a light bulb to check that the dry cells work.

Observations

Describe what you see. Include sketches as necessary.

What do you hear?

How long did your coil spin? What do you think would make it stop?

Analysis and conclusions

1. Using your understanding of electricity and magnetism, explain in your own words what is happening in the circuit to make the coil spin.

2. What questions about electromagnetism do you have after today's activity?
