

A STEM in the Park

Take Home Activity

STEM

in the **PARK**™

Science, Technology, Engineering, and Mathematics

Making Your Own Magnet

You can make a simple magnet by wrapping a wire around a nail and sending a current through the wire with a small battery. Once you build your nail magnet you should experiment and discover what makes your magnet stronger.

What You Need

- Nail: at least three inches long made from zinc, iron or steel
- Some thin, coated copper wire
- One AA battery
- Electrical tape
- Something to pick up, like paperclips



What To Do

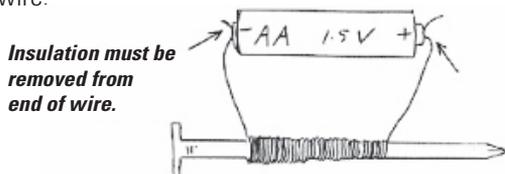
1. Wrap the nail with the copper wire.
 - Wrap the wire tightly along the entire nail, leaving about three inches dangling from either end.
2. Loop the end of the wire.
 - You want to do this so the wires have a good connection with the battery.

Continued on back

What To Do cont.

3. Attach the wire to the battery.

- Attach the ends of the wire to either end of the battery and use a little bit of tape to tape the wire.



Congratulations: your magnet is complete. See how many paper clips you can pick up.

Experiment with your magnet.

- Try different types of magnets. Do different metals make the magnet stronger or weaker?
- Does looping the wire more times change the magnet's strength?
- What happens when you use a bigger battery?

The Science

The reason that your nail is now a magnet is because when electricity flows it creates a magnetic field. When you loop the wire around you get a lot of magnet fields directed along the nail. When certain metals are in a magnetic field they become magnets like the ones on your fridge.

This activity is brought to you by Mercy College of Ohio

