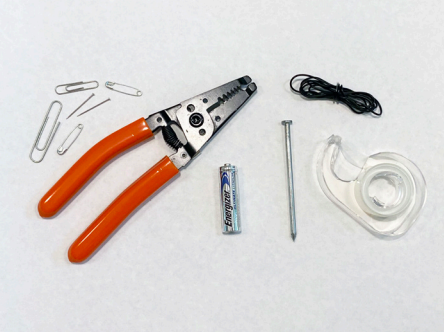
Science at Home

Are you looking for something to do to keep your brain active and engaged? We're here to help with Science at Home! You can do these fun science activities using commonly found items. You can also visit us at the Museum's Science at Home page for additional resources.

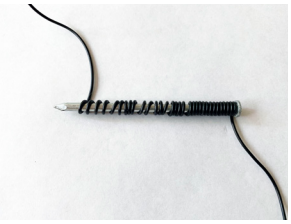
Make a Scrapyard Magnet



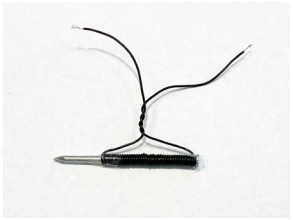
Materials Needed:

Insulated copper wire *(approximately 3 ft)*
Wire strippers
An iron nail
A 1.5-volt battery *(AAA, AA or D)*
Tape
Paper clips or other light metal objects

Instructions:

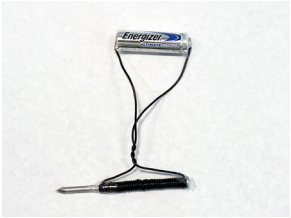


Step 1: Wrap the insulated copper wire around the iron nail in a uniform direction. Leave approximately six inches of loose wire at each end.



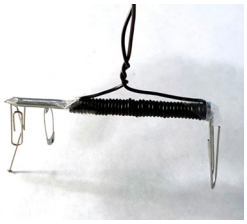
Step 2: Twist the loose wire from both ends together and apply a small piece of tape at both ends of the wire to keep it in place on the nail.

Step 3: Remove one inch of insulation from each end of the copper wire using wire strippers.

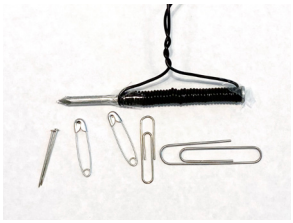


Step 4: Secure one end of the wire to the positive end of the battery using tape. Secure the other end of the wire to the negative end of the battery to activate the electromagnet.

Warning: Be careful when touching or removing the wire as it may get hot after being connected to the battery.



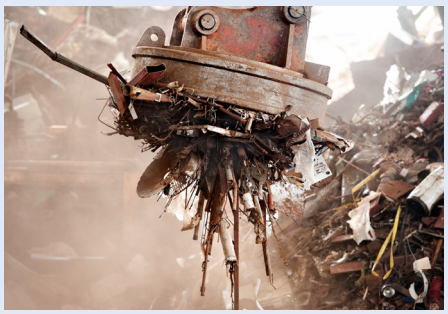
Step 5: Use your electromagnet to pick up the paper clips or other light metal objects by moving the nail close to the objects. The objects will be attracted to your electromagnet.



Step 6: Remove one connection to your battery to stop the electrical flow. The result is your electromagnet stops being magnetic and releases the objects.

What We've Learned

Electromagnets are created by arranging conductive wire around a piece of metal that creates a magnet when electricity is applied to the wire. Unlike regular magnets that are always on, electromagnets can be turned on and off simply by controlling the electricity.



Everyday Connections

Large-scale electromagnets are common devices found in items you use every day including speakers, phones, microwave ovens, and doorbells. Large-scale electromagnets are used at scrapyards to move pieces of scrap metal and even cars.

Having Fun?

We want to see! Tag @naturalsciences on social media, so we can see you and your loved ones enjoying your nature neighborhood. This should be so we can see you and your loved ones enjoying our Science at Home experiments.