Electrifying Minnesota

A traveling exhibit from the Minnesota History Center and The Bakken Museum.

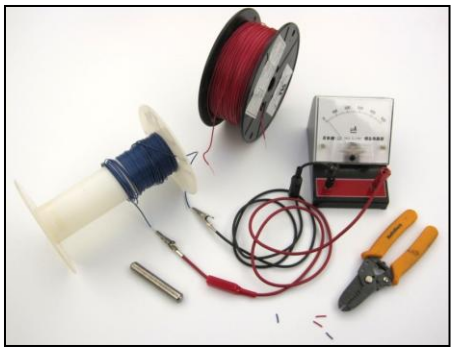
Build your own Generator

Overview

Have your students explore Michael Faraday's law of electromagnetic induction! The formula is simple:

Magnet + Wire + Movement = Electricity

Materials

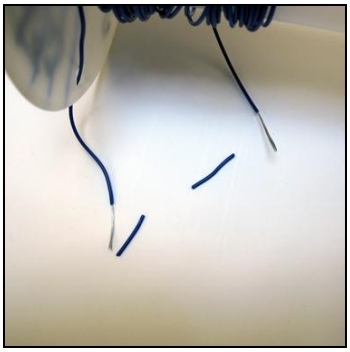


- An analogue DC Ammeter (micro amp meter) 0-200uA or 0-500uA
  (Your Facilities Manager and/or HS science lab teacher may be great resources for materials and help)
- A large spool of wire and a small spool of wire with the end wire accessible
- A pair of wire strippers
- A strong bar magnet or even better a strong cow magnet

Fifteen minute activity

1. Strip the wires from both ends of the spools.






Minnesota History Center

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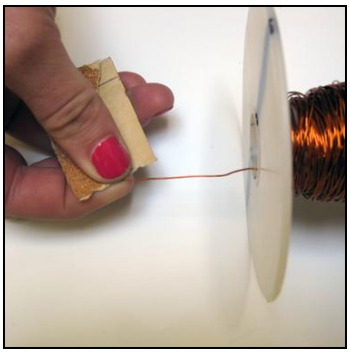
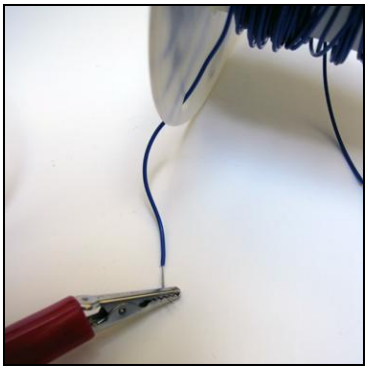
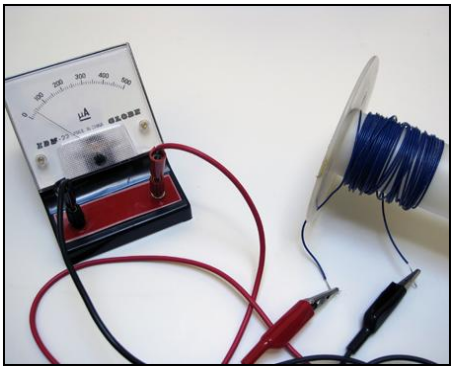
CLEAN WATER LAND & LEGACY AMENDMENT

2. If you have spools of copper wire you will need to sand the ends of the wires from both ends of the spools which will remove the thin insulating film covering the copper wire.

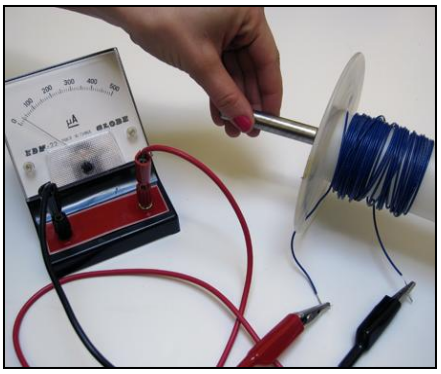


3. Connect the alligator clips from the Ammeter to the exposed wire of one spool (least amount of wire).

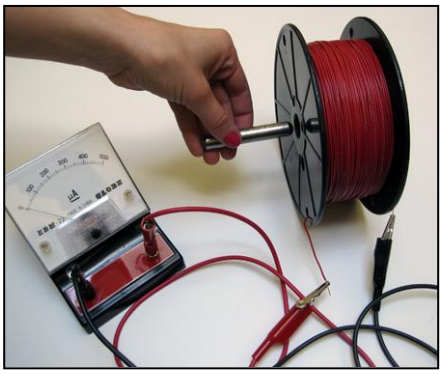




4. Move the magnet near the wire and watch the Ammeter to see what happens. The needle should move showing you that electricity has been generated.
(To trouble shoot: check all of your connection and maybe sand the copper wire more.)



5. Now connect the alligator clips from the Ammeter to the exposed wire of the other spool (most amount of wire).



5-10 minute discussion

What do you notice? What can you conclude? Do you think the strength of the magnet could change the outcome? How important is movement in the equation of electrical generation?

More to do

A good site for a brief history of Michael Faraday:

http://inventors.about.com/library/inventors/blfaraday.htm

(Consider playing our conservation game next!)