

Coin Battery

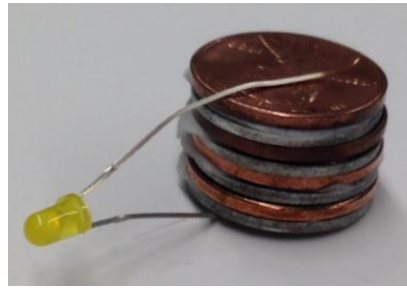
Cut out circles the size of a coin, out of thick paper towels.

Wet paper circles in a solution of vinegar.

Stack circles and metals to make a battery cell: zinc washer, paper, copper penny.

Continue stacking in order. Do not put a paper circle in between the stacks.

Measure the voltage with a multimeter. Try to light an LED.



STEM
UNITED STATES NAVAL ACADEMY

The Power of Money

- Try different types of metals such as coins or aluminum foil. Does it work if you stack only one type of metal?
- Try different solutions to wet the paper.
- How does increasing the number of stacks change the voltage?

It's Electric!

A **battery** stores chemical energy and converts it to electrical energy. In the coin battery, two different metals, called **electrodes**, are stacked. One metal is more reactive than the other, creating an electrical potential difference, called **voltage**. Electrons generated by an anodic reaction at one electrode travel through the circuit to the other electrode where they are consumed by a cathodic reaction. The movement of electrons creates an electrical **current** that powers the LED.

NAVY NOTES



Corrosion is an electro-chemical process. Galvanic corrosion occurs when two different metals are immersed together in salt water. The Navy must prevent corrosion on ships.