



## Powering the World with Lithium Ion Batteries

### **Items you will need from home:**

- A small bowl
- A paper towel or small cloth towel
- Salt (nothing fancy, table salt or Morton's will do!)
- White vinegar
- Water (tap water is perfect)
- A small spoon
- A marker or pen
- A pair of scissors
- The materials in the activity packet that came with this worksheet

**Please gather these items before the activity begins!**

### **Activity Description**

Using the materials listed above, we will walk through the steps of creating your own battery to power up an LED light bulb! In this activity, you will learn about the components of a battery, what makes batteries work, and how to assemble your own battery made from common household materials.

## **Definitions**

**Battery**- a device that provides power by converting chemical energy into electricity

**Current**- flow of electricity

**Voltage**- electric force that causes current. Difference between anode and cathode

**Electrode**- the two halves of the battery that store charge

**Anode**- the negatively charged electrode

**Cathode**- the positively charged electrode

**Separator**- membrane that separates the cathode and the anode

**Electrolyte**- solution that helps balance the charge when current flows between electrodes

## **Discussion Topics**

1. *How many stacks did it take to light up the red LED?*
2. *Can you light up each of the light bulbs with your stack?*
3. *How many light bulbs can you light at the same time with your stack?*

# PENNY BATTERY

Make a flashlight with pennies!

Supplies:



3 pennies



3 felt circles



3 zinc washers



Aluminum  
Foil



Light  
Bulb



Electrolyte  
water  
salt  
vinegar

Procedure:

1. Soak the felt in the electrolyte.  
Dab dry on a paper towel



2. Place aluminum foil on the bottom.  
Stack the washer, felt, then penny



3. Repeat the washer, felt, penny  
stack 2 more times.

1. Test the light bulb with the long wire  
on the penny and the short wire on  
the aluminum foil.

