

Coin Batteries

Simple STEM Activity

Purpose:	The purpose of this activity is to construct a battery with household materials.
Standard(s):	S5P2. Obtain, evaluate, and communicate information to investigate electricity. c. Plan and carry out investigations on common materials to determine if they are insulators or conductors of electricity.
Materials:	Small cup, water, salt, spoon, paper towel, scissors, coins (pennies, nickels, dimes, quarters), small LED bulb
Procedures:	<ol style="list-style-type: none"> 1. In the cup, create a saturated solution of salt water (dissolve enough salt so that a few grains no longer dissolve after stirring). 2. Cut the paper towel into 8-10 round disks. The disks should be large enough to cover the surface of the coins, but not drape over. 3. Soak the disks in the saltwater solution for 3-4 minutes. 4. Begin stacking the coins on top of each other: nickel/disk/penny/etc. Other combinations of dissimilar coins can be used. 5. Once the coin stack is complete, take the LED bulb and spread the two pins apart. Push the long pin underneath the stack and place the short pin on top of the stack. Press down and observe.
Science Behind It:	<p>Batteries have three parts: an anode (-), a cathode (+), and the electrolyte. The anode and the cathode are what get hooked up to an electrical circuit.</p> <p>A chemical reaction takes place inside the battery to cause a build-up of electrons at the anode. Electrons repel each other and try to go to a place with fewer electrons. The electrons go through the wire, lighting the bulb along the way. This electrochemical process changes the chemicals inside the battery, which is why batteries can only provide power for a limited amount of time.</p>
Questions to Ask:	<ol style="list-style-type: none"> 1. What makes batteries work? 2. How are batteries used in everyday life?