



California State University of Bakersfield, Department of Chemistry

## Battery that makes Cents



### Standards:

4-PS3-2 Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical current.

2-LS2-2 Develop a simple model based on evidence to represent a proposed object or tool.

### Introduction:

*Batteries are simple yet important part of people's lives. All forms of electricity used by man revolve around the use of batteries. However, not many people know how batteries work. A simple battery can be made with everyday household items.*

### Materials:

- Pennies (6)
- Nickels (6)
- Pieces of paper towel cut to a size smaller than a nickel
- Glass of water with 2 tablespoons of salt dissolved in it
- Multimeter or voltmeter

### Safety:

- Always have an adult with you to help you during your experiment.
- Always wear eye protection and gloves when doing chemistry experiments

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- Additional safety info for your experiment, if any

**Procedure:**

1. Pour two tablespoons of salt into a glass of water and try to keep it mixed with the water.
2. Put in the pieces of paper towel that were cut to the size of the nickel. A little bit smaller will do the trick

**We do not want the pieces of salt paper touching each other.**

3. Moisten the pieces of paper with the salt, and put them onto each other.
4. Once you have each piece of salt moistened paper placed on the nickel, place a penny on top of each nickel.
5. Now stack all of the coins. The sequence should be: (the nickel is the bottom) nickel, paper, penny, nickel, paper, penny etc.
6. Now it's time to test your battery with a Multimeter. The multimeter measures how much voltage is coming from the coin battery

**Data and Observations:**

Record your observations here

**Questions:**

If you stack more coins would it affect your voltage?

If you add more salt to the salt water would it make a difference?

Can you light up an LED light with your battery?

**References:**

1. A Battery That Makes Cents. (n.d.). *A Battery That Makes Cents*. Retrieved August 5, 2014, from [http://www.sciencebuddies.org/science-fair-projects/project\\_ideas/Energy\\_p015.shtml](http://www.sciencebuddies.org/science-fair-projects/project_ideas/Energy_p015.shtml).

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