

## Homemade Battery Experiment:

Background—this experiment is used to show how galvanic corrosion works.

Materials Needed:

1. Plastic Cup
2. Salt
3. Water
4. Copper
5. Aluminum (from a soda can)
6. Multimeter with alligator clips

Procedure:

1. Add water to cup until almost full.
2. Add 2 tablespoons of salt and stir until dissolved.
3. Place aluminum on one side of cup, submerged in water with some sticking out of the water, and do the same on the opposite side of the cup for copper.
4. Attach the alligator clips on the multimeter to each piece of metal.
5. Turn on the multimeter to measure voltage.
6. Watch corrosion occur in front of your eyes!



Explanation:

The main principle behind this experiment is galvanic corrosion.

Dissimilar metals placed in an electrolyte solution will have an anode and a cathode. Electrons will transfer from the anode to the cathode through the electrolytic solution. The anode in this case is the aluminum and the cathode is the copper. The flow of the electrons produces a current and the electric potential difference between the 2 metals will give the voltage, which can be seen on the multimeter. The most voltage that will be seen is about 0.7 V because there isn't much metal surface area and there is a large amount of electrolyte solution. In corrosion terms, the aluminum dissolves in the salt solution and the electrons released from the dissolution travel to the copper, thus protecting it from corrosion.

