



Mahopac High School

Chemistry

Electrochemical Cell Lab



Mahopac CSD

In this lab you will be building an electrochemical cell (battery) utilizing Zn metal, Cu metal, 1M ZnSO₄, and 1M CuSO₄. The voltage will be measured using a voltmeter.

- 1) Set up the electrochemical cell with the porous cup as described in class.
- 2) Using Table J on the Chemistry Reference Tables, determine which metal will be:
 - a) reduced/oxidized (GER/LEO)
 - b) anode/cathode (AnOx/fat RedCat)
 - c) Positive/negative pole (attract/Supply electrons)
- 3) Connect the electrodes to the voltmeter accordingly (Use Cu and Zn initially)
- 4) Record your results. Make special note to which metal is in which solution and the pole it is connected to.
- 5) Reverse the electrodes and note any changes in results.
- 6) Try other metals as the electrodes and compare the results.

The group with the highest voltage witnessed by me will win a prize

Questions:

- 1) Draw your original set up and LABEL EVERYTHING.
- 2) Write out, label, and balance the half reactions.
- 3) Use the old table N to determine the reaction potential of the cell.
- 4) Is this reaction spontaneous? Why?
- 5) Our class is going on a field trip across the continental United States. Half way across the Midwestern desert states, the bus breaks down and stops. Our navigator has incorrectly calculated our fuel economy. Fearful that we may die in the daytime desert heat or freeze at night ... some classmates start to push the bus through the desert but tire after about 25 miles. There has to be a way to summon help. No other vehicles are around because someone suggested a "Shortcut" through nowhere. All of our cell phone are dead from playing 2048 and taking selfies. There must be some way to use our leftover Gatorade™ to obtain enough voltage to use a cell phone. HELP!