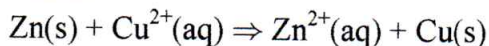


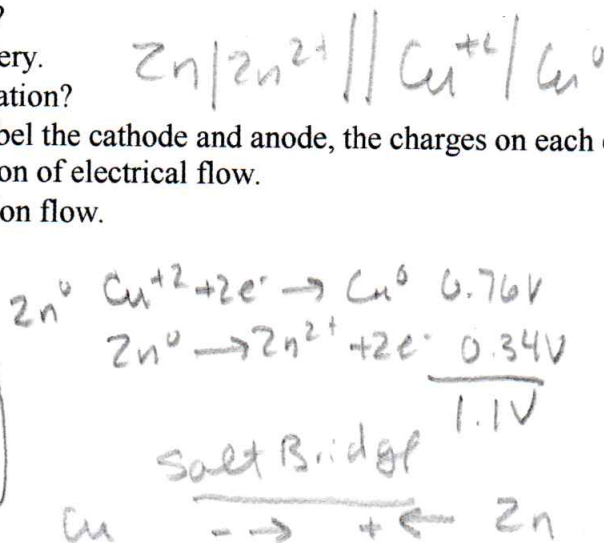
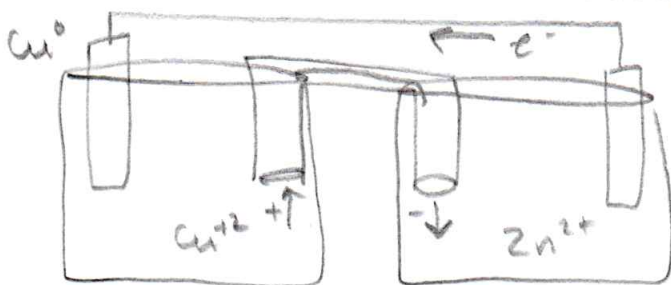
Name \_\_\_\_\_

## Voltaic Cells: Create and describe voltaic (galvanic) cells

1. The following spontaneous reaction occurs when metallic zinc is dipped into a solution of Copper Sulfate

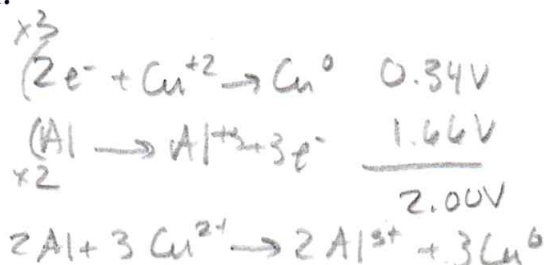
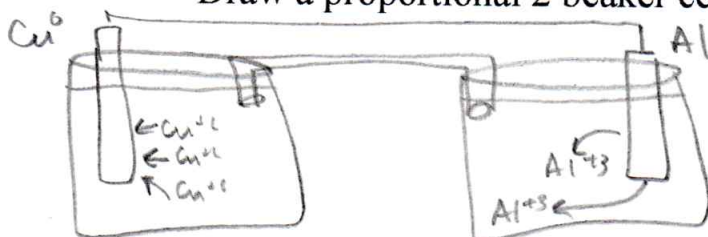


- What are the half-cell reactions?
- Calculate the voltage of the battery.
- What is the abbreviated cell notation?
- Make a sketch of the cell and label the cathode and anode, the charges on each electrode, the direction of ion flow and direction of electrical flow.
- Draw a mini salt bridge to show ion flow.

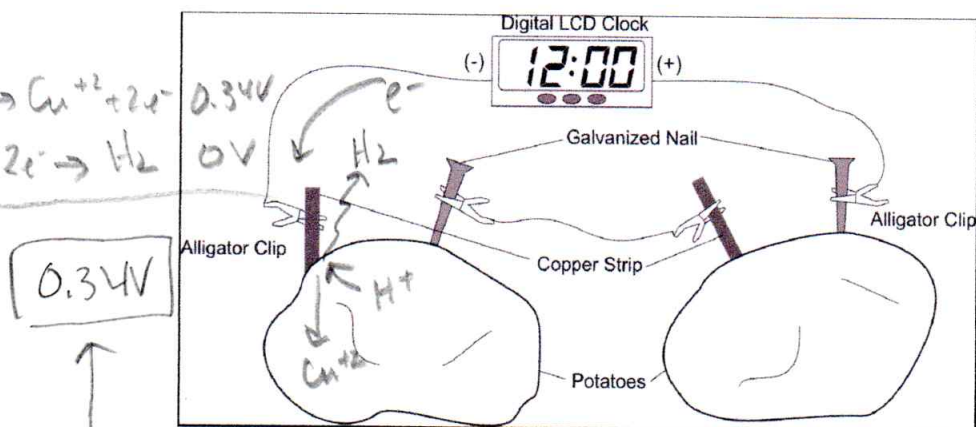


2. Set up a spontaneous reaction with copper and aluminum and their common salts.

- Write out a balanced reaction and calculate voltage.
- Draw a proportional 2 beaker cell.



3. Have you ever heard of a potato clock? Write out and calculate the voltage for a copper and hydrogen ions producing copper ions and hydrogen gas. Sketch this on the potato.



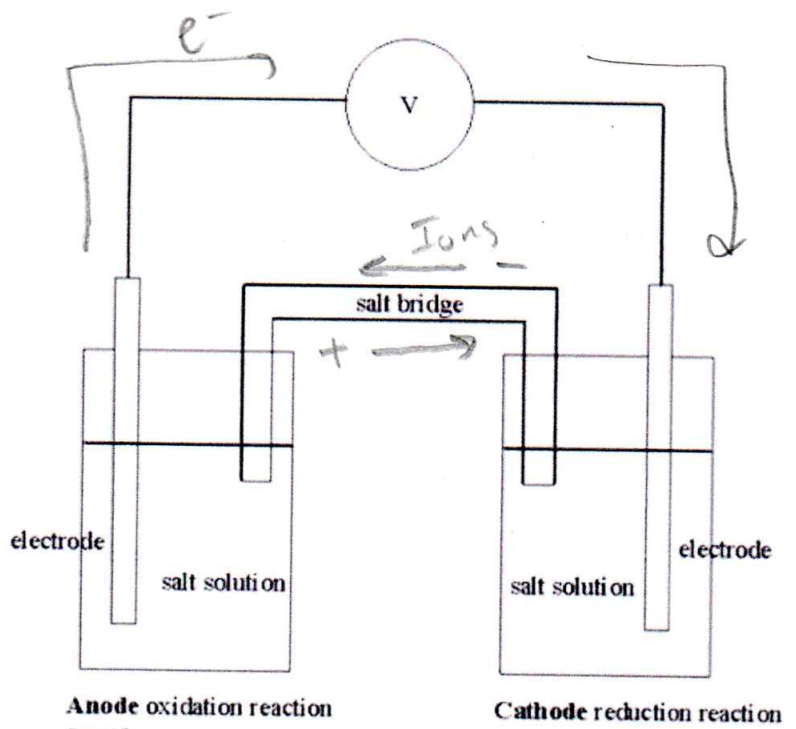
How does a potato battery work?



Not only Rxn taking place

5. In the drawing below, indicate:  
 a. Flow of electrons  
 b. Flow of ions in salt bridge

*e<sup>-</sup> flow from anode to cathode*



6. In the drawing below, indicate:  
 a. Flow of electrons  
 b. Flow of ions

*Zn<sub>s</sub> + Cu<sup>2+</sup> → Zn<sup>2+</sup> + Cu<sup>0</sup>*  
 ↑  
*from #1*  
 ← *Cathode*  
 ↑  
*anode*

*- ions flow into Porous cup  
 + flow out of cup*

