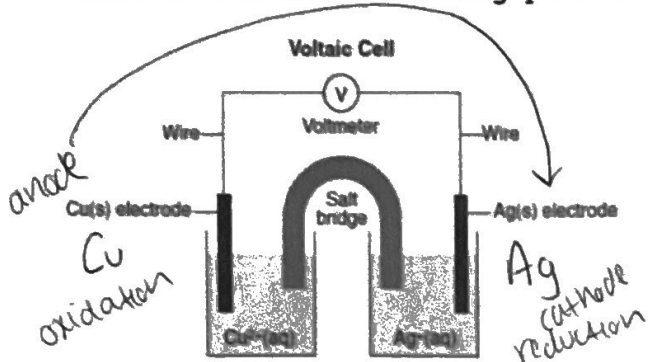


Name: KEY Official Class: \_\_\_\_\_ Date: \_\_\_\_\_  
Teacher: \_\_\_\_\_ Period: \_\_\_\_\_ Class: \_\_\_\_\_

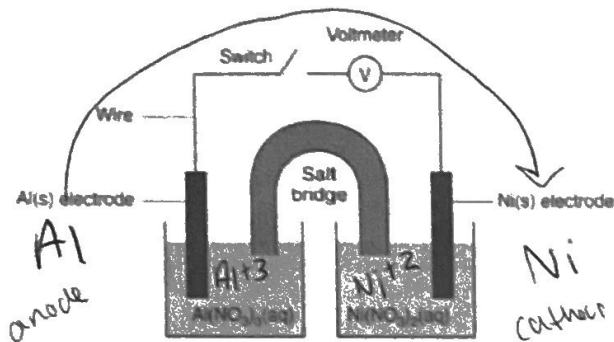
## More Voltaic Cell Practice

Directions: Answer the following questions based on the diagrams and your knowledge of chemistry.

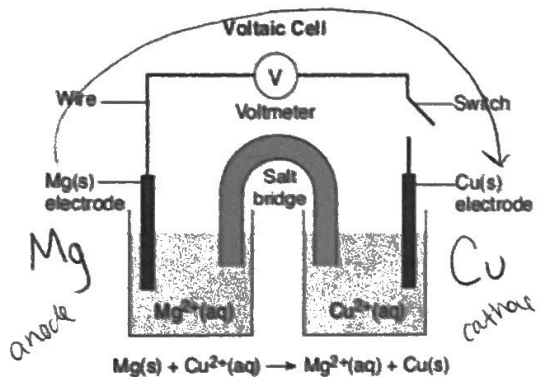


- Anode: Cu
- Cathode: Ag
- Direction of e-: Cu → Ag (anode → cathode)
- Ag (cathode) increases in mass
- Cu (anode) decreases in mass
- Oxidation half reaction:  $\text{Cu}^0 \rightarrow \text{Cu}^{2+} + 2\text{e}^-$
- Reduction half reaction:  $\text{Ag}^+ + \text{e}^- \rightarrow \text{Ag}^0$

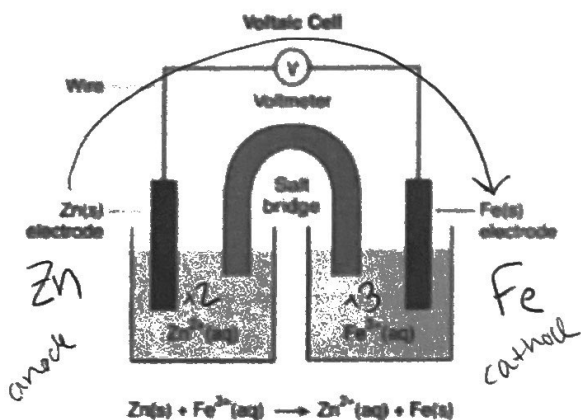
★ NOTE: CATHODES INCREASE IN SIZE & ANODES DECREASE IN SIZE



- Anode: Al
- Cathode: Ni
- Direction of e-: Al → Ni (anode to cathode)
- Ni (cathode) increases in mass
- Al (anode) decreases in mass
- Oxidation half reaction:  $\text{Al}^0 \rightarrow \text{Al}^{3+} + 3\text{e}^-$
- Reduction half reaction:  $\text{Ni}^{2+} + 2\text{e}^- \rightarrow \text{Ni}^0$



- Anode: Mg
- Cathode: Cu
- Direction of e-: Mg → Cu (anode to cathode)
- Cu (cathode) increases in mass
- Mg (anode) decreases in mass
- Oxidation half reaction:  $\text{Mg}^0 \rightarrow \text{Mg}^{2+} + 2\text{e}^-$
- Reduction half reaction:  $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}^0$



- Anode: Zn
- Cathode: Fe
- Direction of e-: Zn → Fe (anode → cathode)
- Fe (cathode) increases in mass
- Zn (anode) decreases in mass
- Oxidation half reaction:  $\text{Zn}^0 \rightarrow \text{Zn}^{2+} + 2\text{e}^-$
- Reduction half reaction:  $\text{Fe}^{3+} + 3\text{e}^- \rightarrow \text{Fe}^0$

- In terms of atoms and ions, why is the mass of the anode decreasing? *electrons/ions lost during oxidation*
- In terms of atoms and ions, why is the mass of the cathode increasing? *electrons/ions gained during reduction*