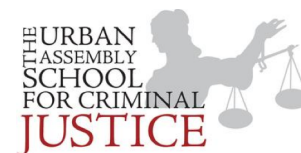


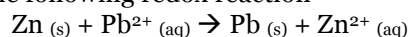
Name: _____ Date: _____

Chemistry ~ Ms. Hart Class: _____ Anions or Cations



11.5 Voltaic and Electrolytic Cells

SPARK: Determine the following for the following redox reaction



Oxidation half reaction

Reduction half reaction

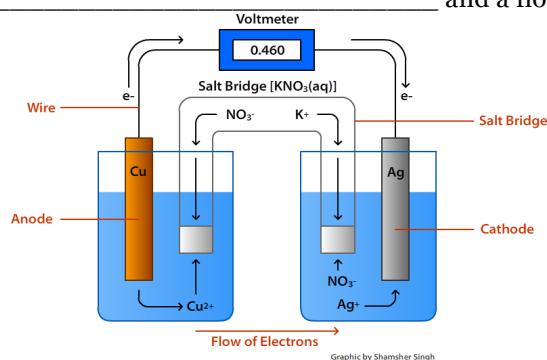
Oxidizing agent _____ Reducing agent _____

Number of electrons lost? _____ Number of electrons gained? _____

Objective: SWBAT identify the parts of an electrochemical cell

NOTES:

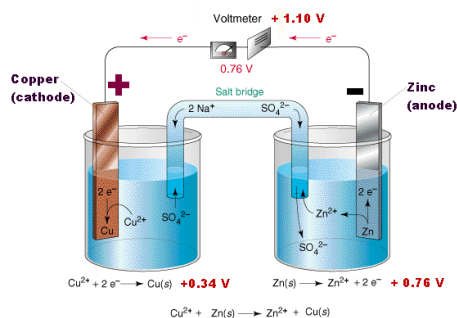
Electrochemical cell: Involves a _____ and a flow of _____



Two types of electrochemical cells

A _____ is an electrochemical cell in which a _____ chemical reaction produces a flow of electrons (electricity).

An _____ requires an electric current (power source) to force a _____ chemical reaction to occur. Ex. Electrolysis – breaking apart compounds



_____ : site where oxidation and reduction can occur

Important INFORMATION:

RED CAT Reduction occurs at the CATHODE
AN OX Oxidation occurs at the ANODE.

a) In the above voltaic cell, on which side does reduction occur?

- b) So, what side is the CATHODE on?
- c) In the above voltaic cell, on which side does oxidation occur?
- d) So, what side is the ANODE on?

_____ : The flow of electrons ALWAYS goes from where they were “created/lost” (the anode) to where they are “used/gained” (the cathode). ALWAYS GOES FROM ANODE TO CATHODE!!!!

To maintain neutrality the two solutions must be connected with a device called a

_____. A salt bridge allows for the migration of ions.

Using the Activity Series (Table J)

The activity series identifies the anode and cathode for a voltaic cell. The metal that is **higher** on the chart is the one that will be **oxidized** and thus is the **anode**.

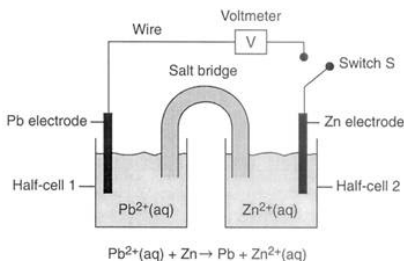
Review: Which one of the following reactions happens spontaneously? Write the products.



PRACTICE:

- 1) In a voltaic Cell, Oxidation occurs at the _____
- 2) In a voltaic Cell, Reduction occurs at the _____
- 3) Given the REDOX reaction: $\text{Cu (s)} + \text{Ag}^+ \longrightarrow \text{Cu}^{2+} + \text{Ag(s)}$
 - a. Draw a Voltaic Cell that describes the above situation. (Hint: Use the your Class Notes as a template to help you if you forget what the Voltaic Cell will look like). **Make sure to label the anode, cathode, and flow of electrons.**

Base your answers on the following diagram:



- 4) What type of electrochemical cell is this?
- 5) In which half-cell will oxidation occur when switch S is closed?
- 6) Label the following on the diagram
 - a. Anode
 - b. Cathode
- 7) Describe the direction of electron flow between the electrodes when switch S is closed.