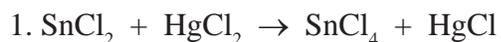


## Chemistry (Redox)

*Academic Standard: TLW explain oxidation and reduction and identify examples and uses of oxidation-reduction reactions.*

### A. TLW balance oxidation-reduction reactions and identify oxidizing and reducing agents.

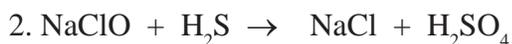
**Directions:** Given an example of an oxidation-reduction equation, balance the equation. Once the equation is balanced, identify what is oxidized and what is reduced in the reaction.



a. Balanced equation \_\_\_\_\_

b. What is oxidized? \_\_\_\_\_

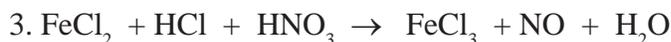
c. What is reduced? \_\_\_\_\_



a. Balanced equation \_\_\_\_\_

b. What is oxidized? \_\_\_\_\_

c. What is reduced? \_\_\_\_\_



a. Balanced equation \_\_\_\_\_

b. What is oxidized? \_\_\_\_\_

c. What is reduced? \_\_\_\_\_

(Continued on next page)

*(continued)***B. TLW apply oxidation-reduction principles to industry.****Directions:** Read the scenario and follow the identified tasks.**Scenario**

You are a chemist for an electroplating company. Your challenge is to electroplate copper so it can be used on a job site and will not rust when exposed to the elements. You have decided to use zinc because it does not oxidize as easily as copper.

**Tasks**

Draw a diagram of an electrochemical cell using copper and zinc as the electrodes. On your diagram label the anode, cathode, and direction of flow of the ions. Finally determine the voltage of your cell.

***Oxidation- Reduction Principles Rubric***

	Yes	In Progress
1. Diagram of an electrochemical cell included		
2. Copper and zinc shown as electrodes		
3. Cathode and anode correctly labeled		
4. Direction of flow of ions correctly shown		
5. Calculation of voltage shown		

<b>Criteria:</b>	Adherence to Oxidation-Reduction Principles Rubric
<b>Proficiency:</b>	100%

*(Continued on next page)*

(continued)

**C. TLW identify examples and uses of oxidation-reduction reactions.**

**Directions:** Identify at least four real-life examples of oxidation-reduction reactions and how they are used in industry or other applications. Include the oxidizing and reducing agents and a balanced formula for each reaction.

**Criteria:** Adherence to *Real-Life Examples Rubric*  
**Proficiency:** 100%

***Real-Life Examples Rubric***

	Yes	In Progress
At least four real-life examples are identified.		
At least four industrial uses or other applications are given.		
Correct oxidizing and reducing agents are identified for each example.		
Balanced equations are given for each reaction.		

1. List all reasonable oxidation numbers for the following elements:

- A) N
- B) Mg
- C) Ti

15. A) N -3, +3, +5  
 B) Mg +2  
 C) Ti +2, +4