Unit #14 **Regents Chemistry**

Redox and Electrochemistry

1. ***Oxidation*** is the ***loss of electrons*** by an atom or ion. The oxidation number *increases* as a result. The electrons are on the *right side* of the reaction arrow.

$$Zn \rightarrow Zn^{2+} + 2e^-$$

2. ***Reduction*** is the ***gain of electrons*** by an atom or ion. The oxidation number *decreases* (is reduced!) as a result. The electrons are on the *left* side of the reaction arrow.

$$Cl + e^- \rightarrow Cl^-$$

3. Redox reactions ***always*** involve the exchange of ***electrons***.

4. Remember…. "LEO says GER!"

Lose **G**ain
Electrons **E**lectrons
Oxidation **R**eduction

5. ***Identify redox reactions*** by seeking an uncombined element on one side of a reaction that is in a compound on the other side.

$$Zn + 2HCl \rightarrow ZnCl_2 + H_2$$

Uncombined — Zn is combined with Cl

6. ***Oxidizing agents*** are what *get reduced* in a redox reaction.
Reducing agents are what *get oxidized* in a redox reaction.

7. ***Electrochemical cells*** produce electricity with a *spontaneous* redox reaction.

8. The *left electrode* is usually the site of *oxidation* in an electrochemical cell diagram.

9. Memorize this saying… "I have ***AN OX*** and a ***RED CAT***."
In electrochemical cells, the ***AN***ode gets ***OX***idized and ***RED***uction occurs at the ***CAT***hode.

10. ***Electrolytic cells*** use an applied electrical current to force a nonspontaneous redox reaction to take place.

11. Electrolytic cells are usually used for metal plating of objects.

USE THE REFERENCE TABLES!!!