Guided Notes: Introduction to Redox Reactions

Definitions

Oxidation (Historical)

- Originally meant: to combine with _____

Reduction (Historical)

- Originally meant: formation of a _____ from its compounds

Modern Definition

- Oxidation: _____ of electrons

- Reduction: _____ of electrons

Helpful Mnemonic

- OIL RIG: _____ Is _____, _____ Is _____

- LEO the lion says GER: _____ Electrons Out, _____ Electrons In

Key Characteristics of Redox Reactions

1. Redox reactions MUST occur _____

2. One substance _____ electrons

3. Another substance _____ electrons

Agents in Redox Reactions

Reducing Agent

- Donates _____

- Undergoes _____

Oxidizing Agent

- Accepts _____

- Undergoes _____

Oxidation Numbers

Purpose

- Help determine which reactant is being _____ or _____

- Are not _____ charges

Balancing Redox Equations

Steps (Acidic Solution)

1. Write separate _____ for oxidation and reduction

2. Balance elements except _____ and _____

3. Balance _____ using H_2O

4. Balance _____ using H^+

5. Balance _____ using electrons

6. Equalize _____ transferred

7. Add half-reactions

8. Verify _____ and _____ balance

Practice Strategies

- Always use the systematic approach to balancing

- Check _____ numbers

- Verify _____ and _____ balance in final equation

Key Takeaways

- Redox reactions involve _____ transfer

- Electrons are always _____ or _____

- Oxidation and reduction happen _____