A REDOX reaction is made up of an oxidation reaction and reduction reaction occurring simultaneously.

- **Balancing Redox Reactions**
  Oxidation-Reduction Reactions, or redox reactions, are reactions in which one reactant is oxidized and one reactant is reduced simultaneously. This module demonstrates how to balance various redox equations.

  ◦ Balancing Redox Reactions - Examples

- **Comparing Strengths of Oxidants and Reductants**
  The relative strengths of various oxidants and reductants can be predicted using \( E^\circ \) values. The oxidative and reductive strengths of a variety of substances can be compared using standard electrode potentials. Apparent anomalies can be explained by the fact that electrode potentials are measured in aqueous solution, which allows for strong intermolecular electrostatic interactions, and not in the gas phase.

- **Definitions of Oxidation and Reduction**
  This page discusses the various definitions of oxidation and reduction (redox) in terms of the transfer of oxygen, hydrogen, and electrons. It also explains the terms oxidizing agent and reducing agent.

- **Half-Reactions**
  A half reaction is either the oxidation or reduction reaction component of a redox reaction. A half reaction is obtained by considering the change in oxidation states of individual substances involved in the redox reaction.

- **Oxidation-Reduction Reactions**
  An oxidation-reduction (redox) reaction is a type of chemical reaction that involves a transfer of electrons between two species. An oxidation-reduction reaction is any chemical reaction in which the oxidation number of a molecule, atom, or ion changes by gaining or losing an electron. Redox reactions are common and vital to some of the basic functions of life, including photosynthesis, respiration, combustion, and corrosion or rusting.

- **Oxidation State**

  ◦ Oxidation States II

- **Oxidation States (Oxidation Numbers)**
  This page explains what oxidation states (oxidation numbers) are and how to calculate and use them.

- **Oxidizing and Reducing Agents**
  Oxidizing and reducing agents are key terms used in describing the reactants in redox reactions that transfer electrons between reactants to form products. This page discusses what defines an oxidizing or reducing agent, how to determine an oxidizing and reducing agent in a chemical reaction, and the importance of this concept in real world applications.

- **Standard Reduction Potential**
  The standard reduction potential is the tendency for a chemical species to be reduced, and is measured in volts at standard conditions. The more positive the potential is the more likely it will be reduced.

- **The Fall of the Electron**
  In oxidation-reduction ("redox") reactions, electrons are transferred from a donor (reducing agent) to an acceptor (oxidizing agent). But how one predict whether, or in which direction, such a reaction will actually go? Presented below is a very simple way of understanding how different redox reactions are related.

- **Writing Equations for Redox Reactions**
  This page explains how to work out electron-half-reactions for oxidation and reduction processes, and then how
to combine them to give the overall ionic equation for a redox reaction. This is an important skill in inorganic chemistry.