

Chapter 19 Oxidation-Reduction Reactions

Chapter Opener

__ **Chapter Overview, TE** Review the objectives listed in the Student Edition.

Section 1 Oxidation and Reduction

PACING: 45 minutes

PENNSYLVANIA ACADEMIC STANDARDS FOR SCIENCE AND TECHNOLOGY:

3.1.E.1 Describe how fundamental science and technology concepts are used to solve practical problems.

Objectives

1. Assign oxidation numbers to reactant and product species.
2. Define *oxidation* and *reduction*.
3. Explain what an oxidation-reduction (redox reaction) is.

Focus (5 minutes)

__ **Lesson Starter, TE** Review oxidation numbers and have students familiarize themselves with the rules for assigning oxidation numbers in **Table I**.

MOTIVATE (10 minutes)

__ **Demonstration, A Spontaneous Redox Reaction, TE** Demonstrate a redox reaction by using KI, KMnO_4 , and HCl and make sure students can explain the formation of the precipitate and the color changes.

TEACH (20 minutes)

__ **PowerPoint**

__ **Visual Strategy, Figure 1, TE** Make sure students understand how this figure illustrates how an element can exist in a number of different oxidation states. (**GENERAL**)

__ **Chemistry in Action, Photochromic Lenses, SE** Photochromic eyeglasses darken and become transparent according to ultraviolet light because of an oxidation-reduction reaction.

__ **Application, TE** Sodium hypochlorite, NaOCl , is the chemical name for household bleach used to remove stains from clothing through a redox reaction.

__ **Discussion, TE** Students should follow up the spontaneous redox reaction demonstration by explaining the results in terms of oxidation and reduction and by writing formulas, using **Table I** for the oxidation numbers.

__ **Chemistry in Action, Skunk-Spray Remedy, SE** Paul Krebaum invented a better way than tomato juice to get rid of skunk spray odor.

Answers To Redox Reactions Study Guide

John A. Olmsted, Gregory M. Williams



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