Lesson Plan: Reaction Profiles

This lesson plan includes the objectives, prerequisites, and exclusions of the lesson teaching students how to read reaction profiles (energy diagrams) and identify and describe the energy transfers involved.

Objectives

Students will be able to

- understand a reaction profile,
- identify where the products, reactants, transition states, and energetic barriers are on a reaction profile,
- correctly label a reaction profile diagram with the energy changes ΔH and Ea,
- identify whether a reaction is exothermic or endothermic based on a reaction profile.

Prerequisites

Students should already be familiar with

- exothermic and endothermic reactions,
- the concept of change in enthalpy during a chemical reaction,
- energy changes in chemical reactions.

Exclusions

Students will not cover

- detailed descriptions of transition states,
- details of the reaction mechanism,
- other thermodynamic quantities such as Gibbs free energy or entropy.