



Lesson Plan: Standard Enthalpy Changes

This lesson plan includes the objectives, prerequisites, and exclusions of the lesson teaching students how to describe different types of standard enthalpy changes and define them.

■ Objectives

Students will be able to

- ▶ define and describe the enthalpy of fusion, solidification, vaporization, and condensation and the relationship between them,
- ▶ identify the location of the enthalpy of fusion and vaporization from heating curves or tabulated data,
- ▶ define the enthalpy of solution and explain that dissolution results in a change in enthalpy,
- ▶ relate enthalpy of dilution to the difference between two enthalpies of solution with differing quantities of solvent,
- ▶ define and describe the enthalpy of combustion,
- ▶ define and describe the enthalpy of formation and how it relates to a compound's stability,
- ▶ use the standard enthalpies of formation to calculate change in enthalpy for a reaction.

■ Prerequisites

Students should already be familiar with

- ▶ energy changes in reactions,
- ▶ measuring enthalpy changes,
- ▶ exothermic and endothermic reactions,
- ▶ bond energy.

■ Exclusions

Students will not cover

- ▶ Hess's law,

- ▶ thermodynamic derivations,
- ▶ other thermodynamic quantities (e.g., entropy and Gibbs free energy).