

## CHAPTER OVERVIEW

### 15: Thermodynamics- Atoms, Molecules and Energy

In the sections on [Using Chemical Equations in Calculations](#) we indicate that [heat](#) is a form of [energy](#) and show how the quantity of heat energy absorbed or released by a chemical change can be related to the corresponding chemical equation. We also state the law of conservation of energy, and arguments in other sections have often been based on the idea that energy can neither be created nor destroyed. The law of conservation of energy is the first of three important laws involving energy and matter, which were discovered over a century ago. These laws were originally based on the movement or transfer (dynamics) of heat (thermo), and the law of conservation of energy is therefore referred to as the **first law of thermodynamics**.

#### Topic hierarchy

- [15.1: Prelude to Thermodynamics](#)
- [15.2: Heat Capacities](#)
  - [15.2.1: Lecture Demonstrations](#)
- [15.3: Heat Capacity and Microscopic Changes](#)
- [15.4: Internal Energy](#)
- [15.5: Thermodynamic Terms and Conventions](#)
- [15.6: Enthalpy](#)
- [15.7: Measuring the Enthalpy Change](#)
  - [15.7.1: Lecture Demonstrations](#)
- [15.8: State Functions](#)
- [15.9: Standard Pressure](#)
- [15.10: Bond Enthalpies](#)
- [15.11: Bond Enthalpies and Exothermic or Endothermic Reactions](#)
- [15.12: Fossil Fuels and the Energy Crisis](#)
- [15.13: Photosynthesis](#)

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