

CHAPTER OVERVIEW

12: Thermodynamic Processes and Thermochemistry

This chapter introduces you to **thermochemistry**, a branch of chemistry that describes the energy changes that occur during chemical reactions. In some situations, the energy produced by chemical reactions is actually of greater interest to chemists than the material products of the reaction. For example, the controlled combustion of organic molecules, primarily sugars and fats, within our cells provides the energy for physical activity, thought, and other complex chemical transformations that occur in our bodies. Similarly, our energy-intensive society extracts energy from the combustion of fossil fuels, such as coal, petroleum, and natural gas, to manufacture clothing and furniture, heat your home in winter and cool it in summer, and power the car or bus that gets you to class and to the movies.

[12.1: Systems, States, and Processes](#)

[12.2: The First Law of Thermodynamics - Internal Energy, Work, and Heat](#)

[12.3: Heat Capacity, Enthalpy, and Calorimetry](#)

[12.4: Illustrations of the First Law of Thermodynamics in Ideal Gas Processes](#)

[12.5: Thermochemistry](#)

[12.6: Reversible Processes in Ideal Gases](#)

[12.E: Thermodynamic Processes \(Exercises\)](#)

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