

CHAPTER OVERVIEW

12.1: Temperature and Heat

In this chapter, we explore heat and temperature. It is not always easy to distinguish these terms. Heat is the flow of energy from one object to another. This flow of energy is caused by a difference in temperature. The transfer of heat can change temperature, as can work, another kind of energy transfer that is central to thermodynamics. We return to these basic ideas several times throughout the next four chapters, and you will see that they affect everything from the behavior of atoms and molecules to cooking to our weather on Earth to the life cycles of stars.

[Heat Transfer, Specific Heat, and Calorimetry](#)

[Mechanisms of Heat Transfer](#)

[Phase Changes](#)

[Prelude to Temperature and Heat](#)

[Temperature and Heat \(Answer\)](#)

[Temperature and Heat \(Exercises\)](#)

[Temperature and Heat \(Summary\)](#)

[Temperature and Thermal Equilibrium](#)

[Thermal Expansion](#)

[Thermometers and Temperature Scales](#)

Thumbnail: Natural convection plays an important role in heat transfer inside this pot of water. Once conducted to the inside, heat transfer to other parts of the pot is mostly by convection. The hotter water expands, decreases in density, and rises to transfer heat to other regions of the water, while colder water sinks to the bottom. This process keeps repeating.

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