

INTRODUCTORY PHYSICS: STATE FRAMEWORKS

3. Heat and Heat Transfer

Central Concept: Heat is energy that is transferred by the processes of convection, conduction, and radiation between objects or regions that are at different temperatures.

- 3.1 Explain how heat energy is transferred by convection, conduction, and radiation.
- 3.2 Explain how heat energy will move from a higher temperature to a lower temperature until equilibrium is reached.
- 3.3 Describe the relationship between average molecular kinetic energy and temperature. Recognize that energy is absorbed when a substance changes from a solid to a liquid to a gas, and that energy is released when a substance changes from a gas to a liquid to a solid. Explain the relationships among evaporation, condensation, cooling, and warming.
- 3.4 Explain the relationships among temperature changes in a substance, the amount of heat transferred, the amount (mass) of the substance, and the specific heat of the substance.