

Chapter 5 Gases and the Kinetic-Molecular Theory

In this chapter, the properties of gases at a given set of conditions and how they vary as conditions change are studied. As one of the main states of matter, gases have their own section in the AP curriculum. Understanding this chapter will also form the basis needed to understand later concepts such as gas equilibrium. Several different “gas laws” are also introduced in this chapter. More important than memorizing the name of the law being studied is understanding the direct or inverse relationship between variables and being able to explain the laws based on the kinetic molecular theory of gases. Compared to solids and liquids, gases have relatively low densities, have volumes that change significantly with temperature or pressure, and flow freely from one place to another. The skills and concepts of partial pressures, mole fractions, ideal gases, nonideal gases, and understanding how kinetic energy determines how gases move are crucial to this chapter and the AP Exam. Practice is needed to become familiar with the units of mole fraction, volume, pressure, and temperature associated with gases.