

CHAPTER OVERVIEW

9: The Gaseous State

An General Chemistry Libretexts Textmap organized around the textbook

Principles of Modern Chemistry

by Oxtoby, Gillis, and Campion

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Some of the first real breakthroughs in the study of chemistry happened in the study of the gaseous state. In gases, the volume of the actual gas particles is but a tiny fraction of the total volume that the gas occupies. This allowed early chemists to relate parameters such as volume and the number of gas particles, leading to the development of the mole concept. As we have seen in previous chapters, the notion of a chemical mole allows us to do quantitative chemistry and lead us to the point where we can routinely address reaction stoichiometry, etc. In this chapter, we will visit some of the early observations that lead to our current understand of gasses and how they behave. We will see how the relationships between pressure and volume; volume and temperature and volume and moles lead to the ideal gas laws and how these simple rules can allow us to do quantitative calculations in the gas phase.

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Thumbnail: The kinetic theory of gases describes this state of matter as composed of tiny particles in constant motion with a lot of distance between the particles.

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