

Module 1.5: Gas Mixtures

Background

- [John Dalton](#) (LO 1.5.1)
 - Description: This article talks about the life, work and scientific accomplishments of John Dalton, whom the law of partial pressure is named after. Students will learn about the history and the influence of John Dalton.
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Learning Objectives

By the end of this sub-module, students should be able to:

- LO 1.5.1: Use the equation for Dalton's Law of partial pressures.
- LO 1.5.2: Calculate the partial pressure and mole fraction of a gas in a mixture.

Instructional Materials

Textbook Sections

- OpenStax: Chemistry Atoms First 2e
 - [Section 8.3 Stoichiometry of Gaseous Substances, Mixtures, and Reactions](#) (LO 1.5.1, 1.5.2)

Video Resources

- [Worked example: partial pressure and mole fraction example](#) (LO 1.5.1, 1.5.2)
 - Description: This video explains partial pressure and mole fraction in a gas mixture by walking through an example step by step. It can be used to further explain the concept after students learned them in class or as part of lecture videos directly when teaching online asynchronously.

- By Dr. Mark Kubinec and Professor Alexander Pines, College of Chemistry, UC Berkeley, under a standard YouTube License.

Other Resources

- [Instructor Google Slides \(Slides #51-56\)](#) (LO 1.5.1, 1.5.2)
 - Description: These slides contain relevant information on Dalton's law of partial pressures and mole fraction calculation in a gas mixture. They could be used with a live or recorded lecture in the form of videoconferencing or face-to-face instruction.
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Activities and Assessments

Conceptual Activities/Assessments

- Study guide: [Partial pressure](#) (LO 1.5.1, 1.5.2)
 - Description: This study guide is connected to the Openstax textbook section 8.3.
 - Teaching Tip: This study guide can be used in a flipped-style classroom where students complete them before the lecture, or they can be used to reinforce important topics learned in class.
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Application Activities/Assessments

- [Partial pressure worksheet Q18-21](#) (LO 1.5.1)
 - Description: Question 18-21 are problems that require students to use Dalton's law of partial pressures to calculate the partial pressure of a gas or the total pressure of a gas mixture.
 - Teaching Tip: This worksheet can be used as an addition to homework to give students an opportunity to practice more. Questions can also be extracted as quiz or exam questions.

- Answer Key: [Partial pressure worksheet Q18-21 answer key](#)
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- [Partial pressure and mole fraction worksheet](#) (LO 1.5.1, 1.5.2)
 - Description: These problems are practice on solving partial pressure and mole fraction in a gas mixture.
 - Teaching Tip: This worksheet can be used as an addition to homework to give students an opportunity to practice more. Questions can also be extracted as quiz or exam questions.
 - Answer Key: [Partial pressure worksheet Q18-21 answer key](#)
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