

CHM2045
Spring 2017
Week 7

Reading: Zumdahl – Chapter 5 (all), Chapter 6 (first few sections)

Most of what we've done with gases revolved around their personalities and relationships. From one perspective its nice to walk away from chemical reactions and their required attention to detail with respect to stoichiometry. Wasn't that a nice vacation?

Now lets do some stoichiometry. Thanks to the ideal gas law, we have yet another way to determine the number of moles of a substance present. With that information, we can plug it into a balance chemical equation and use that information. It may surprise you, about how much gas is made in even a simple reaction.

We will also look at the law of Partial Pressures to determine how gases collected over water will always vary slightly due to the vapor pressure of water. With gases thoroughly explored, we will move on to the next chapter that deals with Thermochemistry.

Strictly speaking, this is a second semester topic, but we will dive into some basic concepts around the nature of energy, its changes, and things that are related to that. We will have new definitions for things like work, heat, and exchange. Using these new definitions of common words will make even more popular than you thought you could be.

Learning Outcomes:

By the end of this week, a student should be able to:

1. Use the ideal gas law in stoichiometry problems.
2. Derive molecular mass from the ideal gas law.
3. Determine the total pressure of a mixture of gases.
4. Define work, energy, heat, and temperature as they relate to thermodynamics.

Recommended Problems:

5.65, 5.67, 5.69, 5.71, 5.73, 5.75, 5.77, 5.87, 5.91, 5.95, 6.25, 6.31