General Chemistry I   Dr. M. J. Wieder
Topic: Gas Behavior

The student should be able to:

1. Identify the four variables used to describe a gas sample.
2. Define the terms torr and atmosphere.
3. Convert from units of torr to units of atmosphere and vice versa.
4. Convert temperature expressed in Celsius degrees to degrees Kelvin and vice versa.
5. State Avogadro's law in words and in the form of an algebraic equation.
6. State Boyle's law in words and in the form of an algebraic equation.
7. State Charles' law in words and in the form of an algebraic equation.
8. State Dalton's law in words and in the form of an algebraic equation.
9. State Graham's law in words and in the form of an algebraic equation.
10. Use the various gas laws to solve mathematical problems relating changes in the variables that describe gases.
11. Explain how the Ideal Gas law can be derived from the above gas laws.
12. Use the Ideal Gas law to solve mathematical problems relating changes in the variables that describe gases.
13. Use the Ideal Gas law to determine the molar mass of a gas.
14. Define STP and Standard Molar Volume.
15. List and explain the postulates contained in the Kinetic Molecular Theory of Gas Behavior.
16. Show how the theory attempts to explain the various gas laws.
17. Differentiate between "ideal" and "real" gas behavior.
18. Identify the conditions of temperature and pressure that result in deviations from ideal gas behavior.
19. Explain how the van der Waals equation attempts to take into account real gas behavior.
20. Define critical temperature, and relate this to real gas behavior.