Chapter 5, Gases
Objectives

Terms:
pressure
Pascal
barometer
standard atmospheric pressure
Boyle's law
Charle's law
Avogadro's law
ideal gas
molar volume

STP
partial pressure
mole fraction
effusion
diffusion
troposphere
stratosphere
ozone

You should be able to:
1. list the general characteristics of gases,
2. calculate pressure,
3. describe the relationship between temperature, pressure, number of moles, and volume of a gas,
4. work problems using the ideal gas law
5. derive the equation, molar mass = dRT/P, from the ideal gas law and work problems using this equation,
6. work problems involving mixtures of gases, partial pressures, mole fractions, and the ideal gas law,
7. work stoichiometry problems involving reactions occurring in the gas state,
8. work problems involving the collection of gases over water,
9. describe the kinetic molecular theory of gases,
10. explain what causes gas pressure,
11. describe the relationship between temperature, kinetic energy, speed, and the mass of gas particles,
12. describe the distribution of particle speeds in a gas,
13. use the kinetic molecular theory to predict and explain the relationships between temperature, pressure, volume, and number of moles for a gas,
14. describe what diffusion and effusion rates depend upon,
15. explain why diffusion is much slower than actual molecular speeds,
16. describe the difference between real and ideal gases,
17. explain why real gases behave most ideally at low pressures and high temperatures,
18. list the main components of air and their percentages,
19. explain how the atmosphere is divided into regions and describe the properties of the troposphere and stratosphere,
20. list the major air pollutants, describe their formation, and the problems associated with each,
21. outline the steps involved in the greenhouse effect.