I. States of Matter
   a. Solid
      i. Kinetic Molecular Theory of Solids
         1. General properties
            a. Volume/shape
            b. Density (relative)
            c. Compressibility
            d. Motion of molecules
      2. Crystal Structure
         a. Crystalline solid
         b. X-ray diffraction
         c. Types of crystals
            i. Ionic solid
               1. General properties
            ii. Covalent crystals
               1. General properties
            iii. Molecular crystals
               1. General properties
            iv. Metallic crystals
               1. General properties
      3. Amorphous solids
         a. Ex: glass
   b. Liquid
      i. Kinetic Molecular Theory of Liquids
         1. General properties
            a. Volume/shape
            b. Density (relative)
            c. Compressibility
            d. Motion of molecules
            e. Surface tension
            f. Adhesion
            g. Viscosity
   c. Gas
      i. Kinetic Molecular Theory of Gases
         1. Substances that Exist as Gases
            a. Normal atmospheric conditions
         2. General properties
            a. Volume/shape
            b. Density (relative)
            c. Compressibility
            d. Motion of molecules
         3. Gas vs Vapor
         4. Pressure of a Gas
            a. Equation
            b. SI unit
            c. Manometer
            d. Atmospheric pressure
               i. Barometer
5. The Gas Laws
   a. Boyle
      i. Equation
   b. Charles (and Gay-Lussac)
      i. Equations
   c. Absolute zero
   d. Kelvin Temperature scale
   e. Avogadro
      i. Equation
   f. Ideal Gas Equation
      i. Ideal gas
      ii. Equation
      iii. Ideal gas constant (R)
      iv. Standard Temperature and Pressure
      v. Combined gas law
      vi. Density
         1. Equation
         2. Molar mass

6. Gas Stoichiometry

7. Dalton’s Law of Partial Pressure
   a. Partial pressure
      i. Equation
      ii. Mole fraction
   ii. Deviation from Ideal Behavior