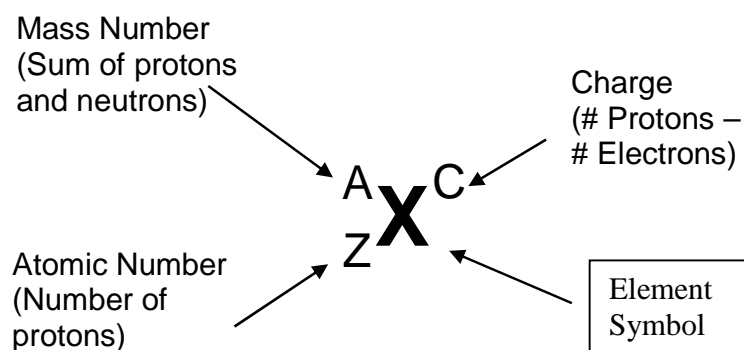


## CHE 101 Chapter 5 - Study Guide

Terms: Law of Multiple Proportions, Law of Definite Proportions, Electron, Proton, Neutron, Nucleus, Atomic Number, Mass Number, Isotope, Atomic Mass, Atomic Mass Unit.

Concepts:

1. Neutrons, Protons and Electrons:
  - a. Know the physical properties (charge, mass, symbol, relative mass).
  - b. Know where they are found in an atom.
  - c. Why they are important to chemists
2. Isotopic Notation: Know what an isotope is and the proper notation for labeling them. Given the % abundance of isotopes calculate the average atomic mass in amu. Given partial information about an isotope be able to identify the element, calculate the number of protons, neutrons, electrons and the charge.



3. Science History: Be familiar with the major discoveries, the experiments, the observations, and conclusions of each scientist. Focus extra attention on Dalton, Thompson, and Rutherford.
  - a. Empedocles
  - b. Democritus
  - c. Dalton – ideas and flaws
    - i. Definite composition
    - ii. Multiple proportions
  - d. Faraday/Arrhenius
  - e. Stoney
  - f. Thomson
    - i. Crookes tube observations and conclusions
    - ii. Plum pudding or chocolate chip cookie model
    - iii. Properties of protons
  - g. Goldstein
  - h. Rutherford
    - i. Gold foil experiment, observations and conclusions
    - ii. Flaws in Thomson model
    - iii. Rutherford Model of the atom
  - i. Chadwick
4. Atoms, Cations and Anions
  - a. Differences and Similarities
  - b. Pictorial representation (Fig 5.5)
  - c. Chemical equation showing formation