Physical Science Study Guide

Chapter 3: Atoms and the Periodic Table

* Objectives
  + Explain Dalton’s atomic theory, and describe why it was more successful than Democritus’s theory.
  + State the charge, mass, and location of each part of an atom according to the modern model of an atom.
  + Compare and contrast Bohr’s model with the modern model of the atom.
  + Relate the organization of the periodic table to the arrangement of electrons within an atom.
  + Explain why some atoms gain or lose electrons to form ions.
  + Determine how many protons, neutrons, and electrons an isotope has, given its symbol, atomic number, and mass number.
  + Describe how the abundance of isotopes affect an element’s average atomic mass.
  + Locate alkali metals, alkaline-earth metals, and transition metals in the periodic table.
  + Locate semiconductors, halogens, and noble gases in the periodic table.
  + Relate an element’s chemical properties to the electron arrangement of its atoms.
* Vocabulary
  + Nucleus
  + Proton
  + Neutron
  + Electron
  + Energy level
  + Orbital
  + Valence electron
  + Periodic law
  + Period
  + Group
  + Ionization
  + Ion
  + Cation
  + Anion
  + Atomic number
  + Mass number
  + Isotopes
  + Atomic mass unit (amu)
  + Average atomic mass
  + Metals
  + Nonmetals
  + Semiconductors
  + Alkali metals
  + Alkaline-earth metals
  + Transition metals
  + Halogens
  + Noble gasses