**Chapter 3 Study Guide**

* How did the following scientists contributed to the atomic model
  + Dalton- thought atoms were small, hard spherical balls
  + Thomson- discovered that atoms contained negatively charged particles called electrons. He then knew that there must be something to balance the charge so he concluded that there were positive particles called protons.
  + Rutherford- he did the gold foil experiment. Remember he shot positively charged particles through gold foil and realized that some of the beams of particles shot back toward him. He concluded that they must have hit something in the center and it must have a positive charge (+ and a + will reflect). He knew these were the protons in the nucleus.
  + Bohr- suggested that electrons are found only in specific orbits around the nucleus.
* Mendeleev’s periodic table is based on what?
  + Mendeleev was the first person to create a periodic table. He based his on the atomic mass, which we know now to not be correct. We now base the periodic table on the atomic number or number or protons. His table was still useful in beginning the creation of the modern periodic table.
* How do you find the protons, neutrons, and electrons of an element? (Be able to find each)
  + Protons and electrons are the same as the atomic number. Remember that every different element has a different number of protons; this is why they are different elements. The protons (+) and electrons (-) must be the same so that they cancel each other out (resulting in a neutral atom) To find the neutrons subtract the atomic mass and atomic number.
* Where are the alkali metals, alkaline earth metals, transition metals, metalloids, halogens, noble gases, lanthanides, and actinides are found on the periodic table. CHECK PERIODIC TABLE COLORING ACTIVITY
* Are most metals solid, liquid, or gas? Are most nonmetals solid, liquid, or gas?
  + Most metals are solids (except Mercury) and most nonmetals are gases (remember the noble gases are a part of this group).
* Do noble gases react with other elements? Why or why not? Also, what is so special about group 1 elements?
  + Noble gases do NOT react with other elements. This is because they are already stable. Group 1 is the alkali metals and they are the most reactive elements on the periodic table.
* How are elements within a column similar?
  + Elements within a column are similar because they have the same chemical characteristics. Remember watching the video of K, Li, and N. They all reacted violently in water.
* What are the properties of metals, nonmetals, and metalloids?
  + Metals are malleable (hammered into sheets), ductile (made into wires), Good conductors (conduct electricity and heat) and have luster.
  + Metalloids behave similarly to metals and nonmetals. Many are semiconductors which mean they sometimes conduct an electrical current but other times do not. This is useful in making electrical equipment.
  + Nonmetals have characteristics opposite of metals. Therefore they are not shiny, poor conductors, and are brittle.
* What is structure of the atom (ex: protons and neutrons in nucleus and electrons are circling around)?
  + The protons and the neutrons make up the nucleus of the atom. The electrons then circle around the positively charged nucleus.
* What are the charges of a protons, neutron, and electron?
  + Protons (+)
  + Neutrons (neutral)
  + Electrons (-)
* What are the family names of all the groups, including the nonmetals?
  + CHECK THE PERIODIC COLORING ACTIVITY