ENERGY TRANSFORMATIONS Review

Be sure to review the following:

1. Understand radioactivity and describe the half-lives of elements
2. Examine the phases of matter and the related atomic and molecular motion
3. Analyze energy transformations and the flow of energy in systems
    a. Understand molecular motion involved in thermal energy changes due to conduction, convection, and radiation.

Assessment will focus on the following:

1. Describing the process of radioactive decay in which the unstable nucleus of a radioactive isotope spontaneously decays.
2. Calculating the amount of a radioactive substance that will remain after one half-life.
3. Analyzing graphs, tables, and other displays of data to determine the length of half-life or the amount of materials remaining after one half-life.
4. Understanding that as temperature increases, the motions of molecules increases.
5. Describing a solid as a composition of particles closely situated in position giving a definite shape and definite volume and that little motion occurs between particles as compared to other phases of matter.
6. Describing a liquid as a composition of particles free to move, giving a definite volume but not a definite shape and that particles have a greater range of motion as compared to solids.
7. Describing gases as a composition of particles that move more that particles of either a solid or a liquid, giving no definite volume or shape, and colliding more randomly than particles of solids or liquids.
8. Understanding that a phase change requires a gain or loss in energy.
9. Describing the two forms of energy encountered during a single energy transformation, including chemical, heat, light, electrical, and mechanical.
10. Identifying the processes of conduction, convection, and radiation that occur during thermal energy changes.

Become Familiar with the following terms:

Alpha radiation
Beta radiation
Gamma radiation
Half-life
Solid
Liquid
Gas
Phase change
Melting
Freezing
Sublimation
Vaporization
Condensation
Conduction
Convection
Radiation