**Assignment:\_1\_\_\_**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour:\_\_\_\_**

**Radiation – the process in which energy is emitted as particles or waves**

**Types of Radioactive Decay**

* Radioactive decay – Particles or energy leaving an unstable atom (goal is to become stable over time)
* Alpha Decay - is a heavy, very short range particle and is actually an ejected helium nucleus, not an external hazard to humans but can be harmful if inhaled, swallowed or absorbed through open wounds
  + Radioactivity that can be blocked by paper, but still is dangerous
* Beta decay – is a light, short-range particle and is actually an ejected electron, can penetrate human skin, clothing can provide some protection against it
  + Radiation that can be blocked by wood, but not paper
* Gamma decay – highly penetrating electromagnetic radiation, can travel longer distances and many inches into human tissue
  + Emission of high energy radiation, goes through all but thick concrete and lead
* Background Radiation – Radiation that comes from the sun, stars, soil and building materials

**Uses for Radiation**

* Can cause cancer (damages our DNA -> creates rouge cells with “broken directions” that can misbehave, UV rays etc.)
* Can be used to kill cancer (more powerful exposure can totally damage the DNA -> cells die)
* Marie Curie was one of the first scientist to discover radiation
* **Irradiation** – radiation used to make food safe to eat
  + Kills bacteria (salmonella, E. coli)
  + Preservation of food (again kills microorganisms)
  + Controls instinct/kills larva
  + Delays sprouting/ripening (think fruits and veggies)
  + Sterilization of food (esp. helpful in hospitals with AIDS and cancer patients with weak immune systems)
* Radioactive Tracers – a radioactive chemical that follows certain reactions inside living organisms (used to discover a lot of things about DNA, think glow genes)
* Geiger counters – a device used to measure radiation
  + Measured in rem, rad or currie