Chapter 18 – Nuclear Chemistry

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- Nuclear Force — Two types (strong and weak). Strong nuclear force holds nucleus together, while the weak nuclear force holds electrons in orbit
- Some nuclei are unstable and attempt to increase stability by altering the number of protons or neutrons
- Radioactive Decay — Produces particles
- Different Particles:
    1. Alpha — ${}^{4}_{2}\text{He}$
    2. Beta — ${}^{0}_{-1}\text{e}$[1]
    3. Gamma — ${}^{0}_{0}\gamma$
    4. Positron — ${}^{0}_{1}\text{e}$
    5. Proton — ${}^{1}_{1}\text{p}$
    6. Neutron — ${}^{1}_{0}\text{n}$
- Half Life — Time for half of a substance to remain
- The half life of Carbon 14 (C−14) is used for carbon dating to determine age of something
- Two Types of Nuclear Reactions:
    1. Fission — Atom is split, breaking it into smaller components
    2. Fusion — Atoms combine, creating one or more bigger atoms

[1]Note: Positrons are sometimes referred to as beta particles as well