

# Nuclear Chemistry

Text	Unit Objectives:
25.1	1. Become comfortable with the natural changes in the nucleus (transmutation) and the 3 types of radiation given off (know how to separate the 3 types of radiation.)
25.1	2. Understand what is meant by half-life and be able to solve half-life problems using the chart method.
25.1	3. Be able to balance equations for nuclear reactions when alpha particles and beta particles are released.
25.2	4. Artificial transmutation (Induced Radioactivity) can take place in atoms that are normally stable. How can this be done and what is the role of the particle accelerator.
25.3	5. Understand where nuclear energy comes from ( $E=mc^2$ ).
25.3	6. Understand the two types of nuclear reactions (fission and fusion). Describe how both can be used for production of energy.
25.3	7. Describe the problems associated with radioactive waste.
25.4	8. Uses of radioisotopes as tracers, radiation therapy, and radioactive dating.

### Essential Vocabulary

Alpha Decay, Alpha Particle, Artificial Transmutation, Beta Decay, Beta Particle, Breeder Reactor, Carbon Dating, Chain Reaction, Control Rods, Fission, Fission Reactor, Gamma Radiation, Half-Life, Moderator, Nuclear Emanation, Nuclear Fission, , Nuclear Fusion, Nuclear Reactor, Particle Accelerator, Radioactivity, Radioisotopes, Tracer, Transmutation

### Announcements: