

## Quiz for Video 9 – Nuclear Chemistry

- How are nuclear reactions different from chemical reactions?
  - Chemical reactions are exothermic
  - Chemical reactions don't change the nucleus
  - Chemical reactions happen more quickly
  - Chemical reactions don't have a half-life
- What does the term **nuclide** refer to?
  - A proton or neutron
  - An electron
  - A specific nucleus
  - An element
- What is the approximate mass of an alpha particle in amu?
  - 0 amu
  - 2 amu
  - 4 amu
  - Changes based on decay type
- If the mass of a certain nuclide is roughly equivalent to its atomic mass on the periodic table, what type of decay will it undergo?
  - Alpha
  - Beta
  - Gamma
  - No decay
- The number of protons left in a nucleus after undergoing alpha decay would be:
  - 4 less
  - 2 less
  - 1 less
  - 1 more
- The number of protons left in a nucleus after undergoing beta decay would be:
  - 4 less
  - 2 less
  - 1 less
  - 1 more
- Which type of radiation is the most damaging? Remember, high energy radiation will be the most damaging.
  - Alpha
  - Beta
  - Gamma
  - Delta
- The half-life is the amount of time for something to decay until only one half of its original value remains. If the half-life of a radioactive particle is 10 minutes, how long until only one quarter of the original value remains?
  - 10 minutes
  - 20 minutes
  - 30 minutes
  - 40 minutes
- Gamma radiation does not change the mass or charge of the nucleus. What does it address?
  - The energy change needed to rearrange the nucleus to a more stable configuration
  - The fact that a nuclide has too many protons
  - The need for 2 nuclides to come together
  - The need for reactions to form charge-neutral products