

Name \_\_\_\_\_

### Radioactive Decay

1. How can knowing the proton to neutron ratio be helpful in determining the stability of an isotope? Generally what is the range isotopes want to be in for proton to neutron ratio?
2. What is Alpha Decay?
3. What is Beta decay?
4. What are gamma rays?
5. What is an isotope?
6. Compare nuclear reactions and chemical reactions.
7. Which releases more energy nuclear or chemical reactions.
8. What does the atomic number show?
9. An atom is made of protons, neutrons, and electrons which of these give the atom its mass?
10. What are the charges of electrons, protons, and neutrons?
11. Which particle in an atom determines which element it will be?
12. Write balanced nuclear equations for the following nuclear reactions:
  - a. Neodymium-141 undergoes Beta decay.
  - b. Radon-198 undergoes Alpha decay.
  - c. Uranium-235 emits an alpha particle and a gamma ray.
13. Determine what type of decay occurs when thorium-231 undergoes radioactive decay to form protactinium-231.