

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Block: \_\_\_\_\_

## Radiation and Nuclear Discussion Questions

1. Radiation can be in two main forms: electromagnetic waves (e.g. light and gamma rays) or particles (e.g. protons, neutrons, electrons). Each type of radiation has a specific amount of energy. Describe what is meant by the term ionizing radiation.
2. What is radioactivity?
3. The neutron-proton ratio determines the stability of a nucleus. Does a nucleus become more or less stable when its number of neutrons is larger than the number of protons?
4. How does a radioisotope become stable? What happens to its nucleus?
5. What are three types of nuclear radiation that can be released when a nucleus undergoes radioactive decay? Write the name and symbol of each.

6. Which type of nuclear radiation is the highest in energy and has the most penetrating power? What type of substances are required to stop this high energy radiation?

7. Describe the difference between a chemical reaction and nuclear reaction.

8. Name and describe the difference between the two types of nuclear reactions.

9. Fill-in the missing numbers on "Ra" in the following nuclear equation.



10. The half-life of sodium-24 is 15 hours. How much of a 80. g sample of sodium-24 will remain after 45 hours?