**Unit 4 – Nuclear Reactions Review Assignment**

**Instructions**: Use the class website ([**www.nsdscience.weebly.com**](http://www.nsdscience.weebly.com)) and any other online resource to complete the following questions and prompts. Use complete sentences for all solutions and answers. Do NOT copy and paste material as your written answers. You may copy/paste images and graphs to support your explanations and descriptions. Show all equations, and work (including units) for any math problem.

1. **Learning Target 4.1** – Identify and describe nuclear reactions: fission & fusion.
   1. What is a nuclear reaction?
   2. Create a Venn Diagram or a table to show similarities and differences between fission and fusion
   3. Draw and label a diagram showing the processes of fission and fusion. (two diagrams)
2. **Learning Target 4.2** – Define radioactivity and describe three forms: Alpha, Beta, Gamma
   1. What is radioactivity?
   2. Describe the process of Alpha Radiation/Decay.
      1. Include a labeled diagram along with your worded description. Also include a definition of an alpha particle. Include what changes occur to the nucleus during alpha decay.
   3. Describe the process of Beta Radiation/Decay.
      1. Include a labeled diagram along with your worded description. Also include a definition of a beta particle. Include what changes occur to the nucleus during beta decay.
   4. Describe the process of Gamma Radiation/Decay.
      1. Include a labeled diagram along with your worded description. Also include a definition of a Gamma Ray/Particle. Include what changes occur to the nucleus during gamma decay.
3. **Learning Target 4.3** – Compare and contrast nuclear reactions to chemical reactions.
   1. Create a Venn diagram or a table depicting the similarities and differences between chemical and nuclear reactions.
4. **Learning Target 4.4** – Read, write, and balance nuclear equations.
   1. Visit the following website: <https://tinyurl.com/y849qmp3>
   2. Read the following sections: Introduction, Isotopes Review, Radioactivity, Nuclear Decay, Alpha Emission, Beta Emission, Gamma Emission. (do not read the other sections)
   3. Complete Practice Quiz #1, Practice Quiz #2, and Practice Quiz #3. (each only has one question)
   4. Take a screen shot (using Microsoft “snipping tool”) and upload them to this OneNote document.
      1. If you are unfamiliar with “snipping tool” use the search function in the lower-left hand corner of your laptop screen. Type in “snipping tool”. This tool allows you to take a screen shot of only a portion of your screen instead of the whole page.
5. **Vocabular Review**: <https://quizlet.com/_61fcng>
6. Practice Quiz: <https://tinyurl.com/y7ra4zzd>
   1. Record your score: