**Fission and Fusion Written Homework**

All of these answers will come from the fission and fusion powerpoint mix. Listen to it as you work through this.

1) Draw the breakdown of U 235 and its possible products.

2) How much energy is generated when 1 single atom of U 235 breaks down?

3) What is a nuclear chain reaction?

4) What is an alpha particle composed of?

5) How is a beta particle generated?

6) Since plutonium is not a naturally occurring element, it must be made. Illustrate or describe the process taken to create this substance.

7) Why is U 238 so much more useful in nuclear reactions than U 235? Hint – think about abundance.

8) What is a nucleon?

9) Describe how the masses of nucleons change as you go through the periodic table. Illustrate this with a graph below.

10) Which nucleons would be hardest to remove from a nucleus and why?

11) Describe how E=MC2 describes how easy or hard it is to take a nucleon out of the nucleus. In other words, how are mass and energy related in this situation?

12) Where does the mass go when U 235 breaks down into krypton and barium? Recall that it does not add up to the same mass that U 235 started with.

13) How can energy be created through nuclear fusion? Also, where do we find this kind of thing happening?

14) Write a common nuclear fusion reaction and show how much energy it generates.

15) This is food for thought. Since nuclear fusion doesn’t generate as much energy as fission but the products are so easily available and it doesn’t leave nuclear waste, why don’t we just use this process to generate energy rather than the fission reactors and fossil fuels?