

## Discovery Science Study Guide Chapter 7

1.) Nuclear changes occur in the \_\_\_\_\_ of atoms?

2.) An isotope is:

3.) Radioactivity is(definition):

Radiation Type	Symbol	Mass (amu)	Charge	What it is	Stopped by
Alpha particle	${}^4_2\text{He}$				
Beta particle	${}^0_{-1}\text{e}$				
Gamma ray	$\gamma$				
Neutron	${}^1_0\text{n}$				

Complete the above table.

4.) Complete the following alpha decay reaction:  ${}^{226}_{88}\text{Ra} \rightarrow \text{_____} + \text{_____}$ .

5.) In radioactive decay reactions \_\_\_\_\_?

6.) A half-life is the amount of time \_\_\_\_\_.

7.) The beneficial uses of radiation would include: (List 3):

8.) Exposure to high levels of radiation can be dangerous because (List 3 effects)?

9.) The amount of a radioactive material that would exist after 4 half-lives is \_\_\_\_\_ of the original amount present.

10.) Many livestock died as a result of radioactive exposure when the Chernobyl reactor melted down and released radiation into the atmosphere.  $^{90}_{38}\text{Sr}$  (strontium-90) is rapidly absorbed into bones because it is in the same chemical family as \_\_\_\_\_, a major part of bones.  $^{90}_{38}\text{Sr}$  is radioactive, it has a half-life of 29 years. A sheep's bone originally had 0.01 gram of  $^{90}_{38}\text{Sr}$  in it. If it now has only 0.005 grams  $^{90}_{38}\text{Sr}$  how many half lives have gone by?

11.) How long ago was the sheep poisoned by radioactive fallout?

12.) Fission of  $^{235}_{92}\text{U}$  produces (list 3 things)

13.) Fission is defined as \_\_\_\_\_?

14.) What is a critical mass?

15.) The sun produces energy because of .

16.) Fusion is defined as:

17.) Where is nuclear waste being stored today?

18.) Nuclear waste storage is difficult because(list 3 factors):

