

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	γ				
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):

