

SECTION 4

Enrichment

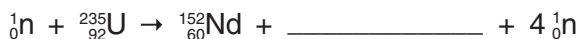
Fission and Fusion Possibilities

The bombardment of an atomic nucleus with neutrons can result in nuclear fission. One common example of nuclear fission is described in your text where U-235 splits into Ba-142 and Kr-91. U-235 can also split into other elements. Other unstable nuclei such as Pu-239 can split in a variety of ways when struck by a neutron.

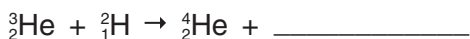
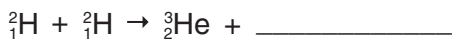
Like nuclear fission, nuclear fusion has more than one possibility. In nuclear fusion, two smaller nuclei fuse to form a larger nucleus. For example, in the Sun three separate fusion reactions take place. As a result of these reactions smaller hydrogen nuclei are fused into large helium nuclei.

Directions: *The following exercises are examples of fission and fusion reactions. Some of the products are given to you. Try to figure out the missing products.*

1. Complete the following fission reactions.



2. Complete the following fusion reactions.



3. Is the ratio of the amount of hydrogen to helium in the Sun increasing or decreasing? Explain.

4. Use library resources to discuss the advantages and disadvantages of using nuclear fission to power electrical generating plants and submarines.
