

## **Chapter 24 Nuclear Reactions and Their Applications**

Nuclear chemistry is not a topic of heavy focus in the AP curriculum, but it is fundamental to your understanding of the atom. It is important to recognize that radioactive decay of an atom of an element is a property of, and occurs within, the nucleus. The basic structure of the nucleus (protons, neutrons) and the common types of radioactive decay (beta, positron, and alpha particle) are studied in this chapter. Other concepts discussed include radioactive half-lives, the penetrating power of each type of radiation, mass defect, nuclear binding energy, and simple fission and fusion. The chapter emphasizes understanding the differences between a chemical reaction and a nuclear reaction as well as basic vocabulary including radiation, nucleon, transmutation, and radioactivity.