

REVIEW and REINFORCEMENT
Radioactivity

Section
11-1

KEY CONCEPTS

▲ Radioactivity is the release of nuclear radiation in the form of particles and rays from a radioactive element.

■ **Building Vocabulary Skills: Understanding Relationships**

1. Describe the following Radiation
Alpha

Beta

Gamma
2. Describe how an x-ray is made.

3. How did Becquerel discover Radiation?

■ **Types of Radiation: Understanding the Main Ideas**

Decide whether each of the following items describes alpha, beta, or gamma radiation. If the item describes alpha radiation, write A before the item; if it describes beta radiation, write B; if it describes gamma radiation, write G.

- _____ 1. Is not deflected by a magnetic field
- _____ 2. Is the weakest type of radiation
- _____ 3. When passed through a magnetic field, is deflected towards the negative magnetic pole
- _____ 4. Is formed when a neutron in the nucleus of an atom breaks apart

- _____ 5. When passed through a magnetic field, is deflected towards the positive magnetic pole
- _____ 6. Is the most penetrating type of radiation
- _____ 7. Is a helium nucleus
- _____ 8. Is an electromagnetic wave
- _____ 9. Can be stopped by a sheet of paper
- _____ 10. Consists of 2 protons and 2 neutrons
- _____ 11. Is an electron
- _____ 12. Can pass through several centimeters of lead

Nuclear Equations

Complete each nuclear equation by filling in the blank space.

1. ${}_{84}^{214}\text{Po} \rightarrow {}_{82}^{210}\text{Pb} + \text{_____}$
2. ${}_{86}^{222}\text{Rn} \rightarrow \text{_____} + {}_2^4\text{He}$
3. ${}_{90}^{230}\text{Th} \rightarrow {}_{88}^{226}\text{Ra} + \text{_____}$
4. ${}_{82}^{214}\text{Pb} \rightarrow \text{_____} + {}_{-1}^0\text{e}$
5. ${}_{88}^{226}\text{Ra} \rightarrow \text{_____} + {}_2^4\text{He}$
6. ${}_{93}^{239}\text{Np} \rightarrow \text{_____} + {}_{-1}^0\text{e}$
7. $\text{_____} \rightarrow {}_{90}^{234}\text{Th} + {}_2^4\text{He}$
8. ${}_{92}^{234}\text{U} \rightarrow {}_{93}^{234}\text{Np} + \text{_____}$
9. ${}_{82}^{206}\text{Pb} + {}_2^4\text{He} \rightarrow \text{_____}$
10. ${}_{91}^{254}\text{Pa} \rightarrow \text{_____} + {}_{-1}^0\text{e}$
11. ${}_{88}^{226}\text{Ra} \rightarrow \text{_____} + {}_2^4\text{He} + \text{gamma rays}$
12. ${}_{82}^{214}\text{Pb} \rightarrow \text{_____} + {}_{-1}^0\text{e} + \text{gamma rays}$