



Directed Reading for  
Content Mastery

## Section 3 ■ Detecting Radioactivity

## Section 4 ■ Nuclear Reactions

**Directions:** Use the clues given below to identify terms related to radioactivity detection. Write each term in the space provided. Then find and circle each term in the puzzle. The term may be written up, down, forward, backward, or diagonally.

- \_\_\_\_\_ 1. uses lines of bubbles in a superheated liquid to track particles
- \_\_\_\_\_ 2. detects charged particles by creating a visible path of droplets
- \_\_\_\_\_ 3. device that detects electric charges
- \_\_\_\_\_ 4. device that produces clicking sounds or flashing light by amplifying an electric current formed when radiation is present
- \_\_\_\_\_ 5. radiation that travels as waves
- \_\_\_\_\_ 6. a particle that leaves a long, thin trail in a cloud chamber
- \_\_\_\_\_ 7. a particle that leaves a short, thick trail in a cloud chamber
- \_\_\_\_\_ 8. atomic nuclei are combined together
- \_\_\_\_\_ 9. a mass of fissionable material required for fission

C A R Y A R A M M A G B O N C  
 B H E C L O U D C H A M B E R  
 T E L P P R O T O N Z H U O I  
 N P T I H M B S L N C Y B I T  
 U O S A A I E C Y U H D B N I  
 O C M O P N T I M C E R L G C  
 C S U S A A A E E L M O E M A  
 R O I H R D R D N E I G C S L  
 E R N T T Q I T C U S E H C T  
 G T N O I S U F I S T N A I I  
 I C R M C A T O M C R Y M S V  
 E E U U L A L Y G O L I B Y I  
 G L N Q E N E U T R O E E H T  
 G E I G E R C O U N T E R P Y



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## Key Terms

# Radioactivity and Nuclear Reactions

**Directions:** Match the terms in Column II with the descriptions in Column I. Write the letter of the correct term in the blank at the left.

### Column I

- \_\_\_\_\_ 1. process of splitting a nucleus into two nuclei with smaller masses
- \_\_\_\_\_ 2. causes protons and neutrons to be attracted to each other
- \_\_\_\_\_ 3. used to detect nuclear particles as a visible path of droplets
- \_\_\_\_\_ 4. a radioisotope used to find or track molecules in an organism
- \_\_\_\_\_ 5. device that produces an electric current when radiation is present
- \_\_\_\_\_ 6. high-speed electron emitted from a nucleus
- \_\_\_\_\_ 7. process of changing one element to another through nuclear decay
- \_\_\_\_\_ 8. amount of time it takes for half the nuclei in a radioactive sample to decay
- \_\_\_\_\_ 9. an ongoing series of fission reactions
- \_\_\_\_\_ 10. amount of fissionable material required for a fission reaction to produce one or more fission reactions
- \_\_\_\_\_ 11. comprised of two protons and two neutrons
- \_\_\_\_\_ 12. uses tracks of bubbles to detect radiation
- \_\_\_\_\_ 13. the release of matter and energy from nuclear decay
- \_\_\_\_\_ 14. electromagnetic waves with high-frequency energy
- \_\_\_\_\_ 15. combines two smaller nuclei to make a larger nucleus

### Column II

- a. alpha particle
- b. critical mass
- c. half-life
- d. chain reaction
- e. transmutations
- f. tracer
- g. beta particle
- h. radioactivity
- i. cloud chamber
- j. bubble chamber
- k. nuclear fusion
- l. nuclear fission
- m. Geiger counter
- n. gamma rays
- o. strong force