

SECTION 21.3 *Absolute-Age Dating of Rocks*

In your textbook, read about the methods scientists use to determine absolute age.

For each statement below, write *true* or *false*.

- _____ 1. Absolute-age dating determines the relative age of a rock based on its observed position in the rock record.
- _____ 2. Formed by short-duration events, key beds contain distinctive and easy to recognize material that geologists use as time markers.
- _____ 3. The half-life of C-14 is longer than that of U-238.
- _____ 4. After one half-life, a pure sample of U-238 decays into a ratio of 25 percent U-238 atoms and 75 percent Pb-206 atoms.
- _____ 5. Varves are alternating light- and dark-colored sediment bands that indicate cycles of seasonal climate change.
- _____ 6. The emission of radioactive particles by isotopes as they change into other elements over time is known as dendrochronology.
- _____ 7. The width to which tree rings grow varies in spring and winter.

In your textbook, read about the ways to determine the age of a rock or date an event.

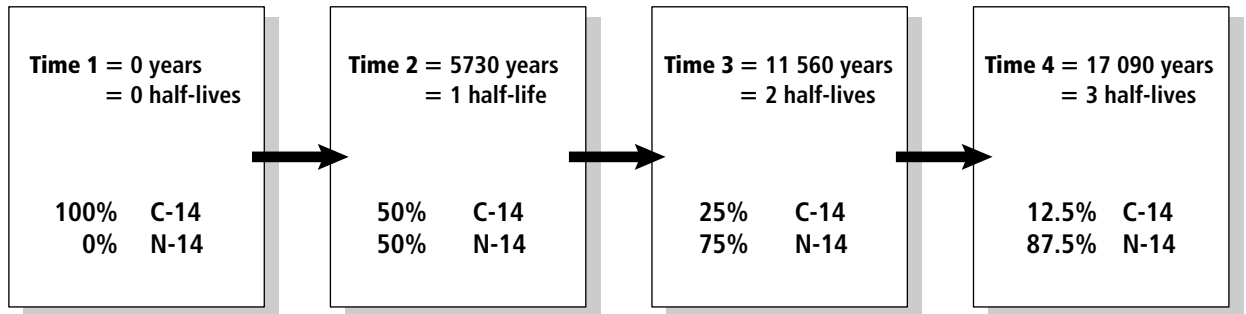
Answer the following questions.

8. What is radiometric dating and how is it used?

9. How are tree rings used to date geologic events?

SECTION 21.3 *Absolute-Age Dating of Rocks, continued*

In your textbook, read about radiometric dating using the radioactive isotope carbon-14. Study the diagram. Then answer the questions that follow.



10. Which element shown is the radioactive isotope?

11. Which element shown is the stable nonradioactive element?

12. What is the half-life of C-14?

13. How many half-lives will it take for all but 25 percent of the original C-14 to decay?
How many years?

14. What percentage of C-14 remains after three half-lives?

15. What percentage of N-14 forms after 17 090 years?
