

# Earth Science Quiz: Relative and Absolute Age Dating

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section: \_\_\_\_\_



\_\_\_\_\_ 1. Which rock layer is typically the youngest?

- a. 1
- b. 2
- c. 3
- d. 4

\_\_\_\_\_ 2. What do scientists look for in order to correlate rocks in different locations?

- a. different rock types and similar fossils
- b. many rock types and many fossils
- c. similar rock types and lack of fossils
- d. similar rock types and similar fossils

\_\_\_\_\_ 3. Trilobites are used index fossils because

- a. they are easy to identify.
- b. they are some of the oldest fossils.
- c. they were abundant and lived on Earth for a short time.
- d. they were the only marine organism during one short period of time.

\_\_\_\_\_ 4. Which term means “matching up rock layers in different places”?

- a. correlation
- b. horizontality
- c. inclusion
- d. superposition

\_\_\_\_\_ 5. What do scientists measure when determining the absolute age of a rock?

- a. amount of radioactivity
- b. number of uranium atoms
- c. ratio of neutrons and electrons
- d. ratio of parent and daughter isotopes

\_\_\_\_\_ 6. The half-life of potassium-40 (K-40) is 1.25 billion years. If you begin with 80 g of K-40, how much will remain after 5 billion years? Hint: How many half-lives is this?

- a. 20 g
- b. 10 g
- c. 5 g
- d. 2.5 g

\_\_\_\_\_ 7. Which rocks are the most difficult to determine their age by radiometric dating?

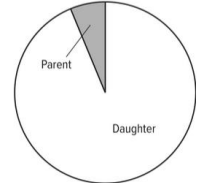
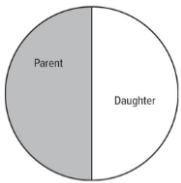
- a. igneous
- b. sedimentary
- c. metamorphic
- d. volcanic

\_\_\_\_\_ 8. What are isotopes?

- a. atoms of the same element with different numbers of electrons but the same number of protons
- b. atoms of the same element with different numbers of electrons but the same number of neutrons
- c. atoms of the same element with different numbers of neutrons but the same number of protons
- d. atoms of the same element with equal numbers of neutrons and protons

\_\_\_\_\_ 9. Which pie chart shows the ratio of parent to daughter atoms after three half-lives?

- a.                      b.                      c.                      d.



\_\_\_\_\_ 10. Which statement provides evidence which supports the idea that the Earth is about 4.5 billion years old?

- a. Igneous rocks found on Baffin Island, Canada where radiometrically dated at 4.45 billion years old.
- b. The half-life of U-238 is 4.5 billion years.
- c. Index fossils are not found in rocks older than 3.5 billion years.
- d. Geologic processes like subduction and erosion have recycled Earth's oldest rocks as part of the rock cycle.

\_\_\_\_\_ 11. Group the rock layers in Figure 1 from oldest to youngest. Group layers that are the same age together.

\_\_\_\_\_ 12. Which radioisotope listed in Table 1 would be the most useful in dating a dugout canoe originally made of cypress wood that's estimated to be between 5,000—10,000 years old?

\_\_\_\_\_ 13. Which radioisotope would be most useful in determining the absolute age of a rock layer that relative aging places at between 100,000—200,000 years old?

Figure 1.

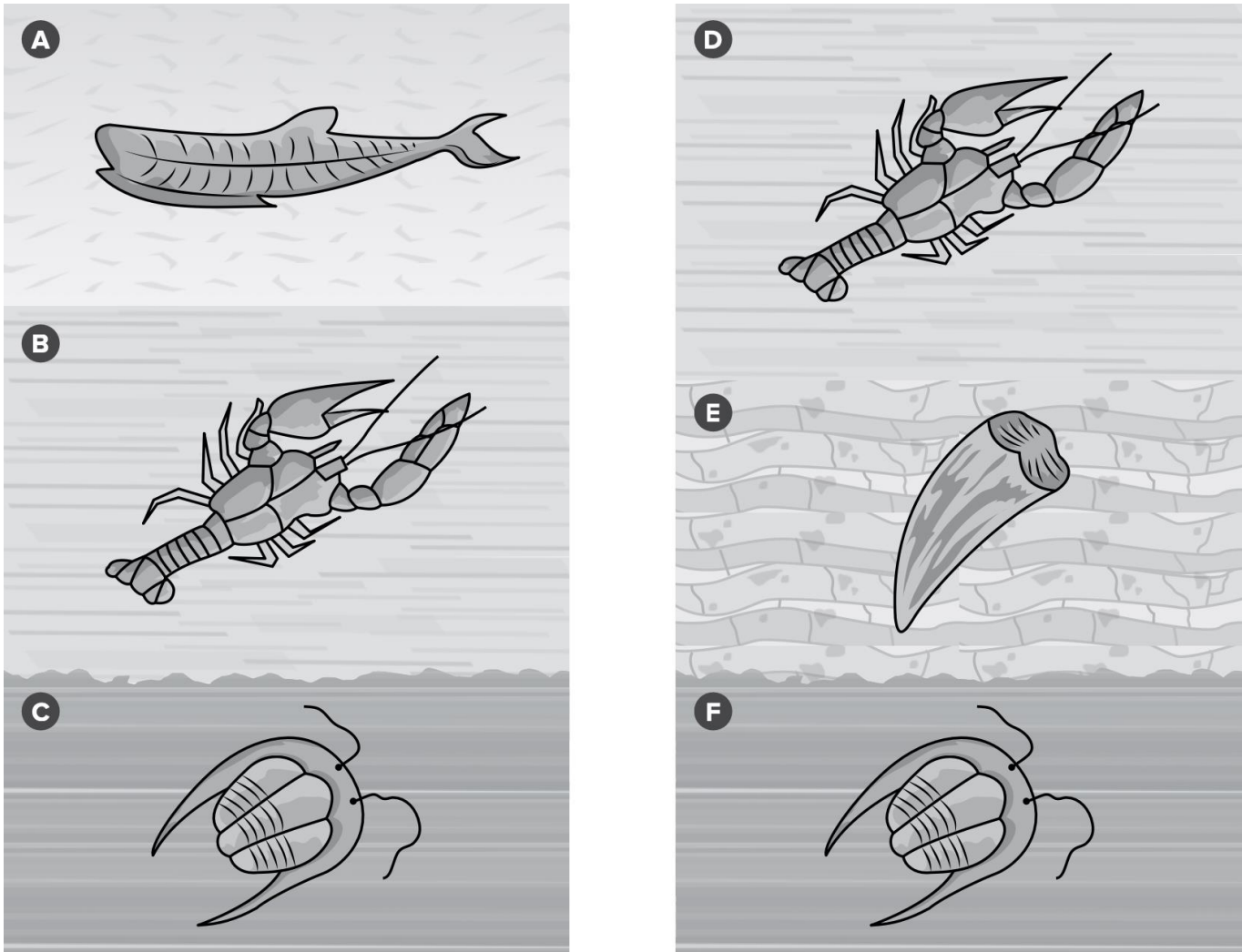


Table 1.

Parent Isotope	Half-Life	Daughter Product
Carbon-14	5,730 years	nitrogen-14
Thorium-230	75,380 years	lead-206
Iodine-129	16.14 million years	xenon-129
Uranium-235	704 million years	lead-207
Potassium-40	1.25 billion years	argon-40