

Name: _____

Date: _____

Period: _____

Relative and Radiometric Dating

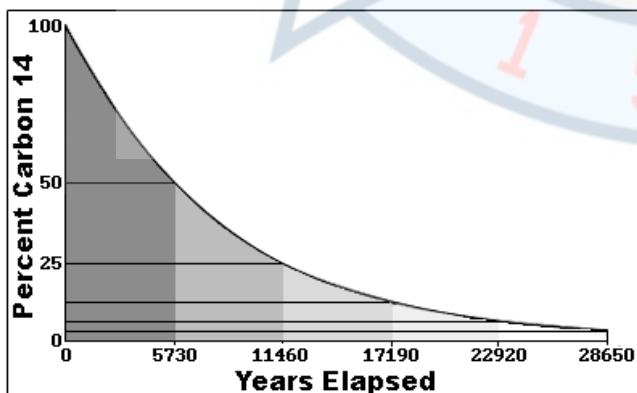
Week # _____

Fossils can provide an incredible amount of information about an organism, from what it looked like, how it moved, how it interacted with other organisms, what it ate, and much more. Fossils can also tell us when an animal lived, through the use of **relative dating** and **radiometric dating**.

Directions: Use p. 540 – 541 to complete the table below.

Term	Description	
Relative Dating	What is it?	
	How is sedimentary rock used?	
	What are index fossils?	
Radiometric Dating	What is it?	
	What is a half-life?	
	How do we date recent fossils?	
	How do we date older fossils?	

Directions: The graph below shows the radioactive decay of Carbon-14. Carbon-14 has a half-life of 5730 years. Use the graph to answer the questions.



- According to the graph, as the years elapse, what happens to the percent of carbon-14 in a fossil?
- If a fossil has half as much carbon-14 compared to a living organism, how old is the fossil?
- If a fossil has 1/4 as much carbon-14 compared to a living organism, how old is the fossil?

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Radiometric Dating Practice

Figure 1 shows the half-lives of common radioactive elements. By comparing the amount of radioactive mass to the decayed mass, along with the half-life of the radioactive element, you can determine the age of rocks and fossils.

Element	Half-life (years)
Carbon-14	5,730
Iodine-129	15.7 million
Potassium-40	1.25 billion
Uranium-238	4.47 billion

Figure 1

1. Scientists found a frozen wooly mammoth in Siberia. Determine the age of the organism using carbon-14 dating, if the sample contains 2 radioactive grams, and 30 decayed grams.

Radioactive	Decayed	Half-life	Age (years)
32	0	0	0

Based on the radiometric _____ dating, the age of the _____ is _____ years.

2. An ancient wooden statue was found on Easter Island. Determine the age of the statue using carbon-14 dating, if the sample contains 9 radioactive and 27 decayed grams.

Radioactive	Decayed	Half-life	Age (years)

Based on the radiometric _____ dating, the age of the _____ is _____ years.

3. A piece of moon rock was found in a crater in Russia. Using uranium-238, determine the age of the rock, if the sample contains 16 radioactive, and 16 decayed grams.

Radioactive	Decayed	Half-life	Age (years)

Based on the radiometric _____ dating, the age of the _____ is _____ years.

4. Determine the age of a rock found in Canada, using potassium-40 dating, if the sample contains 5 radioactive grams and 15 decayed grams.

Radioactive	Decayed	Half-life	Age (years)

Based on the radiometric _____ dating, the age of the _____ is _____ years.

5. A triceratops bone is found in Montana. Using iodine-129, determine the age of the bone, if the sample contains 3.5 radioactive and 52.5 decayed grams.

Radioactive	Decayed	Half-life	Age (years)

Based on the radiometric _____ dating, the age of the _____ is _____ years.