

## Dino Dig – Virtual Lab

Name \_\_\_\_\_ Per \_\_\_\_\_

This is a virtual lab. The instructions and information are only available on the Internet at the address below. You will be using mass spectrometry to do radiometric dating of some dinosaur fossils, just like a real evolutionist would do. Read through the procedures and instructions for the virtual lab at the web site. Before starting, you should read the following instructions as well since there are some slight modifications to help you. Also, ***do not do the journal questions that are in the virtual lab, rather do the ones below (mine are different than the ones on the website).***

[http://glencoe.mcgraw-hill.com/sites/0078802849/student\\_view0/unit8/chapter29/virtual\\_labs.html#](http://glencoe.mcgraw-hill.com/sites/0078802849/student_view0/unit8/chapter29/virtual_labs.html#)

This lab is found on your textbook's website. If your links don't work, try student view, virtual labs, Unit 8, chapter 29. If you are still experiencing problems, there is a cd available for checkout from the bookstore. Let me know first if you need the cd.

### *Supplemental Instructions and Revised Journal Questions*

Please use the data table below. Why? Because you won't have to keep saving, opening, and closing the file for each dinosaur, and you won't have to have a printer to print out the table from your computer.

For the Geologic Time Period in the data table, please put the period, not the era.

To calculate the half-life, if the parent and daughter percentages are both 50%, then the age of the rock *is* the half-life. If the parent is 25% and the daughter is 75%, then the age of the rock is **2x** the half-life. For example, isotope C has a half-life of 80 million years. If the parent is 50%, then the age of the rock is 80 million years. If the parent is 25%, then the age of the rock is 160 million years. There are several different isotopes being used and each has a different half-life. That information is provided on the computer monitor after clicking on the mass spectrometer.

**Data Table: Radiometric Dating of Dinosaur Fossils**

Fossil Location	Dinosaur Species	Absolute dating of rock layer below	Absolute dating of rock layer above	Geologic Time Period

***Please answer the following questions instead of the Journal questions that come on the website.***

**Conclusions**

1. What piece of equipment is used to determine the age of a rock sample?
2. What did you test to find the age of each fossil? Where were these items found?
3. What were the isotopes that were used to measure the ages of all the rocks?
4. Describe the steps you took to estimate the age of one of the fossils.
5. Describe the steps you took to identify one of the dinosaurs from the fossil.
6. How could you determine that two species of dinosaurs lived in the same period?
7. What are four assumptions that you have to make to accept the ages obtained through mass spectrometry? (*Hint, refer to pg. 395 and your class notes*).
8. Why are these assumptions not valid? Name at least three reasons. (*Hint, see your notes*).
9. For the conclusion, write a summary that answers the question for this lab: “How are dinosaur fossils dated and identified?”