Name Date

# Physical Geography 12

**Geologic Time WebQuest**

If the age of the Earth were to be scaled to the length of the Golden Gate Bridge (about 6000 ft), then 600 years of civilization would be equivalent to 0.10 in (about the thickness of a car key). A lot has occurred during the history of Earth. During this webquest you will explore geologic time, the era’s, and some of the significant events that have occurred in Earth’s history up to the present day.

# Part 1 Geologic Time:

Go to: <http://www.ucmp.berkeley.edu/education/explorations/tours/geotime/gtpage1.html> Read and continue to click next until you reach the book analogy for question number 1.

1. Using the book analogy provided, what is the approximate age of the Earth? Write the answer in standard and scientific notation.

Continue reading until you see the bookmarks appear on the left, then proceed to view the bookmarks and click “done” after reading the chapter.

1. Click on the bookmarks provided in section 2 and record the events and how many years ago they occurred.

a.

b.

c.

d.

e.

f.

# Continue on through the sections completing the timelines and the required tasks.

1. The following questions are based on sections 6 through 10 of the tutorial.
   1. How is relative time recorded?
   2. Where was the oldest layer of rock found? The youngest rock layer?
   3. Describe the Law of Superposition.
   4. Which of the fossils was the oldest?
   5. How is radiometric dating helpful in determining the history of Earth?
   6. How is the geological time scale broken up?

Continue reading through section 9 and then complete the 5 multiple choice questions in section 10.

1. What was the correct answer to question 5 on the quiz?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a. How many questions did you get correct on the quiz? \_\_\_\_\_\_\_\_

Part 2 Events in Time:

Go to: <https://www.smithsonianmag.com/science-nature/travel-through-deep-time-interactive-earth-180952886/>

You will begin with the oldest layer, **Hadean Era**The **Precambrian** **EON** is divided into three eons: the **Hadean** **Archean** and **Proterozoic**

**Hadean Era (4.6 to 4 Billion Years Ago)**

1. When and where were ‘zircons’ (oldest rocks) found? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Late Archean to Early Proterozoic (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**

1. What two gasses were these Eras rich in? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What type of life \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_flourished in the oceans? What was producing oxygen?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Rodinia (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**

1. What is the most well known super continent called?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What does Rodinia stand for? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. When did the supercontinent begin to break apart?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What did simulations suggest that the breakup involved? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Snowball Earth (650 Million Years Ago)**

1. Where do cap carbonates form? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Cambrian (500 Million Years Ago)**

1. What two echinoderms do we have today? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Middle Jurassic (170 Million Years Ago)**

1. What dominated the Tethys Ocean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_What are the two land masses were on either side of the Tethys Ocean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Describe the animal and plant species found here?

**Pleistocene Ice Ages (18,000 Years Ago)**

1. Describe the forces that affect climate over thousands of years and create Milankovitch Cycles.
2. How was sea level different than today?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Earth Today and FUTURE EARTH (100 Million Years From Now)**

1. What will the surface of our planet look like?

**Part 3 Environment and Fossils:** Go to: <http://fossils.valdosta.edu/home_time.html>

***Choose one period from each of the Era’s*** to explore further using the website above. Click on the period of your choice on the left hand side of the screen. A map will appear that represents the arrangement of landmasses during that time. Scroll over the different environments to determine if it existed during that time period. Complete the table below by putting a check mark that corresponds to a specific environment that existed during the time period.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Era** | **Period** | Deserts | Glaciers | Forest | Mountain | Shallow seas | Description of landmasses | Description of fossil (click on a species below the map and if present it will be highlighted on the map; then click on any highlighted area to view fossil) |
| **Cenozoic** | **Quaternary** |  |  |  |  |  | Continents are defined and spread out, separated by large oceans. | Name: Pachyornis elephantopus Type: bird  Modern day species it resembles:  Ostrich |
| **Tertiary** |  |  |  |  |  |  |  |
| **Mesozoic** | **Cretaceous** |  |  |  |  |  |  |  |
| **Jurassic** |  |  |  |  |  |  |  |
| **Triassic** |  |  |  |  |  |  |  |
| **Paleozoic** | **Permian** |  |  |  |  |  |  |  |
| **Pennsylvanian** |  |  |  |  |  |  |  |
| **Mississippian** |  |  |  |  |  |  |  |
| **Devonian** |  |  |  |  |  |  |  |
| **Silurian** |  |  |  |  |  |  |  |
| **Ordovician** |  |  |  |  |  |  |  |
| **Cambrian** |  |  |  |  |  |  |  |

**Precambrian**