

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

Ms. Randall Marine Science (adapted from Wisconsin education)

### Lab Activity: Making a Geologic Time Line

**Background:** Geologists have divided Earth's history into a series of time intervals. These time intervals are not equal in length like the hours in a day. Instead the time intervals are variable in length. This is because geologic time is divided using significant events in the history of the Earth. For example, the boundary between the Permian and Triassic is marked by a global extinction in which a large percentage of Earth's plant and animal species were eliminated. **Eons** are the largest intervals of geologic time and are hundreds of millions of years in duration. Eons are divided into smaller time intervals known as **eras**. Very significant events in Earth's history are used to determine the boundaries of the eras. Eras are subdivided into **periods**. The events that bound the periods are wide-spread in their extent but are not as significant as those which bound the eras.

**Purpose:** Students will understand the following:

1. Earth is estimated to be 4.6 billion years old.
2. Certain major events have occurred during this period that are considered important milestones in Earth's development.
3. Early Earth was very different from our planet as we know it today.
4. Earth has existed as we know it today for only a very short time, relative to the number of years since its origin.

#### Materials: (per lab group)

- 5 meters of adding machine tape
- glue
- scissors
- meter stick

**Procedure:** Use this lab sheet and read the directions carefully to complete the activity.

1. Measure register tape to 5 meters of paper from end to end.  
Distance=5 m
2. Using a meter stick, draw a line through across the middle of the paper from left to right.
3. In the top left corner, make a scale. Label the scale: 1 cm = 10 million years
4. Starting on the left side of the paper, measure 5 cm, to the right on the line, and make a vertical mark. Label this mark with the word -**Today**.
5. From this mark, measure 1 meter to the right on this line and make a vertical mark. Label this mark 1 billion years. Measure and mark each meter after that up to 4 meters or 4 billion years from today.
6. Now, measure 60 cm to make the total length of the time line 4.6 meters. Mark and label this distance 4.6 billion years (**The Beginning of Time**).

7. Label the year and name of each era on your geologic time scale.

Using the scale 1 cm = 10 million years, measure the distance to each era from Today by using the following information.

**Eras**

- a. Cenozoic Era = 65 million years ago = \_\_\_\_\_ cm from Today
- b. Mesozoic Era = 245 million years ago = \_\_\_\_\_ cm from Today
- c. Paleozoic Era = 545 million years ago = \_\_\_\_\_ cm from Today
- d. Precambrian Era = 4.6 **billion** years ago = \_\_\_\_\_ cm from Today

8. Label the major events of each era on your geologic time scale by using the basic geologic time scale as a guide. Cut out each of the major events and paste them onto the geologic time scale. (Making it easier on you: Layout each of the events on the geologic time scale before pasting them on the scale – the pieces are easier to move without the glue)

**Directions :** Cut out the pieces and use them to make the geologic time line.

**Geologic Time Line Major Events**

<b>First reptiles</b>	<b>Major glaciers in North</b>
<b>Dinosaurs extinct</b>	<b>Formation of the Western Interior Seaway</b>
<b>Greatest extinction on Earth</b>	<b>First forests</b>
<b>First mammals and dinosaurs</b>	<b>First land animals</b>
<b>Life invades land</b>	<b>First humans</b>
<b>Oldest know fossil</b>	<b>Pangaea begins to break</b>
<b>Marine reptiles (mosasaur and plesiosaur)</b>	<b>Coal-forming forest</b>
<b>Homo sapiens 500,000 years ago</b>	<b>Sharks 390,000 years ago</b>
<b>Jellyfish 540 million years ago</b>	<b>Primitive whales 54 million years ago</b>