

# Lab – The Geologic Timeline

## **Introduction:**

The Earth has changed dramatically and repeatedly over a history that spans – 4.6 billion years. Such immense spans of time are difficult for most of us to comprehend. They fall outside our range of human experience. We normally deal with much shorter time intervals, like the time of our next class or the number of days until the next test, or even the number of years until graduation!

It is important for students of geology/earth science to expand their sense of time. Extremely slow geologic processes, considered only in terms of human experience, have little meaning. To appreciate the magnitude of geologic time and the history of our incredible planet, you will be creating a timeline of important geologic events scaled to a size more tangible and familiar.

## **Instructions:**

1. Make a scaled timeline.

You will be making a timeline of Earth's history on a long strip of white paper. The timeline should be created to scale. To do this you will:

- a) Measure out a strip of white paper 5 meters long.
- b) Select the right hand end of the tape to represent the **Present**. This is where you will begin each and every measurement.

2. What is your scale?

1 meter = 1 billion years (same as 1 meter = 1000 million years); and 1 m = 100 cm

1 cm = \_\_\_\_\_

1 mm = \_\_\_\_\_

3. **DON'T FORGET** – ALL MEASUREMENTS ARE FROM THE **PRESENT** END OF THE PAPER. Mark a vertical line 10 cm from the right end of your paper. This is present day. To the right of that line mark your names and period.

### **A. Precambrian Eon –(4.6 bya – 544 mya)**

- a) Measure the distance on your timeline of 4.6 m – 54.4 cm.
- b) Draw a horizontal **red** line through the middle of the paper that represents this section of the timeline.
- c) **Label** it Precambrian Eon

**B. Phanerozoic Eon (544 mya – present)**

- a) Measure the distance on your timeline of 54.4 cm – 0 cm.
- b) Draw a **blue** line through the middle of the paper that represents this section of the timeline.
- c) **Label** it Phanerozoic Eon

**C. Within** the Phanerozoic Eon (the blue lined section) you need to: box in and lightly shade the labels for the three Eras.

- a) Yellow – Paleozoic Era (544 mya – 251 mya)  
Measure a distance on the timeline 54.4 cm – 25.1 cm.  
Color this box **yellow** and mark it the Paleozoic Era.
  
- b) Orange – Mesozoic Era (251 mya – 65 mya)  
Measure a distance on the timeline 25.1 cm – 6.5 cm.  
Color this box **orange** and mark it the Mesozoic Era.
  
- c) Green – Cenozoic Era (65 mya – present)  
Measure a distance on the timeline 6.5 cm – 0 cm.  
Color this box **green** and mark it the Cenozoic Era.

4. **Complete** the Earth's Geologic History Page.

## Important Events in Earth's Geologic History

Distance on Timeline (from present)	Years ago	Event - paste the pictures of the events on your timeline with how long ago it happened
4.6 m	4.6 billion	1. Earth forms (Precambrian Eon)
_____m	3.8 billion	2. Oldest piece of rock ever found (Precambrian Eon)
67.0 cm	670 million	3. Oldest fossil Jellyfish (Precambrian Eon)
_____cm	530 million	4. First fish (Paleozoic Era)
_____cm	495 million	5. First coral reefs (Paleozoic Era)
44.0 cm	440 million	6. First land plants (Paleozoic Era)
_____cm	380 million	7. First amphibians (Paleozoic Era)
_____cm	365 million	8. Huge flying insects (Paleozoic Era)
_____cm	300 million	9. First reptiles (Paleozoic Era)
_____cm	251 million	10. Mass extinction: <i>The Great Dying</i> (Paleozoic/Mesozoic Era boundary)
24.7 cm	247 million	11. First dinosaurs (Mesozoic Era)
_____cm	240 million	12. First mammals (Mesozoic Era)
_____cm	210 million	13. First birds (Mesozoic Era)
_____cm	140 million	14. First flowering plants (Mesozoic Era)
6.5 cm	65 million	15. Mass extinction: <i>K-T Boundary</i> (Mesozoic/Cenozoic Era boundary)
_____cm	58 million	16. First grasses (Cenozoic Era)
_____cm	5.0 million	17. Earliest hominids (Cenozoic Era)
1.0 mm	1.0 million	18. Modern humans (Cenozoic Era)
0.013 mm	13,000	19. Humans first inhabit North America (Cenozoic Era)
0.011 mm	11,000	20. End of last Ice Age (Cenozoic Era)

5. **Color** the pictures on the picture page.
6. Starting with the oldest event (# 1 Earth Forms), mark off all of the important events in Earth's history starting at the Present and measuring to the calculated distance. In each case, you should glue or tape the picture directly on the timeline.
7. .Answer questions 1 – 11.

**Questions:**

1. What **percent** of Earth's total history is represented by the Precambrian Eon?
2. What **percent** of Earth's total history has modern humans been in existence?
3. **Why** do you think Precambrian fossils are more difficult to find than Phanerozoic fossils?
4. Which **Era** lasted the longest amount of time?
5. Which **Era** had the Sabre-Toothed Cat?
6. Which **Era** had the T-Rex?
7. Which **Era** had Trilobites?
8. Between which **two Periods** did the dinosaurs become extinct?
9. What is the present-day **Eon**?
10. What is the present- day **Era**?
11. What is the present-day **Period**?