Lab #39 Earth History Timeline

Purpose: To create a model of the entire history of the Earth.

Introduction: We are going to make a scale model of Earth's history. A scale model means that the timeline accurately depicts different lengths of time. All of the times that we are going to deal with in this lab are in millions of years ago (mya). To figure out the lengths that we need in this lab use the following proportion:

$$\frac{\text{Distance from end on timeline}}{\text{Length of whole timeline}} = \frac{\text{age of event (mya)}}{\text{age of earth (mya)}}$$

Put in the numbers we need

$$\frac{\text{Distance}}{600\ cm} = \frac{\text{age of event (mya)}}{4600\ mya}$$

Procedure:
1. You will need 6 meters of cash register ticker tape.
2. Tape it to the ground so that it is all of the way open.
3. Label (in **small** letters) one end **Formation of Earth** and the other end **Today**.
4. All of our times are in millions of years ago, so we will **MAKE EVERY MEASUREMENT** from the end that says TODAY.
5. Our first step will be to place the four Eras on the timeline. Use the equation above to label where on the timeline you will use

Name of Event	Age of Event	Length on Timeline	Color
Beginning of Precambrian	4600 mya		
End of Precambrian	544 mya		
Beginning of Paleozoic	544 mya		
End of Paleozoic	251 mya		
Beginning of Mesozoic	251 mya		
End of Mesozoic	65 mya		
Beginning of Cenozoic	65 mya		
End of Cenozoic	0 mya		

6. Label the events (HINT: Use one line, and label one side end of one Era, and beginning of another)

Example:
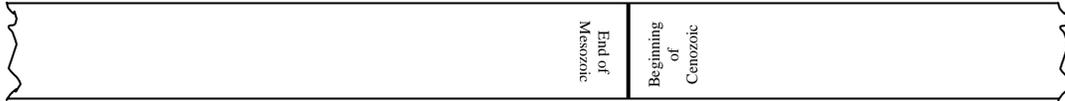
7. **VERY LIGHTLY** color each era, you will need to write in here more later so don't make it too dark.
8. Next, using the same equation, you need to place the following important events on the timeline.

Name of Event	Age of Event	Length on Timeline
Oldest rocks found on Earth	3900 mya	
Cambrian Explosion (first appearance of abundant fossils)	540 mya	
Formation of Pangea	290 mya	
Breakup of Pangea	210 mya	
Abundant Dinosaurs	150 mya	
Dinosaur Extinction	65 mya	
Earliest Humans	6 mya	
Advance of Ice Sheets	1 mya	

9. Next using the fossil sheet that your teacher handed out, cut out the fossils, and find them on pages 8 and 9 of your reference tables.
10. Figure out how old each organism is, and use the same equation to figure out where they go on your timeline.
11. Glue or tape the fossil to your timeline in the appropriate location.

Questions

1. What percent of the timeline falls in the Precambrian Era?

2. What percent of the Earth's history has man been in existence?

3. What percent of the Earth's history has there been abundant fossils?

4. The universe is about 15 billion years old (15000 million) what percentage of THAT time has the Earth been in existence?

5. Use the equation from the beginning of the lab to calculate how much space on the timeline would you have to go back to mark where the Declaration of Independence was signed, and the United States formed as a country.