

Name \_\_\_\_\_

## LAB: GEOLOGIC TIME SCALE

**Purpose of lab:** To introduce you to the Geologic Time Scale.  
To gain an understanding of the extremely large scale of geologic time and the time frame of some major events in Earth's History.

**Activity:** Make a time line of the Geologic Time Scale on the sidewalk using colored chalk.  
Locate the four geologic Eras on your time line.  
Calculate the length of time for each era.  
Locate some historical events on your time line.

**Supplies:** colored chalk, meter stick, and calculator. (Receipt Paper if weather doesn't permit)

**Procedure:** Use a scale of 1 centimeter (cm) = 1 million years (my) to construct a time line of geologic time.  
Draw the time lines using colored chalk on the walkway outside.  
Your instructor should label the "PRESENT" so you'll know where to begin.

- 1. Calculations:** calculate the distance from the present in centimeters or meters for all the historical events.  
Use appropriate metric unit (if it's greater than 1000 cm, use meters; less than 1 cm, use mm.)
- 2. Measure out and Label each ERA** in a different color (Cenozoic in blue, Mesozoic in orange, etc).  
LABEL the interval for each era CLEARLY and neatly on your time line.  
  
\*\*mark and label 100 or 500 million year intervals as you measure.
- 3. LABEL each historical event** and its age CLEARLY and neatly on your time line.
- 4. Walk** through your timeline and **Answer** the questions on the last page of this handout.

**Scale for time line: 1 cm = 1 million years**

**METRIC SCALES:** 1 meter (m) = 100 centimeters (cm)

1 cm = 10 millimeters (mm)

**Metrically confused?**

1 my = 1 cm

1 cm = 1,000,000 years (1 my)

1 mm = 100,000 years

1 meter = 100 cm = 100 my

Eras	Age (in millions of years)	Distance from Present
Cenozoic Era	65 my to present	_____ cm to <u>0</u> (Present)
Mesozoic Era	245 to 65 my	_____ cm to _____ cm
Paleozoic Era	544 to 245 my	_____ cm to _____ cm
PreCambrian Era	4,600 (4.6 by) to 544 my	_____ cm to _____ cm

**EVENTS:**

First modern humans in Europe	50,000 yrs	mm
First Homo sapiens fossils in Africa	150,000 yrs	
Ice Age begins	2 my	cm
Oldest known Human Fossils	6 my	
Conejo Volcanics Erupt	17 my	
San Andreas Fault Forms	30 my	
Alps and Himalaya Mtns begin to form	50 my	
Earliest Horses	55 my	
Extinction of Dinosaurs	65 my	
Formation of the Rocky Mtns	80 my	
First Birds (Archaeopteryx)	145 my	
First Mammals	210 my	
First Dinosaurs	228 my	
First Reptiles	330 my	
Formation of the Appalachian Mtns.	350 my	
First Land Plants	450 my	
Age of Fish (Devonian Period)	410 my – 360 my	
Age of Trilobites (Cambrian Period)	544 my – 505 my	
First Fish	550 my	
First Shells on Marine Animals	590 my	
First Animals	600 my	
First Supercontinent Rodinia	1,000 my	m
First cells with a nucleus (eukaryotes)	2,000 my	
Oxygen rich atmosphere forms	3,000 my	
Oldest Fossil life (single-celled bacteria)	3,500 my	
Oldest Rock	3960 my	
Earth Formed	4,600 my	

**WALK with your group** through geologic time and read the events of Earth History:

**1. Record 2 or 3 events for each Era:**

**PreCambrian** events:

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**Paleozoic** events:

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**Mesozoic** events:

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**Cenozoic** events:

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**2. Label the boundaries of each Era on the Table of Events on the previous page.**

**Answer the following questions:** (IMPORTANT: Use the dates from the **table** on the previous page)

1. How long did each of the ERAS last?

<b>Era</b>	<b>length of time</b>	<b>% of geologic time:</b>
Precambrian		
Paleozoic		
Mesozoic		
Cenozoic		

2. How long have bacteria been present? \_\_\_\_\_ % of geologic time: \_\_\_\_\_

3. How long did the dinosaurs exist? \_\_\_\_\_ % of geologic time: \_\_\_\_\_

4. How long have humans existed? \_\_\_\_\_ % of geologic time: \_\_\_\_\_

5. What happens to the length of each era as one gets closer to the present? \_\_\_\_\_

6. How significant is human existence on this planet? \_\_\_\_\_

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7. Do you think geologists should identify a new period or era based on events and fossils associated with humans? \_\_\_\_\_

8. What human artifacts would last several million years from now as fossil evidence for this period in Earth History? \_\_\_\_\_

8. Comment on your thoughts or experiences while constructing this geologic time line:

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Geologic Time Scale

Eon		Era	Period		Epoch		
Phanerozoic		Cenozoic (Cz)	Quaternary (Q)		Recent or Holocene		
					Pleistocene		
			Tertiary (T)	Neogene (N)	Pliocene		
					Miocene		
				Paleogene (Pe)	Oligocene		
			Eocene				
			Paleocene				
		Mesozoic (Mz)		Cretaceous (K)			
				Jurassic (J)			
				Triassic (R)			
		Paleozoic (Pz)		Permian (P)			
				Carboniferous (C)	Pennsylvanian (IP)		
					Mississippian (M)		
				Devonian (D)			
Silurian (S)							
Ordovician (O)							
Cambrian (C)							
Precambrian	Proterozoic	<i>Precambrian</i>					
	Archean						
	Hadean						