

Name: _____

Date: _____ Period: _____

Geologic Time

The Physical Setting: Earth Science

Lab Activity: Geologic Time

INTRODUCTION:

It is difficult to comprehend the age of the Earth and the time that various geologic events occurred in the past. A model drawn to scale is often helpful to visualize accurate time spans between events in history.

Since geologic time of Earth dates back over 4500 million years ago and most life only became abundant 544 million years ago, it is necessary to create a timeline that will be measured in meters.

OBJECTIVE:

To create a scale model of the entire history of the Earth and to compare the length of man's existence to the span of geologic time.

VOCABULARY:

Eon

Era

Period

Epoch

Extinction

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PROCEDURE A:

1. Fill in the Report Sheet 1 using the scale 1 cm = 10 million years
2. Measure and cut 5 meters of cash register tape and secure it to the ground or desk
3. Measure 10 centimeters from one end and label "TODAY"
4. Measure 4.6 meters from the "TODAY" line and label it "FORMATION OF THE EARTH"
5. Using Report Sheet 1, place all the Eras on the timeline. Be sure to **lightly** shade in each Era according to your color key and label it appropriately.

Report Sheet 1

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

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PROCEDURE B:

1. Fill in the Report Sheet 2 using the same scale 1 cm = 10 million years
2. Using Report Sheet 2, place all the events on the timeline. Be sure to label each event with the appropriate date and name.

Report Sheet 2

Name of Event	Age of Event	Length on Timeline
Oldest known rocks	4100 mya	
Earliest trilobites	540 mya	
Extensive coal forming forests	330 mya	
Extinction of land & marine organisms	251 mya	
Earliest dinosaurs	232 mya	
Earliest birds	147 mya	
Extinction of dinosaurs	65 mya	
First humans	2.4 mya	

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DISCUSSION 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. Compare the age of the Earth to the age of the oldest known rocks found?
5. How long of a piece of cash register tape would you need if you were to use the same scale and plot time from the inferred beginning of the universe (about 15 billion years)?

CONCLUSION: How does the existence of humans on Earth compare with the length of Earth's history?