

Name \_\_\_\_\_ Period \_\_\_\_\_

## Geologic Time Scale Lab

### Background

The age of the Earth has been divided by geologists into Eons, Eras, Periods, and Epochs. Each contains rock types and fossil remains. They are separated by mass extinction events. The time lines in the Geologic Time Scale are given in millions of years. For example, the dinosaurs became extinct 65 million years ago, also written 65 mya. Tables are good for sequencing events, but do not show time to scale. Instead, we use pie charts to compare the relative sizes of geologic time.

**Purpose** - To compare 2 versions of the Geologic Time Scale and associate events with each of the Eons, Eras Period and Epochs

**Materials** – Geologic Time Scale, Pie Charts

### Procedure

1. Label each of the 4 Eras and also the 4 events on the “All Time” pie chart,

- First multi-celled organisms - 660 mya
- First one-celled organisms -3000 mya
- Age of Oldest rocks - 36000 mya
- Age of Earth - 4500 mya

2. On the “Phanerozoic” pie chart, mark the five ages:

- Age of Mammals -(same as the Cenozoic)
- Age of Reptiles - (same as the Mesozoic)
- Age of Amphibians- (360 mya to 248 mya)
- Age of Fishes - (438 mya to 360 mya)
- Age of Invertebrates - (545 mya to 438 mya)

3. On the “Cenozoic” pie chart, label these events:

- Earliest Homo sapiens - 1 mya
- First flowering plants - 145 mya
- First mammals - 245 mya
- First insect fossils - 410 mya
- First land plants - 450 mya
- First fishes - 500 mya

### Questions

1. Which era occupies the *most* time on the geologic time scale? \_\_\_\_\_
2. How long is it? \_\_\_\_\_

3. Which era occupies the *least* time? \_\_\_\_\_

4. How long is it? \_\_\_\_\_

5. About how much time did single cell organisms add oxygen to the atmosphere *before* multi-celled organisms could evolve? \_\_\_\_\_

6. When did the *ozone layer* start to protect land animals from dangerous UV light? \_\_\_\_\_

7. Which *period* did most of the coal we burn to produce electricity come from? \_\_\_\_\_

8. How many years did this period last? \_\_\_\_\_

9. What gas in the atmosphere enabled the Earth to grow the huge forests to feed the dinosaurs? \_\_\_\_\_

10. How do organisms evolve over geologic time? \_\_\_\_\_

11. What *percent* of Earth time has Homo sapiens existed? \_\_\_\_\_

12. Translate each term to English using the following translations:

ceno = recent      meso = middle,  
paleo = ancient      zoic= life

Cenozoic - \_\_\_\_\_

Mesozoic - \_\_\_\_\_

Paleozoic - \_\_\_\_\_

13. Movies and cartoons often show people and dinosaurs living side by side. Explain why this is impossible.

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