Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_ Hour \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Geologic Time Scale**

**Part 1: Focus Question**:   How do people use the fossil record to reconstruct and date events in Earth’s planetary history?

**Procedure:** Follow the directions from “Geologic Time Scale Sort A”

**Analysis Questions**

1. Write your sequence of letters (using each letter only once) on a separate piece of paper. Starting with the top card, the letters should be in order from youngest to oldest.   Label the oldest and youngest letters using technical writing tools.

2. How do you know that "X" is older than "M"?

3. Explain why "D" in the rock layer represented by DM is the same age as "M."

4. Explain why "D" in the rock layer represented by OXD is older than "D" in the rock layer represented by DM.

**Part 2: Focus Question**:   How do people use the fossil record to reconstruct and date events in Earth’s planetary history?

**Procedure:**

1. Raise your hand and ask Ms. Murphy for the second sort.

2. Follow the directions on the “Geologic Time Scale Sort B”

**Interpretation Questions:**

1) Using the letters printed in the lower left-hand corner of each card, write the sequence of letters from the youngest layer to the oldest layer (i.e., from the top of the vertical stack to the bottom). This will enable your teacher to quickly check whether you have the correct sequence.

2) Which fossil organisms could possibly be used as **index fossils**?

3) Name three organisms that probably could not be used as **index fossils** and explain why.

4)  How does extinction of species affect the geologic time scale?

5) This collection of fossils is from a marine environment.  Explain what kinds of geologic events may affect the fossil record in the ocean.

**Part 3:** You must use the provided article and answer the following questions using complete sentences with a restate. First divide the questions between you and your table partner. Circle the questions you are responsible for. Answer your questions and at the appropriate time share your answers with your table partners.

1. What is the law of superposition?  How does it help us to organize rock strata by age?

2. How does the law of cross-cutting relationships work?  Use the model in Figure 1.4 to explain your reasoning.

3. What features make a layer of rock a good key bed?

4. What are index fossils?  How is this similar to a key bed?

5. What are unconformities caused by

6. How does extinction affect geology?

7. How is geological time split up into units?

8. What is the difference between a relative time scale and a calendar?

9. How did the discovery of radioactivity change the geologic time scale?

10. Why did early geologic time scales not include the years ago that events happened?

**Part 4:** There have been five mass extinction events in Earth’s history. You will be assigned a mass extinction event with your table partner and must complete research and present it to your class. Your information and picture should cover the entire poster. You will create a poster with..

-Information about the time period. There should be information about the environment at that time and the organisms that lived during that time.

-What theory is best supported to have caused your mass extinction event?

-Include any relevant dates.

-A colored, labeled picture representing your mass extinction event.

**Part 5:** During the videos and presentations please record the causes of each mass extinction event below.

|  |  |  |
| --- | --- | --- |
| Mass extinction | Picture (colored and labeled) | Causes |
| Ordovician |  |  |
| Late Devonian |  |  |
| End Permian |  |  |
| End Triassic |  |  |
| End Cretaceous |  |  |