

NAME: _____ PERIOD: _____ DATE: _____

LAB PARTNERS: _____ LAB #26

GEOLOGIC HISTORY

Phenomena:

Have you ever wondered what life on Earth was like when the earliest humans started to appear or when dinosaurs roamed the Earth? The history of Earth is too big to even comprehend sometimes. Watch this video of how Earth's history would look spread out on a football field.

https://www.youtube.com/watch?v=M8V_gIRW1hA&t=121s

INTRODUCTION

The Earth has changed dramatically and repeatedly over a history that spans 4.6 billion years. Such immense spans of time are difficult for most of us to comprehend. They fall outside of our range of human experience. We normally deal with much shorter time intervals, like the time of our next class or the number of days until the next test, or even the number of years until graduation. It is important for students of science to expand their sense of time. Extremely slow geologic processes, considered only in terms of human experience, have little meaning. To appreciate the magnitude of geologic time and the history of our incredible planet, you will be creating a timeline of important geologic events scaled to a size more tangible and familiar. 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*).

Standards:

HS-ESS1-6.

Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.



MATERIALS

Earth Science Reference
Tables Computer
Colored Pencils

Procedures:

1. **Part 1-** Identify the properties of the given rocks in the profile you will be assigned. Write a short explanation of the history of the rocks from your given profile.
2. **Part 2-** Read the description from your assigned profile. Identify the properties of the profile descriptions. Write an explanation of the geologic history of your profile.
3. **Part 3-** Create a visual of your profile of what it may have looked like from the past.

Part 1

You will be assigned a profile from below with different rocks found from an area. Follow the directions to identify the properties of the rocks for your given profile:

Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6
Conglomerate	Breccia	Conglomerate	Conglomerate	Breccia	Breccia
Sandstone	Shale	Shale	Siltstone	Shale	Sandstone
Limestone	Dolostone	Rock Salt	Dolostone	Dolostone	Rock Salt
Rock Gypsum	Limestone	Limestone	Rock Gypsum	Limestone	Rock Gypsum
Coal	Coal	Coal	Coal	Coal	Coal

Directions: Fill in the table below about your profile. This information will include **rock type**, the **composition** of each rock, how each rock was **formed and in what environment**, **observations** about each rock (ask your teacher for samples or pictures), and **inferences** you could make about each rock from your profile. After filling in to chart, write a short explanation of the history of rock formation from your profile of rocks.

Profile:

Rock Name	Rock Type	Composition	Formation and environment (marine, desert, lake bottom, etc.)	Observations	Inferences

Explanation of rock history from your profile:

Part 2

Below is a short description of additional geologic history marks from your profile including earth's materials like fossil, possible space objects and planetary surfaces. Read the description from your profile and answer the following questions:

Profile 1	Profile 2	Profile 3	Profile 4	Profile 5	Profile 6
This area includes fossils found in the coal. The fossils found were of some of the earliest birds to ever live on Earth. From this area, some corals and ammonoids were also found.	From exploration, there were not many signs of diverse life. There was an abundance of stromatolite fossils found in the area. There was also evidence of an orogeny that occurred where some of the bedrock was exposed in the Adirondack mountains and Hudson Highlands.	There is a lot of evidence of an abundance of life that is living as well as evidence of life that is now extinct. In the coal, there were remains of some of the earliest humans to ever live on Earth. The remains of index fossil Mastodont were found in this area as well.	While doing research, it was found that this area was formed around the time that Pangea began to break up. At the time this area was forming, many forms of life became extinct. Some of the fossils that were found in this area include earliest dinosaurs and mammals.	In this area, some of the oldest rocks were found. There was also evidence of some of the oldest microfossils and biological carbon. Diverse life did not exist yet from the evidence found.	This area had a lot of evidence of earliest organisms and the extinction of other organisms. In the coal, there was evidence of the index fossils of Murcospirifer, Naples Tree, and Phacops. Forest in this area were some of the first to form. While this area did not have water, there was evidence of some of the earliest sharks that once lived here.

From the information above in the table from your profile, answer the following questions. After you have answered the questions, use the information from part 1 and part 2 to put together a geologic history explanation of your area:

What eon and era could your profile be found in? _____, _____

What period, if any, could your profile be found in? _____

What type of life could have existed in your profile?

Are there any index fossils that could be found in your area? If yes, what are they?

Describe any geologic events that could have happened in your area including if any rock record could be found (if there were none, write none):

Explanation of the geologic history of your profile:

Profile: _____

PART 3

Create a visual representation of the geologic history from your profile. This includes the name of the Eon, Era and Period, the life including index fossils from your profile, any geologic events including the type of rock record that can be found, and any additional information you feel is important to represent your profile. This visual representation could be a poster, a slide show presentation, a brochure, etc. Make sure to be creative and include all information.