Name: _____

Geologic Time Scale

Geologists are scientists who study Earth and how it has changed over time. Some geologists study the geologic time scale. The geologic time scale is a way or organizing when different events occurred in Earth's history. Read the article attached about the geologic time scale. Then, answer the questions below.

1. Today all of the continents, like North America, South America and Europe, are separate from each other. How were they different millions of years ago?

2. How do geologists explain that rocks found in Australia are the same as rocks found in the Grand Canyon?

3. What does continental drift refer to?

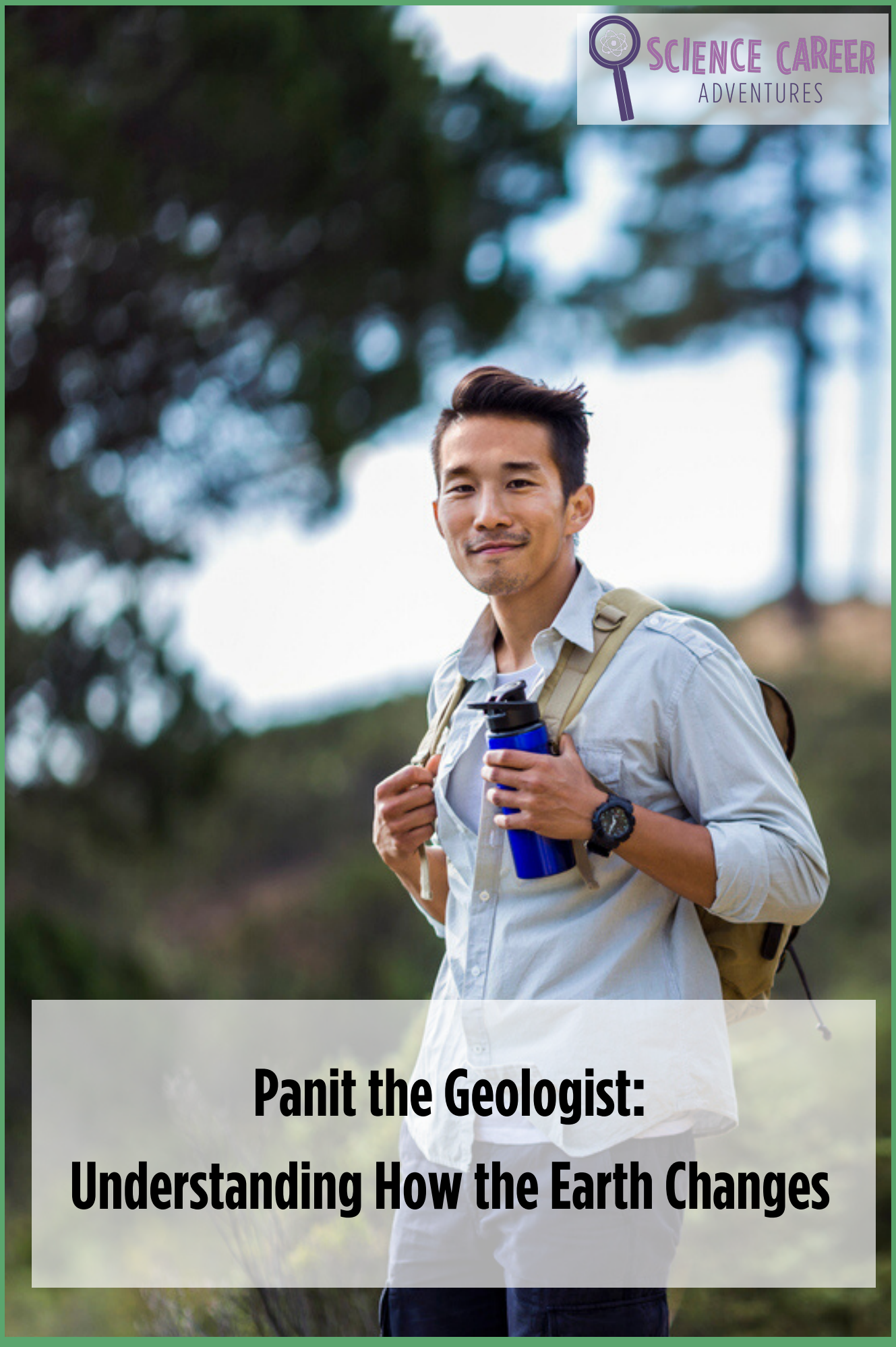
Name: _____

Geologic Time Scale

4. Take a look at this picture of the Grand Canyon. There are different layers. Are the oldest layers at the bottom or the top of the canyon? Explain your reasoning.

Source: https://www.nps.gov/grca/learn/nature/geologicformations.htm

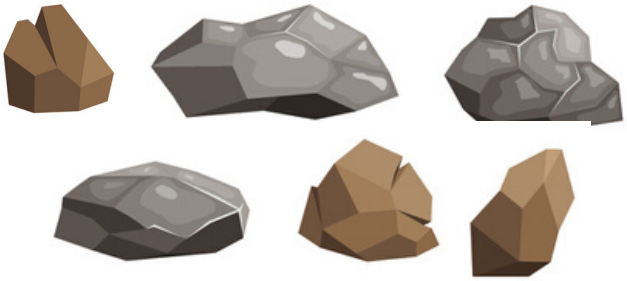
5. Why do you think geologists use the geologic time scale to talk about events that occurred in Earth's history?



Panit the Geologist: Understanding How the Earth Changes

Meet Panit!

If you are like me, you may have collected rocks as a kid. I liked to skip them across the pond and look at the different shapes and colors. Now, I get to do this for my job! I am a geologist. Geologists are scientists who study the Earth and how it changes over time.



One way to analyze how the Earth changes over time is to look at the geologic time scale (see photo right). The geologic time scale is a way of organizing when different events on Earth occurred. The geologic time scale is broken down in different time periods. These time periods have names, like Triassic and Cambrian.

I use the geologic time scale to analyze when different layers of rocks were created. These layers of rock are called "rock strata." We find older rock strata as we dig deeper into the Earth.

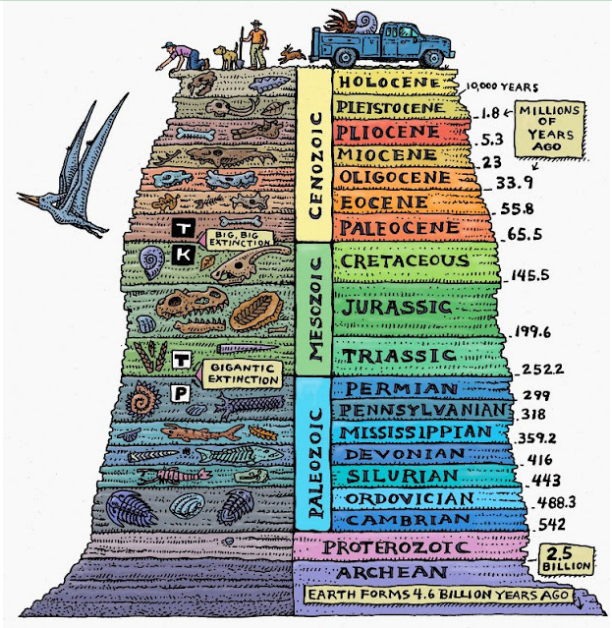


Photo Credit: Ray Troll

The Grand Canyon (see photo left) is a great example of rock strata. We can easily see the different layers of rock because they are in different colors. The rocks at the bottom of the canyon are from the pre-Cambrian period or Proterzoic period. The top layers of rock are from the Permian time period. This means that the Grand Canyon rocks are over 70 million years old!

Creating A Youtube Channel

Right now, I am creating a Youtube Channel with the Natural History Museum. The Natural History Museum is excited to have a Youtube Channel so people can learn about the geological time scale without coming into the museum. Families and students around the world will be able to go on Youtube and watch videos to learn about how the Earth has changed over time.

Naming My Youtube Channel

I need to come up with a name for my Youtube Channel. The channel name needs to be easy to remember and tell people what the channel is about. I asked my followers on Instagram to help me come up with a name. Here are a few of the names people came up with:

Panit's Rock Adventures

Rockin' Geology

The Geologist Online

I decided to go with Panit's Rock Adventures! It tells people what my name is and that the channel is about rocks and adventures.

FUN FACT!
Many scientists have Instagram and Youtube accounts. There is even a "hashtag" on Instagram called "scientist selfies." I post selfies and other photos of my adventures each week so my followers know that being a scientist is a ton of fun.

First Youtube Video

The first video on my Youtube Channel will be called “The Grand Canyon’s Missing Piece.” I will be talking about the connection between the Grand Canyon in Arizona and a rock formation on the island of Tasmania, near Australia. How crazy that rocks on two different sides of the world are related to each other!

The photo on the left shows the Rocky Cape Group in Tasmania. The photo on the right is of the Grand Canyon in Arizona, 8000 miles away from Tasmania.

Here are the main points I will be covering in the video:

- Geologists in Australia found rock formations that were over a billion years old. However, these rock formations didn't match other ancient rocks around them.
- The scientists tested the chemicals and structure of the Rocky Cape Group and found that they were similar to the oldest layers of the Grand Canyon.
- Both sets of rocks are from the Mesoproterozoic era of the geographic time scale.
- These results suggest that Australia and the North American continent, where the United States is located, were once one large continent! This continent was called Rodinia and broke apart more than 800 million years ago!

Second Youtube Video

My second video will be called “Using the Geologic Time Scale.” It will focus on how geologists use the geological time scale and theories to understand how the Earth has changed over time.

Here are the main points I will be covering in the video:

- **Geologic Time Scale:** When we study the rock strata of the Grand Canyon, we find the newest fossils in the layers closest to the surface. These fossils are only 270 million years old. But by the time we get down to the bottom of the canyon, we find the oldest fossils from 1.8 billion years ago!
- **Continental Drift:** Continental drift is the theory that continents moved across the surface of the Earth over millions and billions of years. Scientists believe that a supercontinent, one really large continent, called Pangea existed between 335 and 175 million years ago. Before Pangea, another supercontinent existed called Rodinia. On Rodinia, the Grand Canyon and Rocky Cape Group were connected. How crazy to think that the Earth was not always made up of 7 separate continents?

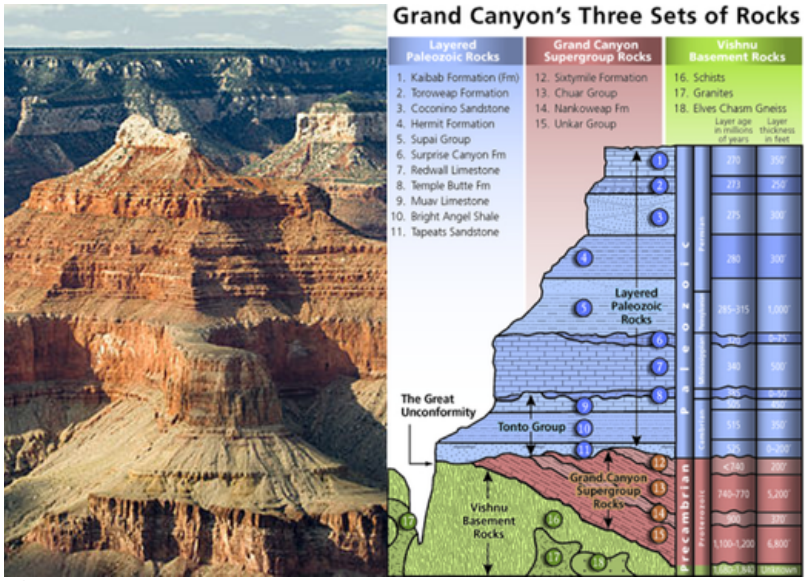


Photo Credit: Luca Galuzzi, Diagram, USGS

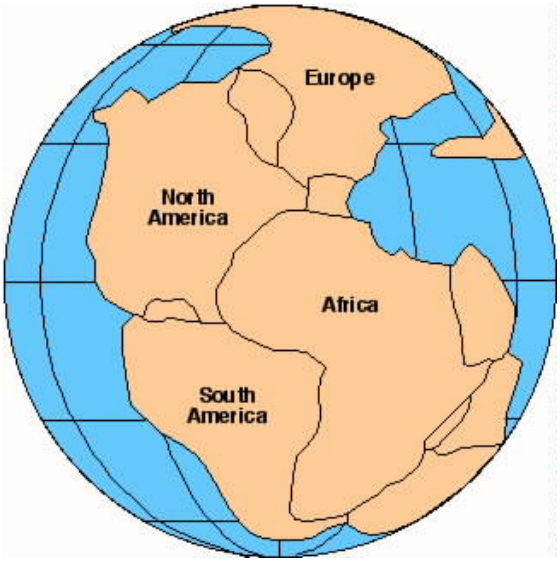


Photo Credit: Roy W. Schlische, Rutgers University

This photo (above) shows the shape of Pangea, the supercontinent from the Triassic time period. Geologists believe that continents that are now thousands of miles apart were once connected. This is how rock formations on opposite sides of the world can be related to each other.