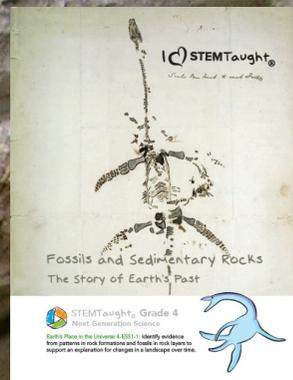


These pages were taken from the G4 journal, "Fossils and Sedimentary Rocks"



This limestone was deposited on the ocean floor as loose sediment long ago.

Plant and animal remains are layered in rocks

The remains of plants and animals can be preserved between the layers of sedimentary rocks. The remains of marine life in this limestone rock shows that this rock was deposited as a sediment on the ocean floor. Folded patterns in sedimentary rocks show evidence that this rock was moved. Earthquakes and plate movements can move rocks. Originally, those rock layers were flat. Ground movement reshaped these rock layers into an s-shape.

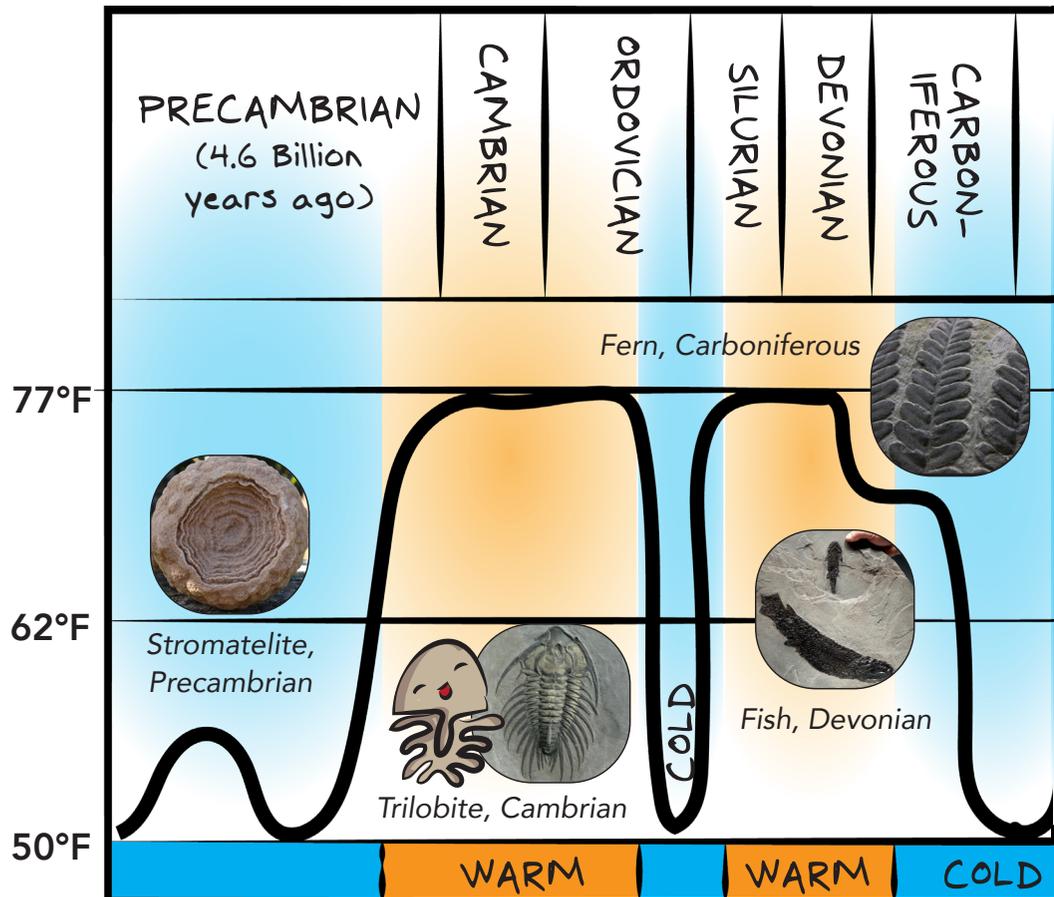


These fossilized corals and urchins provide direct evidence that this limestone rock was formed as ancient marine sediment.

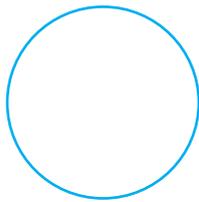


Earth changes very slowly

Earth is constantly changing. Over millions of years, sea levels rise and fall and Earth's climate changes dramatically. Earth's continents and smaller plates of land move too, causing the formation of mountains and valleys. The world around you may not appear to change very much during your lifetime. Over **geologic time**, spanning millions of years, the climates and places you are familiar with will change so much that they would be unrecognizable. Far in the future, the place where your home sits may be at the bottom of a deep ocean.

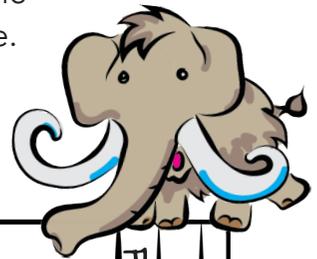


Throughout geologic history, the amount of greenhouse gases in Earth's atmosphere has changed many times. **Greenhouse gases**, such as carbon dioxide, hold heat from the sun within our atmosphere, causing Earth's climates to warm. For long periods of time, Earth's climates have been quite warm, and at other times, Earth has been extremely cold. The cold time periods on this chart are called ice ages. The hot and cold time periods in Earth's history cause sea levels to rise and fall. Can you think of a reason why?

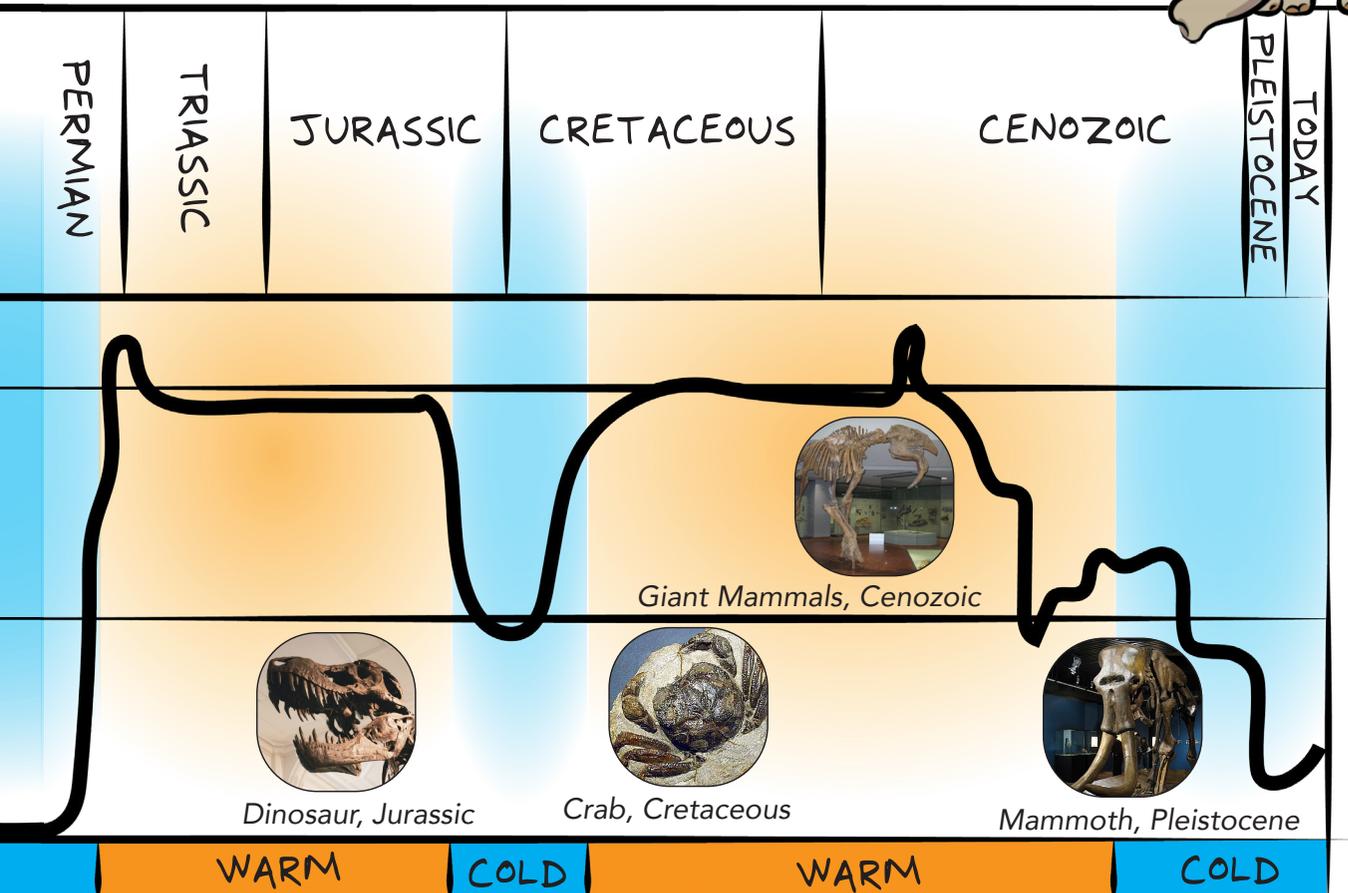


Study the chart—
How many ice ages
(cold periods) has the
Earth had in the past?

I am from the
Pleistocene.



This chart shows the warm and cool time periods in Earth's history





Sea level drops in an ice age

An **ice age** is a time period of cool temperatures in Earth's history that allows large amounts of ice to form on land. During an ice age, immense amounts of water accumulate on land as glacial ice and at Earth's poles as polar ice caps. The snow and ice that accumulates stays frozen on land year round. Because water leaves the oceans and does not return to the sea, the sea level drops significantly.

Earth during an ice age



During an ice age, glaciers and ice caps accumulate lots of ice and snow. This causes ocean levels to drop.



Sea levels rise when it is warm

When Earth's climates warm up after an ice age, glaciers and polar ice caps melt. During warm time periods there is very little ice on Earth's continents. During these warm time periods, water from glaciers, snow packs, and polar ice caps can melt and return to the ocean causing sea levels to rise dramatically.

Earth during a warm time period



During warm periods on Earth, glaciers and ice caps melt and drain into the ocean causing the sea level to rise.



Ocean sediments can be found on land

When you take a close look at individual layers of sedimentary rock, it is common to find marine sediments containing shells and marine animals deposited over land sediments containing plant and animal remains. These alternating land and marine rock layers teach us about the timing of the rise and fall of ocean levels. Newer layers are almost always found above older layers because newer sediments always come to rest on older sediments.

Observe the fossil remains left in these sedimentary rocks and state whether you think the rock was formed on land or in the ocean (first TPS, then answer below).

Were these rocks formed under water or above land?

Think,
Pair,
Share!





Deposited on Land

Deposited Underwater

Deposited on Land

Deposited Underwater

Deposited on Land

Deposited Underwater