**Conversational Topic**

**Geological Time**

***Geologic time*** is the billions of years since the planet Earth began developing.

The geologic time scale is divided into two main ***eons*** – ***the Precambrian Time and The Pharenozoic period***.

***Precambrian Time***

Precambrian time covers all of the time from the formation of Earth’s ***crust*** to the beginning of the Phanerozoic eon, about 542 million years ago. This represents more than 80 percent of all geologic time.

Precambrian time is divided into two eons, ***the Archaean and the Proterozoic.*** The Archaean lasted about 1.5 billion years, from about 4 billion years ago to about 2.5 billion years ago. The Proterozoic lasted just under 2 billion years, from about 2.5 billion years ago to about 542 million years ago.

***The Archaean***

During the Archaean, the atmosphere was very different from the atmosphere of today. At that time, it contained methane, ammonia, and other gases that most life on Earth today would not be able to breathe. At the beginning of this period rocks and the continents began to form. The first living organisms – bacteria – appeared.

***The Proterozoic***

During the Proterozoic, the continents began to stabilize and build up, though they looked quite different than they do today. The oldest ***fossils*** of the ***geologic record*** date from this time. Bacteria, ***fungi***, simple plants, and complex organisms, including the first animals, evolved. The atmosphere became ***enriched*** in oxygen.

***The Phanerozoic Eon***

The Phanerozoic eon ***stretches*** from about 542 million years ago to the present. It is divided into three major eras: ***the Paleozoic, the Mesozoic, and the Cenozoic***.

***The Paleozoic Era***

The Paleozoic era ***lasted*** about 291 million years, from about 542 million years ago to about 251 million years ago. Geologists generally divide the era into six periods. From the earliest to the latest, these periods are ***the Cambrian, the Ordovician, the Silurian, the Devonian, the Carboniferous, and the Permian***.

At the beginning of the Paleozoic, the climate was generally mild, and animals and plants lived only in the oceans. By the end of the era about half of all animal groups as well as many plants had evolved.

While plants and animals were developing, the shape of the land was changing as well. The separate continents that existed at the beginning of the Paleozoic era were very different than the continents of today. For example, most of what is now North America was joined with Greenland in a continent geologists call Laurentia. This continent was situated along the equator, far from the present location of North America. In the early ***Carboniferous period***, a ***shallow inland sea*** covered much of the interior of North America and ***widespread limestone*** formations developed.

***Huge swamps*** developed in many areas during the late Carboniferous period, and the great ***coal deposits*** of the eastern United States formed. During the Permian period, deserts became widespread. The continents began to move around during the Paleozoic, and by the end of the era all of the continents had come together to form one giant continent that geologists call Pangaea. As the continents moved and collided, several mountain chains, including the Appalachians and the Urals, were formed during this period as well. Although the continents changed position, in general the northern continents were dry and warm while ***ice sheets*** covered most of the southern continents.

***The Mesozoic Era***

The Mesozoic era lasted about 185.5 million years, from about 251 million years ago to about 65.5 million years ago. It is divided into three periods. From the earliest to the most recent, these periods are ***the Triassic, the Jurassic, and the Cretaceous***.

The Mesozoic era is sometimes called the Age of Reptiles because reptiles dominated the land. The earliest dinosaurs appeared in the Triassic period, but by the end of the Cretaceous they all disappeared.

Many scientists believe that during the Mesozoic era the supercontinent of Pangaea began a process of ***breaking u***p into the individual continents that ***exist*** today. The scientists call this movement ***continental drift***. By the end of the Mesozoic era, South America and Madagascar had ***separated*** from Africa. Australia was ***attached*** to Antarctica, but North America had begun ***pulling away from*** Eurasia.

***The Cenozoic Era***

The Cenozoic era began about 65.5 million years ago. It continues into the present. The Cenozoic era is divided into ***the Paleogene, Neogene, and Quaternary periods***. The Paleogene period lasted from about 65.5 million years ago to about 23 million years ago. It is subdivided into the Paleocene, Eocene, and Oligocene epochs. The Neogene period lasted from about 23 million years ago to about 2.6 million years ago. It is subdivided into the Miocene and Pliocene epochs. The Quaternary period is subdivided into the Pleistocene and Holocene epochs. The Holocene epoch began about 11,700 years ago.

If the Mesozoic era was the Age of Reptiles, the Cenozoic era is the Age of Mammals. The Paleogene period saw the development and spread of early forms of many animals, including horses, sheep, and cattle. Toward the end of the Neogene the first human ancestors appeared.

During the Quaternary period much of Earth’s surface was covered by vast continental ice sheets. During four periods, known as ice ages, continental glaciers moved across the Northern ***Hemisphere***. These ***glacial periods*** were separated by long warm periods. In the Southern Hemisphere there were rainy periods that may have occurred at the same time as the glaciers covered the Northern Hemisphere.

Several major mountain ranges, including the Alps and the Himalayas, were formed as the continents continued to move and take the positions that they occupy today.

**Активная лексика (в порядке встречаемости в тексте)**

**eon** миллиард лет, геологическая эра

**crust** кора, земная кора, корка

**fossils** ископаемые, окаменелости, остатки

**geologic record** геологический профиль

**fungi** грибы

**enrich** обогащать

**stretch** длиться, растягивать(ся)

**last** длиться

**the Carboniferous period** Каменноугольный период

**shallow** мелководный

**inland sea** внутреннее море

**widespread** широко распространенный

**limestone** известняк

**huge** огромный

**swamp** болото

**coal deposits** залежи угля, угольное месторождение

**ice sheet** ледяной щит, ледяной покров

**breaking up** дробить(ся), разрывать(ся)

**exist** существовать

**continental drift** континентальный дрейф

**separate** отделять, разделять

**attach** примыкать, прикреплять

**pull away from** отдалять(ся)

**Hemisphere** полушарие

**glacial period** ледниковый период

**Exercises**

**Ex. 1 Make sure that you know the meaning of the following words.**

Coal deposits, limestone, glacial period, continental drift, the Carboniferous period, fossils, crust, fungi, eon, swamp, Hemisphere.

**Ex. 2 Match the eras below to the following periods – *the Paleozoic, the Mesozoic, and the Cenozoic.***

|  |  |  |
| --- | --- | --- |
| **The Paleozoic Period** | **the Mesozoic Period** | **the Cenozoic Period** |
|  |  |  |

1) the Paleogene, Neogene, and Quaternary periods;

2) the Cambrian, the Ordovician, the Silurian, the Devonian, the Carboniferous, and the Permian;

3) the Triassic, the Jurassic, and the Cretaceous.

**Ex. 3 Arrange the following periods (of The Phanerozoic Eon) into the correct order.**

the Paleogene - …

the Neogene - …

the Quaternary period **– 12**

the Devonian - …

the Carboniferous - …

and the Permian - …

the Triassic - …

the Jurassic - …

the Cretaceous - …

the Cambrian **– 1**

the Ordovician - …

the Silurian …

**Ex. 4. Answer the following questions.**

1. What is geologic time?

2. What are the two main eons of the Precambrian time?

3. What was the atmosphere of the Precambrian time?

4. What was special of the Carboniferous period?

5. What do we call the present period?

6. Why is the Quaternary period called this way?

7. Into what epochs are the following periods subdivided: the Paleogene, Neogene, and Quaternary periods?

**Ex. 5 Describe the following periods (using the words in the brackets).**

1. The Paleozoic Era (542 million years ago, six periods, life in the oceans, continents, Laurentia, Pangea).

2. The Mesozoic Era (185.5 million years, 3 periods, the Age of Reptiles, continental drift).

3. The Cenozoic Era (65.5 million years ago, 3 periods, the Age of mammals, 4 ice ages).