ACTIVITY TIME!

WHAT DO YOU THINK IS OUR TOPIC TODAY?

MESOZOIC AND CENOZOIC ERA

Phanerozoic is the name given to the time span on earth when life was abundant. It is considered an Eon containing most of the history of life on earth based on the rock record which included fossils as an important tool. It is comprised of three geologic Eras including the Paleozoic, Mesozoic, and Cenozoic meaning ancient, middle, and recent respectively.

MESOZOIC ERA

The Mesozoic Era, lasting from roughly 252 to 66 million years ago, is known as the "Age of Reptiles" and/or “Age of Dinosaurs”. During the Mesozoic, or "Middle Life" era, the supercontinent Pangaea began to break apart, and the dominant land animals were reptiles, including the first dinosaurs, which evolved during this time and ruled the Earth for millions of years.

The Mesozoic era is divided into three consecutive geologic time periods - the **Triassic, Jurassic, and Cretaceous.**

Triassic Period

Triassic Period, in geologic time, the first period of the Mesozoic Era. It began 252 million years ago, at the close of the Permian Period (Paleozoic Era), and ended 201 million years ago, when it was succeeded by the Jurassic Period. Reptiles, especially archosaurs, were the chief terrestrial vertebrates during this time. A specialized group of archosaurs, called dinosaurs, first appeared in the Late Triassic but did not become dominant until the succeeding Jurassic Period.

The Triassic Period began after Earth's worst-ever extinction event devastated life.
The Permian-Triassic extinction event, also known as the Great Dying, took place roughly 252 million years ago and was one of the most significant events in the history of our planet. It represents the divide between the Paleozoic and the Mesozoic Eras.
Life that survived the so-called Great Dying repopulated the planet, diversified into freshly exposed ecological niches, and gave rise to new creatures, including rodent-size mammals and the first dinosaurs.

Jurassic Period

The Jurassic period was the second segment of the Mesozoic era. It occurred from 201.3 million to 145 million years ago, following the Triassic period and preceding the Cretaceous period. It is known as the "Golden Age of Dinosaurs" and featured enormous sauropods like Brachiosaurus and Diplodocus, along with the breakup of the supercontinent Pangaea, warmer climates, and the appearance of early birds.
During the Jurassic period, the supercontinent Pangaea split apart, leading to the formation of new oceans and the separation of continental landmasses.

Cretaceous Period

The Cretaceous is a geological period that began 145 million years ago and ended 66 million years ago.The name "Cretaceous" comes from the Latin word "creta," meaning chalk, a type of sedimentary rock that is abundant in deposits from the latter half of the period. It is the last period in the Mesozoic Era. It comes after the Jurassic Period and before the Paleogene - the first period of the Cenozoic Era, our current era.

It is known for the dominance of dinosaurs, the emergence and diversification of angiosperms (flowering plants), and the rise of mammals. The period concluded with the Cretaceous-Paleogene (K-Pg) extinction event, triggered by an asteroid impact, which wiped out the dinosaurs and ended the Mesozoic Era.

CENOZOIC ERA

The Cenozoic Era, meaning "recent life," is the current geological era, spanning from 66 million years ago to the present, and is characterized by the dominance of mammals, birds, and flowering plants following the mass extinction of non-avian dinosaurs. Derived from the Greek for “recent life”, it reflects the sequential development and diversification of life on Earth from the Paleozoic (ancient life) through the Mesozoic (middle life). During this time, Earth's continents moved to their present-day positions, and climate cooled significantly from the warm conditions of the early Cenozoic.

The Cenozoic Era is divided into main three periods - the **Paleogene, Neogene, and Quaternary**, which includes the ice ages and the evolution of humans.

Paleogene Period

The Paleogene Period was the first geologic period of the Cenozoic Era, lasting from approximately 66 to 23 million years ago. It was characterized by significant evolutionary radiation of mammals and birds, the ongoing breakup of continents, the formation of mountain ranges like the Himalayas, and the appearance of the first grasses.

The Paleogene is made up of three epochs:

- **The Paleocene Epoch**
- **The Eocene Epoch**
- **The Oligocene Epoch**

Paleocene Epoch

During this time, mammals rapidly diversified to fill the empty ecological niches, and modern plant groups like flowering plants, conifers, and eventually grasses became abundant. The Paleocene also saw the initial diversification of modern bird types and the appearance of large, flightless birds.

Eocene Epoch

The Eocene is the longest epoch of the Cenozoic. During this time, the first ancestors and close relatives of modern mammal species appeared. Many of these modern mammal groups appear at the beginning of the Eocene, a period of dramatic global warming called the Paleocene-Eocene thermal maximum.

Oligocene Epoch

During this time, there was a sudden decrease in global temperatures, leading to the formation of a permanent ice cap at the South Pole. It saw the rise of widespread grasslands, significant volcanic activity, and the diversification of mammals, including the appearance of early horses, elephants, and the largest land mammal ever, Indricotherium.

Neogene Period

The Neogene Period was the second geologic period of the Cenozoic Era, lasting from about 23 to 2.6 million years ago. During this period, mammals and birds continued to evolve into modern forms, while other groups of life remained relatively unchanged. The first humans (Homo habilis) appeared in Africa near the end of the period.

The Neogene is sub-divided into two epochs, the earlier **Miocene** and the later **Pliocene**.

Miocene Epoch

During this time, Earth experienced a long-term global cooling trend, the expansion of grasslands, the rise of new mammals like grazing horses and early elephants, the formation of the first kelp forests, and shifts in ocean circulation leading to the formation of the Antarctic ice cap.

Pliocene Epoch

A time of significant global cooling and drying, expanding polar ice caps, and the formation of major land bridges, particularly the Isthmus of Panama, which connected North and South America.

Quaternary Period

The Quaternary is the current and most recent of the three periods of the Cenozoic Era in the geologic time scale spanning the last 2.6 million years, characterized by significant climate fluctuations including repeated glacial advances and retreats, and marked by the evolution and spread of humans.

The Quaternary is subdivided into two epochs; the **Pleistocene** (up to about 11,700 years ago) and the **Holocene** (about 11,700 years ago to the present day).

Pleistocene Epoch

The Pleistocene Epoch, often called the "Ice Age," was a geological period lasting from approximately 2.58 million to 11,700 years ago. It is characterized by repeated cycles of extensive glaciations (ice ages) and warm interglacial periods. During the Pleistocene, modern humans evolved, and large megafauna like woolly mammoths lived, many of which went extinct at the epoch's end in a significant extinction event.

Holocene Epoch

The Holocene Epoch is the current geologic period of Earth's history, beginning approximately 11,700 years ago at the end of the last ice age. It is characterized by a relatively warm and stable climate, leading to the development and rise of human civilizations, and is known as the "Age of Man" due to the profound and wide-ranging impact humans have had on the planet's environment and biota.

ANY QUESTIONS?
THAT'S ALL AND THANK YOU FOR LISTENING!