

Eras of Earth's History Lesson 6

May 24-8:42 PM



What happened in the Paleozoic Era?



What happened in the Mesozoic Era ?



What happened in the Cenozoic Era?

May 24-8:55 PM

I. What happened in the Paleozoic Era

A. The extinction of the dinosaurs is one of the most famous events in Earth's history, but it is just one example of the changes that have taken place

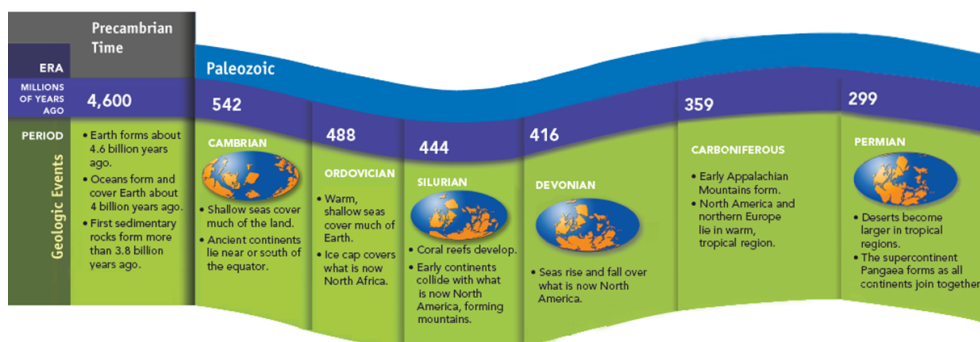
* Through **most** of **Earth's history**, the only living things were **single celled organisms**

* Near the **end** of the **Precambrian Time**, more **complex living things evolved.**

Feathery, plant like organisms that lived on the **ocean floor**

May 24-8:56 PM

- * **Jellyfish-like organisms floated** in the **ocean**
- * Scientists have found **fossils** in **Australia, Russia, China and Africa**
- * Greater **variety of living things evolved** during the **Paleozoic Era**



May 24-9:00 PM

B. The Cambrian Explosion

During the Cambrian Period, life took a big leap forward

* At the beginning of the Paleozoic Era, a great number of different kinds of organisms evolved. For the first time, organisms had hard parts, including shells and outer skeletons

*Called the Cambrian Explosion because so many new life forms appeared in a short time

May 24-9:05 PM

C. Invertebrates Develop

At this time, all animals lived in the sea

* Many were animals ^{w/o} without backbones / invertebrates

jellyfish, worms, and sponges

* Brachipods and trilobites were also common in the Cambrian seas

Brachipods resemble modern clams

Trilobites were a huge group of arthropods;

animals with jointed legs and segmented bodies

May 24-9:08 PM

D. New Organisms Arise

Invertebrates soon shared the seas with a new type of organism.

- * During the **Ordovician Period**, the first **vertebrate evolved**- animal with backbone
 - **jawless fish** with suckerlike mouths

May 24-9:12 PM

The first land plants

Until the Silurian Period, only one-celled organisms lived on land

- *then **plants** became **abundant**
- *the **first plants** grew **low to the ground** in **damp areas**
- *by the **Devonian Period**, **plants** could **grow** in **drier areas**
 - earliest forms of ferns

May 24-9:15 PM

Early Fishes

Both invertebrates and vertebrates lived in the Devonian seas

- * invertebrates were more numerous
- * often called Age of Fishes
- * every main group of fishes were present
- * most fishes had jaws, bony skeletons and scales
- * sharks appeared in the Devonian Period

May 24-9:18 PM

E. Animals reach land

The Devonian Period was also when animals began to spread widely on land

- * first insects evolved during the Silurian Period
- * vertebrates reached land during the Devonian
- * first land vertebrates were lungfish with fins
- * first amphibians evolved from the lungfish
 - amphibian is an animal that lives part of its life on land and part in the water

May 25-8:48 PM

F. The Carboniferous Period

Throughout the rest of the Paleozoic, other vertebrates evolved from amphibians

- *Small reptiles developed during the Carboniferous Period

- *Reptiles have scaly skin, lay eggs that have tough, leathery shells

May 25-9:05 PM

G. Pangaea

During the Permian Period, between 299 and 250 million years ago, the Earth's continents moved together to form a giant landmass or super continent called Pangaea

- * this formation caused deserts to form in the tropics and ice sheets to cover the land at the South Pole

May 27-9:43 AM

H. Mass Extinction

At the end of the Permian Period, most species of life on Earth died out

*This is a mass extinction

* about 90% of life in the ocean died out

* about 70% of life on land died out

* wide spread organisms like trilobites died

May 27-9:45 AM

*Scientists aren't sure what caused the mass extinction

* Some have ideas;

- asteroid stuck creating large dust cloud
- massive volcanic eruption spewed large amounts carbon dioxide and sulfur dioxide into the air
- temperatures rose during this time too
- carbon dioxide levels in the ocean increased and oxygen decreased

All these factors could have contributed

May 27-9:50 AM

II, What happened during the Mesozoic Era

A. Triassic Period

Some living things managed to survive the Permian mass extinction

- * Plants and animals that survived included fish, insects, reptiles and conifers
- * Reptiles were so successful during the Mesozoic, it is often called the Age of Reptiles

May 27-9:54 AM

*First dinosaurs appeared about 225 mya

* Mammals also appeared during the Triassic. They were very small about the size of a mouse

* Mammal is an vertebrate that can control its body temperature and feeds milk to its young

May 27-9:57 AM

B. The Jurassic Period

During the Jurassic Period, dinosaurs became common on land

- * Other kinds of reptiles evolved to live in the oceans
- * Scientists have identified several hundred different kinds of dinosaurs
- * One of the first birds appeared during the Jurassic Period

May 27-9:59 AM

- * Archaeopteryx means ancient winged one
- * Paleontologists think that birds may have evolved from dinosaurs



May 27-10:02 AM

C. The Cretaceous Period

Reptiles, including the dinosaurs were widespread during the Cretaceous Period

- *Birds began to replace flying reptiles. Their hollow bones made them better adapted for flying
- * Flowering plants first appeared. Flowering plants produced seeds inside fruit which helped them to spread

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D. Another Mass Extinction

At the close of the Cretaceous Period, about 65 million years ago, another mass extinction took place. Scientists hypothesized that this mass extinction occurred when an asteroid from space struck Earth

THE DEATH OF THE DINOSAURS

BY TERRY DACTYL



May 27-10:08 AM

*This mass extinction wiped out more than half of the plants and animals including the dinosaurs

* When the asteroid hit, the impact threw up huge amounts of dust and water vapor. Dust and heavy clouds blocked sunlight for years.

* Without sunlight, plants died, and the plant eating animals starved

*Scientists also think that climate change caused by increased volcanic activity may have helped cause the mass extinction

May 27-10:10 AM

III. What happened in the Cenozoic Era

A. During the Mesozoic Era, mammals had to compete with dinosaurs for food and places to live

* The extinction of the dinosaurs created an opportunity for mammals. During the Cenozoic Era, mammals evolved to live in many different environments

- on land, in the water and in the air

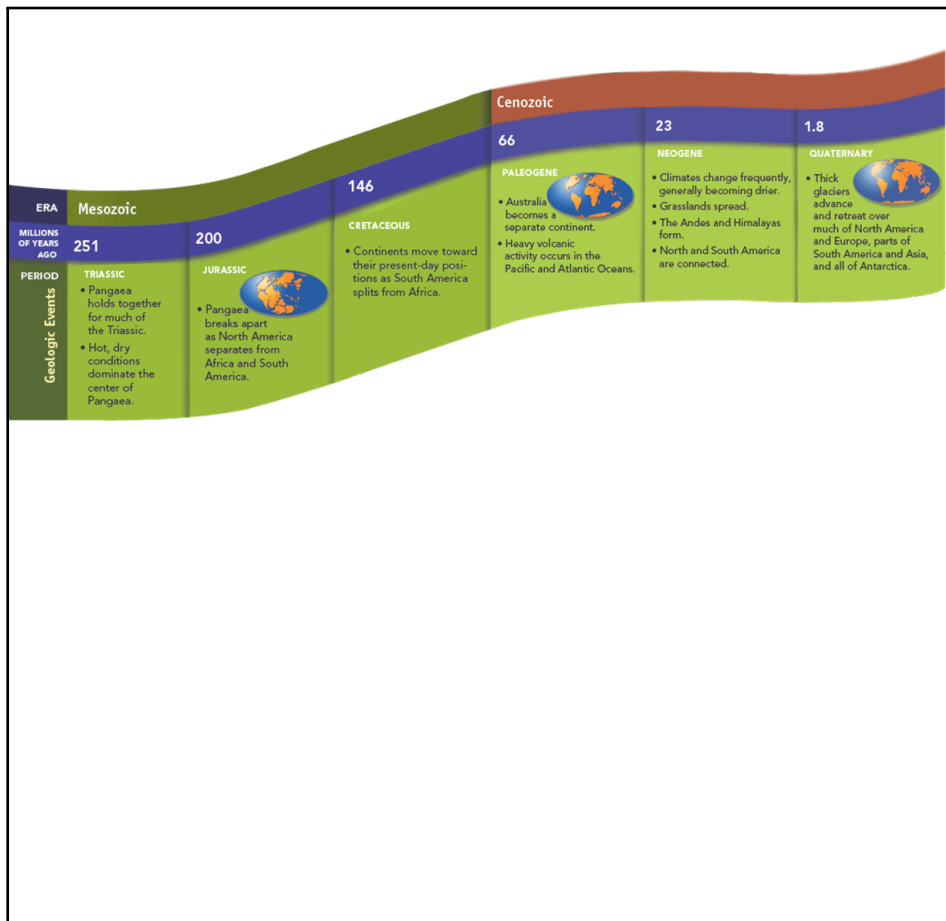
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B. The Palogene and Neogene Periods

During the Palogene and Neogene Periods the Earth's climate was generally warm and mild, although it cooled over time

- * In the oceans, whales and dolphins evolved
- * On land, flowering plants, insects and mammals flourished
- * Grasses began to spread
- * Some mammals and birds became very large

May 27-10:31 AM



May 27-10:34 AM

C. The Quaternary Period

Earth's climate cooled and warmed in cycles during the Quaternary Period causing a series of ice ages

- * Thick glaciers covered parts of Europe and North America

- *The latest warm period began between 10,000 and 20,000 years ago and has caused a lot a glaciers to melt

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- * In the oceans, algae, coral, mollusks, fish and mammals thrived.

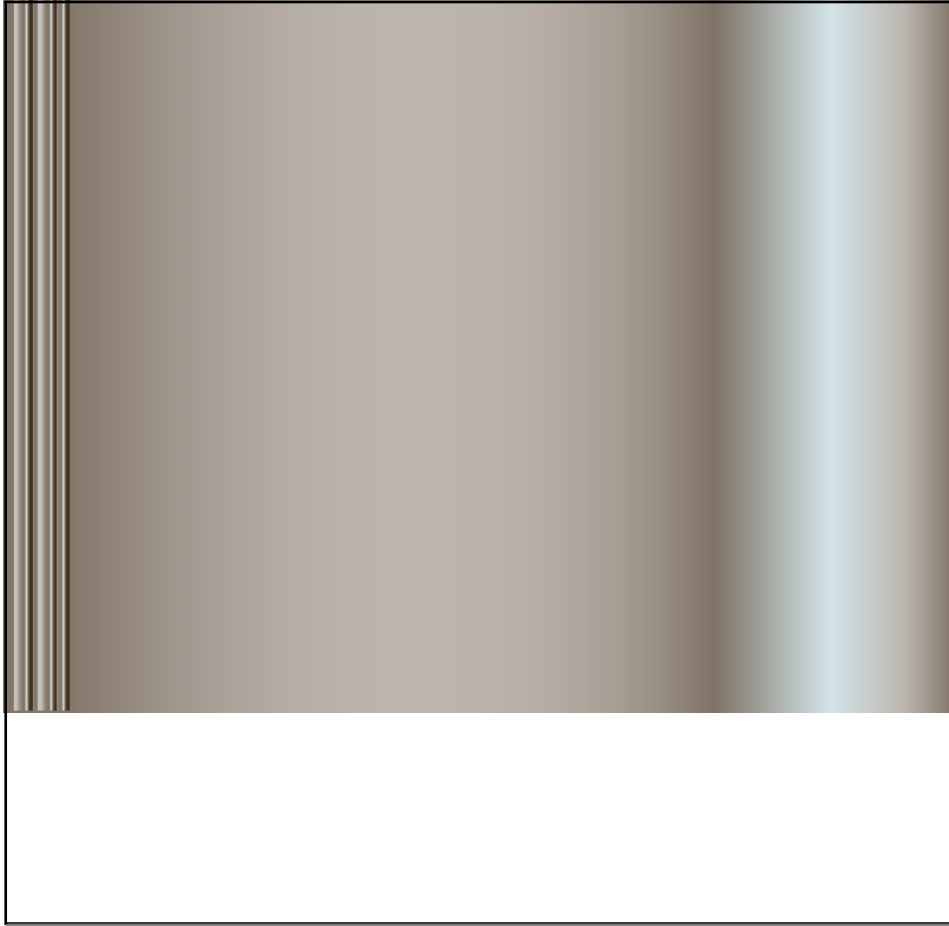
- *Insects and birds shared the skies

- *Flowering plants and mammals such as bats, cats, dogs, cattle and human became common

- * Fossil record suggests that modern humans may have evolved as early as 190,000 years ago

- * By about 12,000 to 15,000 years ago , humans had migrated to every continent

May 27-10:41 AM



May 27-11:16 AM