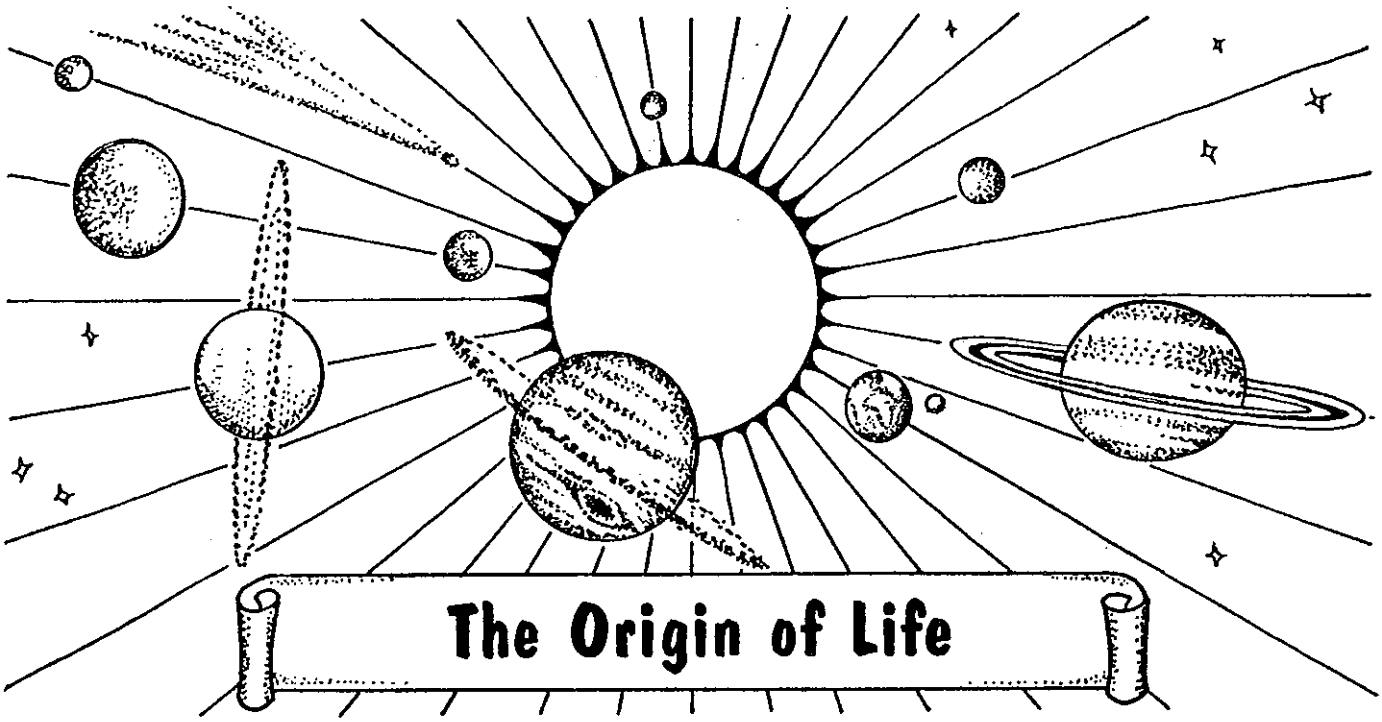
PREHISTORIC TIMES

Information Card 1



The solar system was formed nearly ***one billion*** years ago. Our planet, Earth, is the only planet in the solar system that is known to have life on it. Life as we know it must have water and oxygen. At first, there was only simple life forms, such as bacteria and algae. Gradually, more varied and complex life ***evolved.***

We learn about past forms of life from ***fossils.*** Fossils are the remains of plants and animals that died millions of years ago. These are usually found in rocks that have been buried under other layers of rock, or in the sea.

When a fossil is found, ***radio-active dating*** is used to determine the age of the rock or fossil. This complicated process is very useful to scientists.

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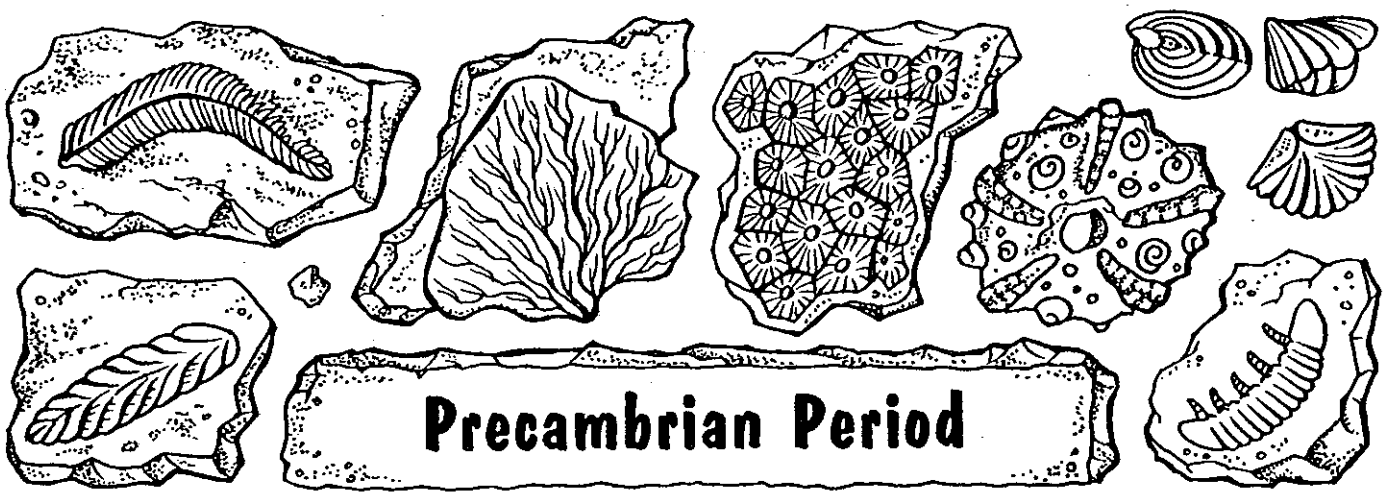
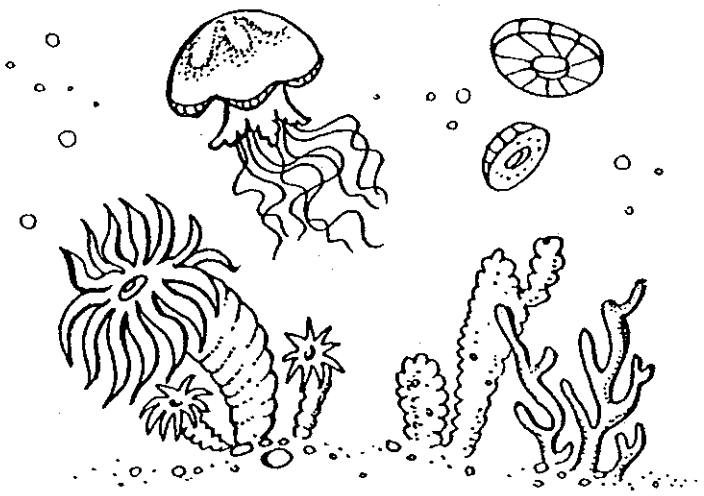
Information Card 2



The first fossils from the Precambrian period are 600 million years old. These fossils indicate that the earliest life forms had ***soft bodies*** without skeletons.

Stromatolites were mounds of single-celled plants that lived together in colonies in the water. Later, simple life forms evolved and swam freely in the seas.

Some of the first, more, complex ***animals*** were: jellyfish, sponges, worms, sea anemones, sea urchins, sea pens and dickinsonia. Most of these soft bodied creatures had a thin layer of harder tissue acting as support for its body.



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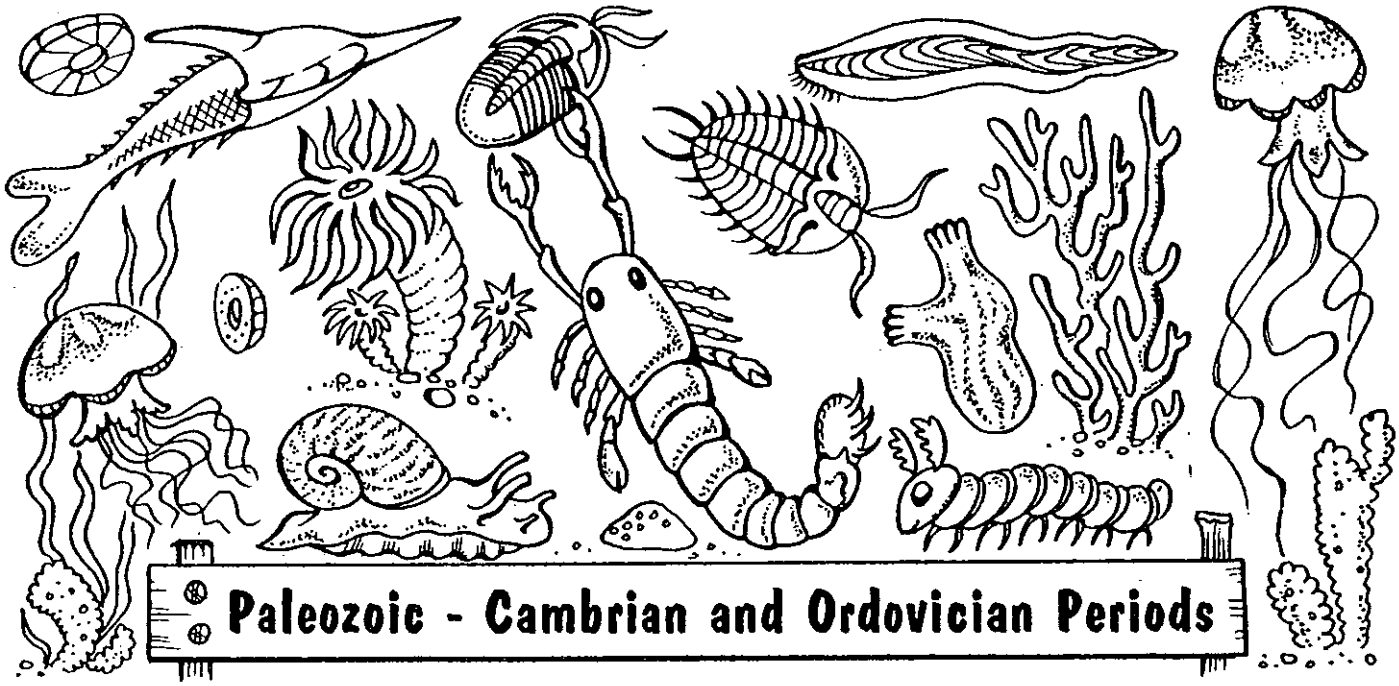
Information Card 3



During the Cambrian era, there were floods that raised the water level of the seas. New varieties of sea life were created. For the first time, animals with hard, protective shells swam in the seas.

There were snails, brachiopods, lamp shells, lancelets, coral and worms. **Trilobites**, an important group of animals from this period, had tough **skeletons** on the outside (like lobsters) of their bodies. They had many legs and could run along the bottom of the sea or swim quickly.

During the Ordovician period, the seas continued to be filled with a variety of crawlers and swimmers. The most notable life forms from this period were the **nautiloids**. This shelled animal is related to todays octopus. Other forms of life were: sea lily, seaweed, brachipods, coral, trilobites, snails, crabs, plankton, nektons, and benthos.

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Information Card 4

Paleozoic - Silurian Period

The most significant development during the Silurian period was that creatures ventured out of the water and onto the land. Some scientists theorize that the sea may have been getting too crowded for the growing number of life forms. As a result, certain plants and animals ***adapted*** to life on land.

One adaptation was ***tougher waterproof skin*** to protect them from drying out under the Sun's bright rays.

Another adaptation was the development of ***lungs*** instead of gills. This allowed the animals to take oxygen from the air.

Among the first animals to leave the water were the millipedes and scorpions. The first land plants were rhynia and asteroxylon. All of these stayed close to the water's edge.

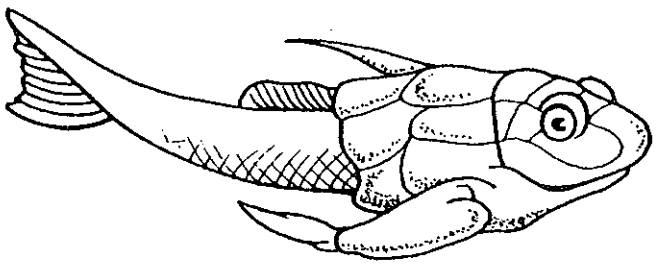
PREHISTORIC TIMES

Information Card 5

The Devonian period, known as the "***Age of Fishes***", was 345 to 395 million years ago. Some of the fish had jaws, armored heads, fins or skeletons of bone or cartilage. The first sharks appeared during this time.

Some fish had strong enough fins to support their weight. When fish developed lungs they were able to survive in the mud when their ponds dried up. The first amphibians, ichthyostegas, crawled through the mud with the help of their strong backbone (vertebrate).

The first tree-sized plants appeared during this time.



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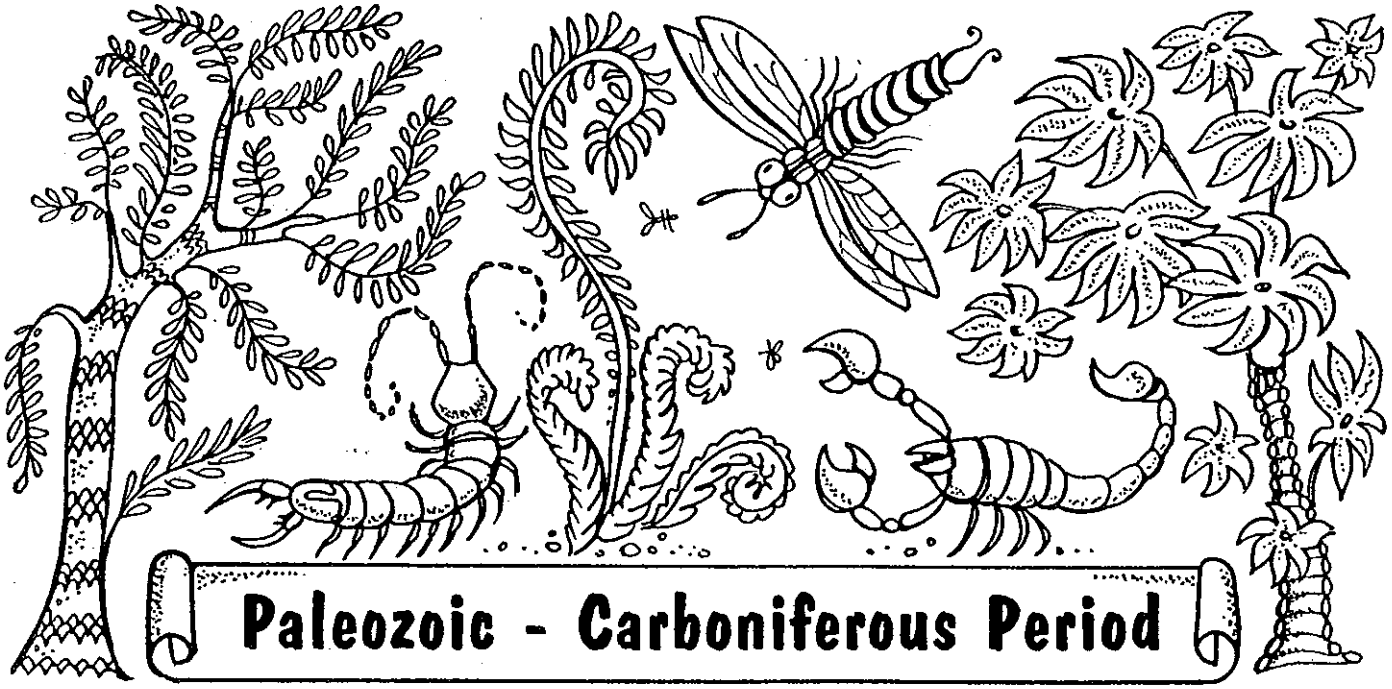


Paleozoic - Carboniferous Period

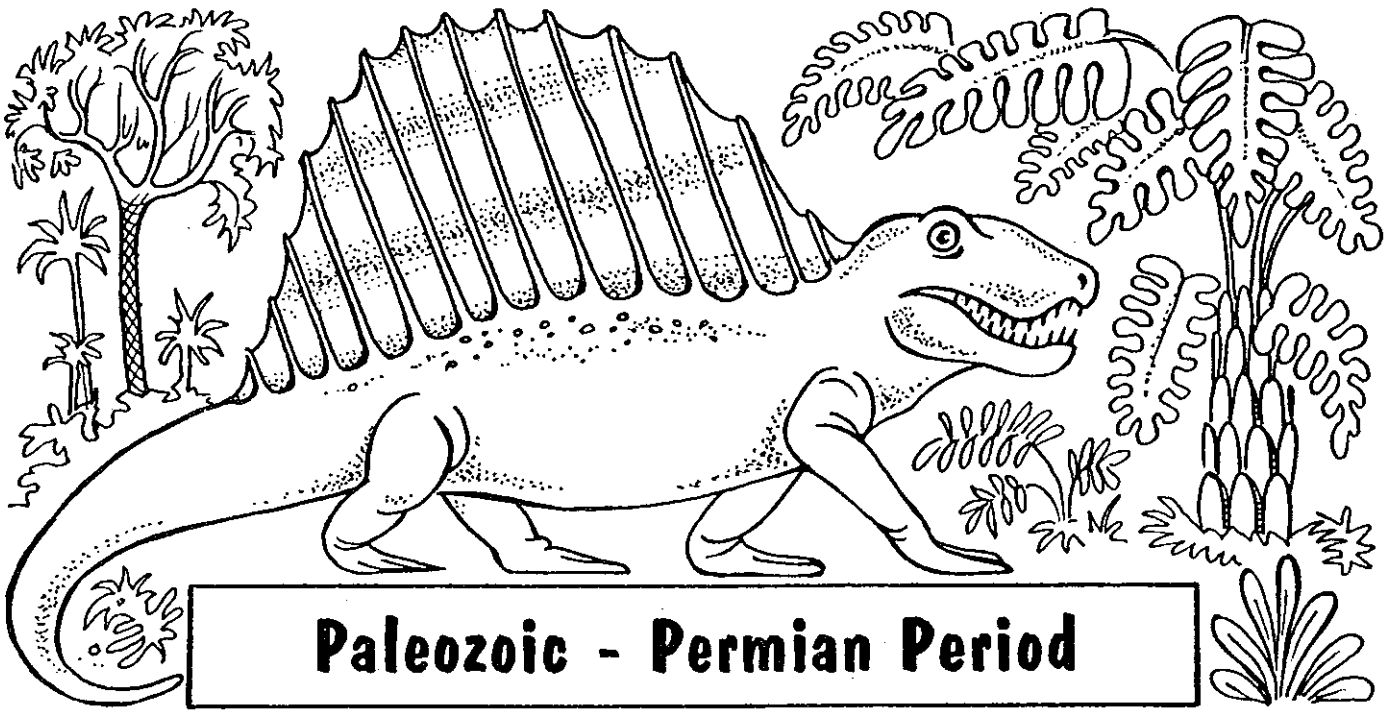
The first part of the Carboniferous period began 345 million years ago when much of the world was covered with tropical seas. This period got its name because of the large amount of ***calcium carbonate*** that could be found in the warm waters of the era.

During the second half of this period, the seas retreated and left ***swampy lowlands*** behind. Scaly ***trees*** grew and made up dense forests with ferns forming in the undergrowth.

Insects and amphibians were ***abundant.*** Also, the first ***reptile,*** the hylonomus, evolved during this period. Reptiles started laying eggs with ***shells.*** This was an important development because the shells protected the eggs and it was no longer necessary for the mother to return to the water to ***breed.***

PREHISTORIC TIMES

Information Card 7



Paleozoic - Permian Period

Since the creation of the Earth, the oceans and continents have constantly been changing in size and shape. At the time of the Permian period, all the continents formed one giant land mass, called ***Pangaea.***

At the start of this period, 280 million years ago, the ***supercontinent*** was covered with ice and snow. ***Warm-blooded*** animals were now covered with ***fur*** to help them survive.

As the Permian period went on, the climate warmed, the glaciers melted and the ice and snow disappeared. The warm weather was difficult for the amphibians to adapt to. However, the reptiles had scales that prevented them from losing water.

New, larger trees, such as the ***conifer,*** developed and replaced the smaller scaled trees.

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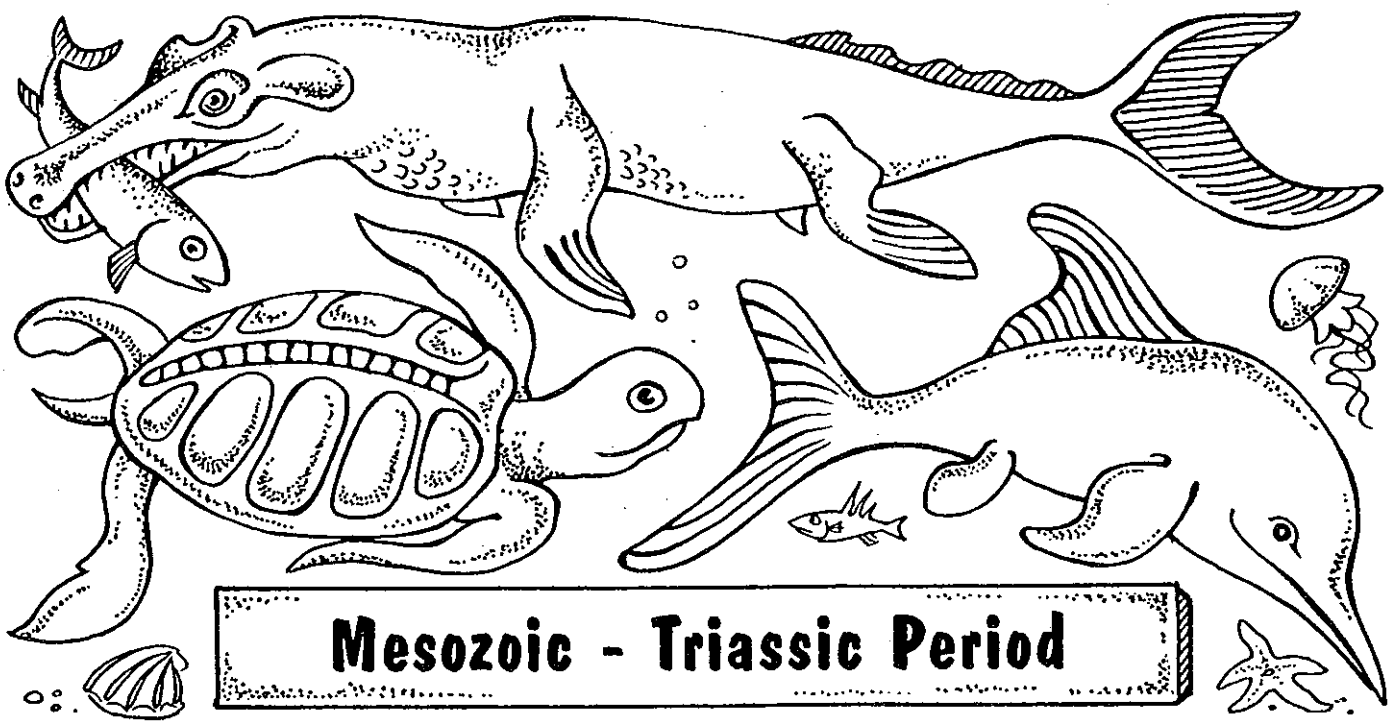
Information Card 8



The Triassic period marked the beginning of the ***Middle Life*** era. It began 225 million years ago. New life forms replaced those that had come out in earlier periods.

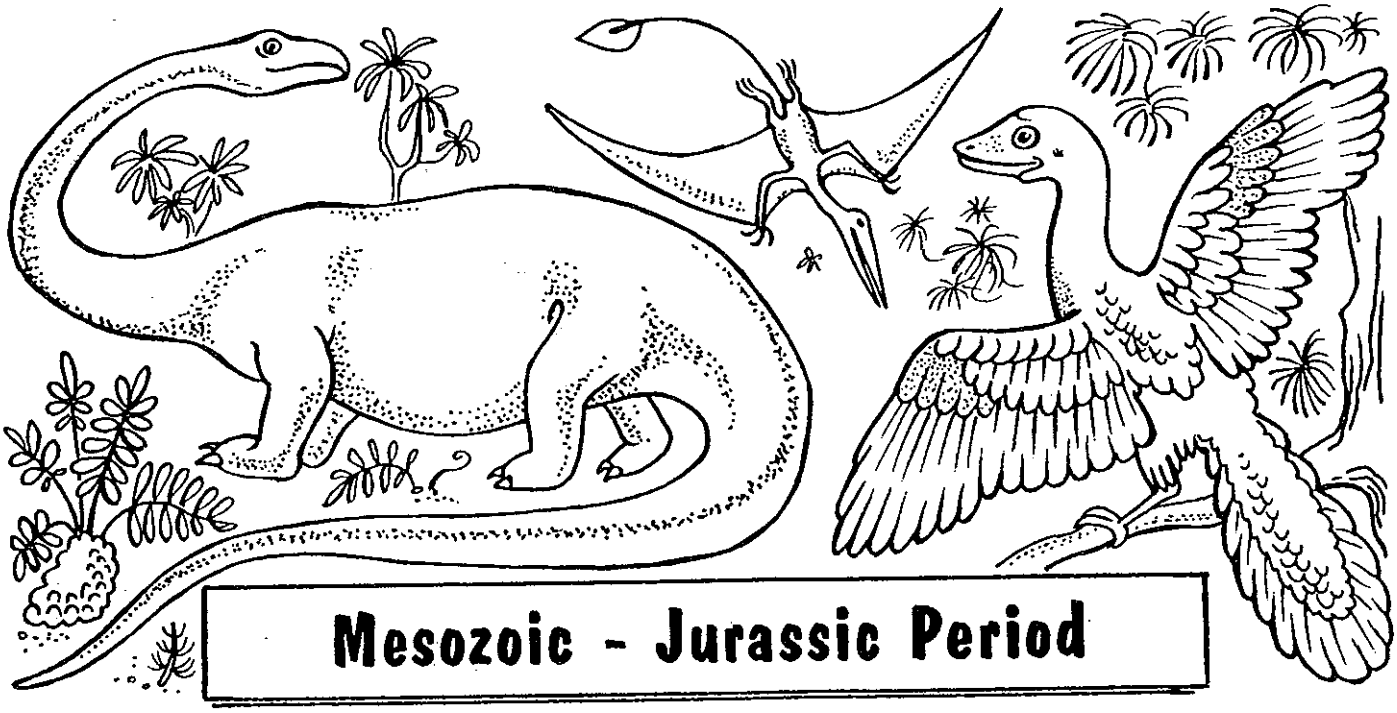
In the sea there were ***ammonites, stony coral, belemnites*** (squid-related animals), ***ichthyosaurs*** (fish lizards), and ***placodonts*** (the first turtle).

On land, reptiles, such as the ***kuhneosaurus,*** were developing the ability to glide and fly. Other mammal-like reptiles lived in swamps and developed strong tusks and beaks.

All kinds of reptiles roamed the Earth during this time. Relatives of the ***crocodile*** and ***pterosaurs*** were some of the reptiles that could be found. Also, the mighty ***dinosaur*** entered the scene at this time.

PREHISTORIC TIMES

Information Card 9

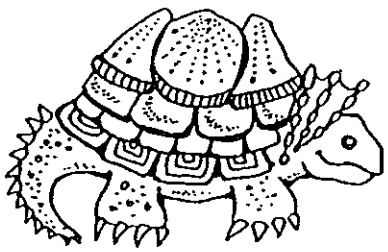


Mesozoic - Jurassic Period

The dinosaurs ruled the Earth during the entire Jurassic period. Dinosaurs of the Jurassic period are divided into two main groups, called the ***saurischia*** ("lizard-hips") and the ***ornithischia*** ("bird-hips").

At that time, scientists believed that the weather was ideally warm over most of the Earth. The warm seas were suitable for ***plesiosaurs*** (sea reptiles) to evolve into the giants of the water.

Many fossils found in Solnhofen, Germany, reveal the kinds of life that lived on Earth 190 million years ago. Fossils of the first bird, the ***archaeopteryx***, were dated back to the Jurassic period.



PREHISTORIC TIMES

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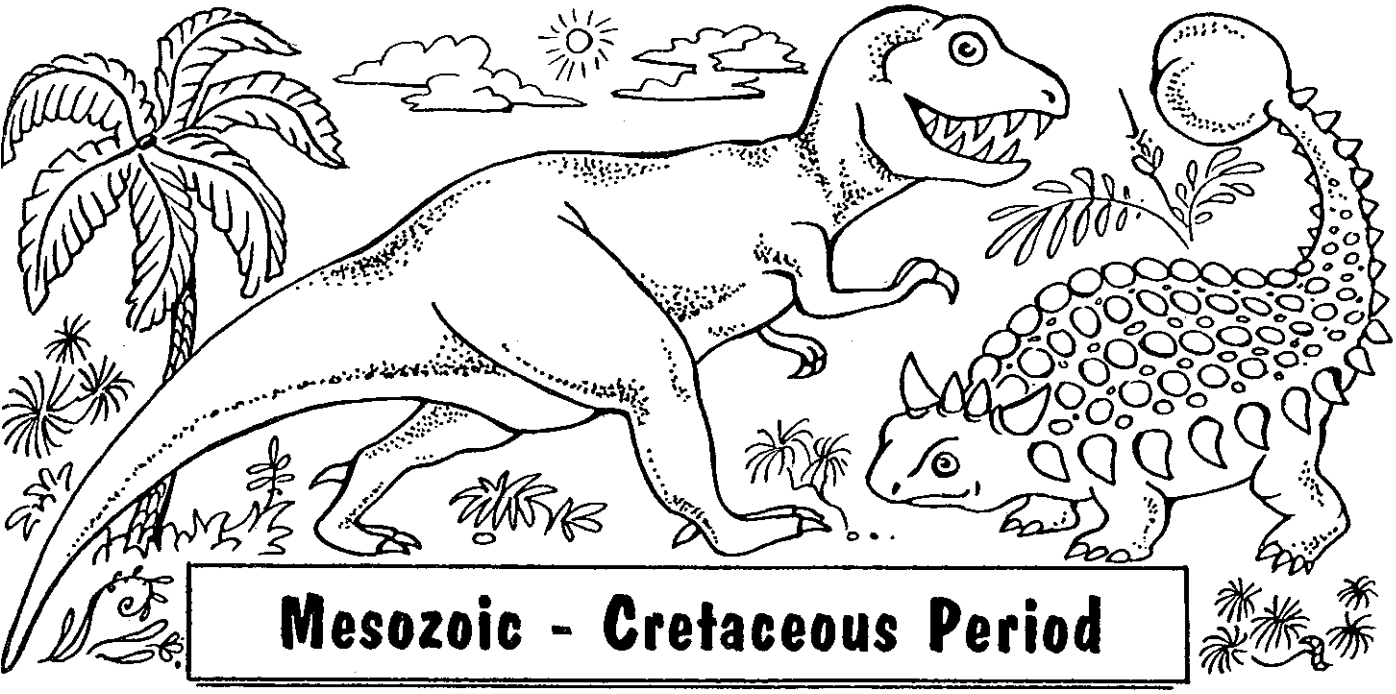

Mesozoic - Cretaceous Period

The ***tyrannosaurus rex*** (meaning "king of the tyrant lizards"), was the ruler during the Cretaceous period. These savage beasts were up to 5 meters tall and had teeth that were 15 centimeters long.

However, during this time, the continents had started to shift apart. This was known as the ***continental drift.*** The break-up of ***Pangaea*** and the climate changes are two possible reasons for the extinction of many creatures of the Jurassic period, including dinosaurs.

Free-swimming ***clams*** and ***ammonites*** filled the oceans. Reptiles, such as the ***plesiosaurs*** and the ***ichthyosaurs*** (fish-lizards) dominated the land. These animals eventually died out leaving the ***turtle*** as the only successful sea-reptile from the Cretaceous period.

The first ***snakes*** and modern ***mammals*** evolved during this time.

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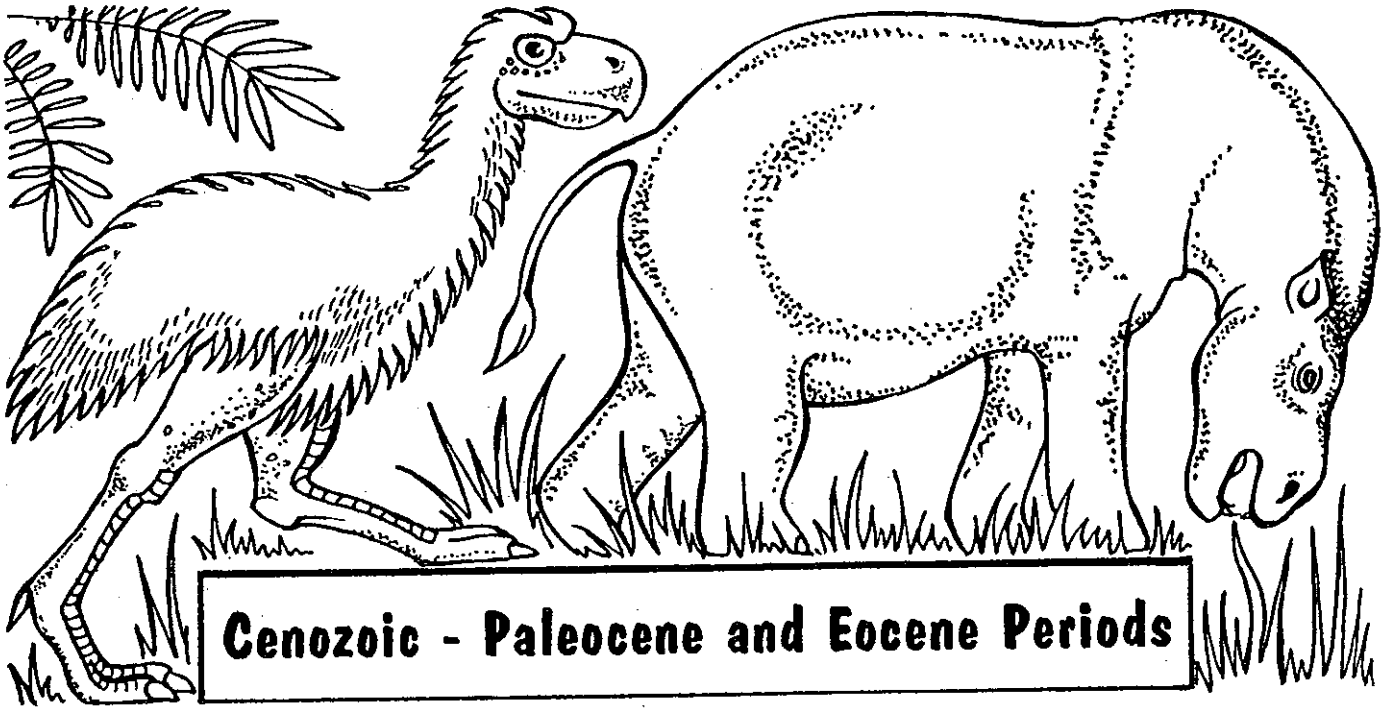
Information Card 11



Cenozoic - Paleocene and Eocene Periods

The Paleocene period is known as the ***"Age of Mammals"*** because mammals flourished during this time. Some of the mammals from this era were: ***hedgehogs***, ***shrews***, and monkey-like animals such as ***plesiadapis.***

During the Eocene period mammals continued to evolve and be varied. The first ancestors of cats and dogs were around during this time. Examples are the ***saber-tooth cat*** and the ***andrewarchus***, which is also known as a "bear-dog".

Other significant animals were the ***icaronycteris*** (bat), ***diatryma*** (flightless bird), ***hyracotherium*** (horse) and ***basilosaurus*** (whale).

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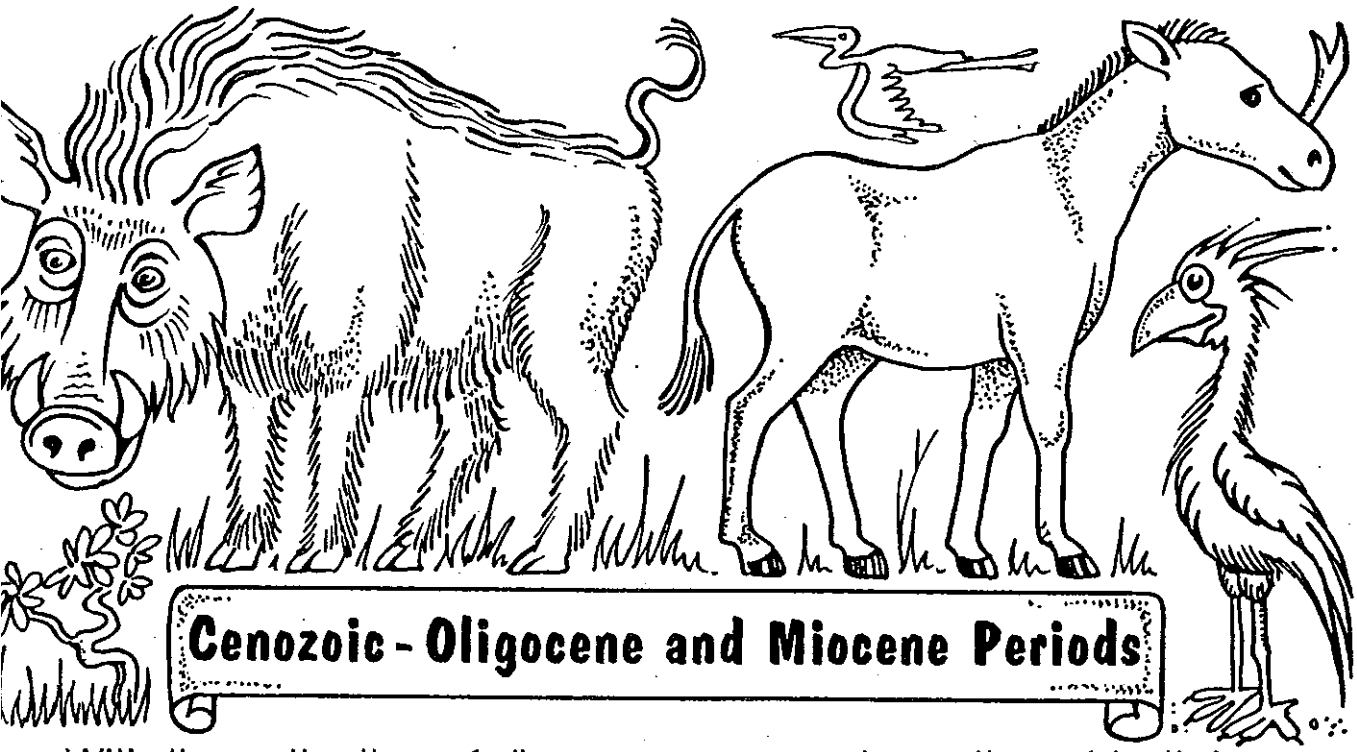
Information Card 12



Cenozoic - Oligocene and Miocene Periods

With the extinction of dinosaurs, mammals continued to thrive during the Oligocene period. This was the age of the rhinocerous, like the ***baluchitherium***, which grew to a height almost 5 meters (5 yards) and a length of nearly 8 meters (8 yards). As well, the early pig, the ***archeotherium,*** was a powerful mammal of this epoch.

During the Miocene period, ***grasslands*** replaced the forests of earlier eras. These grasslands were able to support many more mammals than the forests could. As well, the collision of continents created ***mountains*** in Europe and Asia.

As a result of these changes, the evolving mammals had to develop new ways of eating and of escaping danger.

Some animals that developed during the Miocene era were ***rodents*** such as: mice, rats, epigaulus, porcupines, and beavers. Ancestors of today's pigs, camels, antelope and deer also appeared on the Miocene plains.

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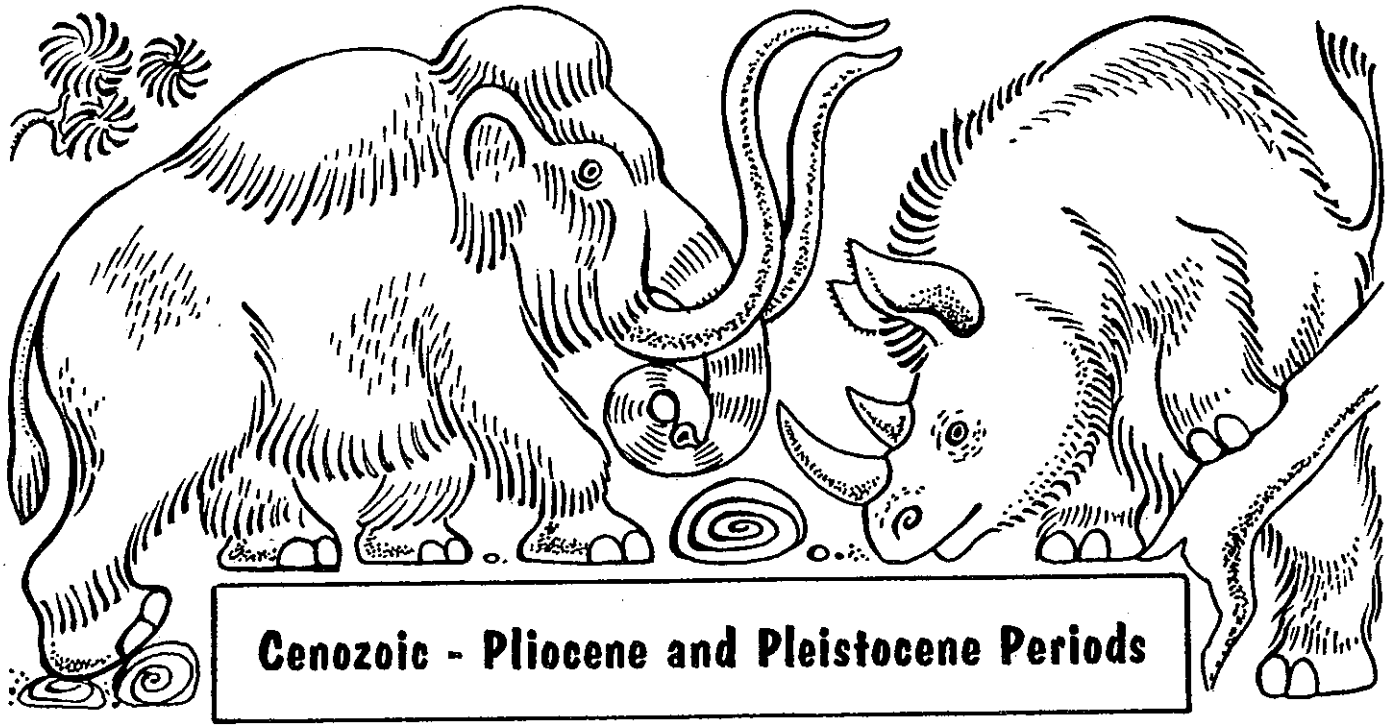
Information Card 13



Cenozoic - Pliocene and Pleistocene Periods

The importance of the Pliocene period is marked by the evolution of the first human beings - the ***australopithecus.*** Other animals of this age were the ***megatherium*** (large sloth), ***glyptodon*** (armadillo), cattle, and sheep.

The ***Ice Age*** is also known as the Pleistocene period. The frozen, snow-covered land forced most mammals to migrate south. Furry animals that were able to survive the cold were: ***woolly mammoths, hares, wolves, reindeer, musk-oxen,*** and ***bears.***

Eventually, the climate became warmer, the ice retreated and trees, grass and flowers once again covered the landscape. New animals to evolve were the ***hyenas, bison, cave lions,*** and ***marsupials,*** such as the ***kangaroo.***

The first modern humans also developed during this most recent time.

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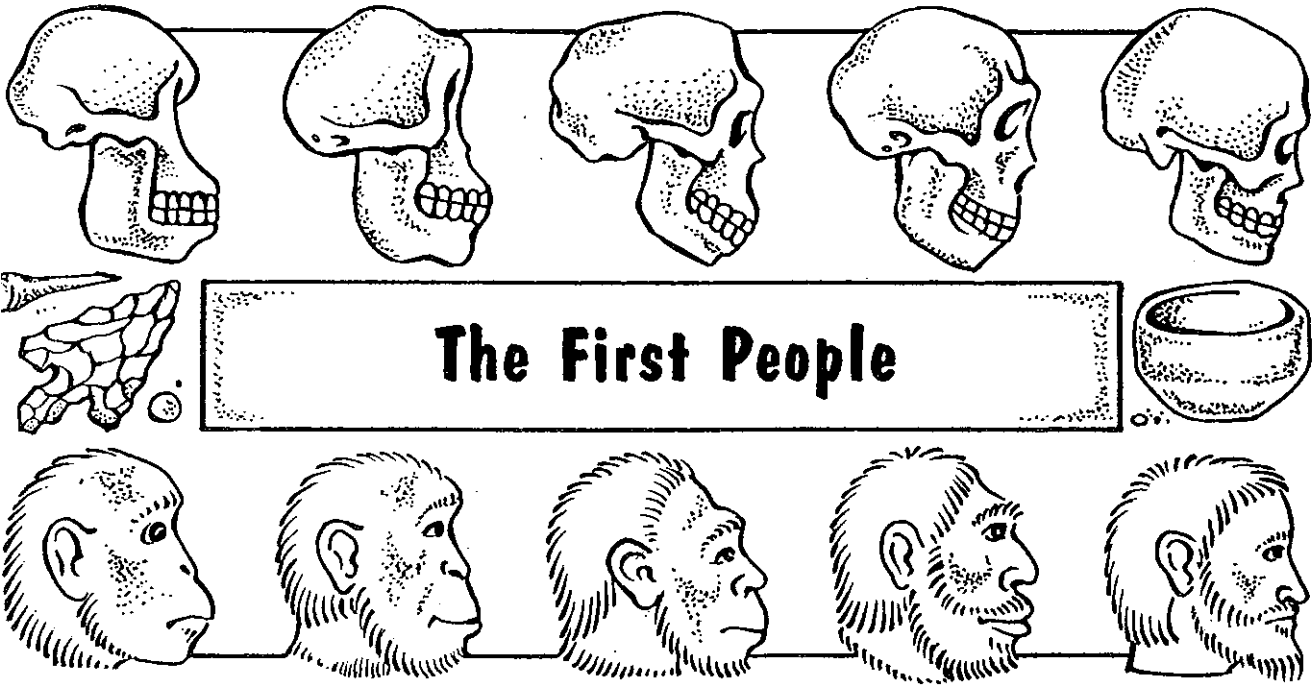
Information Card 14



The first ***primate*** called plesiadapis existed about 65 million years ago. Other primates included: ***tarsiers, marmosets, monkeys, baboons, gibbons, orangutans, gorillas, chimpanzees*** and ***human beings.***

The human evolution began 14 million years ago with ***ramapithecus***, which was followed by ***australopithecus, homo habilis, homo erectus, neanderthals*** and ***homo sapiens.***

Humans are unique because of our ***large brains*** and intelligence. No other animal has been able to make their own clothing, grow their own food and control nature to the certain degree that human beings can.