

JUNIOR DALEONTOLOGIST

Activity Book: Understanding Time – Mesozoic Era 4–6

BECOME A JUNIOR Palaeontologist

This activity book is part of the Craigleith Heritage Depot Junior Naturalist Program.

This badge will introduce kids to palaeontology and local fossil history. The activities are designed to engage kids whilst teaching them about the science of palaeontology. By completing your Junior Palaeontologist Badge you will learn about ancient life, and explore your local area for fossils. There are six booklets, complete four of the six booklets and receive your Junior Explorer badge.

HOW TO Receive your Badge

To receive your Junior Palaeontologist badge you must complete the activity book and bring it to the Craigleith Heritage Depot where the staff will look over the booklet and award you a stamp in your Field Journal, once you have completed four of the six books the CHD staff will award you your badge!



Heritage Dep

• The oldest fossils are 3.5 billion

- The oldest fossils are 3.5 billion years-old.
- Some Fossils Are Huge Patagotitan mayorum, possibly weighed 69 tonnes, over 150,000 pounds
- Fossilized poop is called coprolites.
 Scientists have found coprolites from Tyrannosaurus rex dinosaurs that contain bits of crushed bones.





UNDERSTANDING TIME

The Earth is really old, it formed 4.6 billion years ago. We can divide the Earth's history into smaller sections called eons, eras, and periods. Palaeontologist need to learn about the different periods because each had unique forms of life.

The colours below represent the 3 major eras of geological time – Paleozoic Era, Mesozoic Era, and Cenozoic Era. Try to match up the creatures or plants to the right time period.



Saber-Toothed Cat and other mammals dominate



extinction level event that devastated many forms of life.

3

Mesozoic 252 Million - 66

Million Years Ago

MESOZOIC ERA

See if you can find all the key words about the Mesozoic Era in the word search below!

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<u> Mesozoic 252 Million - 66 Million Years Ago</u>

MESOZOIC - DINOSAURS - EXTINCTION -ANCESTORS - REPTILES - CONIFERS - CONTINENTS - FLORA - FAUNA - PANGEA - GEOLOGIC -BIOLOGICAL - ERA

DAWN OF REPTILE TRIASSIC

The first period of the Mesozoic area was the Triassic period.

Triassic Period

Jurassic Period

Cretaceous Period

During this period, there were no separate continents like today. Almost all the Earth's land mass was together in a single supercontinent called Pangaea ("all the land"); it was centered more or less on the equator.

After the extinction level event that ended the Paleozoic it took 30 million vears to re-establish diverse complex ecologies 🕌 (fish, reptiles, birds and insects).

which were first found during the Mesozoic era at the same time as the dinosaurs. They into the Cretaceous period.

It was the shortest of the three periods. It was roughly 50.6 million years in length!

Britannica.com/science/mesozoic.era

Being a super-continental land mass, Pangaea had limited shoreline. Because of this, Triassic marine deposits – fossils from Triassic ocean life – are rare in most of the world.

The beginning of the Triassic saw the rise of land reptiles, birds, and large insects.

> The earliest fossil turtle comes from the early Upper Triassic of China, about 220 million years ago. So turtles are one of the oldest surviving reptile groups and a more ancient group than lizards, snakes and crocodiles.

The climate throughout the Jurassic Period was hot and dry. The Earth's average surface temperature was about 3 degrees hotter than today.

Mesozoic 252 Million - 66 Million Years Ago (Triassic Perio



Pterosaurs were flying reptiles continued to dominate the skies

DAWN OF REPTILES

Help the Mesozoic creatures get to their habitats



Pterosaurs were genuine fliers, able to flap or soar. Their bodies were covered with fine hairs, so they were able to regulate their temperature (they were warm-blooded).

The first Pterosaur fossils occur in the Upper Triassic, and the group continues until the K/T extinction event at the end of the Cretaceous.

The earliest known turtle fossil, Proganochelys, are from the late Triassic (Norian) sedimentary deposits in Germany.

Turtles were already present when the first dinosaurs appeared, and they shared the ancient seas with ichthyosaurs, watched pterosaurs soar overhead, and saw the first small, furry mammals.



AGE OF DINOSAURS: Jurassic

The Jurassic Period took place 199 to 145 million years ago, it came after the Triassic and before the Cretaceous

During this period, Earth's climate changed from hot and dry to humid and subtropical.

This periods mainly warm, wet climate gave rise to lush vegetation and abundant life.

During the Jurassic period, the supercontinent Pangaea split apart.

The northern half, known as Laurentia, was splitting into landmasses that would eventually form North America and Eurasia, opening basins for the central Atlantic and the Gulf of Mexico.

<u> Mesozoic 252 Million - 66 Million Years Ago (Jurassic)</u>



The southern half, Gondwana, was drifting into an eastern segment that would form Antarctica, Madagascar, India and Australia, and a western portion that would form Africa and South America.

This rifting, along with generally warmer global temperatures, allowed for diversification and dominance of the reptiles known as dinosaurs.

Many new dinosaurs emerged—in great numbers. Among them were stegosaurs, brachiosaurs, allosaurs, and many others.

Sauropods, the "lizard hipped" dinosaurs, were herbivorous quadrupeds with long necks balanced by heavy tails. Many, such as Brachiosaurus, were huge. Dinosaurs may have been the dominant land animals, but they were not alone. Early mammals were mostly very small herbivores or insectivores and were not in competition with the larger reptiles.

alchetron.com

The largest marine carnivores were the Plesiosaurs. These carnivorous marine reptiles typically had broad bodies and long necks with four flipper shaped limbs.

65

Brachiosaurus obtained lengths greater than 100 feet and weights over 100 tons, making them the largest land animals ever to walk the earth.

7

DINOSAURS GΕ /

Draw what you think a Jurassic landscape would have looked like for each of the dinosaurs below. Add dinosaurs to the ones below that you think would have lived during the Jurassic.







Mesozoic 252

GIANTS ΗE CRETACEOU

The Cretaceous period lasted for 79 million years, the longest of the 3 Mesozoic periods.

This period essentially began with two continents, Laurasia in the north and Gondwana in the south. An equatorial seaway separated the two continents.

livescience.com

By the middle of the period, ocean levels were much higher; most of the landmass we are familiar with was underwater. By the end of the period, the continents were much closer to today. South America and Africa had assumed their distinctive shapes; but India had not yet collided with Asia and Australia was still part of Antarctica.

CRETACEOUS 65 million years ago

The climate was generally warmer and more humid than today, probably because of very active volcanoes on the sea floor.



During the Cretaceous period, more ancient birds took flight, joining the pterosaurs in the air.

> Large "duckbilled" dinosaurs, Parasurolophus

Some of the dinosaurs that lived during the Cretaceous Period were the Tyrannosaurus rex, Triceratops, Ichthyosaurs and the Parasurolophus.

Giant marine reptiles ichthyosaurs,

Horned forms, such as Triceratops



The Tyrannosaurus

The end of the Cretaceous Period saw the extinction of the dinosaurs. This was called the Cretaceous-Paleogene extinction event and believed to have been caused by an asteroid or comet impact event.



Chicxulub crater

Britannica.com

The extinction level event paved the way for mammals to dominate the planet Earth and ultimately the rise of humans.

9



For this activity you will have to do some digging - just not

Checkout a dino book from the library or search online for some Cretaceous dinosaurs.

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Once you have found a couple of cool Cretaceous dinosaurs find out how tall they are, once you find their height head outside with some chalk or some stones and a tape measure.

Ask a parent to measure out the height of the dinosaur on your drive way or sidewalk.

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in the dirt!

Mark where the feet would start and to the tallest point of the dino. Then lay down at the Dinos "feet" and mark how tall you are!

Either take a photograph or draw you dinosaur and how small you are compared to it!

<u> Mesozoic 252 Million - 66 Million Years Ago (Cretaceous)</u>

LEARN MORE!

WANT TO LEARN MORE CHECK OUT SOME OF THE ONLINE AND LIBRARY RESORUCES!

GREAT BOOKS



J 567.9 CHI



J 567. 937 ARN



J 567.9 LOM



J 567.9 ROO



Enter the incredible world of the dinosaurs-from he they lived to their disappearance from Earth

J 567.9 LAM



J 567 .9 NAR