



## Ancient Animal Absurdity

### *Marine Madness*



# CREATURE GUIDE



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DINOSAUR MUSEUM



#AAA2026

# Welcome to the AAA 2026 Creature Guide!

Specially curated by our palaeontologist and curator, Dr. Bamforth, this guide will provide you with everything you need to know about the 8 aquatic competitors before the battles start.

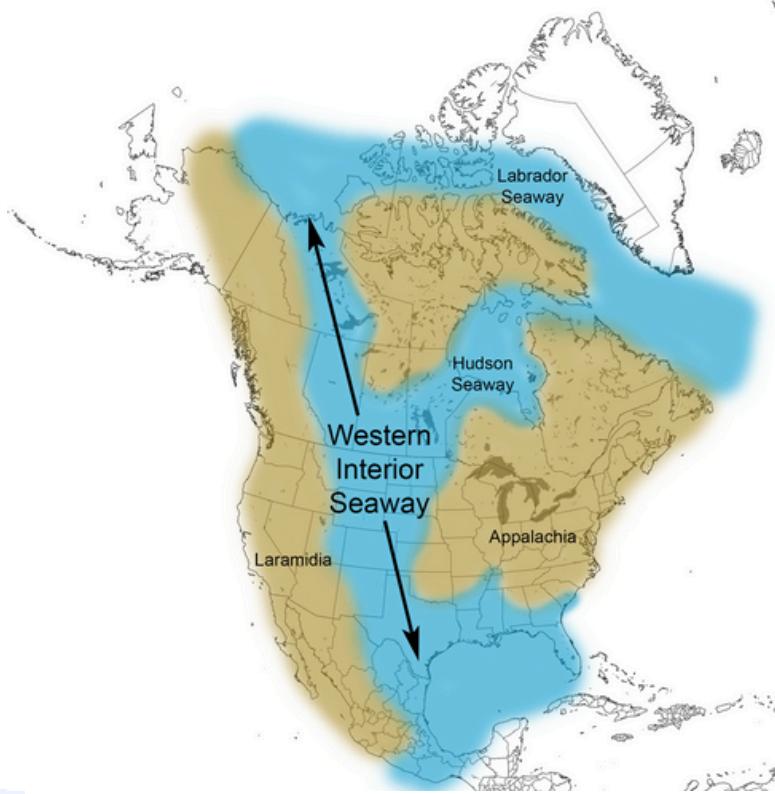
Look out for **underlined red words**; these terms are defined in the glossary at the end.

For example...

## **Marine:**

*Relating to or found in the sea.*

# THE BATTLEGROUND: Western Interior Seaway



All of AAA 2026 will be set in the **Western Interior Sea**. This shallow inland sea stretched from the Gulf of Mexico to the Arctic Circle during the **Cretaceous** period, splitting the North American continent in half from east to west. The seaway existed in North America for over 34 million years, though it was always growing and shrinking. At its greatest extent, the sea was over 750 m deep, almost 1000 km wide, and over 3200 km long. The vast majority of dinosaurs found in western Canada today lived in the coastal regions on the western edge of this immense inland sea.

The Western Interior Sea was home to some of the most magnificent and ferocious marine creatures the world has ever known. For example, the warm, shallow marine environment was the perfect home for huge, loon-like sea birds with teeth, sea turtles the size of Volkswagens, and **ammonites** (squid-like animals with shells whose fossils are used to make jewelry today). It was also home to a variety of **plesiosaurs**, sharks, marine crocodiles, **pterosaurs**, and fish of all shapes and sizes. At the top of the food chain were the terrifying **mosasaurs**, marine reptiles sometimes called the 'T. rexes of the Sea'.

# COMPETITORS WITH AN EDGE

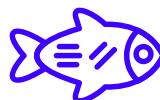
## Lungs vs. Gills

The AAA 2026 animals are from a variety of different time periods. Just like animals today, ancient animals evolved adaptations for specific environments, and animals that are better adapted to their environment typically have a higher chance of survival.

Though all of the AAA 2026 competitors lived in the water, some had lungs and breathed air, while others had gills and could breathe underwater. When thinking about who might win a battle, consider what advantages having lungs vs. gills might give a competitor in a warm, shallow marine environment.



HAD LUNGS



HAD GILLS

**Tylosaurus** was a **reptile** (mosasaur) and breathed air. It had **LUNGS**.

**Albertonectes** was a **reptile** (plesiosaur) and breathed air. It had **LUNGS**.

**Leedsichthys** was a **fish** and could breathe underwater. It had **GILLS**.

**Megalodon** was a **shark** and could breathe underwater. It had **GILLS**.

**Helicoprion** was a **shark** and could breathe underwater. It had **GILLS**.

**Archelon** was a **reptile** (turtle) and breathed air. It had **LUNGS**.

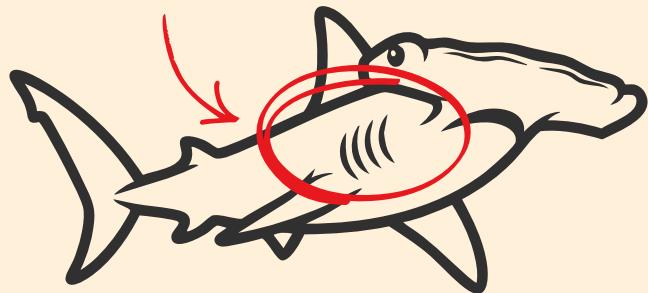
**Basilosaurus** was a **mammal** (whale) and breathed air. It had **LUNGS**.

**Icadyptes** was a **bird** (penguin) and breathed air. It had **LUNGS**.

# COMPETITORS WITH AN EDGE

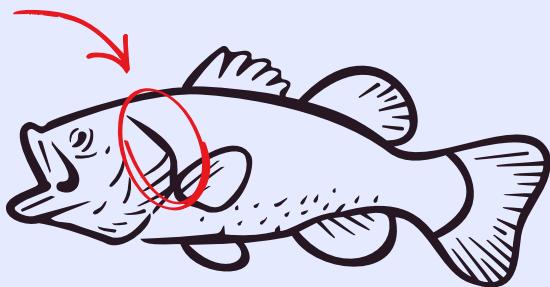
## Shark Gills Vs. Fish Gills

Both fish and sharks have gills and can breathe underwater. However, if you look closely at the gills of each of these animals, you'll notice a difference...



Sharks have multiple slits in the side of their face called 'gill slits'. Water passes through these slits and across the gills as the animal swims, allowing the shark to breathe. If the shark stops moving for long enough, water stops moving through the gill slits and over the gills, and the shark could potentially suffocate.

Remember, two AAA 2026 competitors are sharks.



Instead of having multiple gill slits like sharks, fish have one slit covered by an organ called an operculum. The operculum actively pumps water over the gills. Even if the fish stops swimming, the operculum still pumps water over the gills, meaning it will not suffocate.

Remember, one of the 2026 competitors is a fish.

## ANIMALS WITH AN EDGE: REPRODUCTION

Just like in today's world, some prehistoric animals laid eggs while others gave birth to live young. Egg-laying animals are **oviparous**, while those that give birth to live young are **viviparous**. Some animals are **ovoviviparous**, where the babies hatch from eggs while still inside the mother animal, and are later 'born' alive. All of these reproductive modes have advantages and disadvantages, especially for animals that lived underwater.

**Here is what palaeontologists understand about whether our AAA 2026 animals laid eggs or gave birth to live young. And remember... these results may impact the outcome of the battles.**

**Tylosaurus:** Fossil evidence suggests that mosasaurs like *Tylosaurus* were **VIVIPAROUS** (gave birth to live young)

**Albertonectes:** Fossil evidence suggests that plesiosaurs like *Albertonectes* were **VIVIPAROUS** (gave birth to live young)

**Leedsichthys:** Like most fish, *Leedsichthys* was most likely **OVIPAROUS** (laid eggs). It could lay eggs underwater.

**Megalodon:** Like many sharks, *Meaglodon* was likely **OVIVIPAROUS** (laid eggs that hatched while still inside the mother animal)

**Helicoprion:** Like many sharks, *Helicoprion* was likely **OVIVIVIPAROUS** (laid eggs that hatched while still inside the mother animal)

**Archelon:** Like most turtles, *Archelon* was most likely **OVIPAROUS** (laid eggs). It had to come onto land to lay eggs.

**Basilosaurus:** Like all mammals, *Basilosaurus* was **VIVIPAROUS** (gave birth to live young)

**Icadyptes:** Like all birds, *Icadyptes* was **OVIPAROUS** (laid eggs). It had to come onto land to lay eggs.

# COMPETITOR #1



**Name:**

*Otodus megalodon* ('Megalodon')

**Home Range:**

Found globally

**Home Geologic Time Period:**

Neogene period (23-3 MYA)

**Home Geologic Formations:**

Found in many **Cenozoic** marine formations around the world.

**Type of Ancient Animal:**

Shark

**Size:**

Up to 18 m long

**Diet:**

Carnivore

**What's in a Name?**

Name means 'giant ear-shaped tooth'

## CLAIM TO FAME!

Megalodon is widely considered to be the biggest shark to ever live.

## DID YOU KNOW?

- Contrary to popular belief, megalodon did not live alongside dinosaurs. They first appear in the fossil record many millions of years after dinosaurs went extinct
- Shark skeletons are made of cartilage, which only rarely fossilizes. The vast majority of shark fossils found are teeth and, less commonly, jaws. Some teeth were up to 17.8 centimeters in length
- Megalodon teeth were important for several First Nations and Indigenous groups, who viewed them as sacred objects.

# COMPETITOR #2



**Name:**

*Albertonectes*

**Home Range:**

Western Interior Sea (North America)

**Geologic Time Period:**

Late Cretaceous (73 MYA)

**Home Geologic Formations:**

Bearpaw Formation

**Type of Ancient Animal:**

Long-necked plesiosaur (marine reptile)

**Size:**

Up to 12 m long

**Diet:**

Piscivorous (fish-eating)

**What's in a Name?**

Name means 'Alberta's swimmer'

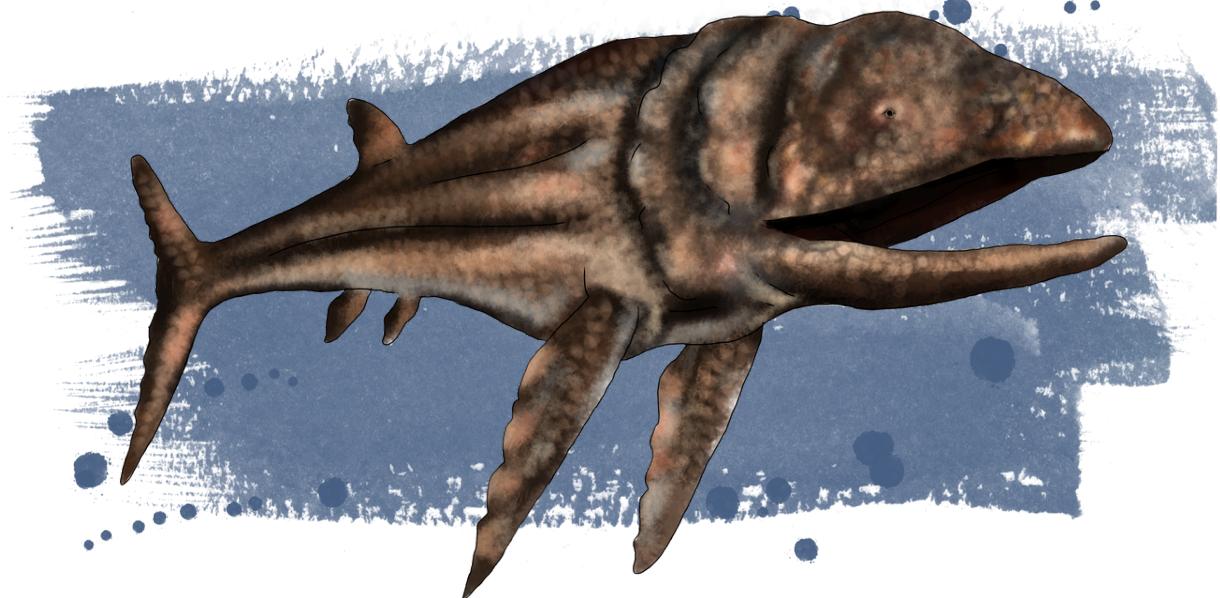
## CLAIM TO FAME!

*Albertonectes* had one of the longest necks of any known vertebrate animal. They could have up to 76 neck vertebrae!

## DID YOU KNOW?

- Although it was long, *Albertonectes*' neck had a limited range of motion. Its neck was designed to move side-to-side, not up-and-down
- Albertonectes* used its long, rigid neck and relatively small head to "sneak" up on schools of fish
- The **holotype** of *Albertonectes* is one of the most complete plesiosaurs found in Alberta. **Gastroliths** were found in its stomach, which may have been used to help with **buoyancy**.

# COMPETITOR #3



**Name:**

*Leedsichthys*

**Home Range:**

Western Europe, possibly Chile

**Home Geologic Time Period:**

Middle to Late Jurassic (165-145 MYA)

**Home Geologic Formations:**

Oxford Clay Formation

**Type of Ancient Animal:**

Ray-finned Fish

**Size:**

Up to 17 m long

**Diet:**

Filter feeder (Carnivore)

**What's in a Name?**

Name means 'Fish from Leeds'  
(Leeds is a place in England)

## CLAIM TO FAME!

*Leedsichthys* as one of the largest fish that ever existed!

## DID YOU KNOW?

- *Leedsichthys* was a filter feeder, preying upon plankton and other smaller animals like krill. It used a massive gill basket to separate prey from the water
- Fossils of *Leedsichthys* are rarely found in **articulation**, making the fish challenging to recognize in the fossil record. Some early fossils were mistaken for dinosaur bones

# COMPETITOR #4



**Name:**

*Tylosaurus*

**Home Range:**

Western Interior Seaway (North America)

**Home Geologic Time Period:**

Late Cretaceous (92 MYA)

**Home Geologic Formations:**

Niobrara Formation, Bearpaw Formation

**Type of Ancient Animal:**

Mosasaur (marine reptile)

**Size:**

Average 10-14 m, but gets to 20 m

**Diet:**

Carnivore

**What's in a Name?**

Name means 'Knob Lizard'

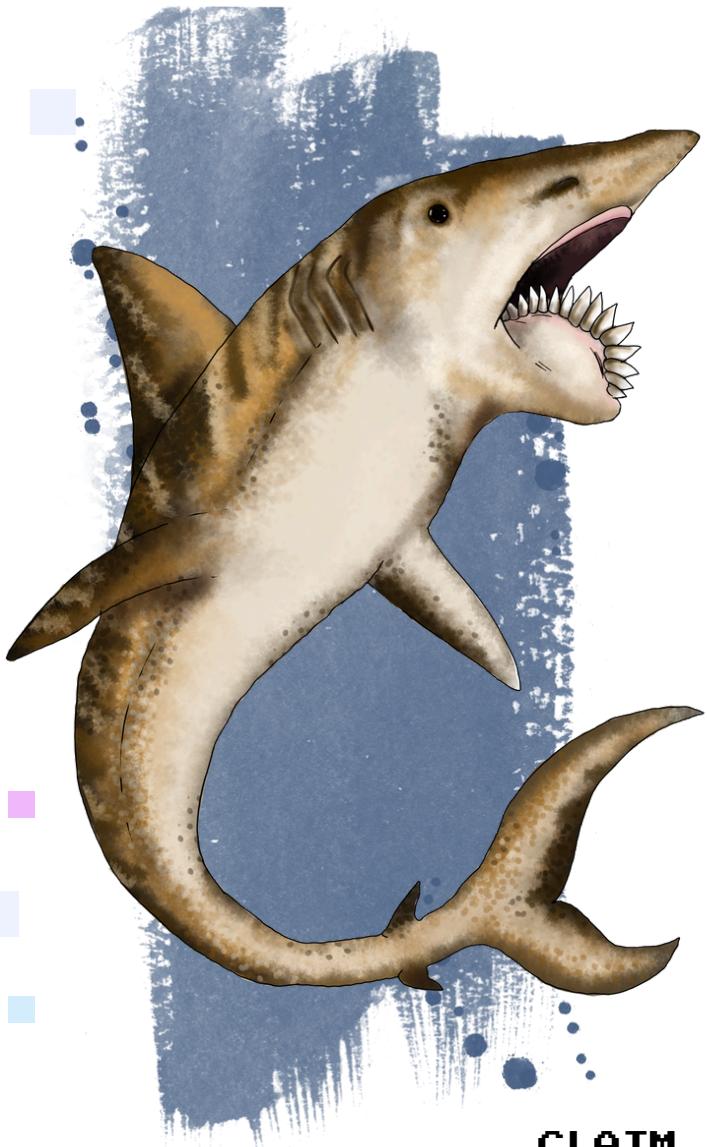
## CLAIM TO FAME!

*Tylosaurus* was one of the largest marine reptiles of the Late Cretaceous period. It was a formidable apex predator, and is often referred to as the "T-rex of the Sea"

## DID YOU KNOW?

- Similar to modern-day moray eels, *Tylosaurus* had teeth on the roof of its mouth called **palatal teeth** which would help stop slippery prey get away
- Tylosaurus* would have moved its tail fin side-to-side like a fish, not up-and-down like a whale
- Tylosaurus* had a voracious appetite and seems to have eaten almost anything, including other mosasaurs!

# COMPETITOR #5



**Name:**

*Helicoprion*

**Home Range:**

Found globally

**Home Geologic Time Period:**

Permian to Early Triassic (290-225 MYA)

**Home Geologic Formations:**

Found in several **Paleozoic** marine formations around the world.

**Type of Ancient Animal:**

Chimaera ('ghost shark')

**Size:**

Up to 7.6 m in length

**Diet:**

Carnivore

**What's in a Name?**

Name means 'Spiral Saw' or 'Coiled Saw'

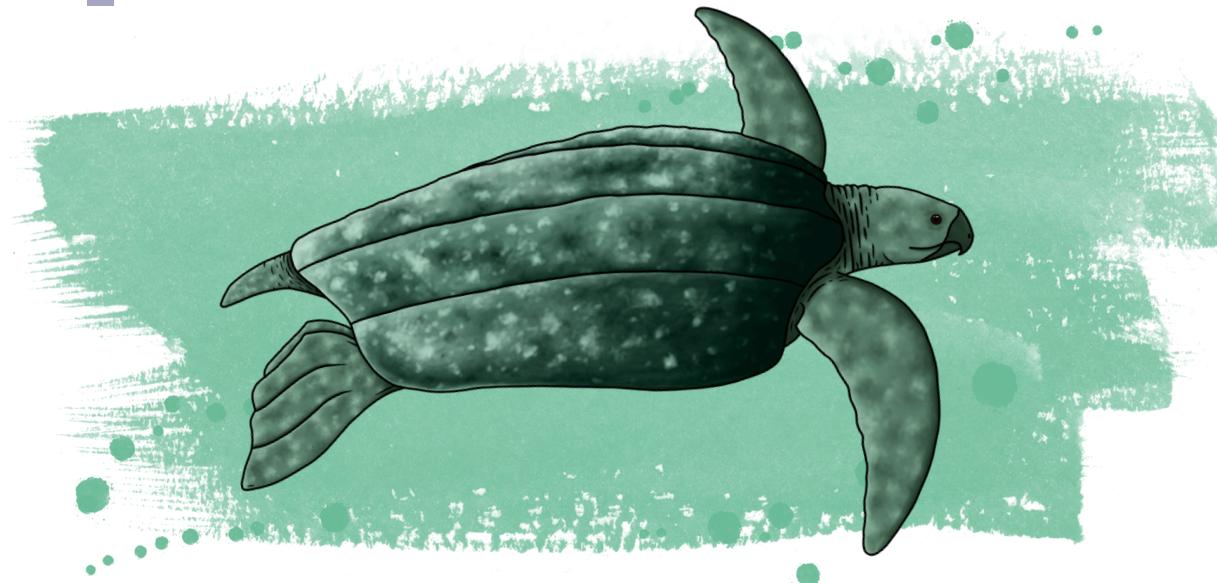
## CLAIM TO FAME!

*Helicoprion* had a bizarre spiral jaw unlike any other known vertebrate animal.

## DID YOU KNOW?

- *Helicoprion* wasn't a true shark. It was more closely related to another group of cartilaginous fish called chimaeras, also known as "ghost sharks"
- Paleontologists used to think that *Helicoprion* looked like a swimming buzzsaw. It is now thought that most of the spiral jaw was actually internal (contained inside the head).
- While the purpose of *Helicoprion*'s spiral jaw is not fully understood, palaeontologists believe it may have been used to rotate prey into the mouth

# COMPETITOR #6


**Name:**

*Archelon*

**Home Range:**

Western Interior Seaway (North America)

**Home Geologic Time Period:**

Late Cretaceous (75-65 MYA)

**Home Geologic Formations:**

Pierre Shale

**Type of Ancient Animal:**

Sea Turtle

**Size:**

Up to 4.6 m in Length

**Diet:**

Carnivore

**What's in a Name?**

Name means 'Ruling Turtle'

## CLAIM TO FAME!

*Archelon* was the largest sea turtle that ever lived, and the second-largest fossil turtle.

## DID YOU KNOW?

- *Archelon's* **carapace** was leathery like a modern leatherback sea turtle, but unlike the hard shells of hawksbill or green sea turtles
- *Archelon* shared many comparisons with modern sea turtles, including a strong, toothless beak for eating soft-bodied animals and strong flippers for swimming
- Despite being fully adapted to living in the water, *Archelon* would still have had to come onto land to lay eggs

# COMPETITOR #7



**Name:**

*Icadyptes*

**Home Range:**

South America

**Type of Ancient Animal:**

Bird (penguin)

**Home Geologic Time Period:**

Late Eocene (36 MYA)

**Home Geologic Formations:**

Otuma Formation

**Size:**

Up to 1.5 m in height

**Diet:**

Piscivorous (fish-eating)

**What's in a Name?**

Name means 'diver from Ica', referring to the Peruvian region where the species was found.

## CLAIM TO FAME!

*Icadyptes* was a large, 'warm-weather' penguin, living at a time when South America was subtropical.

## DID YOU KNOW?

- Penguins are among the most unique and highly specialized birds on Earth today, but their fossil history is not well known
- *Icadyptes* possessed a long beak that would have been used as a spear to make catching fish easier
- A complete *Icadyptes* skull was the first specimen displaying a spear-beaked penguin

# COMPETITOR #8



**Name:**

*Basilosaurus*

**Home Range:**

North America and the Middle East

**Home Geologic Time Period:**

Late Eocene (40 - 34 MYA)

**Home Geologic Formations:**

Jackson Group, Ocala Limestone

**Diet:**

Carnivore

**Type of Ancient Animal:**

Mammal (whale)

**What's in a Name?**

Erroneously named 'King Lizard'  
(it is a mammal, not a lizard)

**Size:**

Between 15 - 20 m in length

## CLAIM TO FAME!

*Basilosaurus* is generally considered to be the first true whale.

## DID YOU KNOW?

- Even though its name means "King Lizard", *Basilosaurus* was a mammal. Its fossils were first misidentified as a marine reptile
- Basilosaurus* had small, **vestigial** hind limbs that remained from whales' terrestrial ancestors
- One of the largest marine predators of its time, *Basilosaurus* had a slender, eel-like body

# GLOSSARY

**Ammonites:** Squid-like cephalopods with straight or coiled shells that have lived throughout geologic time. They were particularly diverse and common in Cretaceous seas.

**Articulation:** When fossils of a single animal are found together in anatomical position (i.e. still in a skeleton).

**Buoyancy:** The ability or tendency to float in water or some other fluid.

**Carapace (of a turtle):** The top (back) shell of a turtle. Turtle ribs and vertebrae are fused to their carapace.

**Cenozoic:** The geologic era that succeeds the Mesozoic ('Age of Dinosaurs'). It lasted from 66 million years ago to today.

**Cretaceous:** A period of geologic time between 110 and 66 million years ago. The Cretaceous was the last period in the 'Age of the Dinosaurs'.

**Gastroliths:** Stones deliberately swallowed by animals that are found in the stomach.

**Holotype:** The specimen a species description is based on.

**Western Interior Sea:** A warm, shallow sea that covered the middle of the North American continent during the Cretaceous period, splitting North America in half from east to west.

**Geologic Formations:** Packages of rock deposited in the same place during the same period of geologic time.

**Mosasaur:** Carnivorous, air-breathing marine reptiles related to modern-day lizards that lived in the Cretaceous period. Mosasaurs had large heads, four flippers, and powerful streamlined bodies.

**Operculum:** An organ that houses the gills of fish. The operculum continuously pumps water over the gills, meaning the fish can breathe even if it is not moving.

**Oviparous (animal):** An egg-laying animal (i.e. birds, most reptiles, most fish, insects)

**Ovoviparous (animal):** An animal that lays eggs, but the eggs hatch inside the mother's body. The young are 'born' when they exit the mother's body. (i.e. sharks)

**Paleozoic:** The geologic era that predated the Mesozoic ('Age of Dinosaurs'). It lasted from 440 to 250 million years ago.

# GLOSSARY

**Plesiosaurs:** Fish-eating, air-breathing marine reptiles that lived during the Age of Dinosaurs. There were two types of plesiosaurs: long-necked plesiosaurs with very long necks and small heads, and short-necked plesiosaurs with short necks and long snouts.

**Pterosaurs:** A group of flying reptiles that included *Pterodactyl* and *Pteranodon* that lived during the Age of Dinosaurs. Pterosaurs are often mistakenly called dinosaurs, but they belonged to a different group of reptiles.

**Vestigial Structure:** A feature an animal inherited from an evolutionary ancestor, but no longer uses. Examples include the pelvic (hip) bones in snakes, or eye sockets in eyeless animals like moles.

**Viviparous (animals):** Animal that give birth to live young (i.e. mammals)