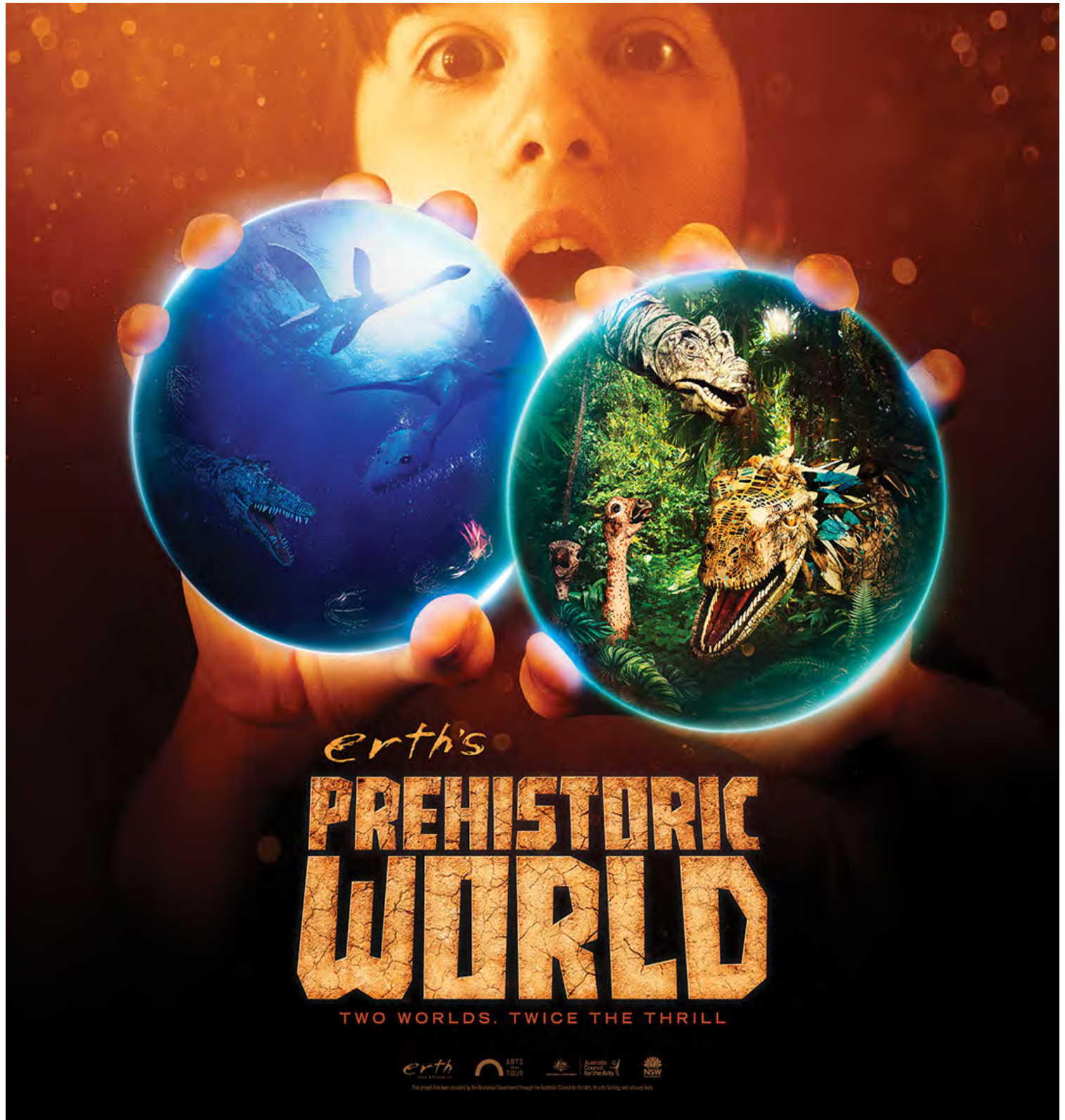


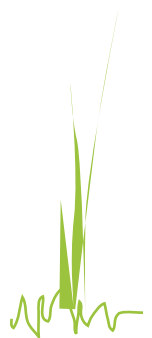
Research & Resources for Teachers



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Erth Visual & Physical Inc.

ERTH brings the impossible to life. Over 30 years, the company has developed a truly fantastic aesthetic and an extraordinary box of tricks, the foundations of its unique visual theatre works. The company regularly tours internationally, to every major Australian festival, and to regional and major city venues around the country.



More than a million people have seen its dinosaurs in museums and in performance works such as *Erth's Dinosaur Zoo™* and Erth's Prehistoric Aquarium.

Erth's works range from large-scale interactive environments, such as *The Garden*, a prehistoric landscape inhabited by giant insects, which premiered at the Melbourne International Festival of Arts, through to more intimate in-theatre works and outdoor roving spectacles.

Erth's Dinosaur Zoo™ has toured throughout Australia and overseas since 2009, and its companion piece, *Erth's Prehistoric Aquarium* was developed in 2017. *Erth's Prehistoric Picnic* was devised during the company's artist in residence at the Royal Botanic Garden, Sydney in 2021-2022, and then premiered at the 2022 Sydney Festival.



Erth has been commissioned by dozens of major museums including The Australian Museum, Auckland War Memorial Museum (New Zealand), Powerhouse Museum (Sydney), The Field Museum in Chicago, Science Museum Minnesota (USA), Natural Museums Liverpool (UK), Naturalis (Leiden), National Museums Northern Ireland, Montreal Science Museum (Canada) and the Natural History Museum in Los Angeles.

Erth Visual & Physical Inc.

For VIVID 2018, Erth was commissioned to create Marri Dyin, a spectacular six-metre high illuminated character operated by a team of puppeteers. Marri Dyin - meaning "great woman" in Eora language - is a contemporary elemental spirit who seeks to recognise the influence, importance and strength of First Nations women, and their role as providers for their people through a connection to the land and its waterways. Combining world-class puppetry mechanics, sound and light, the artwork and performance is a spectacular showcase of Australian artistic innovation and creativity.



Erth is now developing a new work with young people that highlights the current crisis of the mass extinction of species. ARC will be a scalable and site-specific participatory theatre work designed around a menagerie of naturalistic critically endangered and extinct animals. Arc poses the question - *what is precious to you?*

Erth's design studio has built for a huge range of cultural institutions and commercial clients from Sydney Olympic Games Opening Ceremony, Sydney Opera House and City of Sydney.

Erth was founded in 1990 in Ballarat, Victoria and is now based at their Myrtle Street Studios in Sydney's inner west. Erth is also a resident company at Carriageworks contemporary arts centre.



Erth's Prehistoric World



Bringing ancient creatures from land and sea together in one show, Erth's Prehistoric World is the perfect combination of theatrical magic and charm. It takes the audience to the bottom of the ocean to discover ancient bio-luminescent creatures and incredible marine reptiles, and then back to dry land to witness some of the most amazing dinosaurs to have ever walked this Earth...

"clever, beautifully constructed and hugely entertaining"
The Daily Telegraph

"The most impressive 'puppet' show we have ever seen!"

"I took my 5 year old son and a friend's 10 year old daughter and we were all transfixed."



About The Puppets

In *Erth's Prehistoric World*, the dinosaurs are portrayed by puppets.

A puppet is a figure whose movements are controlled by someone through strings, rods or hand/body movements.



The main style of puppetry used in Erth's Prehistoric World is a modified style of "Bunraku" (bun-rah-koo) puppetry, a form of puppetry that originated in Japan over 400 years ago.

In Bunraku, there are usually several puppeteers who manipulate the puppet directly and are visible throughout the play rather than being hidden.

Usually 3 puppeteers will operate 1 puppet in Bunraku - each puppeteer is responsible for moving a different part of the body.

Puppetry in Japan is highly regarded. Bunraku is directly related to the "kabuki" mime theatre tradition, and at one time was considered the highest form of theatre in Japan, with the greatest writers and actors of the day creating work exclusively for Bunraku performances.

Many plays were written that are similar to Shakespearean dramas, with detailed language and complex plots.

Bunraku plays are still performed today in Japan. A master puppeteer spends a lifetime perfecting manipulation of his puppet.

Meet The Stars of The Show



After waiting 65 million years, you will now have a chance to experience prehistoric marine and land life up close when Erth's Prehistoric World travels around Australia..

This unique show allows heaps of interaction whilst you travel with the Erth performers on a journey through prehistoric Australia.

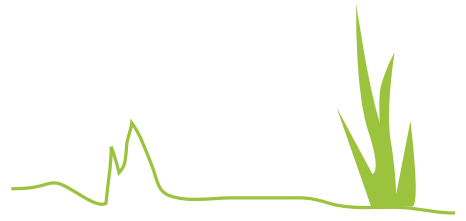
You will see an amazing selection of dinosaurs that inhabited the landscape millions of years ago, both above and below the surface. And we'll travel back four and a half billion years to when life as we know it began.

The dinosaurs and other creatures on display once roamed the southern hemisphere millions of years ago.

From the smallest baby Dryosaur to the fearsome carnivorous Kronosaur ... over the next few pages is a quick preview of some of the prehistoric marvels you are likely to encounter.



Anomalocaris



The Anomalocaris can grow up to 2 metres tall.

It has incredibly complex eyes, with around 30,000 lenses on each one.

We know this because six pairs of fossilized eyes were found in Australia on Kangaroo Island.

Kimberella

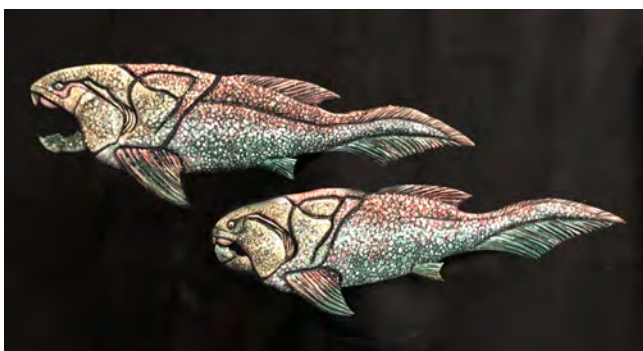


The Kimberella was an early relative of the Octopus.

Fossils of the Kimberella have been found with scratches along the side of their shells.



Dunkleosteus



The Dunkleosteus was an incredible fish that swam the seas during the Devonian period - a time often referred to as the age of fishes.

They could grow as big as the biggest great white shark. It could open its jaws so quickly that it created a black hole inside its mouth and all its prey got sucked inside. Then it closed its jaws just as rapidly. Nothing could ever escape.

Plesiosaurus



The Plesiosaurus was an aquatic reptile with a long neck and a small head. Plesiosaurs lived in both fresh water and salt water either in lakes or rivers or in the ocean close to the shore.



Whilst the Plesiosaurus was very large, it was not very fast. Its long neck was out of proportion to its short, rounded body with four protruding flippers and short tail. The Plesiosaurus used its long neck by swinging it from side to side in the water to catch fish. They also ate small stones to help break down the fish in their stomachs.

Plesiosaurs have been found all over the world. The first full fossilized remains of a Plesiosaur were found by Mary Anning in Germany in 1823.

In Australia, our Plesiosaurs have opalised over time. They've not only turned to stone, but those stones are considered to be precious stones like diamonds or sapphires.

Plesiosaurs existed during the same time period as the dinosaurs from the late Triassic through to the late Cretaceous period.

The name of the Plesiosaur's natural predator is Kronosaurus. There are some people who believe that Plesiosaurs still exist, in places like Loch Ness in Scotland, although this has never been proven.

HOW TO SAY IT:

PLEASE - ee - o- saw - rus

NAME MEANS:

Almost lizards

FAMILY GROUP:

Pliosauridae

PERIOD:

Cretaceous

WHERE FOUND:

Worldwide

FIRST DISCOVERED:

1821

SIZE:

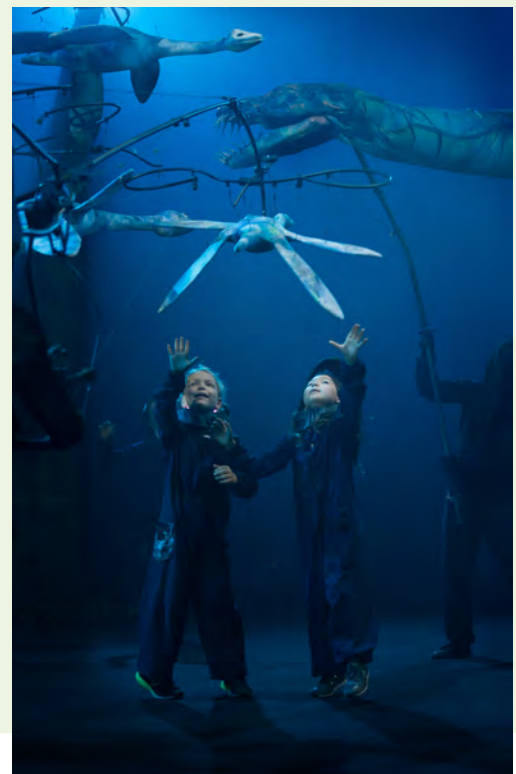
4.5 metres

FOOD:

Fish

SPECIAL FEATURES:

Plesiosaurs laid eggs in nests like turtles



Anglerfish

Anglerfish are extremely old. They haven't evolved in 130 million years they got to be this way because they are perfectly adapted to their environment.

The Anglerfish makes its own light, like 90% of deep-sea creatures, using a process called bioluminescence, which is a combination of the word "bio" meaning living and "luminescence" meaning light, so combined they mean "living light". It uses bioluminescent bacteria to lure creatures in and eat them.

Anglerfish have survived in the deep, dark depths of the ocean since prehistoric times.

They have been found as deep as 1400 metres, where there is no light.

Deep-sea Anglerfish have been found off the coast of Queensland.

The female of the species uses a luminous fishing rod-like structure to lure prey towards her mouth. She has a very large mouth which allows her to eat a fish up to twice her size.

Male anglerfish are very small compared to the female and have a parasitic relationship. When they find a female to mate with, they bite her on her side and hold on with their teeth. They latch onto the side of the female and continue to live their lives there ... as parasites.



HOW TO SAY IT:

ANG - ler - fish

NAME MEANS:

Named for their method of catching prey. Angler is synonymous with fishing.

FAMILY GROUP:

Lophiiformes

PERIOD:

Paleogene

WHERE FOUND:

Worldwide

SIZE:

Up to 1.2 metres

FOOD:

Fish and invertebrates

SPECIAL FEATURES:

Bioluminescence



Kronosaurus Queenslandicus



The Kronosaurus was one of the top predators in the ocean.

The Kronosaurus is named after Kronos, the king of Titans, who were giants in Greek mythology.

Kronosaurs had short necks and large heads, and their limbs were four paddle-like fins.

Kronosaurs were the biggest of the Pliosaurids, growing up to 10 metres long. Its head alone can be over 2 meters long. This means its skull is twice as that of T-Rex!

The Kronosaurus was able to swim very fast. They had no need for stealth when hunting as they could swim faster than their meals.

Kronosaurs used the rounded teeth at the back of their mouth for crushing the shells of ammonites, cousins to the modern day nautilus. The sharp pointed teeth at the front of its mouth were used to capture its prey. Its teeth are designed for ripping the flesh off its prey ... they're so sharp and over 30 centimetres long. The Kronosaurus doesn't chew.

Kronosaurus lived in the cool, high-latitude Eromanga Sea - an inland sea that covered vast areas of inland Australia from 120-90 million years ago. Fossilised Kronosaurs have been found near Hughenden in north-central Queensland.



HOW TO SAY IT:

CROW - no - saw - rus

NAME MEANS:

Kronos' lizard

FAMILY GROUP:

Pliosauridae

PERIOD:

Cretaceous

WHERE FOUND:

Australia and Colombia

FIRST DISCOVERED:

1899

SIZE:

8-10 metres long

FOOD:

Large fish, giant squid and ammonites and plesiosaurs

SPECIAL FEATURES:

Super speed: Kronosaurs used both their forelimbs and hind limbs to propel them.



Meganeura

Lifestyle

Meganeura was a gigantic primitive dragonfly with a 70cm wingspan.

Meganeura were predatory: they fed on other insects and even small amphibians.

It dashed to and fro in forests, changing speed and direction almost instantly, grabbing insects with its legs and bringing them up to the mouth to feed.

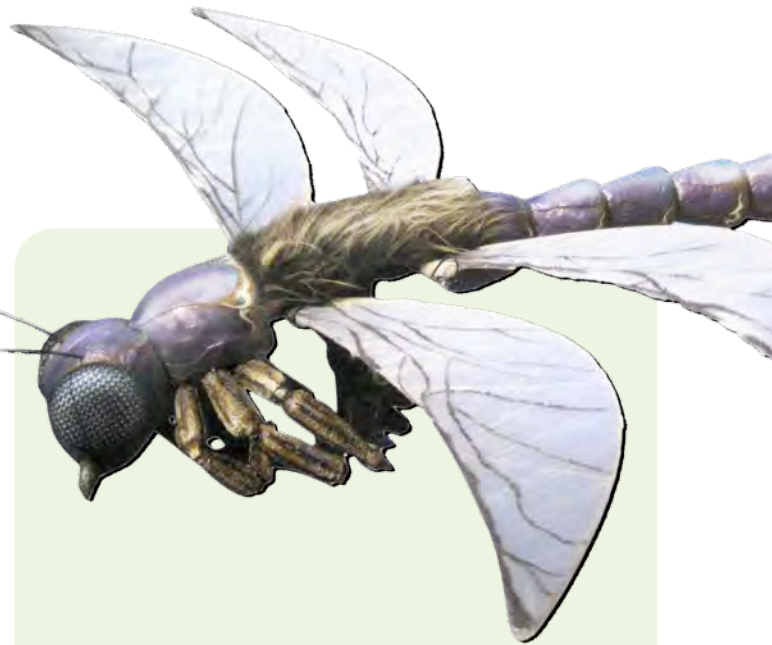
Meganeura were around in the late Carboniferous period (355-295 million years ago), but not in either the Jurassic or the Cretaceous period. However, there were still large dragonflies in both these periods and present day dragonflies are descended from these.

Meganeura flew by beating two pairs of wings stiffened by "veins".

It flew to hunt flying insects above tropical forests and had swivelling, multi-faceted eyes like headlamps which were quick to spot movement and sharp enough to allow it to pounce on flying prey.



Cast from original fossil of Meganeuridae



HOW TO SAY IT:

Meg - a - NEW - ra

NAME MEANS:

Large - Nerved

FAMILY GROUP:

Meganeuridae

PERIOD:

Carboniferous
300 MYA

WHERE FOUND:

Worldwide

1ST DISCOVERED:

France, 1880

WINGSPAN:

70cm - perhaps more

FOOD:

Other insects & small amphibians

SPECIAL FEATURES:

One of the largest flying insects to have existed

Older than the dinosaurs

Leaellynasaura

Leaellynasaura is one of many dinosaurs whose partial remains have been dug (and blasted) out of the solid rocks of Dinosaur Cove in the south east of Australia.



Leaellynasaura is a relatively recent dinosaur discovery and is known from several specimens including two nearly complete skeletons and two fragmentary skulls.

It has been variously described as a hypsilophodontid, a primitive iguanodontian and primitive ornithischian. The most recent assessment describes it as a non-iguanodontian ornithopod.

It is fair to assume the dinosaur was roughly turkey sized (with a long tail) and was a herbivorous ornithopod.

In the early Cretaceous, areas of current-day Australia were well within the Antarctic Circle where the climate was extreme with limited sun visible for months of the year.

Its skull has unusually large eye sockets: this suggests that Leaellynasaura adapted to the long winter darkness of the Antarctic and could withstand low, perhaps even sub-zero, temperatures.

To do this, it would have needed a way of generating body heat, which some people have taken as evidence that dinosaurs were in fact warm-blooded.

HOW TO SAY IT:

Lee - el - in - a - SAW - rah

NAME MEANS:

Leaellyn's Lizard

FAMILY GROUP:

Undecided!

PERIOD:

Early Cretaceous
104-112 MYA

WHERE FOUND:

Australia

1ST DISCOVERED:

Australia, 1989

HEIGHT:

Unknown

LENGTH:

2-3 Metres

WEIGHT:

Unknown

FOOD:

Plants

SPECIAL FEATURES:

Long tail compared to body size

Note: The fully grown size is a guess, assuming that fossils found so far (which give a length of about 60cm long) are of juveniles.



Minmi

Minmi Paravertebra is a herbivore.

Her vertebrae are connected together with bone, so her spine is not as flexible as humans. She makes up for that lack of flexibility with very long and powerful legs which indicate she was more of a runner than a fighter.

Minmi is Australia's most complete fossil ever found.

She was discovered in the 1960s and we have over 80% of her original intact bones. Minmi was the first ankylosaur known from the Southern Hemisphere.

She has similar features to the family of dinosaurs, the Ankylosaurs. But she doesn't have that club on her tail.

What she does have, however, is small, backward-facing projections along the backbone, providing extra attachment for back muscles, similar to those found in crocodiles.



HOW TO SAY IT:

MIN - me

NAME MEANS:

From Minmi (town in Queensland)

FAMILY GROUP:

Incertae sedis

PERIOD:

Early Cretaceous

WHERE FOUND:

Australia

1ST DISCOVERED:

Minmi Crossing, QLD in 1964

FOOD:

Seeds, ferns and other soft plants

SPECIAL FEATURES:

A speedy runner



Australovenator

Australovenator is a carnivorous theropod dinosaur.

It is known from discovery of a partial skeleton (which has affectionately been named 'Banjo' after the Australian poet and writer, Banjo Paterson).

There are only a few fossil remains of theropods in Australia, with all discoveries being represented by only one or two bone fragments.



'Banjo' is the most complete meat-eating dinosaur skeleton ever found in Australia.

Unlike other theropods like Tyrannosaurus Rex that have small arms, Australovenator's arms were a primary weapon with the three large slashing claws on each hand.

HOW TO SAY IT:

Oss - tra - lo - VEN - a - tor

NAME MEANS:

Southern Hunter

FAMILY GROUP:

Neovenatoridae

PERIOD:

Mid Cretaceous, 98 - 100 MYA

WHERE FOUND:

Australia

1ST DISCOVERED:

Australia, 2006

HEIGHT:

1.5 metres at hip

LENGTH:

5 metres

WEIGHT:

500 kg

FOOD:

Meat

SPECIAL FEATURES:

Razor-sharp teeth

3 large slashing claws on each hand



This diagram shows the bones discovered so far: there is still a long way to go to make a complete skeleton!

Titanosaur

Titanosaurs were the largest animals ever to roam on land: they were sauropod dinosaurs that survived to the end of the Cretaceous period (most sauropods went extinct at the end of the Jurassic).

Titanosaurs grew to sizes far in excess of their earlier relatives, hence they are named after the mythological Titans, who were Gods of ancient Greece.

The biggest Titanosaur for which we can estimate a size is Argentinosaurus, it grew up to 35m in length!

Titanosaurs discovered in Australia include **Wintonotitan Wattsii**



and **Diamantinasaurus Matildae**



HOW TO SAY IT:

Tie - TAN - oh - saw

NAME MEANS:

Titanic Lizard

FAMILY GROUP:

Titanosauridae

PERIOD:

Cretaceous
65 - 96 MYA

WHERE FOUND:

All continents

1ST DISCOVERED:

South America +
India in 1877

HEIGHT:

Up to 18 metres

WEIGHT:

Up to 100 tonnes

FOOD:

Plants

SPECIAL FEATURES:

Very large!

Last surviving sauropods

Prehistoric Oceans

The first living creatures

The first living creatures were single celled microscopic organisms. The closest thing that we have to these single celled organisms today is bacteria. Over time, maybe a billion years or so, these bacteria began to photosynthesize. They were taking energy from the sun and producing oxygen as waste. This increased oxygen in our atmosphere caused our earth to freeze, what was known as Snowball Earth: it stayed frozen for another billion years.

Ediacaran period

Scientists believe the Ediacaran period began after meteors hit the earth around the world, causing a chain reaction. The Earth changed from being a giant snowball where only single celled creatures lived in the ocean to a warmer and more fertile place with more complex creatures. Remember, in much of the prehistoric era, what is now Australia was the ocean floor.

The Charniodiscus, Dickinsonia rex and Kimberella lived during this era.

Cambrian period

The evolution of the oceans continued in the Cambrian era, creatures that could swim, crawl, burrow, hunt, hide and defend themselves began to appear. At this time there was still no life on land.

Anomalocaris was the apex predator of the Cambrian era - its name means abnormal shrimp. Fossils of its complex compound eyes have been found at Emu Bay on Kangaroo Island, South Australia.



Triassic period

The Triassic period was 200 million years after the Cambrian era;. This is when the super-continent Pangaea began to break up into smaller land masses. Europe separated from Africa and the ocean that filled the space began to push against the Americas, causing South America to move further away from North America. This created the North and South Atlantic Ocean. The Triassic period is when Paracyclotossaurus lived. Different species of Paracyclotossaurus fossils have been found in Australia, India and South Africa. The new oceans caused barriers that isolated the reptiles from one another. Animals evolved differently to fit in with their different environments.

Cretaceous period

During the Cretaceous period sea levels were the highest they had ever been. The whole of England was under water. There were no ice caps during this time: it was very warm. The land masses of North and South America shifted further away from Europe and Africa which caused the Indian Ocean to form. Lepidotes, Plesiosaurs and Kronosaurs were all alive during this period. The Cretaceous period is famous as it ended with the extinction of the dinosaurs that lived on land.



Opalised Fossils

Opalised Fossils

Coober Pedy is famous for its opals and its opalised fossils. Around 150 million years ago, it was covered by water. When these waters receded, the remnant minerals solidified into gemstones with rainbows of shimmering colour. It was here, in this small town in central South Australia, that an entire opalised Pliosaur fossil - Eric - was found.

Eric was a small Pliosaur: he was 2.5 metres long, about the size of a seal. Eric had a long neck and a small head, which makes him unique amongst pliosaurs; usually they have short necks and large heads. He also had a keel on his snout and a ridge running along his spine to allow him to be a fast swimmer. He lived during the Cretaceous period in the Eromanga Sea; where Coober Pedy is now

Australia is the only place on Earth where opalised animal fossils are found.

These fossils are of global scientific interest and are amongst the most beautiful and valuable fossils in the world.



How do opalised fossils form?

Opal forms in cavities within rocks. If a cavity has formed because a bone, shell or pine cone was buried in sand or clay that later became rock and the conditions are right for opal formation, then the opal forms a fossil replica of the original object that was buried.

The bones of Eric the Pliosaurus, as well as the tiny fish bones inside its stomach, became opalised during the fossilisation process.

Image courtesy of Australian Museum.

There are two types of opalised fossil

1. Internal details not preserved

Opal starts as a solution of silica in water. If the silica solution fills an empty space - left by a bone/shell that has rotted away, it may harden to form a cast of the original object. Most opalised shell fossils are this type of fossil - the outside shape is beautifully preserved, but the opal inside doesn't retain any of the creature's internal structure.

2. Internal details preserved

If the buried organic material has not rotted away and a silica solution soaks into it, when the silica hardens, it may form an opal replica of the internal structure of the object. This happens sometimes with wood or bone.



Opalised pine cones.

Note the variety in shape and size.

Dinosaur Discoveries

OF AUSTRALIA

Until quite recently, finds of dinosaurs in Australia were few and far between. The Australian dinosaur record has long been an intriguing puzzle, but with most of the pieces missing. Australian dinosaurs are known mostly from fragmentary fossils.

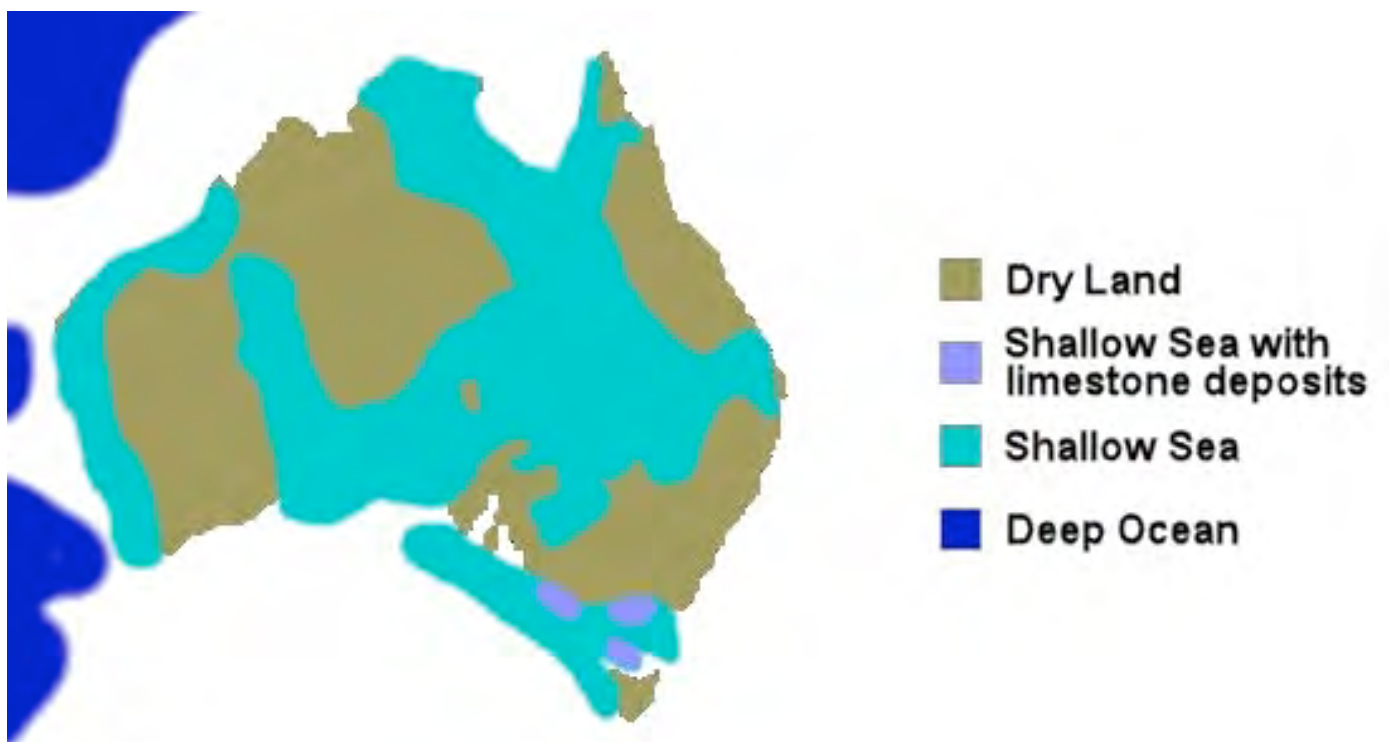


During the **Mesozoic era**, Australia's position (as part of the super-continent **Pangaea**) was much further south than it is today.

The climate would have been temperate and humid, perhaps with winter snow and ice in areas of southern Victoria. Many parts of Australia would have experienced the extremes of daylight found in high latitudes today.

Most of central Australia was submerged under a shallow, inland sea, leaving the higher areas as large but isolated islands for much of the period.

This unusual habitat along with Australia's geographic isolation during the latter part of the Mesozoic era meant that many of Australia's dinosaurs evolved as unique species adapted to extreme conditions.



Dinosaur Discoveries

OF AUSTRALIA

Most Australian dinosaurs come from the eastern half of Australia (Queensland, New South Wales and Victoria) although isolated dinosaur bones have been found in Western Australia and South Australia.

There have been no 100% complete dinosaur skeletons found in Australia. 'Complete' skeletons from dinosaurs are actually very rare and Australia's dinosaur remains tend to be even rarer because of a lack of rocky outcrops from the Mesozoic era.

Australia has many rocks of the right age to contain dinosaurs but the reason so

few remains have been found is that Australia is mostly a low, flat land, with few mountains, deep river valleys, canyons or other geological features that expose the rocks that may contain dinosaur fossils.

Most of Australia's vast plains are very ancient, and any exposed fossils in these areas are likely to have been destroyed by weathering.

However, the fossil remains found to date show that Australia had a unique, diverse array of dinosaurs. New discoveries of skeletons are opening up a new frontier for dinosaur research.



Silhouettes of Matilda showing the bones that have been found.

Image courtesy of Australian Age of Dinosaurs.

Dinosaurs: State by State

Queensland

The vast majority of Australia's dinosaur bones come from north-central Queensland, found in Early Cretaceous rocks formed about 140 million years ago.

Even though this is the richest Australian dinosaur region, finds are still rare, and fewer than 10 skeletons are known, most are rather incomplete.

Finds include the *Iguanodon* *Muttaburrasaurus* and the *Anklyosaur Minmi*.



Both are somewhat atypical of their groups and suggest that Australian dinosaurs may turn out to be rather different from their contemporaries elsewhere in the world.



Queensland has also produced two very incomplete sauropod skeletons:

- ***Rhoetosaurus Brownei*** from the Middle Jurassic (170 mya)
- ***Austrosaurus Mckillopi*** from the earliest Late Cretaceous (90 mya) and more recently, the Winton Formation in Central Queensland is the site of 3 new discoveries:
- ***Australovenator Wintonensis***: Australia's most complete carnivorous theropod
- ***Diamantinasaurus Matildae***: A huge long-necked stocky plant-eating titanosaur
- ***Wintonotitan Wattsii***: A long-necked plant-eating titanosaur.

New South Wales and South Australia

The opal fields of Lightning Ridge in New South Wales have produced virtually all of Australia's opalised dinosaur bones.

In South Australia, the Andamooka opal field has produced a single bone of a small theropod called Kakuru. Much more common than dinosaurs in the Australian opal fields are the bones of marine reptiles, particularly Plesiosaurs.

Whereas the opalised dinosaur remains are all single bones, a few nearly complete opalised skeletons of marine reptiles have been found at Andamooka and Coober Pedy in South Australia and White Cliffs in New South Wales.

Dinosaurs: State by State

Western Australia

From the vast area of Western Australia, only a few dinosaur bones have been discovered in three different marine formations ranging in age from the Middle Jurassic (170 mya) to the Late Cretaceous (90 mya). One of the oldest is a partial bone of a theropod named Ozraptor.

Systematic searching for fossil marine reptiles continues in Western Australia, and may eventually yield an occasional dinosaur bone.

Victoria

In Victoria, a large number of isolated bones (but only two partial skeletons, both **hypsilophodontids**) have been found in a few small coastal outcrops.

For a decade, bones were mostly found at a site called Dinosaur Cove near Cape Otway.

At this locality it was necessary to blast tunnels underground to reach the fossils. The site was considered exhausted at the end of 1994.

Work is now underway at another site 300 km to the east of Dinosaur Cove called Flat Rocks, near Inverloch. Flat Rocks is about 10 million years older than Dinosaur Cove.

The most common dinosaurs found at these locations are hypsilophodontids, but theropods, ornithomimosaurs, protoceratopsians and ankylosaurs have also been found.

The most abundant and diverse group of dinosaurs in Victoria are the hypsilophodontids: small dinosaurs with long hind limbs, short forelimbs, long tails and a herbivorous diet.

They are generally a rare group of dinosaurs in other parts of the world.

Three new species have been named based on specimens discovered in Victoria:

- **Atlascopcosaurus:** A small bipedal herbivore
- **Leaellynasaura:** A small herbivorous ornithischian dinosaur
- **Qantassaurus:** A two-legged herbivorous ornithischian

A fourth was first recognised at Lightning Ridge and named **Fulgurotherium:**

Scientists are still unsure if this is a new species or a known theropod.

There are probably at least two more hypsilophodontid genera to be named from remains found in Victoria.

Most dinosaur groups found in Victoria are represented by just a few fragments of teeth and bone.

These fragments hint that there is much more to be found in Victoria. Amongst the findings are fossil remains of:

- Theropods: large carnivorous dinosaurs
- A small dinosaur named **Timimus**
- A protoceratopsian: **Serendipaceratops** was a herbivorous dinosaur related to the ancestor of Triceratops
- An armoured dinosaur related to Minmi
- Possibly an **oviraptorosaur**, belonging to a rare group of dinosaurs only known from a very few skeletons from Mongolia and North America Footprints and Opalised Fossils Footprints and Opalised Fossils.

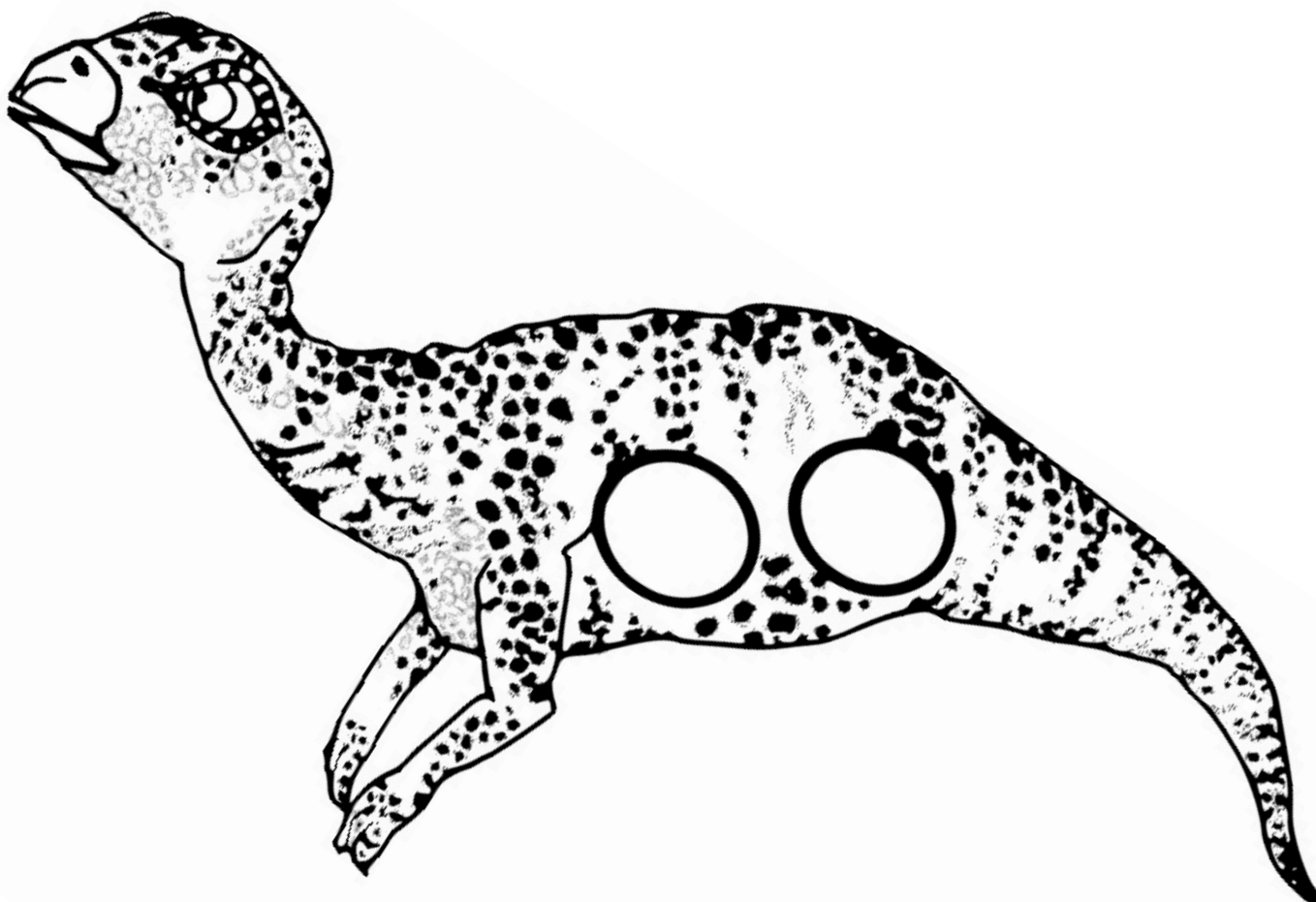
Fun Stuff

Make your own mini dinosaur puppets

Print the images on to white card.

Colour and cut out the dinosaur shape.

Cut out the 2 large holes and push 2 of your fingers through to make the legs of your dinosaur!



Have a go at designing your own dinosaur puppet character.

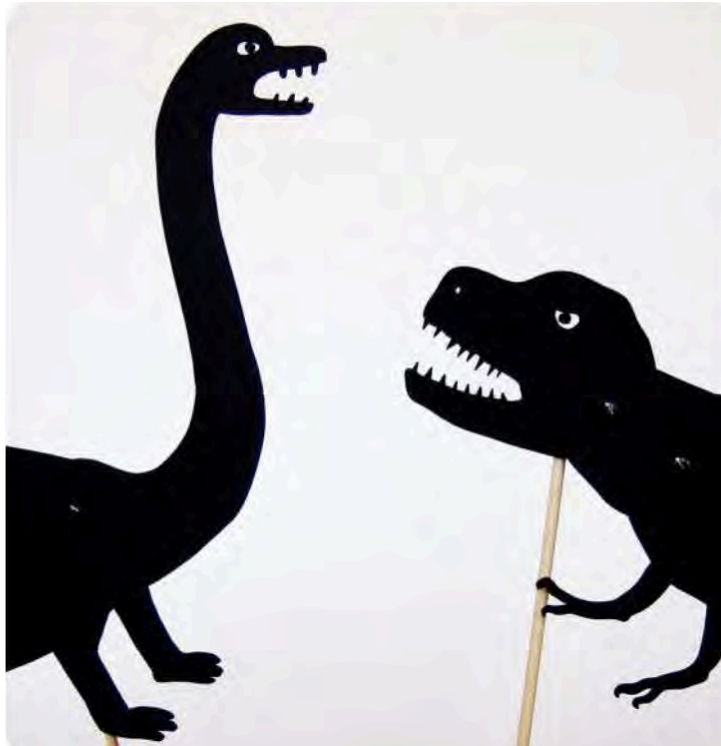
Draw your design on to white card, colour it in and cut out.

Remember to include holes where you will put your fingers to make the legs!

Make your own rod puppet

You will need:

- Card paper
- Wooden sticks (paddlepop sticks or chopsticks can be used)
- Split pin
- Colouring pencils and markers
- Sticky tape



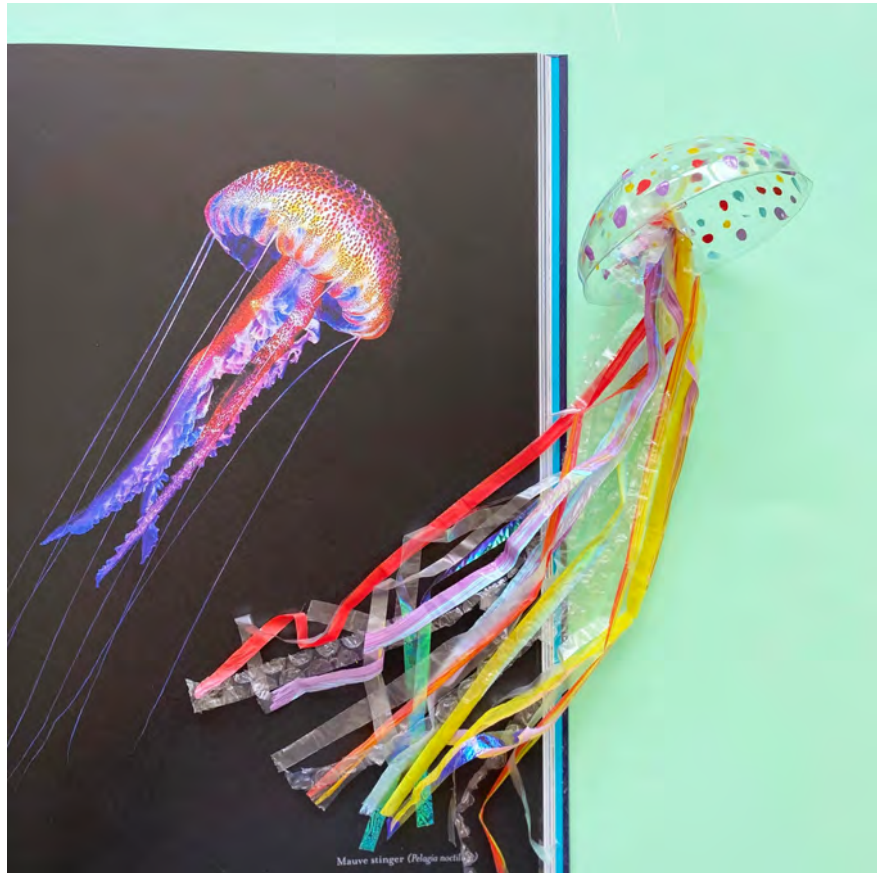
1. Choose one of the dinosaurs or undersea creatures from the show
2. Read the information on their fact page
3. Use this information to draw a picture of the creature you have chosen. Make sure you colour it in and add lots of detail.
4. Cut out the drawing and attach it to a wooden stick with tape.
5. If you're feeling adventurous, you could separate the head, tail or legs, and attach these to another stick using a split pin. If you don't have a split pin, you could use a pipe cleaner or sandwich bag tie to attach them.
6. in small groups, create a story for your creatures - they will be characters in your puppet show. Think about how they each behave - for example, the Plesiosaur is a slow moving aquatic animal, while Minmi can run very fast on land.
7. Use your rod puppets to perform the story.

Remember - when you are puppeteering, it also helps if you move like the creature. That way, your puppet will too!

Make your own jellyfish using recycled material

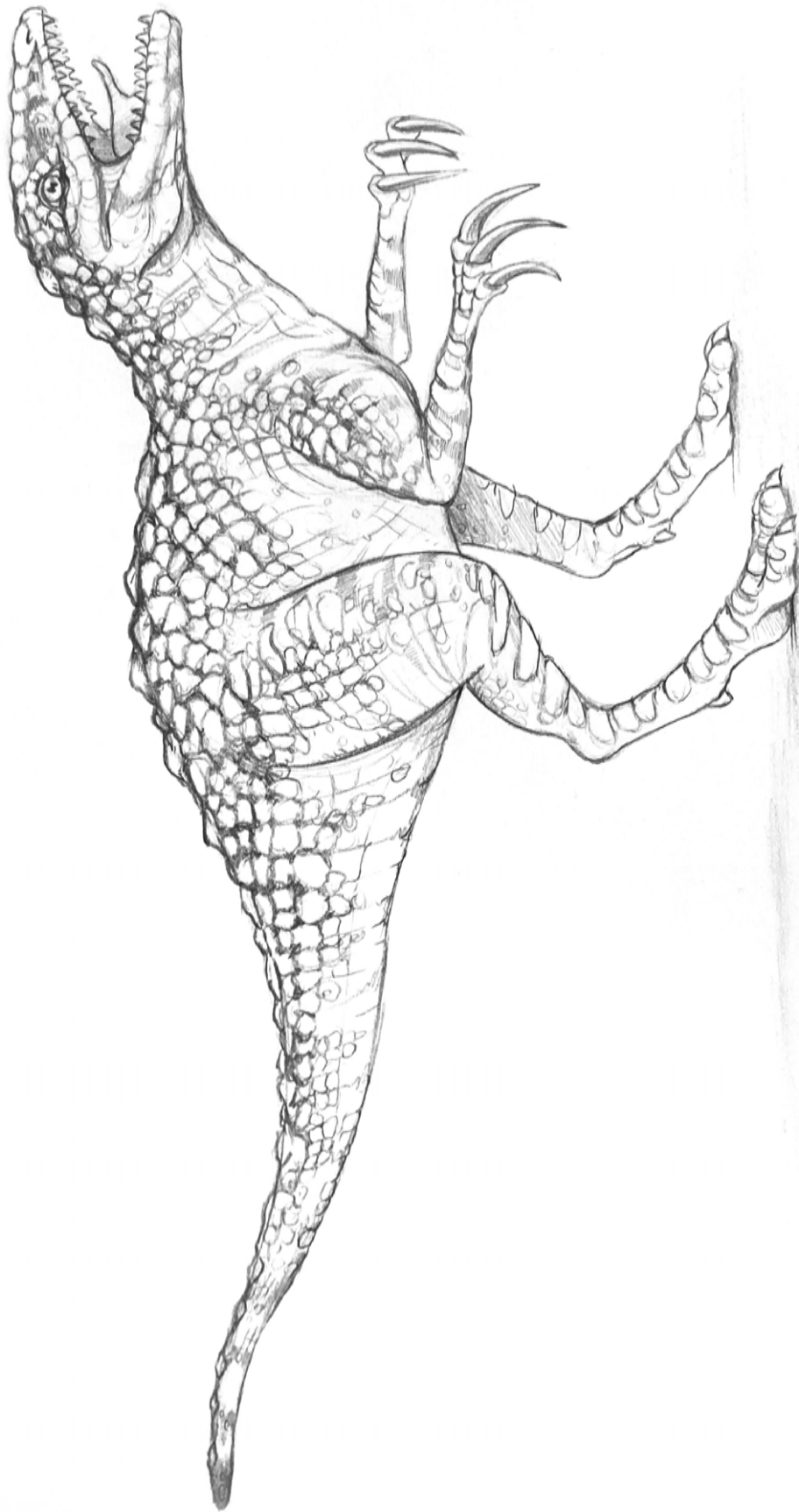
You will need:

- Plastic bottle
- Plastic bag
- Bubble wrap
- Cellophane
- String
- Paint
- Paintbrushes
- Scissors



1. First, lay your plastic bag flat on your work surface. Paint some rainbow stripes along the length of the bag in different colours, and then leave them to dry.
2. Carefully cut the bottom off the plastic bottle (you might need an adult to help). This will be the body of the jellyfish. Put the rest of the bottle in your recycling bin. Paint some dots all over the surface of the body, using the different colours as before. Allow this to dry.
3. Cut the dried painted plastic bag into thin strips, along with the bubble wrap and cellophane if using. These will be the jellyfish's tentacles.
4. Now take a length of clear string and tie a bunch of the 'tentacles' together
5. Make a hole in the top of the plastic bottle body. Then thread the clear string through, pulling the 'tentacles' up into the body. Tie a knot at the top, and your jellyfish is ready to hang!

Colouring in.



Try colouring in this Australovenator.
What colours do you think its skin would have been?

After The Show: Reflection Time

We hope you enjoyed *Erth's Prehistoric World*.

Now you have seen the show - we hope you have lots to talk about and will have a lively discussion all about it!

Use the following questions to start the discussion.

1. What did you see in the show?
2. What do you remember most strongly about the performance?
3. Can you remember any dinosaur facts?
4. Did you join in with any parts of the show?
5. Did you like the show?
6. Do you have a favourite moment?
7. Can you mimic your favourite puppet or character from the show or act out a moment from the show?
8. Try out different ways of describing* memorable moments from the show

*Remember you can 'describe' things in various ways: Verbally, in writing, by drawing pictures or through movement, and creating a freeze frame of the dinosaurs or a moment from the show.

Curriculum links

This resource is designed to be used before and/or after attending a performance of Erth's Prehistoric World. It is generally suitable for children between the ages of 5 and 12.

The pre-show information links to the Science Understanding strand of the Australian curriculum and provides information on the creatures found in Erth's Prehistoric World.

- Science Understanding: Earth & Space Sciences
- Science Understanding: Biological Sciences

The post-show information and activities link to Science, Humanities and Social Sciences and the Arts in the Australian Curriculum.

- Science: Understanding (Earth and Space Sciences & Biological Sciences)
- Humanities and Social Science: Knowledge and Understanding (Geography)
- Drama: Responding and Making (Ideas, Skills, and Performance)
- Dance: Making (Ideas, Skills, and Performance)
- Media Arts: Making (Ideas, Skills and Production)
- Visual Arts: Making (Ideas, Skills and Production)

Application of the Australian Curriculum for states and territories

This program was written for the Australian Curriculum so that it can be used flexibly across all state and territory curricula.

'The Australian Curriculum can be used flexibly by schools, according to jurisdictional and system policies and schedules, to develop programs that meet the educational needs of their students and that extend and challenge students.'

'Teachers use the Australian Curriculum achievement standards and content to identify current levels of learning and achievement, and then to select the most appropriate content (possibly from across several year levels) to teach individual students and/or groups of students.'

www.australiancurriculum.edu.au/f-10-curriculum/implications-for-teaching-assessing-and-reporting

The activities also provide teachers with the opportunity to engage students' learning with the general capabilities of: literacy; critical and creative thinking; information and communication technology (ICT) capability.

This document has been developed using the Australian curriculum guidelines although it is suitable for all states and territories in Australia. Teachers please check all links and activities before passing on to your students to ensure they are suitable.

Curriculum links

SCIENCE

Year	Element of Science	Description
Foundation	Biological Sciences	ACSSU002 - Living things have basic needs, including food and water
Foundation	Earth and Space Sciences	ACSSU004 - Daily and seasonal changes in our environment affect everyday life
Year 1 & 2	Biological Sciences	ACSSU211 - Living things live in different places where their needs are met
Year 1 & 2	Earth and Space Sciences	ACSSU032 - Earth's resources are used in a variety of ways
Year 3-4	Biological Sciences	ACSSU044 - Living things can be grouped on the basis of observable features and can be distinguished from non-living things
Year 3-4	Biological Sciences	ACSSU073 - Living things depend on each other and the environment to survive
Year 3-4	Earth and Space Sciences	ACSSU075 - Earth's surface changes over time as a result of natural processes and human activity
Year 5-6	Biological Sciences	ACSSU043 - Living things have structural features and adaptations that help them to survive in their environment
Year 5-6	Biological Sciences	ACSSU094 - The growth and survival of living things are affected by physical conditions of their environment
Year 5-6	Earth and Space Sciences	ACSSU096 - Sudden geological changes and extreme weather events can affect Earth's surface

Curriculum links

CREATIVE AND PERFORMING ARTS

Year	CAPA Areas	Element of Drama
F-2	Drama	ACADRR030 - Respond to drama and consider where and why people make drama, starting with Australian drama including drama of Aboriginal and Torres Strait Islander Peoples
Years 3-4	Drama	ACADRR034 - Identify intended purposes and meaning of drama, starting with Australian drama, including drama of Aboriginal and Torres Strait Islander Peoples, using the elements of drama to make comparisons
Years 5-6	Drama	ACADRR038 - Explain how the elements of drama and production elements communicate meaning by comparing drama from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander drama
F-2	Dance	ACADAR004 - Respond to dance and consider where and why people dance, starting with dances from Australia including dances of Aboriginal and Torres Strait Islander Peoples
Years 3-4	Dance	ACADAR008 - Identify how the elements of dance and production elements express ideas in dance they make, perform and experience as audience, including exploration of Aboriginal and Torres Strait Islander dance
Years 5-6	Dance	ACADAR012 - Explain how the elements of dance and production elements communicate meaning by comparing dances from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander dance
F-2	Visual Arts	ACAVAR109 - Respond to visual artworks and consider where and why people make visual artworks, starting with visual artworks from Australia, including visual artworks of Aboriginal and Torres Strait Islander Peoples
Years 3-4	Visual Arts	ACAVAR113 - Identify intended purposes and meanings of artworks using visual arts terminology to compare artworks, starting with visual artworks in Australia including visual artworks of Aboriginal and Torres Strait Islander Peoples
Years 5-6	Visual Arts	ACAVAR117 - Explain how visual arts conventions communicate meaning by comparing artworks from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander artworks
F-2	Media Arts	ACAMAR057 - Respond to media artworks and consider where and why people make media artworks, starting with media from Australia including media artworks of Aboriginal and Torres Strait Islander Peoples
Years 3-4	Media Arts	ACAMAR061 - Identify intended purposes and meanings of media artworks, using media arts key concepts, starting with media artworks in Australia including media artworks of Aboriginal and Torres Strait Islander Peoples
Year 5-6	Media Arts	ACAMAR065 - Explain how the elements of media arts and story principles communicate meaning by comparing media artworks from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander media artworks

References

Norwich Puppet Theatre

www.puppettheatre.co.uk

Dino Dictionary

<http://dinodictionary.com/index.asp>

Wikipedia - Dinosaur

<http://en.wikipedia.org/wiki/Dinosaur>

Natural History Museum: Dinosaurs UK

<http://www.nhm.ac.uk/kids-only/dinosaurs/>

Australian Opal Centre: Fossils

<http://www.australianopalcentre.com>

Museum of Victoria: Dinosaurs

<http://museumvictoria.com.au/melbournemuseum/discoverycentre/dinosaur-walk/>

Melbourne Museum: 600 Million Years Ago

<http://museumvictoria.com.au/melbournemuseum/discoverycentre/600-million-years/>

Queensland Museum: Dinosaurs

<http://www.qm.qld.gov.au/Find+out+about/Dinosaurs+and+Ancient+Life+of+Queensland/Dinosaurs>

Australian Age Of Dinosaurs

<http://australianageofdinosaurs.com/>

Walking With Dinosaurs: Australian Dinosaurs

http://www.abc.net.au/dinosaurs/meet_the_dinos/ozdino1.htm

Australian Museum: Dinosaurs

<http://australianmuseum.net.au/event/Dinosaurs>

Penguin: Mobile recycling for kids

<http://www.penguin.co.uk/articles/children/2021/may/diy-jellyfish-mobile-recycling-crafts-for-kids.html>



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