THE NATIONAL DINOSAUR MUSEUM

Primary School Education Package

Teacher Resources Pack

Version 1.0, Issued January 2022

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1. Introduction

The National Dinosaur Museum is a science and education facility which strives to educate and entertain all Australians. Our mission is:

"To provide an entertaining and educational experience to all visitors through continuous improvement and attention to customer service."

Dinosaurs are a perennial favourite of both children and adults. When you visit the Museum, students will experience how amazing the discovery of dinosaur fossils is, touch real dinosaur bones, marvel at the size of these prehistoric giants and at the beginnings of mammal and human evolution.

The Museum is in the northern Canberra precinct of Gold Creek Village, Nicholls. Our staff members will look forward to welcoming your group to this unique science-based attraction and introducing you to the Age of the Dinosaurs. We strive to ensure that everyone in the group gets involved, has some fun, and has a memorable time at the National Dinosaur Museum.

2. About This Booklet

This *Primary School Education Package – Teacher Resources* booklet based on all dinosaurs, is designed to complement the three primary level activity booklets, which are also on the booking website (Schools/Teachers Resource). It is for teachers to use as pre- and post-visit lesson plans for primary-aged students from Foundation (F) to Year 6, who are visiting the National Dinosaur Museum.

In this booklet we provide information on:

- the Museum's on-site Education Packages
- Australian Curriculum links
- pre-visit lesson ideas
- post-visit lesson ideas.

The associated Primary School Level Activities booklet can be found on the website and is intended to support the concepts we believe to be of great importance for students to understand before and after visiting the Museum. You are welcome to use any of the activities from any of the booklet to suit your particular group.

- Foundation to Year 2
- Years 3 and 4
- Years 5 and 6

If you have any questions regarding anything in this Primary Education Package – Teacher Resource booklet, please email the Education Co-ordinator at bookings@nationaldinosaurmuseum.com.au.

3. Museum On-site Education Packages

Overview

When school groups visit the Museum and take part in an Education Package, students will be taken through our excellent exhibits in the National Dinosaur Museum, and will be shown genuine fossils, replica life-size skeletons, and much more. Our tour guides are trained in not only educating children on prehistoric creatures, but also in the fine art of entertaining children and keeping them engaged on such an exciting topic. Our guides aim to deliver a relevant, contemporary, and engaging tour that builds on students' pre-existing knowledge of our universe's history and the prehistoric creatures.

Tours are tailored to suit all ages of primary and secondary students and bring a unique insight into dinosaur biology and evolution in a fun-filled, interactive experience. The interactive experiences encourage students to extend their learning at the museum; after a formal discussion at each key exhibit, guides provide time for students to explore, touch hands-on fossils and specimens, ask questions, and take photos.

Other Activities

In addition to a standard tour, we also offer add-on activities for junior students if desired.

In our **Fossil Casting Workshop**, students create their own fossil casts, which they are welcome to take back to school with them. This hands-on experience aims to provide students with the opportunity to learn about all the different techniques in the casting and preservation of fossils, and experience how paleontologists create casts in the field. This activity add-on is usually offered to students from Foundation level to year 2.

Education Packages offered by the Museum

- Standard Day tour
- Premium day tour
- Dinos@Night tours
- Virtual Tours
- Dinos@School Incursions
- Dinos on the Road incursions
- Premium night tour
- Fossil casting add-on

Questions about this education booklet

Education Coordinator

(02) 6230 2655

bookings@nationaldinosaurmuseum.com.au

Make a Tour booking

Bookings team

(02) 6230 2655

bookings@nationaldinosaurmuseum.com.au

Your feedback

We would love feedback from teachers and students about our Education Packages so please, after your visit, fill out the Education Package Evaluation Form and email it to the Education Coordinator at bookings@nationaldinosaurmuseum.com.au.

4. Australian Curriculum

Suggested links for classroom activities and on-site Education Packages Primary Curriculum Foundation to Year 6.

The Museum's main subject focus is science and there are many avenues you could look into to plan your lessons. We suggest the following Australian Curriculum links based on what is in this booklet and if you take part in an on-site Education Package.

The Key areas of science:

- Science Understanding (Biological Science, Earth and Space Science)
- Science as a Human Endeavour
- Science Inquiry Skills

Below is an outline of the relevant and appropriate Australian Curriculum links based on what is included in this booklet, and the content covered on our guided tours, and any additional activities.

Links to the Australian Curriculum

Year	Subject	Australian Curriculum Link
Foundation	Science	ACSSU002; ACSSU004; ACSSU005; ACSHE013; ACSIS233; ACSIS012;
Year 1	Science	ACSSU017; ACSSU211; ACSSU019; ACSHE021; ACSIS026
Year 2	Science	ACSSU031; ACSSU032; ACSSU033; ACSIS038; ACSIS039
Year 3	Science	ACSSU044; ACSSU048; ACHE050; ACSIS054; ACSIS060
Year 4	Science	ACSSU073
Year 5	Science	ACSSU043; ACSHE081; ACSIS231; ACSIS086; ACSIS218
Year 6	Science	ACSHE119; ACSIS126

Cross-Curriculum Priorities

At the National Dinosaur Museum, we strive to include the cross-curriculum priorities in our tour content in any capacity possible. We believe that the priorities provide national, regional and global dimensions which will enrich the content delivered in our guided tours.

While our tours focus predominantly on the subject area of science, there are numerous possibilities for other subject areas to be included, both during the tour and in any post-tour activities you and your students engage in.

For example,

- Geography (movement of tectonic plates over millions of years changes position of countries)
- Maths (measuring fossils, comparing size of prehistoric creatures)
- English (pronunciation, spelling, creative writing)
- Arts (dinosaur skin types, build a dinosaur)

5. Educational Tour

The Museum's Educational tour is a great way to learn about Dinosaurs, their place on our planet, and their evolution.

Age Suitability

This tour is suitable for students of all ages and is tailored to suit the level of each group.

Work Health and Safety

Groups of over 50 students are broken down into smaller groups and each sub-group is hosted by a Museum Tour guide. A teacher/supervisor must be present in each sub-group to assist as required. The tour is conducted in designated areas for the safety of the students and the fossils.

Description

The Museum's enthusiastic and experienced tour guides lead school groups through exhibits, helping students to discover how dinosaurs evolved, survived, and changed over time, and how they ultimately perished.

Guides highlight significant points of the exhibition and use them to discuss the Earth's geological past, developments in paleontological methods, the demise of the dinosaurs and subsequent rise of the megafauna. Australia's own prehistory is a key focus of tours and is illuminated throughout the hour.

6. Pre-visit classroom activities

The following lesson ideas are for teachers to create fun and innovative classroom sessions about Dinosaurs and Mammals. You'll need a **Primary Education Activities** booklet to assist with your lesson planning. We recommend completing at least one, but preferably more or all, of the activities relevant to the students' level.

Pre-visit objectives

- Students will know how a fossil forms, and what is and what isn't a fossil
- Students will know what is, and is not, a dinosaur.

Suggested activities

6.1 **Think Like a Palaeontologist!**

A fun research activity for students to start thinking about different dinosaurs.
Here are some suggestions to get you started.

A. When were they alive?
Print put our Stratigraphy timeline and see if students can find the ages of some different dinosaurs. Try this with the Megafauna fossils too in the Holocene epoch.

B. Compare the different sizes of dinosaur fossils with modern day animals.
Go to internet and print out some different dinosaur skeletons (Allosaurus, Brachiosaurus, Australovenator, Stegosaurus, Triceratops, Velociraptor, T. rex etc.) and print out some different modern-day animal skeletons (Chicken, Crocodile, Dog, Lizard etc.) and compare and contrast the different skeletons.

C. How many Australian dinosaurs can you find?
Using books or the internet find all the Australian Dinosaurs discovered and published so far.

D. What did they eat?
Make a list of dinosaurs and, by looking at their teeth and decide what they used to eat
Eg.

Dinosaur Name	Carnivore	Herbivore	Both	Observations
Triceratops		Yes		Blunt and situated at the back of the mouth

E. What is your favourite dinosaur?

Ask each student to choose their favourite dinosaur and write a report on why that dinosaur is of so much interest to them.

6.2 **What is a Dinosaur?**

Many people get confused about dinosaurs and other reptiles. Not all reptiles are dinosaurs, but dinosaurs are classified as reptiles. Like all animals, dinosaurs have many characteristics that belong to them and not to other animals.

Whether a dinosaur is as BIG as a house or as small as a chicken, every dinosaur has four things in common. They are:

Dinosaurs all had scaly skin somewhere on their bodies.

Dinosaurs lived on land.
It is very likely that dinosaurs would had gone for a swim, but they would have spent the majority of their life on dry land. If a reptile lived exclusively in the water it is classified as a marine reptile. If it flew through the skies with leathery wings it was classified as a flying reptile.

Dinosaur's legs were always directly below their body and walk on their toes.
One of the biggest differences between dinosaurs and other reptiles is that their legs were located directly underneath their bodies (like humans), not out to their sides. This is one of several elements studied in reptile skeletons that is only found in dinosaurs.

Dinosaurs lived during the Mesozoic Era.

6.3 **What is a Fossil?**

The only remains of dinosaurs today are the fossilized bones in the ground. The big question is, how do fossils form? It's quite a complex process, but essentially fossilization is the same no matter what is being fossilized.

Basically, organic material (plant and animal material) is buried. If the conditions are perfect, the organic material will be replaced slowly by rock materials brought in through ground water. Anything can fossilize, even the most delicate thing, but that is rare. The conditions of the soil, moisture, the pressure in the soil and the timing must be perfect to create a fossil.

Fossilization process explained:

- The dinosaur dies
- The body starts to rot away. Whatever is left gets covered by sand and mud.
- The buried bones slowly turn into rock through fossilization.
- Millions of years later someone might find them again

Body Fossils
Body fossils are effectively any remains of the dead body and anything attached to it, e.g. bones, skin, feathers or leaves.

Trace fossils
Trace fossils are any fossils formed from living behaviours, e.g. footprints or nest building.

7. Post-visit classroom activities

Post-visit objectives

- Students will reflect on what they have learnt
- Students will do some independent work
- Students will research more Australian palaeontology.

Suggested activities

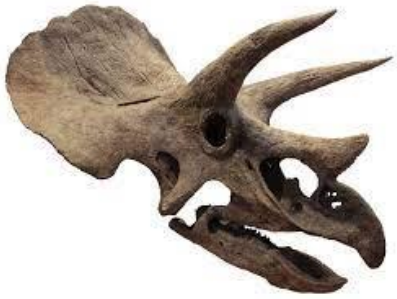
- Write a journal entry or short report about what students learnt at the National Dinosaur Museum, plus what they are interested in learning more about.
- Make a flip book of their favourite dinosaur, e.g. growing, eating or running.
- Make a presentation, poster, booklet or diorama about palaeontology. Students pick a section of the process of fossilisation.
- Make a fact card about the students' favourite dinosaur, each card could include facts like the scientific name, type of dinosaur, food, size details, where it was found etc.
- Appetite Adaptations – Teaches the students how we can learn features about the animals based on their fossils. By examining the teeth, claws and size we can determine what they might have eaten and can help scientists figure out the food chains, based on what fossils are found in similar places. This activity gets the students thinking about different animals' diets, and how we know whether they are a predator or prey.

8. Appendix

Appetite Adaptations

Activity 1:

Looking at the teeth and jaws of each dinosaur, try to identify what each animal would have eaten and how it may have used its teeth:

Template: Make a Fact Card:

Australotitan cooperensis AKA Cooper

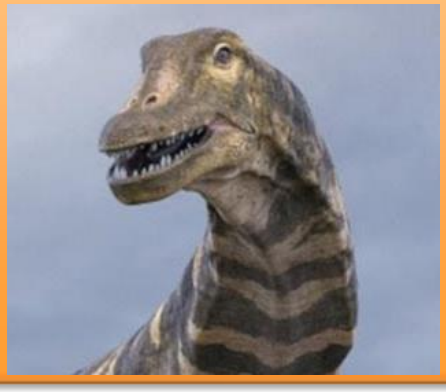
TYPE: Sauropod

WEIGHT: 23,000kg to 74,000kg

FOOD: Plant eater

LENGTH: 30m

FOUND: Eromanga, QLD



Template: Stratigraphy Timeline