



Teacher Resource Pack

Grade 4

Subject: Science

Achievement Standard: By the end of Year 4, students, **discuss** how natural processes and human activity cause changes to Earth's surface. They **describe** relationships that assist the survival of living things and **sequence** key stages in the life cycle of a plant or animal. They **identify** when science is used to **understand** the effect of their actions.

Strand	Sub-Strand	Content Descriptor	Elaborations
Science Understanding	Biological Sciences	Living things have life cycles (ACSSU072)	<ul style="list-style-type: none"> making and recording observations of living things as they develop through their life cycles comparing life cycles of animals and plants recognising that environmental factors can affect life cycles such as fire and seed germination
		Living things depend on each other and the environment to survive (ACSSU073)	<ul style="list-style-type: none"> investigating how plants provide shelter for animals investigating the roles of living things in a habitat, for instance producers, consumers or decomposers observing and describing predator-prey relationships

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			<ul style="list-style-type: none"> • predicting the effects when living things in feeding relationships are removed or die out in an area • recognising that interactions between living things may be competitive or mutually beneficial
Science as a Human Endeavour	Use and influence of Science	Science knowledge helps people to understand the effect of their actions (ACSHE062)	<ul style="list-style-type: none"> • considering methods of waste management and how they can affect the environment • exploring how science has contributed to a discussion about an issue such as loss of habitat for living things or how human activity has changed the local environment • considering how to minimise the effects of erosion caused by human activity
Science Inquiry Skills	Questioning and Predicting	With guidance, identify questions in familiar contexts that can be investigated scientifically and make predictions based on prior knowledge (AC SIS064)	<ul style="list-style-type: none"> • considering familiar situations in order to think about possible areas for investigation • reflecting on familiar situations to make predictions with teacher guidance • choosing questions to investigate from a list of possibilities
	Planning and Conducting	With guidance, plan and conduct scientific investigations to find answers to questions,	<ul style="list-style-type: none"> • exploring different ways to conduct investigations and connecting these to

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		considering the safe use of appropriate materials and equipment (ACSIS065)	<p>the types of questions asked with teacher guidance</p> <ul style="list-style-type: none"> • working in groups, with teacher guidance, to plan ways to investigate questions • discussing and recording safety rules for equipment as a whole class
	Processing and analysing data information	Use a range of methods including tables and simple column graphs to represent data and to identify patterns and trends (ACSIS068)	<ul style="list-style-type: none"> • identifying and discussing numerical and visual patterns in data collected from students' investigations and from other sources • using provided graphic organisers to sort and represent information • discussing with teacher guidance which graphic organisers will be most useful in sorting or organising data arising from investigations
		Compare results with predictions, suggesting possible reasons for findings (ACSIS216)	<ul style="list-style-type: none"> • discussing how well predictions matched results from an investigation and proposing reasons for findings • comparing, in small groups, proposed reasons for findings and explaining their reasoning
	Communicating	Represent and communicate observations, ideas and findings using formal and informal representations (ACSIS071)	<ul style="list-style-type: none"> • communicating with other students carrying out similar investigations to share experiences and improve investigation skills

			<ul style="list-style-type: none"> using simple explanations and arguments, reports or graphical representations to communicate ideas to other students
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Existing website resources (Grade 4)

Literacy
<p><u>Factual texts:</u></p> <ul style="list-style-type: none"> Identified gap in resources
<p><u>Fictional texts:</u></p> <ul style="list-style-type: none"> Identified gap in resources
<p><u>Activities:</u></p> <ul style="list-style-type: none"> Go Green for Bilbies http://www.enviro-print.com.au/SaveTheBilbyFund/2015/pages/GoGreenForBilbies.html Adopt a Bilby http://shop.dreamworld.com.au/Tickets/AAA Sponsor a bilby http://www.enviro-print.com.au/SaveTheBilbyFund/Sponsorship/Become_a_Bilby_Buddy.html

Information Communication Technologies

Websites:

- www.eaterbilby.com.au (unable to audit due to password restrictions, as discussed with the Fund)

Videos:

- **Identified gap in resources**

Games and webquests:

- **Food Chains Desert assessment.** Retrieved from (Scootle) <http://www.scootle.edu.au/ec/viewing/L9955/index.html> (ESA,2015)

Unit plans and lessons

- **Identified gap in resources**

Creative Arts

Music:

- **Identified gap in resources**

Arts and Crafts:

- **Identified gap in resources**

Role play:

- **Identified gap in resources**

Experiences

Field trips:

- **Charleville Bilby Experience**
<http://www.savethebilbyfund.com/charleville-bilby-experience.php>
- **Ipswich Nature Centre, Nocturnal Bilby Exhibit** URL ON Bilby Fund SITE N/A. This one works:

<http://www.discoveripswich.com.au/attraction/ipswich-nature-centre/>

- Featherdale Wildlife Park
<http://www.featherdale.com.au/school-excursions/>

School visits:

- Featherdale Wildlife Park
<http://www.featherdale.com.au/school-excursions/>

Recommended resources (Grade 4)

Literacy

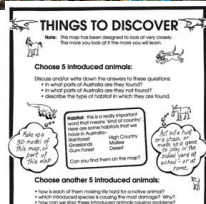
Factual texts:



Out of the Spinifex- feral map with worksheet (for photocopying) on the back.

Size: 960 mm by 680 mm (Kessing, 2016).

Deceased and extinct native creatures look down through a hole in the ozone layer at the feral animals that have taken their place. This poster gives a light-hearted but clear view of feral animal distribution across Australia (Kessing, 2016).





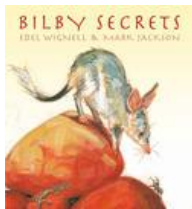
That Feral Cat- poster. Size: 750 mm by 600 mm (Kessing, 2016).

This dramatic image; from the BATTLE FOR THE SPINIFEX series illustrates the impact feral cats have on our native creatures. With information and alarming statistics on the deaths caused each day and night by feral cats (Kessing, 2016).



Battle for the Spinifex poster pack. Size: A3 pack of 11 posters (Kessing, 2016).

Feral animals have spread to all parts of dry Australia, where spinifex is often the main plant. Cats and foxes are always on the hunt. Camels, cattle, horses, donkeys, goats and rabbits eat the country bare. Many native creatures are now extinct and those who are left battle to stay alive. Painted as an exhibition of eleven large canvases, this vivid tale is told from the native animal's point of view (Kessing, 2016).



Bilby Secrets. Written by Edel Wignell; Illustrated by Mark Jackson. Non-fiction picture book for 3 to 9 years.

The story depicts a young bilby's birth, habitat, behaviour and diet. When Baby Bilby is born, he is as long as your little toe. He crawls into his mother's warm pouch, where he feeds and grows. Baby Bilby is soon ready to leave the safety of the burrow. He follows his mother closely, sniffs the night air, and hops into the moonlight for his first desert adventure (Walker books Australia and New Zealand, 2015).

The secret life of the bilby

By Gary Humble
Greater Bilbies are an increasingly popular alternative to the traditional chocolate rabbit. But the real bilbies are much harder to find - living secretive lives in isolated deserts across Australia, waiting for the right conditions to start a family.
Bilbies once numbered 70 per cent of Australia. In 1900, about 100 million were thought to exist on the continent. By the 1970s there were none to be found there.
The environmental changes of the last 100 years have resulted in a huge reduction in bilby habitat - drainage dries up the flood plains and some competitors eat bilby and grazing animals, land clearing and degradation, and changes to the traditional Aboriginal fire management have all had their part to play.
The Greater Bilby (Macrotis lagotis) was very common in southern Australia through the middle and upper reaches of the Nullarbor Desert and the Flinders Ranges. A very isolated group of about 4000 bilby on near-remote Kangaroo Island.
The face of their closest relative, the Lesser Bilby (M.



The Secret Life of the Bilby by Gary Humble.

Informative article from the ABC website (upper grades)

Humble, G. (2006) *Secret Life of the Bilby*. Retrieved from

<http://www.abc.net.au/science/articles/2006/04/06/2042654.htm>



Australian Threatened Species: The Greater Bilby

Factsheet (upper grades)

Department of the Environment and Heritage. (2005) *Greater Bilby Macrotis Lagotis*. Retrieved from

<http://www.environment.gov.au/biodiversity/threatened/publications/greater-bilby-macrotis-lagotis>

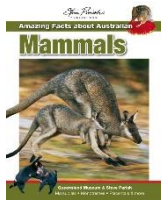


Greater Bilby Fact Sheet

Factsheet (upper grades)

World Wildlife Fund. (2008) *Greater Bilby Fact Sheet*. Retrieved from

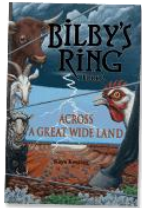
http://www.wwf.org.au/crawl_publications.cfm?1743/Greater-bilby-fact-sheet



Amazing Facts about Australian Mammals. Written by Queensland Museum and Steve Parish. This book is packed full of information and you'll be amazed at how much you learn about Australia's mammals by dipping into the remarkable facts presented. It is to our astonishment we also learn that mammals today often had either giant or pygmy-sized ancestors millions of years ago! Full page spread on the Bilby (Parish, 2008).

- **Image of a Greater Bilby**, 'Macrotis lagotis'. Retrieved from (Scoutle) <http://www.scoutle.edu.au/ec/viewing/R9612/index.html> (ESA, 2015)
- **Greater Bilby Endangered Animal Poster:** Factsheet poster. Teachstarter. (2016). *Greater Bilby Endangered Animal Poster*. Retrieved from <https://www.teachstarter.com/teaching-resource/greater-bilby-endangered-animal-poster/>

Fictional texts:



Bilby's Ring Trilogy. Written and Illustrated by Kaye Kessing. Science-based, with ten years of research and writing, these first Ten Tales for 8 to 12 years will entertain and inform (Kessing, 2016).

Out of the Spinifex: Tales 1 to 3

Bilby the Pink-eared Bandicoot heads off with Chuditch the Spotted Quoll, hoping to find a safe place to live. Fire keepers no longer walk the great western deserts, burning the country in patches to bring new growth. Feral animals are everywhere, hunting creatures like Bilby and Chuditch or eating too many native plants. Our Australian deserts are no longer safe enough for many of our native species (Kessing, 2016).

Across a great wide land: Tales 4 to 6

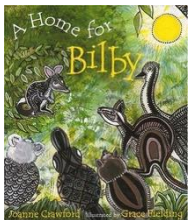
Joined by Mala the Rufous Hare Wallaby, Numbat and Sticky the Stick-nest Rat, the five are urged on by others in trouble.

As a simple search becomes a mighty quest, they must travel far across a great wide land to seek help from that scariest of species, the humans! (Kessing, 2016).

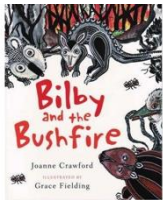
Into the Bowels of the Biggest City: Tales 7 to 10

Far on the sunup side of Australia, in the Biggest City by the Endless Sea, Felis Grandiosa the megalomaniac gutter cat has heard of the coming of The Five and swears to stop them.

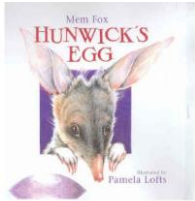
Can Tinny and Nessa, the young humans who befriend The Five, manage to save them from a shocking death? (Kessing, 2016).



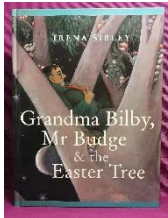
A Home for Bilby. Written by Joanne Crawford; Illustrated by Grace Fielding. Picture book for middle primary age. An engaging picture book that takes children on a journey through the Australian outback and the habitats of the animals that live there. Join Kangaroo, Emu, Platypus, Wombat and Koala as they help find a home for their new friend, Bilby (Magabala books, 2016).



Bilby and the bushfire. Written by Joanne Crawford; illustrated by Grace Fielding. Picture book for primary school age. More adventures for Bilby as he and his friends are threatened by a raging bushfire as it threatens to destroy their home in the bushland (National library of Australia, 2016).



Hunwick's Egg. Written by Mem Fox; illustrated by Pamela Lofts. Picture book 4 to 9 years. When a mysterious egg appears outside Hunwick's burrow, no one is quite certain what to think. And when it doesn't hatch right away, everyone is even more bewildered. Everyone except Hunwick, that is. Hunwick understands that the egg is his friend, and he is the only one who knows its secret (Fox, 2016).



Grandma Bilby, Mr Budge and the Easter Tree. Written and illustrated Irena Sibley. Picture book 5 to 9 years.

When it's time to deliver the Easter eggs again, Grandma Bilby gets some unexpected help from the possums in the park. Mr Budge the hamburger man joins in the fun and soon the whole town is celebrating! (Fishpond, 2016).

Activities:

- **See existing resources**

Information Communication Technologies

Websites:

- Kaye Kessing: <http://www.kayekessing.com/> (teacher resource to purchase Bilby related books, novels, posters)
- Bilby Blog: <http://www.kayekessing.com/bilbys-blog> (information on the Bilby with the ability to ask questions)



Greater Bilby Taronga Zoo

Taronga Zoo (2008) *Greater Bilby*. Retrieved from <https://taronga.org.au/animal/greater-bilby>

Video:



Vulnerable Bilbies can be seen at Taronga Zoo.

Informative video presentation from a senior keeper about the conservation and care of bilbies.

Taronga Sydney. (2010, August, 31). *Vulnerable Bilbies can be seen at Taronga Zoo*. Retrieved from

<https://youtu.be/VzEHTEPy7Q>

Games and webquests:

- **Food Chains: the Desert.** Retrieved from (Scootle) <http://www.scootle.edu.au/ec/viewing/L1143/index.html> (ESA, 2015)
- **Food Chains Desert assessment.** Retrieved from (Scootle) <http://www.scootle.edu.au/ec/viewing/L9955/index.html> (ESA,2015)
- **The Night of the Bilby: get home alive [ESL].** Retrieved from (Scootle) <http://www.scootle.edu.au/ec/viewing/L9893/index.html> (ESA, 2015)
- **The night of the bilby: safe habitat [ESL].** Retrieved from (Scootle) <http://www.scootle.edu.au/ec/viewing/L9894/index.html> (ESA, 2015).
- **Australian Animals** (25 digital curriculum resources is organised into four categories - communities of Australian animals, animals in art and stories, vertebrates and invertebrates). Retrieved from Scootle <http://www.scootle.edu.au/ec/viewing/R10702/index.html>

Unit plans and lessons

- **CSIRO Education Programs-** Sustainable Futures (curriculum aligned): <http://www.csiro.au/en/Education/Programs/Sustainable-Futures>
- **C2C One School unit plan:** Unit 2-Science Yr 4 (V3.0)
Mapping life cycles and relationships- By considering human and natural changes to the habitats, students will predict the effect of these changes on living things, including the impact on the survival of the species (DET, 2015).

Creative Arts

Music:

- **Identified gap in available resources**

Art and Craft:

- **Identified gap in available resources**

Role play:

- **Identified gap in available resources**

Experiences

Field Trips:



Adelaide Zoo learning experiences

Learning experiences for all age groups, linked to the curriculum.

<http://www.zoossa.com.au/zoo-learning-programs/>



Bunyaville Environmental Education Centre, programs for all year levels & curriculum links & risk assessment info.

School visits:

- **See existing resources**