



DESERT DWELLERS – ADAPTATIONS

By the end of Year 5, students are able to analyse how the form of living things helps them to survive in their environment. By incorporating this learning into an excursion-based unit of work, students can explore this topic based on interest areas, rather than participating in a teacher or curriculum driven unit. A visit to Currumbin Wildlife Sanctuary provides a holistic experience where the curriculum area is presented using real world examples and encounters, creating a meaningful teaching and learning experience.

By combining the knowledge from one of our experienced education officers, with the experience of “seeing” the curriculum, students will become engaged in the topic area.

YEAR LEVEL: Year 5/ 6, Stage 3

DESCRIPTION: Each of the animal displays at Currumbin Wildlife Sanctuary contains an animal in a habitat that has been as closely replicated as possible to its natural environment. By analysing this environment with the structural adaptations of the animal, and then comparing and contrasting this with another species or adaptation, students will see authentic examples of how animals’ adaptations help them to survive in various environments.

Following up using hypothetical situations in the classroom, students will determine how human impacts on environments can influence the survival of species that are highly adapted to specific areas (cross-curriculum priority – sustainability).

EXCURSION FORMAT: This excursion provides a mix of self-guided activities as well as a lesson presented by one of our educators. Students will be able to explore the properties of desert animals, as well as meet, and interact with some of our resident animals.

AUSTRALIAN CURRICULUM LINKS:

YEAR 5: ACSSU043; ACSIS231; ST3-10LW; ST3-11LW

YEAR 6: ACSSU094; ACSIS232

ACTIVITIES



BEFORE YOUR VISIT:

What are adaptations? An adaptation is a characteristic of an organism, which helps it to be well suited to the places where it lives and the kind of life it leads. Adaptations are linked to the environmental conditions an animal encounters.

How do animals adapt to their environments? Animals adapt to their environments in different ways. Two broad categories of adaptation are:



Structural – Structure is the internal and external arrangement and types of body parts. For example: the koala has strong arms for climbing and a digestive system which allows it to digest its very specific diet of eucalypt leaves; the crocodile has eyes and nostrils positioned on the top of its head allowing it to remain nearly fully submerged, while waiting for prey to come to the water's edge; the colour of animals is used for camouflage – a tiger's stripes blend in with vegetation, a reef fish's bright colours blend in with the coral.

Behavioural – Behaviour is what the animal does in response to certain stimulus. All animals do things, whether they are sleeping, flying, swimming, or sitting perfectly still. For example: blue tongue lizards stay still when threatened, to avoid being spotted by predators; lorikeets fly in flocks to reduce the risk of predator attack; crocodiles have learnt to be perfectly still underwater to avoid being spotted by potential prey.

What happens when animals don't adapt? Sometimes animals find themselves in a situation to which they cannot adapt. This is mainly due to drastic changes in their environment over which they have no control. This can lead to the devastating consequence of an animal becoming endangered or even extinct.

Urban development can change habitats which leaves animals struggling to survive; development can also destroy habitats leaving the animals with no place to live. Introducing exotic species to native environments can affect the food webs within an ecosystem, such as the introduction of the cane toad. This changes the way an ecosystem would naturally operate, which means native species of frog have reduced chances of survival.

Activities

Using picture books have students read the story, and then choose and draw a character. Students annotate their drawing with features of the character that made them adapted to their environment. Students may note that some features are hard to annotate on a drawing (such as personality traits), these are referred to as behavioural adaptations.

Define adaptations (see above), omit the information "what happens when animals don't adapt".

In pairs have students each choose a habitat and write down the name of an animal that lives there, and its adaptations for that habitat.

Swap with a partner. Using the partner's animal and the original student's habitat, students then try to list how that new animal would be suited to the different habitat. For example, student 1 chooses a jungle and a monkey (lists adaptations), student 2 chooses a desert and a camel (lists adaptations). Students swap and student 1 then tries to list the adaptations of a monkey that would be suitable for a desert.

Repeat for plants if desired.

Reflection: Class discussion. Students understand that animals are adapted for specific environments.

Additional information and activities:

Visit abc splash and view the videos and activities on animal and plant adaptation

http://splash.abc.net.au/res/teacher_res/12-adaptations.html



DURING YOUR VISIT — SELF GUIDED:

Prior to your visit to Currumbin Wildlife Sanctuary, students will choose one of the below adaptations:

Body covering (fur/feathers/scales), beaks/mouths, feet, behaviour.

Focusing on desert animals: Students can consider the following questions:

1. How does this feature differ according to the habitat and needs of the animal?
2. How does this feature in the animal enhance survival in the desert?

Students should find at least 4 examples of how their feature is a useful adaptation.

We recommend exploring Currumbin Wildlife Sanctuary focusing on the following desert species:

Located in Blinky Bills Home Tree (map reference B14): Death Adder, Knob-tailed Gecko, Spinifex Hopping Mouse, Greater Bilby.

Located in the Kangaroo paddock (map reference S13): Red Kangaroo, Emu.

Located in Land of Parrots (map reference S10): Princess Parrot, Galah, Budgerigar.

Located at map reference S8: Echidna.

Located at map reference U7 and T4: Dingo.

Located at map reference Q3: Perentie lizard.

If possible, exploring in groups of no more than 15-20 will ensure students have the most productive learning experience.

WILDLIFE DISCOVERY EXPERIENCE — LESSON — OPTIONAL

Our education officer will introduce your students to some desert animals (animals chosen may vary depending on animal health and availability). Animals may include, echidna, galah, Stimpson's Python, Shingleback Lizard, Bearded Dragon, Spiny-tailed Monitor, Black-headed Python.

Students will be able to have a close look at the adaptations of these animals, while our education officers discuss and point out their features.

Students will have time to ask questions of our education officers (it would be great if questions could be prepared beforehand).

Students will have the opportunity to interact with some of these animals and through this interaction will determine that animals within a species can have different adaptations which are determined by the environment in which they live.

AFTER YOUR VISIT:

Ask the students to brainstorm a list of adaptations that they saw on their excursion. Have students sort these adaptations into categories such as adaptations for eating, moving and defence. Do animals that live in similar areas live in similar adaptations? Why?

What would happen if the environment in which these animals lived changed? Would their adaptations still be useful?

Think about how animals and plants interact and survive in desert habitats? What can affect desert habitats? Does it matter if some of these animals and plants were no longer able to survive due to habitat changes?

How can we protect these habitats?



DETAILED AUSTRALIAN CURRICULUM LINKS

Australian Curriculum links:		Elaborations:
<p>Year 5</p> <p>Biological Sciences</p> <p>ACSSU043</p>	<p>Living things have structural features and adaptations that help them to survive in their environment</p>	<ul style="list-style-type: none"> • Explaining how particular adaptations help survival such as nocturnal behaviour, silvery coloured leaves of dune plants. • Describing and listing adaptations of living things suited for particular Australian environments. • Exploring general adaptations for particular environments such as adaptations that aid water conservation in deserts. • Applying experience from similar situations in the past to predict what might happen in a new situation.
<p>Science Inquiry Skills</p> <p>ACSIS231</p>	<p>With guidance, pose clarifying questions and make predictions about scientific investigations.</p>	
<p>Year 6</p> <p>Biological Sciences</p> <p>ACSSU094</p>	<p>The growth and survival of living things are affected by physical conditions of their environment.</p> <p>With guidance, pose clarifying questions and make predictions about scientific investigations</p>	
<p>ACSIS232</p>		<p>Researching organisms that live in extreme environments such as Antarctica or a desert</p> <p>Considering the effects of physical conditions causing migration and hibernation.</p> <p>Asking questions to understand the scope or nature of a problem.</p>
NSW Syllabus links:	Outcomes	Content
<p>Stage 3</p> <p>ST3-10LW</p>	<p>A student describes how structural features and other adaptations of living things help them to survive in their environment.</p>	<p>Living things have structural features and adaptations that help them to survive in their environment. (ACSSU043)</p> <p>Students:</p> <ul style="list-style-type: none"> • Observe and describe the structural features of some native Australian animals and plants present ideas and explanations about how the structural features and behaviour of some plants and animals help them to survive in their environment, eg shiny surfaces of leaves on sand dune plants and nocturnal behaviour in some animals



ST3-11LW	A student describes some physical conditions of the environment and how these affect the growth and survival of living things.	<p>Students:</p> <ul style="list-style-type: none">• Identify some physical conditions of a local environment, eg temperature, slope, wind speed, amount of light and water• Make predictions about how changing the physical conditions of the environment impacts on the growth and survival of living things.
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