

UPPER SECONDARY STUDENT WORKBOOK



NATURE ED



Name: _____

School: _____

Class: _____

ADAPTATIONS

During your visit to Currumbin Wildlife Sanctuary, you will see different animals.
Fill out the table below:

REPTILE - SPECIES: _____		
	Adaptation	How it improves survival
1. Physical description		
2. Special characteristics		
3. Functional characteristics		
4. Is this animal "purpose built" to suit its habitat?		

BIRD - SPECIES: _____		
	Adaptation	How it improves survival
1. Physical description		
2. Special characteristics		
3. Functional characteristics		
4. Is this animal "purpose built" to suit its habitat?		

MAMMAL - SPECIES: _____		
	Adaptation	How it improves survival
1. Physical description		
2. Special characteristics		
3. Functional characteristics		
4. Is this animal "purpose built" to suit its habitat?		

ANIMAL ANTICS

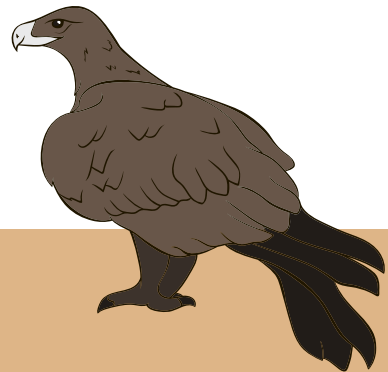
Observing an animal's behaviour tells us a lot about their health, breeding patterns, survival and adaptations. Observe a group of kangaroos in the kangaroo paddock for 10 minutes. Each minute, record their behaviour in the table below.

Behaviour	ROO 1	ROO 2	ROO 3	ROO 4	ROO 5	Total Frequency
Sleeping/Resting						
Scratching						
Jumping						
Eating						
Drinking						
Playing						

What was the most popular behaviour and why? _____

What was the least common behaviour? _____

Do you think that certain behaviours would change during the year?
Why or why not? _____



Life and living things: A Wedge-tailed Eagle can carry prey of 7 to 8 kg

CLASSIFICATION

Our modern system of classification was created by Carlos Linnaeus in the 1700's, who wished to classify every plant and animal in the world.

Living things are classified by their appearance, external structure and internal structure. Animals' internal structures are just as important as their appearances, for example, bats are more like dogs than birds and whales are more like humans than fish. The animal kingdom is divided into vertebrates (having a backbone) or invertebrates (having no backbone). Vertebrates are then divided into classes. These are: Mammals, Birds, Reptiles, Amphibians and Fish.

Mammals

Mammals are made up of the following groups:

Placentals:

Unborn babies are attached inside the mother's womb by an organ called the placenta. When they are born they are quite well developed.

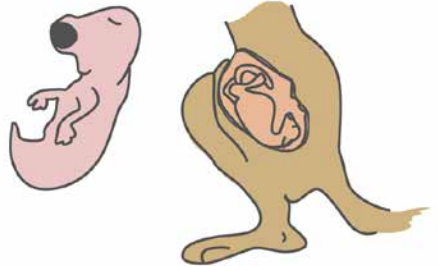
E.g. Humans



Marsupials:

Babies are born very under-developed and continue to grow in their mother's pouch which contains teats for the young to suckle.

E.g. Kangaroos



Monotremes:

These are mammals that do not give birth to live young. Instead they lay eggs. Monotremes lack teats, so instead, milk oozes onto the skin under the belly. There are only two types, both found in Australia.

E.g. Platypus



Life and living things: The Northern Hairy-Nosed Wombat is classified as critically endangered.

CLASSIFICATION

Mammalian Characteristics

1. Body covering of hair or fur
2. Constant body temperature - warm-blooded
3. Feed young on milk from mother's body
4. Have a backbone
5. Have four limbs (including flippers)



Classify the following animals:

Common Name	Hair / Fur	Warm blooded	Young fed milk	Backbone	Four limbs	Placenta	Pouch	Egg	Type of Mammal
Tree Kangaroo	✓	✓	✓	✓	✓	✗	✓	✗	Marsupial
Sugar Glider									
Echidna									
Brushtail Possum									
Dingo									

Reptilian Characteristics

1. Cold-blooded animals
2. Most hatch from eggs
3. Have scales or bony plates on their limbs
4. Have short limbs or no limbs at all



Snakes and lizards are both types of reptile, however, there are some distinct differences between them. Complete the table using your observations of different species of snakes and lizards.

		Snakes		Lizards	
		Tick		Tick	
		Present	Absent	Present	Absent
Skeleton	Forelimbs				
	Hindlimbs				
	Robust lower jaw				
Organs	Moveable eyelids				
	Nictitating membrane <small>(moveable membrane under eyelid)</small>				
	Ear tympanum				
	Forked tongue				

Life and living things: Echidna spines are made from the same material as our hair and nails. It's called Keratin.

CLASSIFICATION

A FROG or a REPTILE?

The following comparison chart has details about frogs. Complete the information for the Reptile in the chart.

A FROG	A REPTILE
Egg emerges in jelly	Egg has tough shell
Egg laid in moisture	
Egg fertilised outside female's body	
Tadpole (larva) hatches from egg to become adult	
Tadpole undergoes big changes	
Frog has moist, glandular skin	
Frog has no tail, 4 limbs	
Frog breathes through lungs and skin	
Frog eat insects and other animals	

Life and living things: Frogs don't usually drink water like we do. Instead, they absorb it through their skin via osmosis.

CLASSIFICATION

BIRDS

It is not the power of flight that separates the birds from all other groups of animals.

List at least two animals other than birds which have the ability to fly.

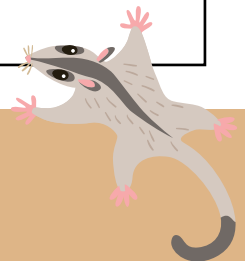


List three birds which are unable to fly.

BIRD CHARACTERIST

1. Warm-blooded animals
2. Hatch from eggs
3. Have feathers covering their bodies
4. Have two legs and two wings

Sketch a bird of your choice. List at least five features of



Point of trivia: Sugar gliders can glide through the air for up to 50 metres.

CLASSIFICATION

BIRDS

Observe the raptors at the Wild Skies Free Flight Bird Show.

Describe the unique adaptations that raptors have which allow them to hunt prey and function effectively.

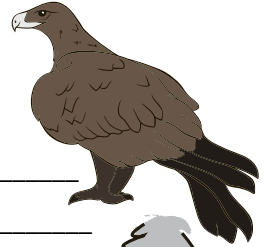
Feathers and bone structure: _____

Talons: _____

Beak: _____

Eyes (owls in particular): _____

Hearing (owls in particular): _____



Cassowaries

Plants often depend on animals for seed dispersal. One such relationship is the cassowary and Blue Quandong, the fruit of which contains very large seeds.

This relationship is vital to the survival of each party. Explain why. _____

Draw or describe the dispersal process in three steps.



Life and living things: Tawny Frogmouth birds do a behaviour called “branching” where they stretch out and sit very still to camouflage with their environment.

ANIMAL ADAPTATIONS

Animals develop special characteristics which help them survive in their natural habitat. These can be colour, structure, reproduction, behaviour or function (internal).



Find these animals in the Sanctuary and complete the table.

Characteristic	Type of adaptation	Reason for adaptation
Tail of Shingleback Lizard	Functional	Stores fat for times of food shortage
Spur on the cassowary		
Colouration of the Tawny Frogmouth		
Koalas sleep for 18-20 hours everyday		
Owls produce a casting		
Female kangaroos can hold development of embryos		

Life and living things: Scats is another name for poo. Animal scats and traces are a useful tool for finding out what animals eat and how they move around a habitat.

HABITAT DESTRUCTION

The greatest cause of a living organism becoming endangered is through the removal of its habitat. This can be the complete removal, or altering the habitat so much it becomes uninhabitable for that species. Complete the table below.

Habitat is altered for	The products and services this provides	Some native animals this has an impact on	Ways we can lessen the impact
Grazing of cattle	meat and milk	Bilbies echidnas possums	Eat less meat, drink milk alternatives
Food crops			
Urban development and transport			
Mining			
Timber harvest			



Life and living things: A pair of Barn Owls can eat 3000 rats a year.

DISCUSSION POINTS

1. When feeding carnivores at Currumbin Wildlife Sanctuary, we are not permitted to feed out animals which are alive (unless they are invertebrates). This is an established rule which we follow. Why do you think such a rule exists in zoos?

2. If you were the Chief Executive Officer of Currumbin Wildlife Sanctuary, what animal species would you choose to protect and what programs would you implement for its conservation?



AT CURRUMBIN WILDLIFE SANCTUARY...

While you're visiting the Sanctuary, help us make sure you and the animals stay safe and happy by:

- listening to your teachers
- behaving safely on the train (keep limbs inside the train and do not disembark / board the train while it is still in motion)
- avoiding all train tracks
- showing respect for all animals and other people at Currumbin Wildlife Sanctuary
- showing you understand that animals need a quiet, calm and safe environment

AT HOME AND AT SCHOOL...

You, your family and friends can do many things in your own environment to make a positive difference by:

- putting rubbish in the bin
- turning the tap off when cleaning your teeth to save water
- turning off lights and fans when not in use to save power
- reducing waste, for example, say "No" to plastic bags, reuse bottles and plastics as much as possible
- planting native plants
- telling an adult and/or Currumbin Wildlife Sanctuary when you see an injured Australian native animal
- getting involved. Have you thought about a career in working with animals? Currumbin Wildlife Sanctuary offers hands-on courses aimed at teaching community members about caring for sick, injured or orphaned wildlife. Eight week night time courses run throughout the year. Phone 07 5534 0895 for details or visit currumbinsanctuary.com.au

TOGETHER WE CAN MAKE A DIFFERENCE!