Evolution and Technology

Student booklet
Stage 5

OUTCOMES CONTRIBUTED TO:

SC5-14LW **SC5-GEV-01**

SC5-15LW **SC5-GEV-02**

SC5-ENV-01

Natural selection

How does variation in a population occur?

What are some processes of natural selection?

Reproduction

Choose one species that displays sexual dimorphism:

_____

Draw and label a diagram that highlights the key differences:

Choose one feature from above:

_____

Identify advantages and disadvantages of this feature for survival of the species

Advantage	Disadvantage

Predator profiles

The big cats at Sydney Zoo each have their own specific evolutionary paths. We will be looking at each species, their specific adaptations and how these traits have evolved through natural selection.

Tiger	
Environment:	
Hunting behaviour:	
Interesting adaptation to aid in hunting:	
Current selection pressures:	
Zoo conservation actions:	

Cheetah	
Environment:	
Hunting behaviour:	
Interesting adaptation to aid in hunting:	
Current selection pressures:	
Zoo conservation actions:	

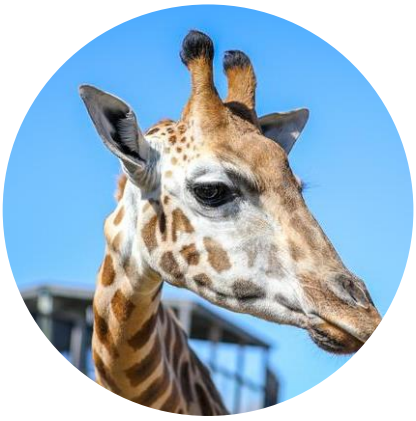
Lion	
Environment:	
Hunting behaviour:	
Interesting adaptation to aid in hunting:	
Current selection pressures:	
Zoo conservation actions:	

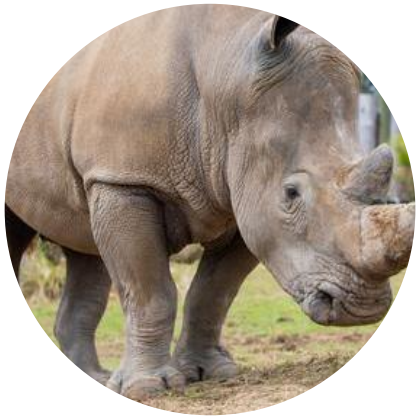
Predator avoidance

Adaptations for predator avoidance can vary widely, from camouflage, to behaviours and size. The pressure to survive has seen very interesting species and adaptations evolve.

Zebras

Giraffe

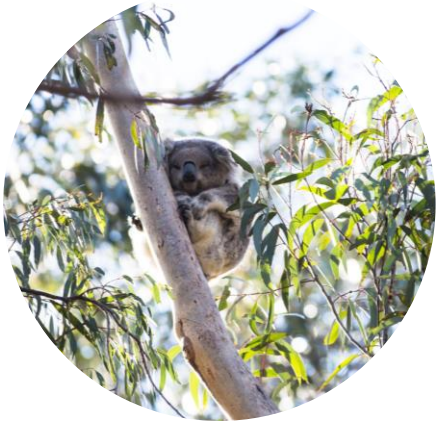




Rhino

Technology & conservation

How can technology aid in conservation efforts?
Sydney Zoo supports many species in various ways.



What are traditional methods of conservation?

What is *Biotechnology?*

How can Technology be used to enhance conservation?

Marsupials

Marsupials give birth to underdeveloped young; they are tiny and blind. When they are born, they climb into their mother's pouch and stay there suckling until they are developed and able to start exploring.

Draw and label a diagram that highlights the key differences:

Choose one feature from above:

_____

Identify advantages and disadvantages of this feature for survival of the species

Advantage	Disadvantage

Self guided

Human Impact

Before answering these questions, find and read **at least two** of our conservation walls around the zoo; they are found near the koalas, quolls, sharks and chimps.




List 3 ways that humans are impacting the native habitats of the animals.

1.

2.

3.

Chose one impact from above and describe adaptations that animals would need to develop to best survive the changes. How would these adaptations help?

BONUS: Draw a picture of an animal with the new adaptations you've outlined!


Nocturnal Animals

Self guided

There are many processes of natural selection that have resulted in animals living nocturnal lifestyles. For example, predator-prey relationships or living in a desert environment.

1. Take your time observing the animals in the Sydney Zoo nocturnal house and choose two to concentrate on then fill in the table.

Animal	List at least 2 structural and 1 behavioural adaptations you can see, or read about on the information signs	Explain how each adaptation helps the animal survive a nocturnal lifestyle
	1. 2. 3.	
	1. 2. 3.	

2. Take special note of the sensory adaptations of the two animals. What similarities and differences do they have? Why does it matter? *e.g. do they have large eyes and therefore rely on sight? How does this affect them in the dark?*

Aquarium Cohabitation

Plants and animals in the same ecosystem have usually coevolved and often rely on each other for survival. Why can't Sydney Zoo always keep animals from the same ecosystems in the same habitat?

_____

_____

The habitats in the aquarium contain many great examples of different species living together (cohabitating), including the shark habitat. Some even have two different classes of animals (fish and reptiles). Take some time to observe these animals and consider the following questions.

What adaptations do zookeepers have to consider when designing the habitats?

Can you see any examples of these considerations? (describe or draw)

Can you find all the 3 turtle species found at Sydney Zoo?

1. _____ 2. _____ 3. _____

Describe the evolutionary differences. Why? (use animal info signs in the aquarium to help e.g. where they live, how big they get, adaptations).

Notes