

STAGE 3: ADAPTATIONS IN A CHANGING WORLD

Stage 3: Science & Technology

Outcome: ST3-SCI-01

WHAT TO EXPECT IN OUR ZOO WORKSHOP

Adaptations are remarkable features that have evolved in animals over millions of years, helping species survive and thrive in their natural environments. But what happens when those environments begin to change more rapidly than ever before?

In this workshop, students observe a range of animals up close to investigate the structural and behavioural adaptations that support survival. Through engaging discussions and hands-on experiences, students will connect deeply with these animals and uncover the real impact of climate change, habitat loss, and human pressures on their survival

This workshop ultimately encourages students to think critically about the relationship between animals and the environments they depend on.



LINKS TO CURRICULUM

Science & Technology

ST3-SCI-01: Uses evidence to explain how scientific knowledge can be used to develop sustainable practices

Knowledge of our world and beyond inspires sustainable solutions

Living things may change over millions of years, in response to their environments

- Observe behavioural and structural adaptations of plants and animals, and suggest how these may help them survive in their environments



ADAPTATIONS

STRUCTURAL ADAPTATIONS

A structural adaptation is a physical feature that supports a species ability to survive.



For example, a Lesser Sooty Owl has large feet and sharp talons. One of their toes can turn to face forwards or backwards.

As a bird of prey, these physical features help make this species a supreme predator and they use them to hunt prey species to get plenty of food. If you compare their feet to a bird in the school playground like a Noisy Miner or Cockatoo who doesn't need to hunt animals to survive, they are very different.

BEHAVIOURAL ADAPTATIONS

A behavioural adaptation is an action that a species does, usually in response to something, that improves survival.



For example, a Short-beaked Echidna has sharp quills all over its body. While these quills are an impressive physical feature that supports their survival in several ways, when an echidna feels threatened by another animal they quickly hunch over their body and dig to grip to the ground as tightly as they can, which makes the quills stand up and protects the softer vulnerable parts of their body. This action is something all echidnas do and keeps them safer from larger predators like foxes, dogs and eagles.



SUGGESTED TEACHER ACTIVITIES

PET ADAPTATIONS

Ask your students to describe their pets' adaptations (if they have a pet) or use the animals you can find in your playground. Identify the structural features they have and behaviours they do that help them to survive.

Another idea could be to conduct an animal survey in your school yard to discover just how many animals live around your school (or even within your classroom!). Invertebrates make up a huge part of our animal population and have such fascinating and varied adaptations. Another animal that is usually not too tricky to find in the playground are birds, especially after lunch!

COMPARISONS

Give your students two different animals, such as a turtle and tortoise, to write a comparison of the similarities and differences of each animals' adaptations. Students should link the adaptations to the habitat the animal lives in. This activity could be completed as a Venn Diagram to begin the comparison.



HABITATS

Give your students choice of an environment, for example desert, coral reef, rainforest, etc. Ask them to research and draw different animals or species that live in that environment as their habitat. Students could display their learning by writing about each animal's structural and behavioural adaptations or create scientific drawings of their animals and label any adaptations.

DESIGN AN ANIMAL

Using your knowledge of different animals, design an animal with ultimate survival adaptations. Think about which environment this animal would live in and what behavioural adaptations it also might have to assist it in surviving.

ADAPTATIONS SCAVENGER HUNT

At the Zoo

Explore Taronga Zoo to find these animals and their amazing adaptations.

Southern Corroboree Frog

Corroboree Frog Exhibit - Map Reference 11K

A frog can breathe oxygen through their skin and absorb water! Not only that, but it can also be an important tool to keep them safe from predators. What does this frog's skin communicate to its predators? _____

Choose another species of **frog** in ARC _____

ARC - Map Reference 6H

What environment would this animal live in? _____

Explain your answer linking in any adaptations _____



Reticulated Python

Aphibian & Reptile Experience (ARC) - Map Reference 6H

A great example of a structural adaptation is a snake's scales. We can use the pattern and colours as clues to work out what type of environment a species might be found in.

Choose another species of **snake** in ARC _____

What environment would this animal live in? _____

Explain your answer linking in any adaptations _____

ADAPTATIONS SCAVENGER HUNT

At the Zoo

Explore Taronga Zoo to find these animals and their amazing adaptations.

Sugar Glider (or any species of glider in the exhibit)

Nguwing Nura – Nocturnal Country - Map Reference 5I

Gliders are known for their gliding adaptation. Explain how this is an adaptation and how do gliders use them _____

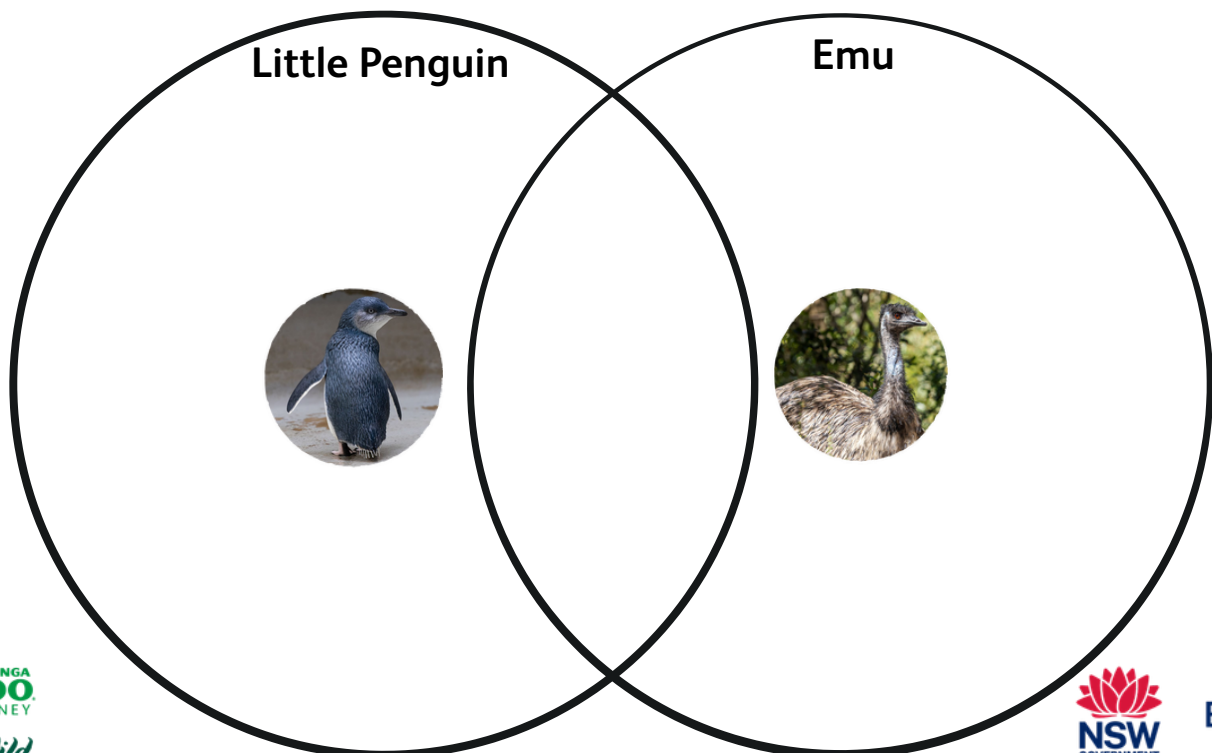
Choose another animal living in Nocturnal Country _____

What structural adaptations does it have to help it survive at night time? _____

Birds of a Feather

All birds are covered in feathers, an important structural feature for insulation and skin protection. Depending on the species, feathers can also assist with camouflage, communication, breeding, identification, flight or waterproofing.

Choose any two species of bird and compare the similarities and differences between their feathers. Ensure you link each species in with it's environment. A great comparison would be between a Little Penguin (Map Reference 9D) and an Emu (Map Reference 6J).



IDENTIFYING ADAPTATIONS

At the Zoo

Walk around Taronga Zoo to observe some different species. List the structural and behavioural adaptations that you can identify and explain how they help each species survive.

Animal Write the name & the environment it lives in	Adaptation Structural or behavioural? Name & draw	How does this adaptation help it to survive?

THREATS IN A CHANGING WORLD

Post-Zoo Visit

Name an animal that is impacted by each of these threats in our changing world and describe how it is impacted.

CLIMATE BASED DISASTERS

HABITAT LOSS

DISEASE

POLLUTION

INTRODUCED ANIMALS