

CLASSIFICATION AND ADAPTATIONS

Stage 4: Science & Technology
SC4-14LW, SC4-15LW, SC4-8WS



Photographer: John Cann Location: Taronga Zoo

Students will understand how scientists group living things. Students will learn the evolutionary significance of the features that classify species and discover amazing adaptations that give our native wildlife the edge for survival. Students will then be able to explore the impacts of environmental change on species and conservation strategies they can implement in their local environment.

OUTLINE

AT SCHOOL

- Explore the 7 characteristics of living things and how scientists group the millions of species found on Earth.
- Watch videos to discover how animals survive in extreme environments.
- Investigate the behavioural and structural adaptations of a variety of native Australian animals.
- Classify local native animals.

AT THE ZOO

Investigate enclosure designs and how they relate to the adaptations of the animals in them. Identify the common characteristics of the different Classes of animals and take photos of animals and their enclosures.

ZOO WORKSHOP

Meet animals and discover the characteristics that help classify each of the animals. Identify adaptations each has to survive in its environment. Learn how changes to animal habitats and reproduction can have a significant impact on the species survival.

BACK AT SCHOOL

- Use the exciting resources from [ARKive](https://www.arkive.org/) to test your students understanding about classification and adaptations in a fun and creative way.
- Investigate what your school already does to help the environment.
- Create a local conservation promoting campaign for species in a local habitat (your school or in the local area)



AT SCHOOL- BEFORE THE ZOO

Discover how scientists group living things.

Explore the amazing adaptations animals have to cope with their, sometimes extreme, environments.

Find out if some Classes of animals are better suited to different environments?

SURVIVAL OF THE FITTEST - Watch these [videos](#) about animals surviving in extreme environments.

[Southern Hairy-Nosed Wombats](#), [Polar Bears](#), [Desert Frogs](#), [Penguins](#), [Pygmy Possums](#)

WHO IS MRS GREN?

Use the worksheet on page 5 to explore the characteristics of all living things.

THE BIG FIVE

Familiarise yourself with the FIVE vertebrate groups and their distinguishing characteristics.

CLASSIFY THE LOCALS

Research one or more local* native animal:
Mammal, Reptile, Amphibian, Bird or Fish

•Identify the KPCOFGS of each animal researched.

Kids Prefer Cheese Over Fried Green Spinach
(mnemonic for taxonomy order: Kingdom, Phylum, Class, Order, Family, Genus, Species)

•What are the adaptations that your chosen animal has to survive in it's environment?

•Describe any threats/impact humans have on your chosen animal's habitats.

•What category does the animal belong to in the International Union for the Conservation of Nature (IUCN) [Red List](#)?

* Local could be within your school grounds or in your students' local area.

BEHAVIOURAL VS. STRUCTURAL

Research the different types of adaptations of some Native Australian Animals.

Identify both the Structural and Behavioural adaptations of each chosen animal. Some suggestions for animals to research are:

- Yellow-Bellied Glider
- Squirrel Glider
- Tasmanian Devil
- Bilby
- Kangaroo
- Spotted Wobbeong
- Bearded Dragon
- Galah
- Australian Fur-seal
- Little Penguin



Photographer: Gary Ramage Location: Taronga Zoo

AT THE ZOO

A guided (or self-guided) investigation

USE YOUR OWN DEVICE

(self-guided)

As students make their way around the Zoo, they take photos of animal enclosures (max. 5 photos per animal).

During the day, students create a document outlining the Class of animal and the adaptations of the animal. Students also discuss the specifics of the design of the enclosure that match the requirements of the adaptations of the animal.



Some of the best enclosures to visit for this activity are:

- Chimpanzees
- Little Penguins
- Fishing Cat
- Gibbons
- Platypus
- Reptile House
- Lemurs
- Giraffes

Listen to Keeper Talks to hear some extra information to help with this activity.

EXPLORE (self-guided)

- Investigate enclosure designs and how they relate to the adaptations of the animals in them.
- Identify the common characteristics of the different Classes of animals.

CONNECT (workshop)

- Meet up close some Australian animals.
- Look at the adaptations each has to suit their environment.
- Decide on the Class of each species shown.
- Hear from our Zoo Education staff how these animals are being affected in their native environment by human activity.

DISCOVER (workshop)

- Discover the impact environment change has on an animal that is adapted to that particular habitat and what we can all do to promote sustainability and native habitat conservation.
- Discover how Taronga Zoo is working with the community to help species like the Yellow-Bellied Glider.

AT SCHOOL-AFTER THE ZOO

Students' knowledge and understanding of animal adaptations and animal habitat requirements will enable them to have a positive impact on the local environment.

APPLY YOUR KNOWLEDGE

Use the exciting resources from [ARKive](#) to test your students understanding about classification and adaptations in a fun and creative way.

- Students make their own classification keys and use keys to classify newly discovered species.
- Lets students apply their understanding to classify a range of different sharks.
- Engage your class with a practical activity that will get them thinking about how important their opposable thumb.
- Adaptations – design a species challenges students to think creatively and design a new species that is suited to a specific environment.



HELP MAKE THE CHANGE

Your students will now use the knowledge they have gained from their visit at Taronga Zoo and their own class work and have a direct impact on local wildlife.

WHAT DO YOU ALREADY DO?

Using the [Sustainability Action Process](#), your class/school can conduct an audit of the school's sustainability actions - water use audit, energy use audit, waste audit and biodiversity audit) etc)

Students could then use this information to make suggestions/recommendations for change to the Principal, Environment Team, SRC. Or local council.

CREATE A LOCAL CONSERVATION PROMOTING CAMPAIGN

Your class/school can gather knowledge about the animals in their school grounds and/or local community.

Ideas to think about:

- What animals in your local area do you want to gather knowledge and understanding about?
- How will you inform students and/or locals about the animals?
- What style could your local conservation promoting campaign take?
- How will you know your campaign is effective?

MRS GREN

Characteristics of living things

Explore who [MRS GREN](#) is and what she can teach us about living things



LIVING OR NOT?

Use the information about the objects below to complete the table.

Cloud: I am made of water and dust particles and grow larger in bad weather. As I warm up, I am able to move freely and am sensitive to the wind. I do not need any gases to survive.

Sunflower: My face follows the Sun as I use carbon dioxide, water and sunlight to make my own energy. I grow quickly when I have enough nutrients and water, and produce oxygen as waste. My children grow from seeds, I make when the weather is warm enough.

Venus Flytrap: I get my energy from photosynthesis, but I also trap insects that land on my 'flytraps'. I snap these shut as soon as the insect lands, trapping them so that I can digest and absorb their nutrients. I have roots that absorb water, and small holes in the leaves to exchange oxygen and carbon dioxide.

Iron nail: I am usually a shiny, silver colour although I can become a red-brown when oxygen is around. Water can make this happen faster.

Parrot: I live high in the trees but eat seeds I find on the ground. I like to live with other birds and can often be heard making noise with my flock if anyone threatens my eggs. I love to breathe in the fresh air of the trees although my faeces can often make a mess underneath.

Can you fill in the last row to see if fire is living or not?

Name	Move	Respire	Sensitive	Grow	Reproduce	Excrete	Need Nutrition
Cloud							
Sunflower							
Venus Flytrap							
Iron nail							
Parrot							
Fire							

TEST YOUR SKILLS by completing the [living animals quiz](#)