

Excursion workbook

NAME:

Why are you visiting the zoo?

- To learn how to classify living things based on their observable features
- To learn what adaptations are and how they aid survival of some of the animals at Sydney Zoo
- To practice scientific skills such as using a dichotomous key

Welcome to Sydney Zoo!

Our vision is to secure a sustainable future for wildlife through making connections between you and our animals.

'Bringing Nature into a classroom can kindle a fascination and passion for the diversity of life on earth and can motivate a sense of responsibility to safeguard it'.

Sir David Attenborough

Expectations for your visit:

Always be aware and respectful of the animals, each other and all Sydney Zoo guests.

Please always remain **Safe**, **Slow** and **Quiet**!

During your visit you will participate in an educational workshop and have time to explore the zoo with your classroom teacher.

Keep an eye on the top right corner of this workbook to determine if the questions will be answered during the workshop, or using information from signs around the zoo. The page will be labelled as either **workshop** or **self guided**.

Sydney Zoo acknowledges the Dharug nation, their people, past, present and their future generations.

Classification and adaptations

What do you know about classification and adaptations?

What is classification? Give a basic definition.

Why do we classify things?

How do we classify things?

What are adaptations and why are they useful for living things?

Circle the correct answer:

1. Only Scientists use classification.

True / False

2. Which of the following is NOT classified as a vertebrate animal?

Mammals / Birds / Insects / Amphibians / Fish / Reptiles

3. It would be **easy** / **hard** / **almost impossible** for a population of animals to adapt to rising temperatures over the next 50 years.

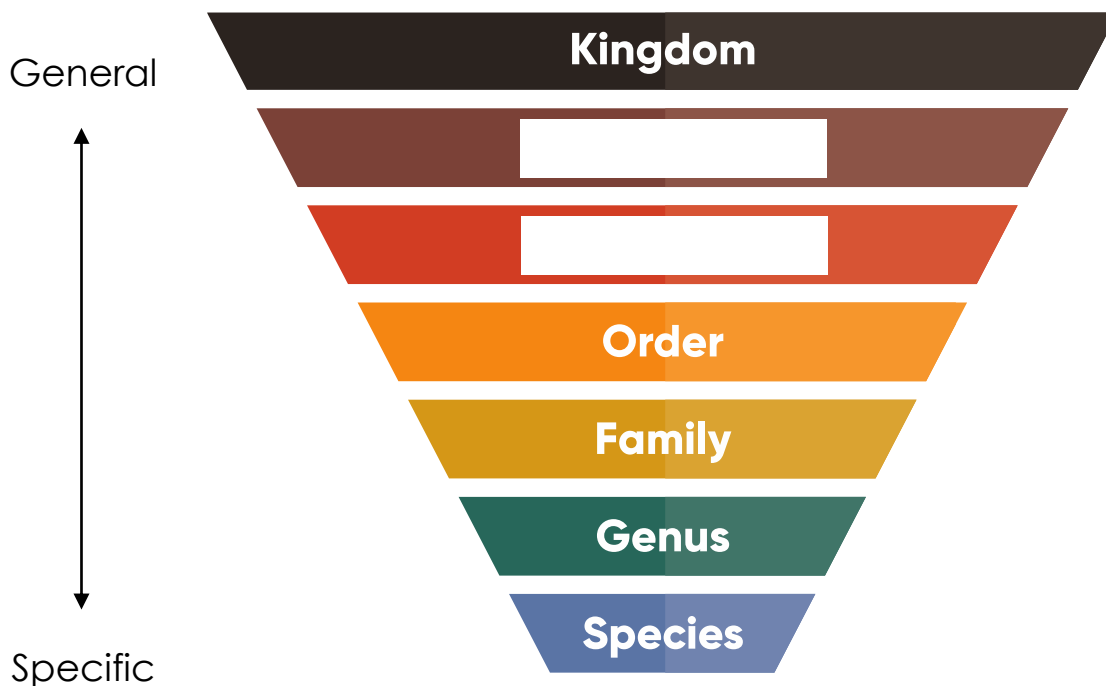


LINNAEAN CLASSIFICATION SYSTEM



Carl Linnaeus
(1707-1778)

Fill in the three missing words:



The scientific name

BINOMIAL NOMENCLATURE

(2 names)



What language do we use for scientific names and in Science generally?

Why?

Linnaean Classification continued

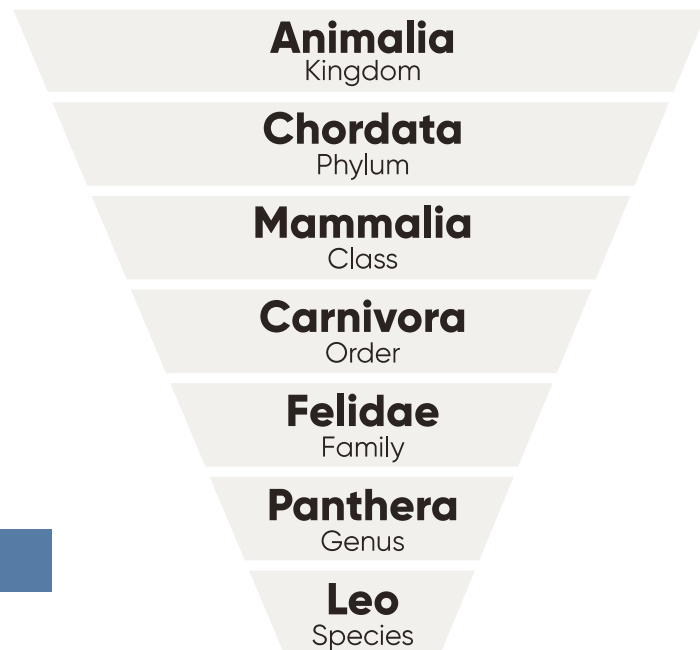


Panthera

Genus

leo

species



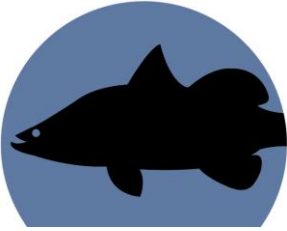
Lions are in a subphylum called **VERTEBRATES**. There are 5 classes of vertebrate animals. Lions are in the class: **Mammalia**, or **mammals**. The other 4 classes are: **fish**, **amphibians**, **reptiles** and **birds**.

Classes of vertebrates are grouped using similar characteristics. For example, think about where each class fits with the following characteristics:

- **Body covering**
Is the animal covered in wet scales, dry scales, fur, moist skin or feathers?
- **Body processes such as temperature regulation**
To function properly, animals have an optimum body temperature. How they get to this temperature and how tolerant of different body temperatures differs between groups. Some rely on their environment to warm and cool their body, others produce their own body heat as a byproduct of metabolic processes.
3 classes of vertebrate are **Ectothermic**, or _____-blooded and can tolerate a large range of body temperatures.
2 classes of vertebrate are called **Endothermic** or _____-blooded and can only survive a body temperature range of a few degrees.
- **Reproduction**
Does the animal normally lay eggs or give live birth? If it lays eggs, are they in a soft shell, hard shell, or jelly-like?

Classification

For each class of vertebrate below, list the name of the class of animals, what their body covering is, how each thermoregulates and how they reproduce. Find an example animal that you find at the zoo.



Class:

Body covering	Thermoregulation (circle)	Reproduction method
	Ectothermic	
	Endothermic	

Example at Sydney Zoo:



Class:

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Example at Sydney Zoo:

The combination of these features act as rules to help us classify vertebrate animals!

Adaptations

- Primates -

Choose one primate species, spend at least 5 minutes observing, then answer these questions:

Common name:

Scientific name:

Make a quick field sketch of the animal, include some features of its Sydney Zoo habitat.



1. Jot down some of your observations. Consider:

- How is it using its habitat?
- Is it interacting with other living things?
- Other interesting behaviours.

2. Identify some structural adaptations (at least 3) and label them on your field sketch.

3. What are two behavioural adaptations you noticed or read about and how do they help the animal survive?

i.

ii.

4. Read the information signs about this animal and write down one interesting fact:

Habitat and Conservation

Answer the following questions based on the animal you observed.

Where in the world are they found as wild animals? _____

What type of habitat do they live in? _____

What are some things you notice about the Zoo habitat that mimics their natural habitat?

Conservation status (circle):

LC	NT	VU	EN	CR	EW	EX
----	----	----	----	----	----	----

What do the letters you circled stand for?

Can you identify any major events or changes in the place where the animal lives that could affect its survival or conservation status? Use the information signs, what you already know, or the examples below.

How are the events/changes you have identified impacting the animal's survival? Make sure you include their adaptations in your answer.

Example events that could impact conservation and survival

Changes in land use. E.g.

- land clearing
- habitat loss
- mining
- Agriculture

Climate change. E.g.

- changes in land/water temperature
- changes in water level
- changes in weather patterns

Other impacts. E.g.

- local, national or international conflict
- illegal wildlife trade
- introduction of invasive species

Adaptations - Aquarium -

Choose one aquatic species, spend at least 5 minutes observing, then answer these questions:

Common name:

Scientific name:

Make a quick field sketch of the animal, include some features of its Sydney Zoo habitat.



1. Jot down some of your observations. Consider:

- How is it using its habitat?
- Is it interacting with other living things?
- Other interesting behaviours.

2. Identify some structural adaptations (at least 3) and label them on your field sketch.

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Other impacts. E.g.

- local, national or international conflict
- illegal wildlife trade
- introduction of invasive species

Adaptations - Australian -

Choose one Australian species, spend at least 5 minutes observing, then answer the questions:

Common name:

Scientific name:

Make a quick field sketch of the animal, include some features of its Sydney Zoo habitat.

1. Jot down some of your observations. Consider:

- How is it using its habitat?
- Is it interacting with other living things?
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Adaptations

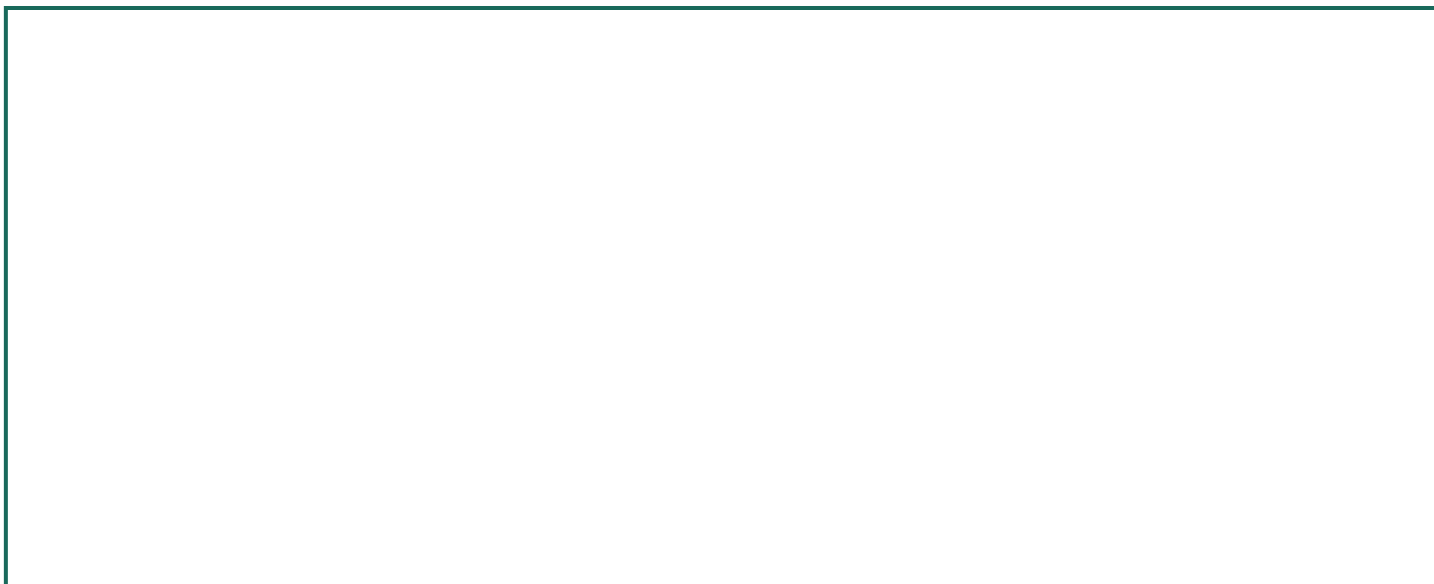
- South East Asia -

Choose one South East Asian species, spend at least 5 minutes observing, then answer these questions:

Common name:

Scientific name:

Make a quick field sketch of the animal, include some features of its Sydney Zoo habitat.



1. Jot down some of your observations. Consider:

- How is it using its habitat?
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Adaptations

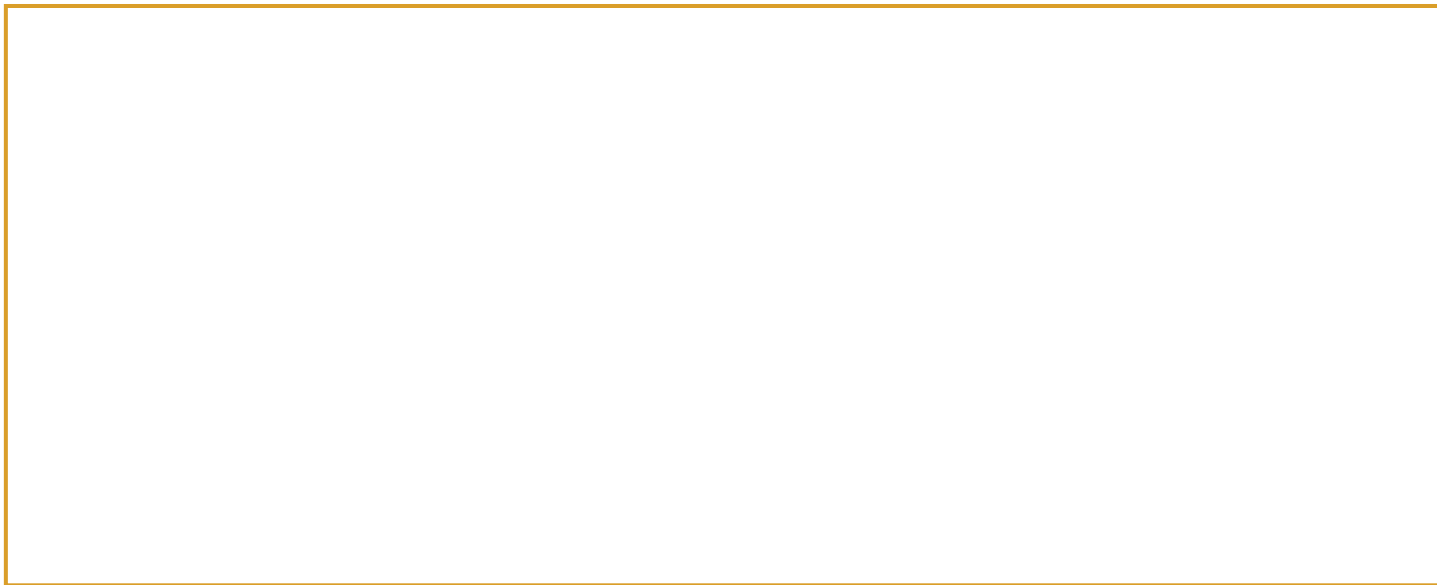
- Africa -

Choose one African species, spend at least 5 minutes observing, then answer these questions:

Common name:

Scientific name:

Make a quick field sketch of the animal, include some features of its Sydney Zoo habitat.



1. Jot down some of your observations. Consider:

- How is it using its habitat?
- Is it interacting with other living things?
- Other interesting behaviours.

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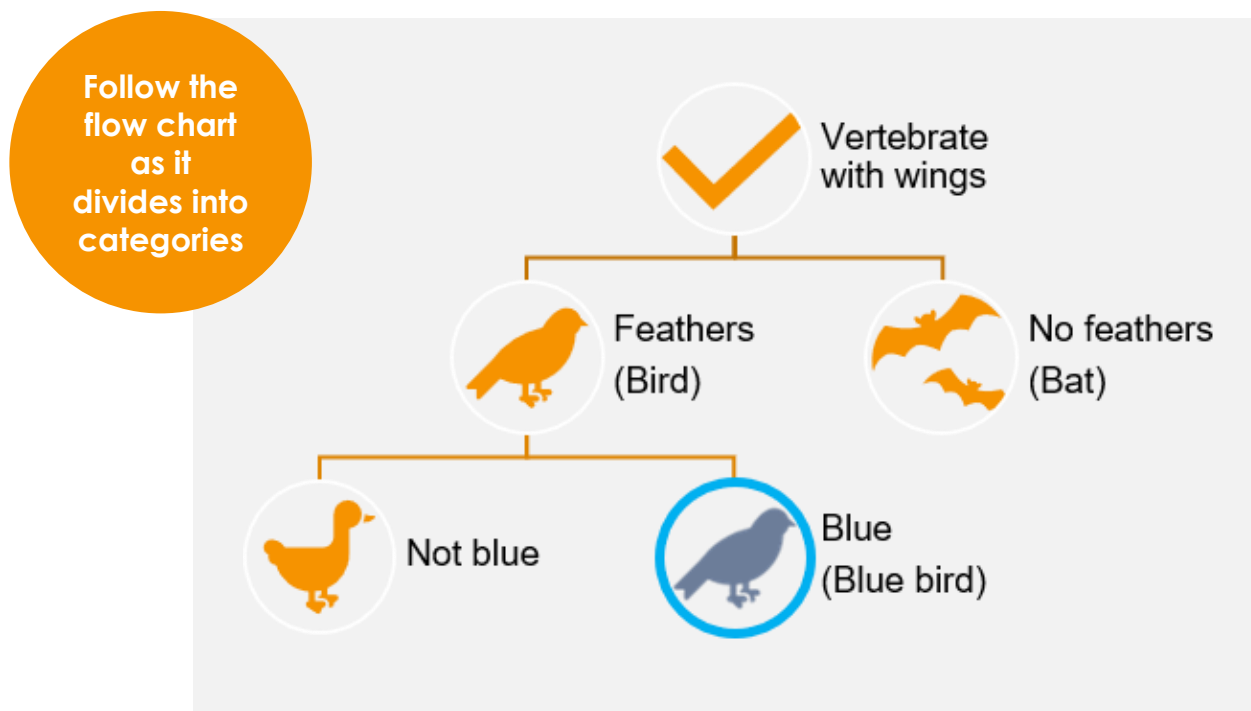
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Dichotomy? Two choices

What is a dichotomous key? It is essentially a checklist of characteristics that helps you identify the species you are looking at. At each level there are two opposite options (for example *vertebrate* / *non-vertebrate* or *feathers* / *no feathers*), as you observe the species, you make a choice and continue following that path until you find your answer.

Below are two ways to represent a dichotomous key. Imagine you are in the bush and have seen a bird that is blue – follow a key to find out what it is!



- OR -

1A	Backbone present	Go to number 2
1B	Backbone absent	Invertebrate species
2A	Wings with feathers present	(Bird) Go to number 3
2B	Wings present without feathers	Bat
3A	Blue feathers	Blue bird
3B	Other colour feathers	Use other bird key

Follow the table as it divides into 2 categories at each step

Build your own Dichotomous Key



Practice creating a simple dichotomous key below for the animals you see above.

Each step must have two options that are opposite e.g. scales and no scales, allowing anyone who reads this key to make the same choice each time. We have done the first one for you.

Step	Split/Feature	Instruction/species
1	1a Vertebrate	Go to step 2
	1b Invertebrate	Bee
2	2a	
	2b	
3	3a	
	3b	

You have observed 5 species to study today. Go back to your notes so that you can:

1. Study your field sketch or, if possible, take a photograph that shows each animal clearly
2. Complete the notes on the next page so you have enough data to construct your own dichotomous key
3. Create your dichotomous key
4. Share with classmates and your teacher to check your work
5. Apply any suggestions to perfect your key

Build your own Dichotomous Key

For each of your chosen species at Sydney Zoo, note down important features of the animal you notice, but also any interesting behaviours.

Species	Photo taken or sketch completed?	Important features
1		
2		
3		
4		
5		

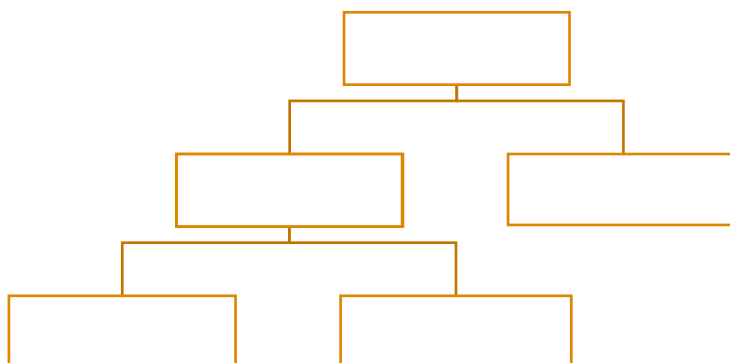
Build your own Dichotomous Key

Use the features you identified on the previous page to create a simple dichotomous key. You can choose to create a table OR flow chart that clearly identifies each of the animals you chose to observe at Sydney Zoo.

Create a simple table by filling in the steps below:

Step	Split/Feature	Instruction/species
1	1a	
	1b	
2	2a	
	2b	
3	3a	
	3b	
4	4a	
	4b	
5	5a	
	5b	

Or, complete the chart by adding more steps where appropriate:



Evaluate your dichotomous key. Ask multiple classmates to view a sketch/photo you have taken of an animal and work through the key based on what they see. They must be able to follow the key and come to the same conclusion every single time.