ADELAIDE ZOO

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Classification: sorting animals

PRIMARY

Acknowledgements

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With support from the following people and organisations:
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Front cover image designed by:
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Updated April 2019

This Outreach Education program for schools is a partnership between Zoos SA and the Department for Education and Child Development, South Australia. Outreach Education is a team of seconded teachers based in public institutions who are managed through the DECD Teaching and Learning

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For the Teacher

General Information

Welcome to Adelaide Zoo!

The Zoo is a great place for learning. Adelaide Zoo Education aims to support student learning by providing resources to assist classes to have educational and enjoyable experiences at the Zoo.

This booklet will provide a range of activities which may be undertaken by your students during their visit to the Zoo. A map and suggested order of activities is provided to give a logical circuit to travel during the visit.

Animal species change from time to time, and sometimes animals are “off limits” or out of sight during visits, so a flexible approach to completion of activities is recommended.

In planning, please consider whether

- you would like your class to regroup for lunch, animal feeds, the Envirodome or at the Entrance at the end of the visit. If so, relay the times and meeting places to students or supervisors (in writing if possible.)
- you would like a session with a Zoo Education Officer to support your study theme. The 45 minute interactive sessions need to be booked when you make your class booking.

Specific information relating to this Zoo Trail will follow for the teachers and for adult supervisors. Please ensure that supervisors have a copy of the relevant pages **before they come to the Zoo** so they can also be mentally prepared to maximise the learning for the students in their care.

TEACHER INFORMATION

This trail is aimed at giving students an introduction to the early stages of systematic organisation of living things – Classification. This includes,

- Placing vertebrates into appropriate Classes based on certain structural features,
- Using animals' body covering to determine which Class they belong to,
- Focusing on the unique features of the vertebrates in each Class.

The booklet is designed for completion by groups of students. Some of the activities require deep thinking and broad general knowledge and this is more achievable in a group situation. Teamwork in navigation, organization and writing will also add to students' involvement, learning and enjoyment of the trail.

Pre-visit ideas

- Get the students to consider some of the things that are classified or sorted into groups and sub-groups and how this helps people and makes life easier.

  For example,

  - ✓ Videos and DVDs in a video shop
  - ✓ Belongings in your room
  - ✓ Things in the school's Resource Centre
  - ✓ Items at a supermarket
  - ✓ Tools, equipment, etc. in a shed
  - ✓ Cutlery, crockery and kitchen utensils at home.
- Discuss the meaning and use of words like grouping, sorting and classifying, both in general terms and for animals.
- Discuss the reasons that animals and other things are classified and the use of scientific names.
- Research some scientific names and their meanings in English.

Post-visit ideas

Discussion/Essay/Research tasks on animal classification. Possible topics,

- Some of Australia's indigenous people have very good knowledge of native animals, their habits and their uses for food, by-products, environmental indicators, etc. many animals are the subject of traditional stories. Discuss how indigenous Australians may have classified Australian animals.

- Research to find out more about the system of classification and how animals fit into it. Students can select a vertebrate animal and attempt to find out its Class, Order, Family, Genus and Species. Students can research other animals that belong to the same 'Groups'.

Links to the Australian Curriculum (ACARA)

This trail is designed to be inquiry based and student focused. Its use by small groups of students, working cooperatively, should strongly support learning processes.

SCIENCE UNDERSTANDING - Year 7

Biological Science

There are differences within and between groups of organisms. Classification helps to organize this diversity.

Elaborations

- Reasons for classifying
- Grouping a variety of organisms on the basis of similarities and differences.
- Kingdom, Phylum, Class, Order, Family, Genus and Species.
- Scientific names.
- Using keys to identify organisms in local habitat.

Students visit a number of native and exotic species to observe and answer questions that will provide them with information about Classification.

Students are encouraged to use their observation skills, to read signs and to talk with Zoo staff. Supervisors should encourage students to discuss ideas and to express their own points of view.

Key

Observe carefully

Discuss and share ideas with your group

Write down your thoughts

Classification

A basis for Biological Classification

We could choose almost any characteristic as a basis for sorting animals. Some are more helpful than others.

For example, consider using colour. We might group together all animals that are blue; blue wrens, blue whales, bluebottles and blue crabs.

Or we may classify animals according to where they live, grouping together those animals, for instance, that are found in human households; humans, dogs, budgerigars, cockroaches, cats, mice, lice, flies, fleas – a very mixed bag!

Using an animal's colour or where it lives as a basis for classification is not, for a biologist, a very useful basis for a first sorting of animals because animals that are blue may have little or nothing else in common.

People who classify animals have found that if they use structural characteristics as a basis for classification, the animals they group together have a great deal more in common.

Levels of Classification

As a group of organisms is being classified, each sorting stage gives us a new level in the system of classification.

At the first level, sorting results in the kingdom level, for instance 'animal' kingdom or 'plant' kingdom. The groups that result from the second sorting make up the phylum level, the third sorting gives us the class level and further sorting gives us the order, family, genus and species levels in turn.

In this way most organisms are sorted into plant and animal kingdoms. Animals can then be classified into a number of phyla and each phylum in turn may then be classified into several classes, each class into several orders and so on. As we do this and move from a higher to a lower level of Classification, we find the animals in groups become more and more alike in structure.

For Example, consider the dog, Grey wolf and Red fox.

Because they have certain structural characteristics in common, they are classified in the same group at kingdom, phylum, class, order and family levels.

However, at the genus level, the dog and the wolf have more in common than the fox has with either, therefore the dog and the wolf are classified in one genus, *Canis*, and the fox in another, *Vulpes*.

Then, finally each is a different species and classified as such, based on whether they would breed together in their natural setting, rather than any structural features.

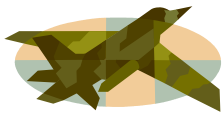
Level	**Dog**	**Grey Wolf**	**Red Fox**
Kingdom	Animal	Animal	Animal
Phylum	Chordata	Chordata	Chordata
Class	Mammalia	Mammalia	Mammalia
Order	Carnivora	Carnivora	Carnivora
Family	Canidae	Canidae	Canidae
Genus	*Canis*	*Canis*	*Vulpes*
Species	*familiaris*	*lupus*	*vulpes*

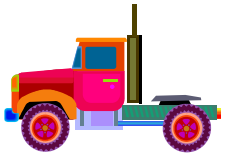
Classification

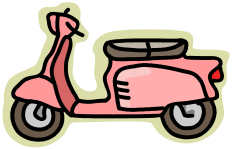
Pre/post visit activity

When things are grouped together there must be a feature that is similar or alike. When things are placed into separate groups there must be a difference between them.

- Using two different coloured pencils, circle each of the transport pictures below to place them into 2 groups and state what feature you used to put them into each group;





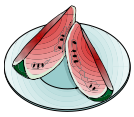


The objects circled in _____ pencil are the same because _____

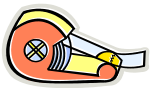
The objects circled in _____ pencil are the same because _____

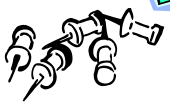
- For each group of objects below, write one feature that they have in common;

Group 1



Group 2





Group 3

_____ _____ _____

Classification

Pre/post visit activity

There are lots of examples of classification happening in everyday life using everyday items.

- Here is a list of sports equipment:

Tennis racquet, football, discus, golf ball, soccer ball, basketball, hockey stick, golf club, cricket bat, javelin, table tennis ball, shotput.

Classify these items into two groups using the table below;

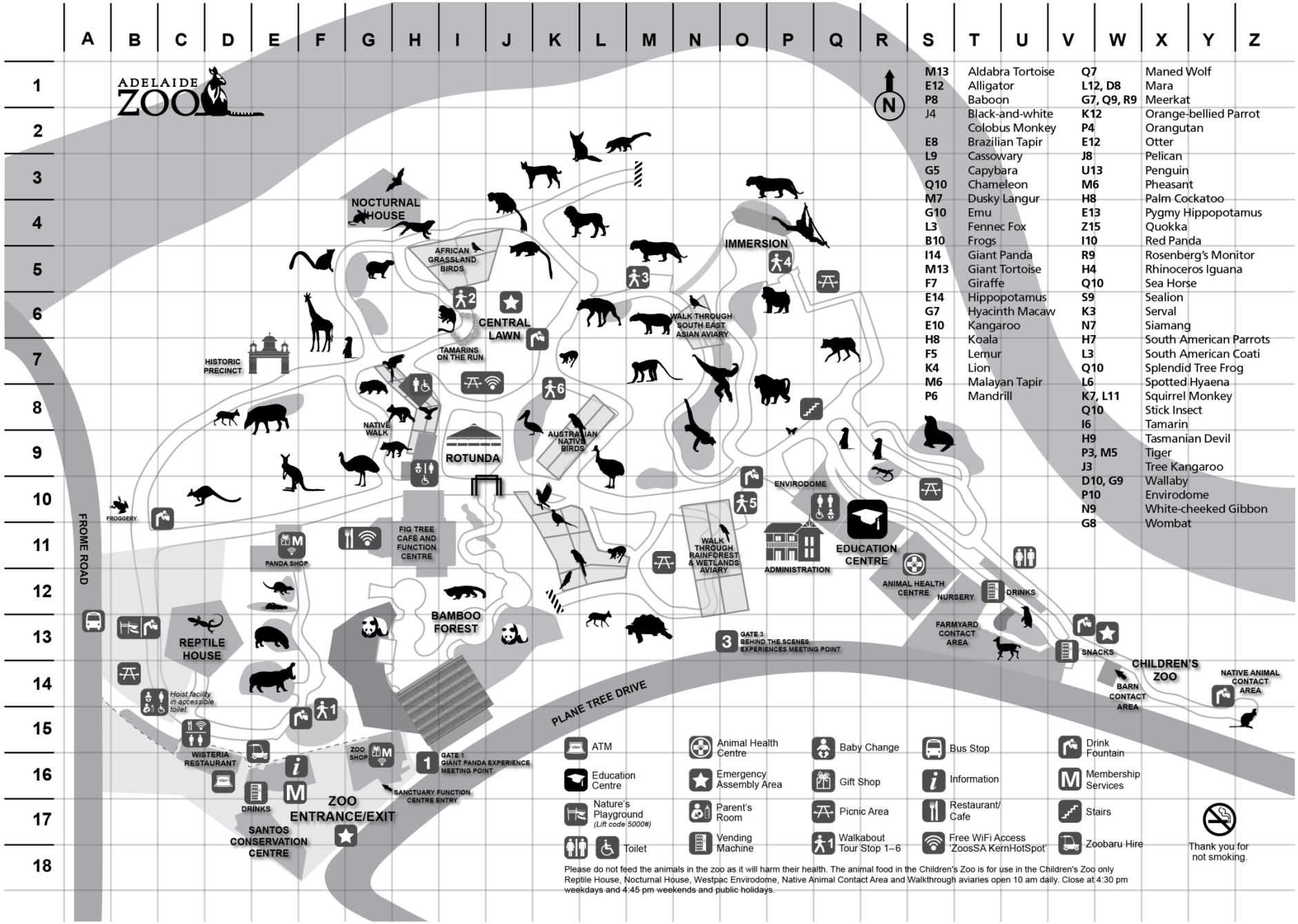
Equipment used in a team sport	**Equipment used in an individual competitor sport**

- Classify the sports equipment above into three groups according to the headings in the diagram below

SPORTS EQUIPMENT

Used when throwing	**Used when kicking**	**Used when hitting**

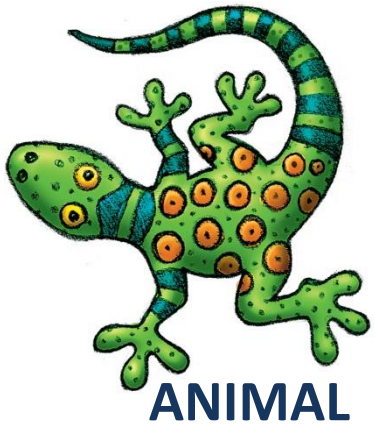
- Classify the sports equipment into two groups, like you did in the first activity at the top of this page, but this time you choose the characteristic.


ADELAIDE ZOO
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
N
NOCTURNAL HOUSE
AFRICAN GRASSLAND BIRDS
CENTRAL LAWN
TAMARINS ON THE RUN
HISTORIC PRECINCT
NATIVE WALK
ROTUNDA
AUSTRALIAN NATIVE BIRDS
IMMERSION
WALK THROUGH SOUTH EAST ASIAN AVIARY
ENVIRODOME
WALK THROUGH RAINFOREST & WETLANDS AVIARY
ADMINISTRATION
EDUCATION CENTRE
ANIMAL HEALTH CENTRE
NURSERY
DRINKS
FARMYARD CONTACT AREA
SNACKS
CHILDREN'S ZOO
BARN CONTACT AREA
NATIVE ANIMAL CONTACT AREA
FROGGERY
FROME ROAD
PANDA SHOP
FIG TREE CAFÉ AND FUNCTION CENTRE
BAMBOO FOREST
REPTILE HOUSE
Hoist facility in accessible toilet
WISTERIA RESTAURANT
ZOO SHOP
GATE 1 GIANT PANDA EXPERIENCE MEETING POINT
SANCTUARY FUNCTION CENTRE ENTRY
DRINKS
ZOO ENTRANCE/EXIT
SANTOS CONSERVATION CENTRE
GATE 3 BEHIND THE SCENES EXPERIENCES MEETING POINT
PLANE TREE DRIVE
M13 Aldabra Tortoise
E12 Alligator
P8 Baboon
J4 Black-and-white Colobus Monkey
E8 Brazilian Tapir
L9 Cassowary
G5 Capybara
Q10 Chameleon
M7 Dusky Langur
G10 Emu
L3 Fennec Fox
B10 Frogs
I14 Giant Panda
M13 Giant Tortoise
F7 Giraffe
E14 Hippopotamus
G7 Hyacinth Macaw
E10 Kangaroo
H8 Koala
F5 Lemur
K4 Lion
M6 Malayan Tapir
P6 Mandrill
Q7 Maned Wolf
L12, D8 Mara
G7, Q9, R9 Meerkat
K12 Orange-bellied Parrot
P4 Orangutan
E12 Otter
J8 Pelican
U13 Penguin
M6 Pheasant
H8 Palm Cockatoo
E13 Pygmy Hippopotamus
Z15 Quokka
I10 Red Panda
R9 Rosenberg's Monitor
H4 Rhinoceros Iguana
Q10 Sea Horse
S9 Sealion
K3 Serval
N7 Siamang
H7 South American Parrots
L3 South American Coati
Q10 Splendid Tree Frog
L6 Spotted Hyaena
K7, L11 Squirrel Monkey
Q10 Stick Insect
I6 Tamarin
H9 Tasmanian Devil
P3, M5 Tiger
J3 Tree Kangaroo
D10, G9 Wallaby
P10 Envirodome
N9 White-cheeked Gibbon
G8 Wombat
ATM
Education Centre
Nature's Playground (Lift code 5000#)
Toilet
Animal Health Centre
Emergency Assembly Area
Parent's Room
Vending Machine
Baby Change
Gift Shop
Picnic Area
Walkabout Tour Stop 1–6
Bus Stop
Information
Restaurant/ Cafe
Free WiFi Access 'ZoosSA KernHotSpot'
Drink Fountain
Membership Services
Stairs
Zoobaru Hire
Thank you for not smoking.
Please do not feed the animals in the zoo as it will harm their health. The animal food in the Children's Zoo is for use in the Children's Zoo only
Reptile House, Nocturnal House, Westpac Envirodome, Native Animal Contact Area and Walkthrough aviaries open 10 am daily. Close at 4:30 pm
weekdays and 4:45 pm weekends and public holidays.

Classification

At the Zoo

Three of the kingdoms of living things are Plant, Animal and Fungus.
Use lines to place the following living things in the correct kingdom:



Class Level (Vertebrates)

Mammal, Bird, Reptile, Amphibian

- Observe these animals.
- Describe their appearance by using the features in the table below.
- You may complete the table by choosing some of your own animals.

Animal	**Body Covering**	**Colour**	**Wings, Legs, Flippers, Fins**	**Tail**	**Size**	**CLASS** Mammal, Bird, Reptile, Amphibian or Fish
Dusky Leaf Monkey (Map-7M)						
Cassowary (Map-10L)						
Magnificent Tree Frog (Map – 10P)						
Murray River Rainbow fish (Map – 10P)						
Penguin (Map-13U)						
Alligator Map-12E)						

- Which feature helped you the most when working out which Class each animal belongs to?

  _____

- All other features are not relevant for this type of grouping.

Scientists use body coverings as one of the structural features which help to divide the Phylum Chordates (which is mostly the Vertebrates) into the next level, which is Class.

For each of the 5 vertebrate groups divided using body coverings, name the Class and give one other feature, which all members of the Class possess. (This feature need not be unique to the Class.)

Body covering	Class name	Other features of the Class
Fur		
Feathers		
Wet Scales		
Dry Scales		
Wet Skin		

Can you think of any vertebrate animals which are difficult to put into a Class using body coverings as the method of classifying them? If so, give an example and explain what the difficulty is.

_____

_____

Australian Wetlands Aviary

(Southern end of the Australian Rainforest)

All of the animals for this activity are in the same Kingdom – **Animals**, the same Phylum – **Chordata** and the same Class – **Birds**. Just like certain features are used to sort animals into the same group, eg all are animals, have a backbone and feathers, there are features that we can use to separate these birds into different groups.

In the table below, use each feature in the left column to help you make up a group of birds and list them in the right column.

Read the signs, use the pictures and observe the following birds!

Black-winged Stilt, Glossy Ibis, Buff-banded Rail, Bar-shouldered Dove, Little Pied Cormorant, Pied Heron, Royal Spoonbill

Feature/Behaviour	Bird Species
Have feet for wading	
Eat fish	
Long curved bill (beak)	
Spend time in the water	
Eat insects and/or fruit/vegetation	
Have webbed feet	

Enriodome (Invertebrates)

(Map - P10)

Write down the names of as many animals as you could find in this area.

For each one, what do you think is one important aspect of its structure which would help scientists to classify it?

Also, write down the name of another animal, not in the Discover Zone, which has the same feature.

Envirdome animal	Structure used for classification	Another animal with this structure

The work of Scientists benefits a lot of people!

Classifying living things takes many people a lot of time and discussion. There must be good reasons for scientists to do it.

For each of the following people, why is it useful having animals classified?

1. A farmer who is trying to control a bug in his wheat crop_____

   _____

2. A pet owner who is trying to provide the right food for her birds_____

   _____

3. A gardener who wants to get rid of some weeds without using any **spray** _____

   _____

Can you think of someone else who would find it useful to have an animal classified?

_____