

ADELAIDE  
ZOO



Primates



Government of South Australia  
Department of Education and  
Children's Services

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This Outreach Education program for schools is a partnership between the Adelaide Zoo and the Department of Education and Children's Services, South Australia. Outreach Education is a team of seconded teachers based in public institutions who are managed through the Open Access College.

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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 Discovery Zone 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 to see the Pandas or use the Nocturnal House: if so, book a time when making the Zoo booking so your students are not disturbed by other school groups.
- ◆ you would like a session with a Zoo Education Officer to support your study theme. Lesson requests are met wherever possible, though at busy times of the year you may need to have a few options with dates to enable a time to be negotiated. Again, this time is arranged at the time of booking your class visit.

If your class is not booked in to a program involving an Education Officer, we will attempt to meet your class at the Entrance on arrival at the Zoo. At this meeting the group will be welcomed and given some information about the Zoo to assist their visit. General behaviour expectations will also be outlined.

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.

# Primates Trail- Secondary

## TEACHER INFORMATION

This trail includes studies on 6 species of animals. These are:

- Sumatran Orang-utan
- Siamang / White-cheeked Gibbon
- Dusky Leaf Monkey
- Hamadryas Baboon
- Golden-lion Tamarin
- Ring-tailed Lemur

The animal studies are independent of each other, so they can be done in any order, or particular studies can be omitted if time is limited.

Students are encouraged to be patient, and to spend the recommended times (at least) in making quiet observations.

Group work is recommended so students can discuss their ideas and observations before committing pen to paper. They should also read signage for information on distribution and habits of the animals and to ask questions if Zoo keeping staff are available.

### Pre-visit ideas

- Investigate where “Primates” fit in the biological classification system. Eg. Which kingdom, phylum and class do they belong to? What are the families that this order is broken into? What physical features are used to subdivide primates?
- Locate the different primate orders on a map of the world. Relate the evolution of these groups to their locations and to isolation from other groups.
- Discuss the adaptations of primates and relate these to the needs of their common ancestors.
- Compare, contrast and discuss features of two primates from different families / habitats / continents.
- Investigate the reasons why many primates, particularly the great apes, are now endangered or critically endangered species.
- Research the mental abilities of a great ape. How smart are they?
- Research the idea of Behaviour Enrichment for captive animals. What can be done to stimulate, interest and to improve the behaviour and quality of life of primates?
- Consider features of humans in terms of their classification into the primate order.

The following words and terms would be useful as prior knowledge to your visit to the zoo:

Adaptation

Primate

Food web

Simian

Ecosystem

Prosimian

Environment

Habitat

Threatened species

### Post-visit ideas

- Choose a primate and research its situation in the wild. Eg. Lifestyle, location, habitat, place in the food web, social behaviour, conservation threats. Present this as a talk / flier / poster / report.
- Draw a food web, which includes a primate and at least 15 other species of plants and animals that are found in its natural habitat.
- Draw a large, accurate diagram of a particular primate. Neatly label features of the animal which are adaptations.
- Do a web search to find out about the Bush Meat Trade and Deforestation. Identify organizations which are trying to help primate species which are threatened by these activities, and find out how they help.

## Background notes for teachers and students on the day.

This trail is designed for students to work individually, in pairs or in small groups.

Students will study up to 6 primates. These are the

- Sumatran Orang-utan
- Siamang / White-cheeked Gibbon
- Dusky LEAF Monkey
- Hamadryas Baboon
- Ring-tailed Lemur
- Golden-lion Tamarin

Students should read any background information at the start of each study and use the Zoo map to move around the Zoo to study the animals. The order that animals are studied in does not matter.

When studying the different animals, patience is needed and the suggested observation times should be used (at least). Many primates find staring a threat, so it is good to avoid direct eye contact in these studies.

Students are encouraged to discuss their ideas with their group, to use their observational skills, to read the signs and to talk to Zoo staff..

### Key



Observe carefully



Discuss and share ideas with your group



Write down your thoughts



Did you know?

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 Leopard
- 2 Lion
- 3 Lyrebird
- 4 Malaysian Tapir
- 5 Mandril
- 6 Meerkat
- 7 Other
- 8 Orangutan
- 9 Peccary
- 10 Pelican
- 11 Penguin
- 12 Pheasant
- 13 Quokka
- 14 Sealion
- 15 Serval
- 16 Squirrel Monkey
- 17 Sun Bear
- 18 Tamarrn
- 19 Tasmanian Devil
- 20 Tiger
- 21 White-cheeked Gibbon
- 22 Wallaby
- 23 Water Dragon
- 24 Westpac Envirodome
- 25 Wombat

- M3 African Wild Dog
- K4 Aldabra Tortoise
- P8 Baboon
- M7 Barbary Sheep
- P6 Binturong
- G7, G9 Brazilian Tapir
- E12, G6 Cassowary
- P5 Colobus
- M13 Dusky Langur
- J8 Emu
- U13 Fennec Fox
- H5 Flamingo
- L12 Giant Panda
- S9 Giraffe
- K3 Hippopotamus
- K7 Kangaroo
- L6 Koala
- I6 Lemur
- H9 Tasmanian Devil
- P3, M5 Tiger
- N9 White-cheeked Gibbon
- D10 Wallaby
- R9 Water Dragon
- P10 Westpac Envirodome
- G8 Wombat

- Q7 Hamadryas Baboon
- C14 Sumatran Orang-utan
- C11 Siamang and White cheked Gibbon
- Q9 Dusky Leaf Monkey
- E8 Golden Lion Tamarin
- L9 Ring-tailed Lemur

Sumatran Orang-utan

Siamang and White cheked Gibbon

Dusky Leaf Monkey

Golden Lion Tamarin

Ring-tailed Lemur

Hamadryas Baboon

NOCTURNAL HOUSE

AFRICAN REPTILES & BIRDS

CENTRAL LAWN

ROTUNDA

PANDA ENTRY

LYREBIRD CONFERENCE CENTRE

PANDA EXIT

BAMBOO FOREST

SANCTUARY FUNCTION CENTRE

ZOO ENTRANCE

REPTILE HOUSE

COORAT THE ZOO

SANTOS CONSERVATION CENTRE

WESTPAC ENVIRODOME

ANIMAL HEALTH CENTRE

ADMINISTRATION

NO PUBLIC ACCESS

ANIMAL CONTACT AREA

LITTLE CREATURES

CHILDREN'S ZOO



- Gift shop
- Emergency Assembly Area
- Photo experience
- Walkabout Tour Stop 1-6
- Education Centre
- Restaurant/Cafe
- Toilet
- Westpac Envirodome Discovery Zone
- Drink Fountain
- Kiosk
- Stairs
- Bus Stop
- Information
- Sponsors Nook

1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18

# PRIMATES TRAIL – SECONDARY

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## What is a primate?

Primates are mammals. Different groups occur in different parts of the world.

They all share these features:

- A complex and advanced brain
- Reliance on vision more than smell
- Forward facing eyes,
- Opposability of thumb and big toe
- Upright stance

## Some Adelaide Zoo Primates

### PROSIMIANS

Ring-tailed Lemur



Squirrel Monkey



### NEW WORLD MONKEYS

Pygmy Marmoset



3 species tamarins



### OLD WORLD MONKEYS

Mandrill



Hamadryas baboon



Dusky leaf monkey



### GREAT APES

Sumatran Orang-utan

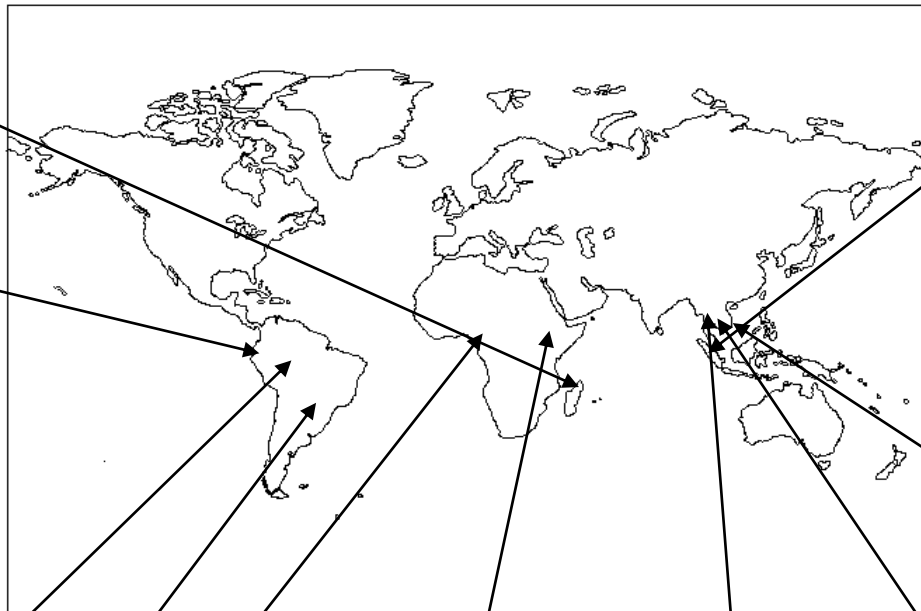


Siamang



### SMALLER APES

White-cheeked gibbon



## A GREAT APE – SUMATRAN ORANG-UTAN

Spend **10 minutes** watching the orang-utans in their enclosure.

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This species is **sexually dimorphic**, which means there are significant physical differences between males and females, other than reproductive structures.

What are some of the differences between the male and female?

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In the wild, adult males do not develop cheek flanges unless they are the dominant, breeding male in their area. Females find these males sexually attractive and approach them when they are in oestrus (and ready to mate).

Compare the faces of the male and female on display with the large male face on the signage. Comment on how attractive the female would probably find this male.

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Sketch the outline of the male and the females faces, labeling the main features.





Orang-utans in the wild must travel extensively in the rainforest to find enough food. Most are fairly solitary, though in some areas with plentiful food, females with young gather into loose groups.

At Adelaide Zoo the male and female live together, without fighting, which is fairly unusual in a captive situation.



Can you guess any reasons why this is possible?




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This enclosure has been built to encourage natural Orang-utan behaviours which are similar to those found in wild Orang-utans, whilst at the same time preventing them from leaving the enclosures. As Orang-utans are very curious, strong and intelligent animals these are not easy tasks.

For the following features of the enclosure, decide whether the objective is **behaviour enrichment** or **preventing escape**. Circle or highlight the correct one.



Dry moat around boundary near front of enclosure	Behaviour enrichment	Escape prevention
Over 1 km of ropes connecting parts of enclosure	Behaviour enrichment	Escape prevention
Electric fences	Behaviour enrichment	Escape prevention
Water outlet and food tray on high platform	Behaviour enrichment	Escape prevention
Live trees and plants in enclosure	Behaviour enrichment	Escape prevention
High walls (5m) around back and side perimeter	Behaviour enrichment	Escape prevention
Big logs pegged down by 2m pegs	Behaviour enrichment	Escape prevention
Tower in tiger area to be connected to other towers for orangutan access over (but not into) Tiger enclosure	Behaviour enrichment	Escape prevention



Electric fences



Water outlet and food tray on high platform

Live trees and plants in enclosure

High walls (5m) around back and side perimeter

Big logs pegged down by 2m pegs

Tower in tiger area to be connected to other towers for orangutan access over (but not into) Tiger enclosure



The Sumatran Orang-utan is a Critically Endangered species.

Read the signage to help you summarise the reasons for this situation




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## PRIMATE COMMUNICATION

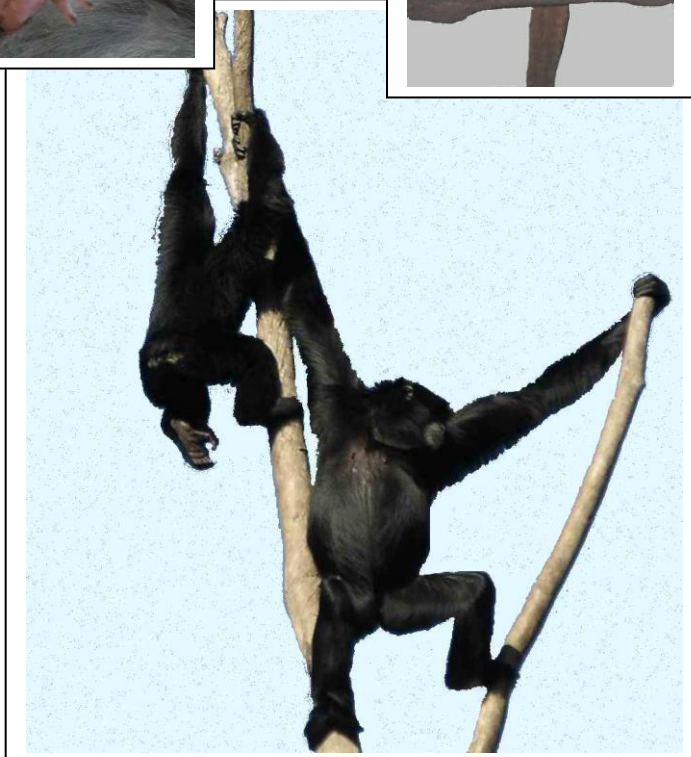
Communication between animals can use different senses:

- Visual, eg. colouring, facial expressions, courtship dances, red rump
- Vocal, eg. Growls, songs, cries, grunting
- Tactile, eg. Grooming, stroking, pushing, biting
- Olfactory / smell, eg. Territory marking (urine, musk) pheromones (reproductive readiness.)

In primates generally there is a stronger use of visual communication than in other mammals. The visual cortex of primate brains is better developed.

Smell is of less importance in most primate species, though it is used considerably in many South American species, including marmosets and tamarins. You may notice them marking their territories with urine, by urinating on their hands to spread it amongst the trees in the areas they live.

For Apes, visual communication dominates so much that many facial expressions can be used to communicate, as well as displays like hair bristling, chest beating and branch waving.



## A SMALLER APE – SIAMANG OR WHITE-CHEEKED GIBBON

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Gibbons, such as these 2 species are unique in the animal kingdom in their style of locomotion through their forest habitat. Their bodies are specially adapted to assist them in their arm over arm **brachiation** through the trees. Their wrist structure gives enormous strength and flexibility.

Another amazing thing about gibbons is their territorial calls or songs, which involve all older animals in the family group, and can be heard from kilometres away. This is an important means of communication with other groups in rainforests, where visual communication is difficult. It also strengthens bonds within the group.

Draw the outline of the body of one of these animals, and label significant aspects which help it to brachiate confidently. If you are able to get close enough, observe the fingers and toes of the animal. Try to include these in your drawing.



Through careful observation, locate the night quarters (off the islands) of the gibbons. Where are they?



Why don't these animals leave their island homes in the daytime?



Although the gibbons have some branches in their enclosure to eat, and they enjoy the leaves and fruits of the large fig trees, they actually receive most of their daily food (mixed "hard" fruit and vegetables) in their night quarters – each eating in a separate area.



Why does feeding the animals in this way assist in animal care and management?



# AN OLD WORLD MONKEY – THE DUSKY LEAF MONKEY/LANGUAR

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**Monkey or Ape?**  
**General rule:** Monkeys have tails. Apes have no tails



The Dusky Leaf Monkeys are most comfortable off the ground and high in the trees.

Name 3 predators which live in the South East Asian rainforest, that would eat the monkeys if they could catch them.



1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



Watch the way the Dusky Leaf Monkeys move around in the trees. Compare this to the way that the Siamangs move around.

Describe the differences. \_\_\_\_\_



\_\_\_\_\_

Describe the colouring of the Dusky Leaf Monkeys, including around their faces.



\_\_\_\_\_



Baby Dusky Leaf Monkeys have golden fur and pink faces!

Can you think of any advantages and disadvantages in a baby being so bright?



Advantages \_\_\_\_\_

Disadvantages \_\_\_\_\_

\_\_\_\_\_



Notice the way the branches of the Moreton Bay Fig tree that they live in has been pruned above the walkway. When the monkeys first lived in the tree there were several escapes onto the walkway. Lower branches were cut back before the escapees were returned!




Why do you think the monkeys no longer jump onto the walkway?



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# AN OLD WORLD MONKEY – HAMADRYAS BABOON

 Look at the map showing where the Hamadryas Baboon is found in the wild.

What is the natural habitat of this species? \_\_\_\_\_



\_\_\_\_\_

Name some predators which may also live in this part of Africa? \_\_\_\_\_



\_\_\_\_\_

Describe how the group structure of the Hamadryas Baboons could help it to survive in the wild, in a harsh habitat with large predators.

\_\_\_\_\_




\_\_\_\_\_

 Observe the behaviour of the group **for 10 minutes**. Did you see any of these? Yes/No?

Grooming \_\_\_\_\_

Fighting \_\_\_\_\_

 Mating \_\_\_\_\_

Showing rump to another \_\_\_\_\_

Yawning \_\_\_\_\_

Sleeping \_\_\_\_\_

Eating \_\_\_\_\_

Making noises \_\_\_\_\_

Resting \_\_\_\_\_

Feeding a baby \_\_\_\_\_

Playing \_\_\_\_\_

Climbing \_\_\_\_\_

Walking \_\_\_\_\_

Searching in leaf litter \_\_\_\_\_



From your observations of their behaviour, can you guess the relationships between members of the group? ie. What is the relationship between the females and the male, and which of the adults are parents of the young baboons?

Explain your conclusions and what evidence you have to support them.



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\_\_\_\_\_

# Behaviour enrichment

It is important to encourage captive animals to use their brains and to develop skills like they would in the wild.

What skills would animals use with these items?



sultanas,  
mealworms  
inside log



Walnuts in  
"nut puzzle"



Ropes in  
trees

herbs, fruit,  
fragrant leaves



Grapes  
in bottle



"Termite mound"  
holes lead to pureed  
fruit

vegetable,  
fruit, nuts in  
pine cone



bungee swing

## A PROSIMIAN – RING-TAILED LEMUR

? Prosimians are primates which differ from monkeys and apes (simians) in a few important ways: They are not as intelligent as simians and are more reliant on scent for communication – they have large nasal cavities and moist noses. Lemurs, Aye-ayes, Bush babies and Tarsiers are all prosimians.

Lemurs are only found on the island of Madagascar. They have large eyes which are specialised for night vision and use their tails for communication



One adaptation found in all primates is forward pointing eyes, which enable bifocal vision and excellent depth perception.

### Try this!



Hold your arms out to your sides with your index fingers pointing forwards.

Quickly, but with **one eye closed**, bring your hands together so that the index finger tips touch.

Try again with two eyes.

Two eyes enable bifocal vision: each eye sees things from a slightly different angle, and your brain puts the images together to give a 3-dimensional result.

This helps you to judge distances much better.

Explain why forward pointing eyes are a very important adaptation for these tree dwellers.



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Can you see any disadvantages in having eyes located at the front of the head, instead of the side (like horses and rabbits)?



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Draw a picture of the face of Ring-tailed Lemur, labeling parts. If you see one open its mouth, try to draw the teeth as well.



## A NEW WORLD MONKEY – GOLDEN LION TAMARIN



Read the information inside the Tamarin House about the plight of Golden Lion Tamarin and Black Lion Tamarin species in the wild.

What are the main factors which have led these beautiful animal species to be so close to extinction?



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Observe these animals **for 5 minutes**, and comment on what you notice about their behaviour.



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Carefully observe the inside and outside sections of the enclosure of one of the Tamarin families.



What features of the enclosure are important in good animal management for this species, and state why they are important.



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Can you see how the keepers access these enclosures to clean, feed and care for the Tamarins? Where do you think they prepare the Tamarin food etc.



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How would you rate the Tamarin enclosures in terms of **visitor experience**? Give reasons for your rating.



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