

ADELAIDE
ZOO



Enclosure Design



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Acknowledgements

This resource was developed by:
John Gardner, Zoos SA Education

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Ruth Hall, Outreach Education, DECS, (seconded to Zoos SA)

Front cover layout designed by:
Christy Martin, Access Media, Open Access College

Front cover image designed by:
Mandy Foot, Characters Pty. Ltd.

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AZES contact details

Phone: 8267 2434

Fax: 8239 1329

Email: azes@zoossa.com.au

Website: www.zoossa.com.au

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.

Enclosure Design Trail- Primary

TEACHERS INFORMATION

Pre-visit Ideas

- ◆ Discuss the needs of animals and their relationship to the environment in which they live.
- ◆ Consider how animals live, eg. some live in large groups, while some are solitary, others are nocturnal, some can climb, some jump large distances and some can swim, animals may need a lot of exercise, etc.
- ◆ Discuss the 'people' groups that need to be considered when designing an enclosure, eg Public & Zookeepers.
- ◆ Researching the needs of groups of animals, eg cats, bears, monkeys, reptiles, etc will enable students to make better-informed decisions about the suitability of enclosures.
- ◆ Research and discuss zoos and enclosures of the past, present and future.

Post-visit

- ◆ Discuss the suitability of enclosures at the Adelaide Zoo. Include positive and negative aspects and suggest possible improvements.
- ◆ Design a 3-dimensional enclosure.
- ◆ Design a series of enclosures to show a range of habitats.
- ◆ Design a mixed species enclosure.
- ◆ Design a new Zoo.
- ◆ Produce a new sign for an enclosure at the Adelaide Zoo where you feel the current signage needs better information and improved presentation.
- ◆ You are the Zoo Director at the Adelaide Zoo. List improvements you would make in any areas of the Zoo.
- ◆ You have been asked to present Zoo Enclosure Design Awards. You have to choose a First, Second and Third prize in the following categories:
 - Bird enclosures
 - Mammal enclosures
 - Reptile enclosures

Give the reasons for your choices.

Links to SACSA framework

Technology – Critiquing

- 2.1 Identifies a range of ways in which the design of everyday products, processes and systems is related to those who use them.
- 3.1 Describes the significance to diverse groups of people of the various criteria used in the design of particular products, processes and systems.

(Essential Learnings: Futures & Thinking, Key Competency: Planning and organising activities.)

Technology – Designing

- 2.2 Develops a range of skills and uses them to effect change.

(Essential Learnings: Futures & Thinking, Key Competencies: Planning and organising activities.)

- 3.3 Selects appropriate communication forms and technologies to document and convey clearly design ideas, thinking and organisation.

(Essential Learnings: Thinking & Communication, Key Competencies: Communicating ideas and information.)

Science- Life systems

- 2.5 Explores relationships between living things by posing questions about features and functions.

(Essential Learnings: Interdependence & Thinking, Key Competencies: solving problems)

Background notes for Teachers and Supervisors on the day.

- ◆ There are 3 activities in this booklet. Depending on the age and ability of the students, they could attempt 1, 2 or all 3 activities.
- ◆ That is, students can
 - ◆ Activity 1 – General Observations. Visit various species to focus on general aspects of the design of each of the enclosures (Activity 1) and/or
 - ◆ Activity 2 – Detailed Enclosure Study. Visit one enclosure and comment in more depth on specific aspects of this enclosure (Activity 2).
 - ◆ Activity 3 - Panda Enclosure Study. Do a focussed study of the Panda enclosures: the largest and most expensive at Adelaide Zoo.
- ◆ The trail is designed to encourage students to be more observant and to learn more about this important aspect of the Zoo.
- ◆ Although it is tempting to watch the animal(s) in the enclosure the whole time, encourage children to focus on the enclosure design and to complete the task as well.
- ◆ Encourage children to discuss ideas and pose questions.
- ◆ At times, children may think that an aspect of an enclosure could be better or they may wonder why something was done a certain way. Sometimes there is good reason! If you do not have the answer for the children it would be beneficial to seek a Zookeeper and ask the question.
- ◆ Encourage children to Observe, Read and Ask Questions.

Key



Observe carefully



Discuss and share ideas with your group



Write down your thoughts

Enclosure Design – Background Information

- ◆ Zoos display living things. Zoos that existed over 100 years ago were very different to the modern zoo of today. Early zoos tried to display as many animals as possible in order to attract the greatest number of visitors. In those days people had little or no understanding of the behaviour, habitat or needs of the animals. This led to the displaying of animals in small, dirty, heavily barred cages that resulted in abnormal behaviour by many animals and little education was provided for the visitor.
- ◆ Today zoos limit the size of their collections and enclosures have an overall theme, eg. South East Asian Rainforest, African Plains, Wetland Birds, Australian Rainforest. Also, mixed exhibits are more common, ie. more than one species living together in the same enclosure.
- ◆ A great deal of planning and discussion goes into developing an enclosure or group of enclosures. Apart from external involvement from, eg Architects, Designers, etc, the expertise of many Zoo Staff is also utilised. These may include Education Officers, Zookeepers, Horticulturists, Maintenance staff, Graphics designer and others.

- ◆ Naturalistic enclosures encourage animals to behave and reproduce as they would in the wild. However, it is almost impossible to completely recreate a natural habitat and compromises need to be made.
- ◆ Factors related to public viewing, safety, information, etc. and safe and easy access for Keepers and Maintenance staff also need to be considered.
- ◆ Funding (Sponsorship, Donations, etc) is also a major consideration.
- ◆ Today the final presentation of the enclosure should provide people with a better understanding of the relationship between animals and their environment. Signage is now a critical part of the enclosure as it provides the public with more information, particularly about the problems affecting species, the Zoo's role in Conservation and how the Public can play a role in Conservation.

FACTORS TO CONSIDER WHEN DESIGNING AN ENCLOSURE

Needs of the Animal

- ◆ Size of animal
- ◆ Level of activity – how to provide behavioural enrichment
- ◆ Social groupings (size/structure – family, solitary, sex ratio, etc)
- ◆ Natural habitat
- ◆ Shelter from the elements
- ◆ Feeding and water
- ◆ Sleeping facilities
- ◆ Retreats from Public
- ◆ No dangerous areas/substances to animals

Needs of the Staff/Zoo

- ◆ Is contact safe or desirable? (Is it possible to complete all work tasks without any direct contact with animals?)
- ◆ Security of enclosure
- ◆ Ease of access for maintenance, cleaning, feeding, etc
- ◆ Ease of viewing for health checks
- ◆ Suitable off limits areas with appropriate holding facilities
- ◆ Breeding programs provided for (ie. if breeding is to occur)

Needs of the Public

- ◆ Clear view of animal
- ◆ Does the enclosure cater for all, ie young, wheelchair bound, etc
- ◆ Aesthetically appealing
- ◆ Reflect the habitat of the animal
- ◆ Educational value – appropriate graphics

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 8 9 10 11 12 13 14 15 16 17 18

- M3 African Wild Dog
- K4 Aldabra Tortoise
- L11 Baboon
- M7 Barbary Sheep
- P6 Binturong
- G7, Q9 Brazilian Tapir
- E12, G6 Cassowary
- P5 Colobus
- M13 Dusky Langur
- J8 Emu
- U13 Femec 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
- C14
- P8
- C11
- Q9
- E8
- L9
- I3
- M7
- G9
- L3
- M9
- I10
- F7
- E14
- E10
- H8
- F4

Siamang

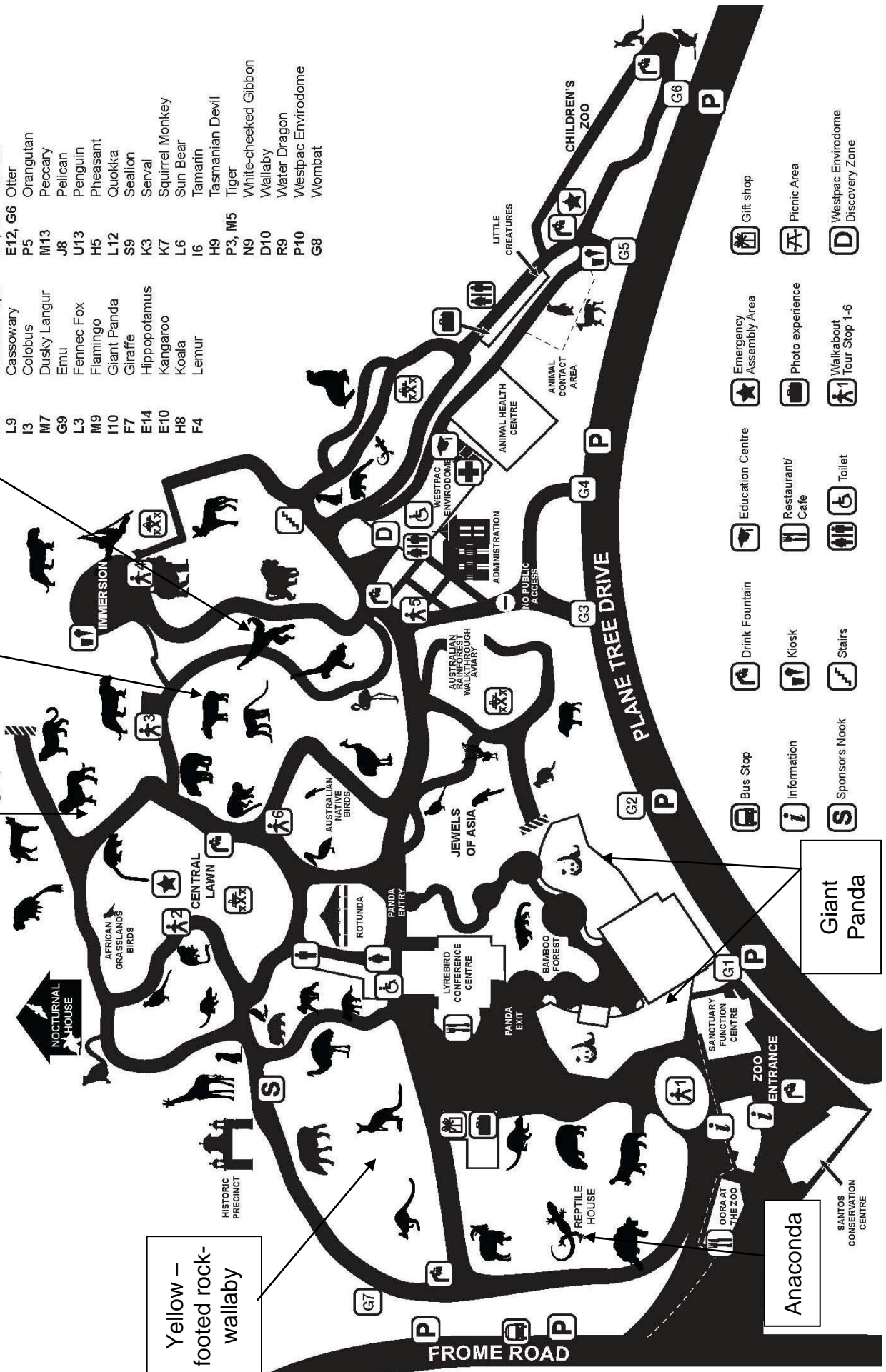
Malayan Tapir

Lions

Yellow-footed rock-wallaby

Anaconda

Giant Panda



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

Activity 1



Enclosure Design – General Observations

Student Worksheet



Animal	Enclosure	Special Features	Advantages	Disadvantages	Your Opinion
1 Siamang	EXAMPLE: Island in lake	Trees, grass covered area, water barrier	Free movement, natural environment	-Keeper access to island, -needs regular pruning to prevent escape, -hard to clean.	I think it is very good because it looks natural. Siamangs seem 'content'.
2 Anaconda					
3 Malayan Tapir					
4 Yellow-footed Rock-wallaby					
5 Lions					
6 Penguins					



Activity 2

Enclosure Design – Detailed Enclosure Study

Choose an enclosure in the Zoo, visit it and answer the following questions about it.....

- Name the species in the enclosure. If it is a 'mixed exhibit', name all species.





- Do you think the size of the enclosure matches the size of the animal? _____

Comment _____



- Which habitat does the enclosure show? _____



DISCUSS with your group any other features that you think could have been put in to show that habitat better.



RECORD your ideas _____



By providing natural habitat for the animal(s) they are encouraged to behave more naturally. Sometimes though, 'extra' Behavioural Enrichment devices are placed in the enclosure. These may include feeding devices, puzzles, items to climb, etc.



- Can you **FIND** any of these 'extra' devices in the enclosure? _____

If so, **RECORD** your findings in the box below;

Behavioural Enrichment Device

What it encourages the animal to do

Behavioural Enrichment Device	What it encourages the animal to do



- From what you can see in the enclosure and perhaps by reading the sign, circle the one that best describes the social structure of this species (if mixed exhibit, choose one species and state the one you chose).



Large family

Small family

Pair

Solitary (alone)

Herd



- What do you think of the viewing area for the Public? _____



- Are there any aspects of the enclosure that you think could be improved? If so, what aspect, and how could it be improved?





- What type(s) of barrier is/are used to prevent the animal(s) from escaping? eg wet moat, dry moat, fence, electric wires, etc.





- IMAGINE that you are the Keeper who looks after this enclosure. How easy would it be to:

enter the enclosure

(without the animals in there!), perhaps with a bin, rake and shovel,



easy fairly easy hard really hard (circle one)

clean the enclosure



easy fairly easy hard really hard (circle one)



- **LOOK** carefully! Can you see anything that could be the Off Limits area or Night



Quarters for the animal(s)? _____

DID YOU KNOW? There is usually an Off Limits area for each species. This area can be used for the animal(s) to sleep, somewhere for the animal(s) to be put if the Keeper needs to enter the enclosure and can be used to put an individual animal in if it needed to be separated from the others!

- **INVESTIGATE** as to whether the enclosure has any heated areas during Winter and cooling system during the Summer. **ASK** a Keeper.



Activity 3

Enclosure Design - Giant Panda Enclosure Study

As you walk from the entrance along, along the meandering path and Bamboo Forest to the Giant Panda enclosures, take notice of the plants, gardens, signs, statues and other features and animals that give you a 'feel' for where the Pandas come from.

The enclosure is designed to replicate Giant Pandas' natural habitat. Here are some of the main features;



- 1) Water for drinking, stimulation and cooling off
- 2) Rocks and branches for climbing and exercise
- 3) Chilled rock for cool respite
- 4) Cave for comfort and cooling
- 5) Trees and shrubs for shade and cover

Tick the box when you find the feature(s) and place its corresponding number on the picture of the enclosure below.

Wang Wang's enclosure



When you think you have finished, find the '**Highland China**' sign to check your positions.

Indoor Rooms



This part of the enclosure is air conditioned (20° C) and enables the Pandas to retreat from the heat. It was used for the Pandas' 30 day Quarantine period and also gives Keepers an alternative space to put them, for example when they clean the larger outdoor enclosures.

In between these two enclosures you will get a glimpse of the 'Off Limits' areas where the Pandas have their night/sleeping quarters, Nursery, bamboo storage and Keeper areas.

TODAY'S Weather Report is;

FUNI'S OUTDOOR ENCLOSURE

Do a quick sketch of Funi's outdoor enclosure below. You can do more detail later!



Where's Funi?

Place the letters, A-F on your drawing to show where the corresponding features are in the enclosure;

A) Chilled Rock

D) Tree

B) Cave

E) Sitting/lying on rocks

C) Pool/Stream

F) Grass

Mark with an **X** where you see Funi in her enclosure during your visit. Do you think her whereabouts are related to the weather?



Draw a picture of Funi.

A large, empty rectangular box with a black border, intended for drawing a picture of Funi.