

The background features a repeating pattern of colorful fish scales and feathers. The scales are in shades of yellow, orange, and red, while the feathers are in shades of blue, green, and purple. The pattern is dense and covers the entire page.

LEE KONG CHIAN NATURAL HISTORY MUSEUM

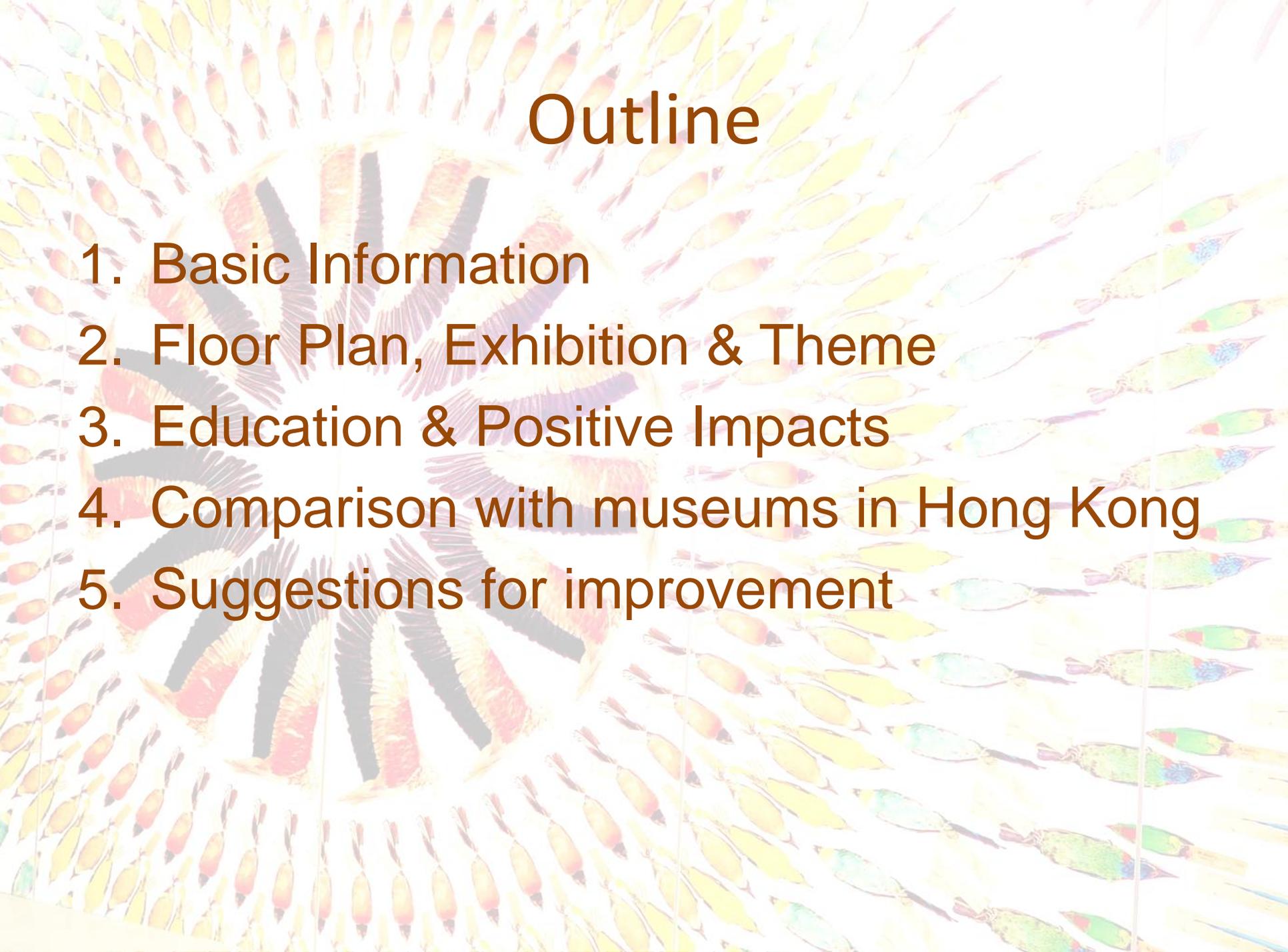
KO ON YI, GOGO (7)

TSE CHUNG WING, JOANNE (10)

HUNG TIN HANG, HENRY (6)

KWOK WAN HIN, EDWIN (8)

LAW CHIU YI, JOANNA (9)

The background features a repeating pattern of colorful fish scales in shades of yellow, orange, red, and green. A large, semi-transparent silhouette of a fish is centered in the background, with its head pointing towards the top left and its tail towards the bottom right. The text is overlaid on this pattern.

Outline

1. Basic Information
2. Floor Plan, Exhibition & Theme
3. Education & Positive Impacts
4. Comparison with museums in Hong Kong
5. Suggestions for improvement

Basic information

-By Gogo Ko



INTRODUCTION

- Founder
- Timeline
- Collection
 - Botanical
 - Zoological
- Research

Founder

- Founder of Singapore
- Founder of Zoological Society of London
- Naturalist in Singapore, Malaysia and Indonesia
- Enthusiastic in collecting specimen



Timeline

Year	
1849	- collection of Southeast Asia biodiversity in Raffles Museum (renamed as National Museum of Singapore in 1965)
1878	- Official Establishment of natural history museum
1972	Transfer collection to 1. Zoology department, NUS 2. Raffles Museum of Biodiversity Research 3. LKCNHM
1955	- NUS Herbarium

Collection

- 1. herbarium
 - >30000 catalogued specimens
- 2. Zoological material
 - Raffles Collection
 - Focus on Singapore and Malayan animals
 - 560,000 catalogued specimens
 - >1m specimen in total

Research

- documentation of plants in Southeast Asia and Singapore
- 1700-2000 scientific paper published in conservation biology etc.



Floor Plan, Exhibition & Theme

-By Joanne Tse

Exhibition

Level 1M

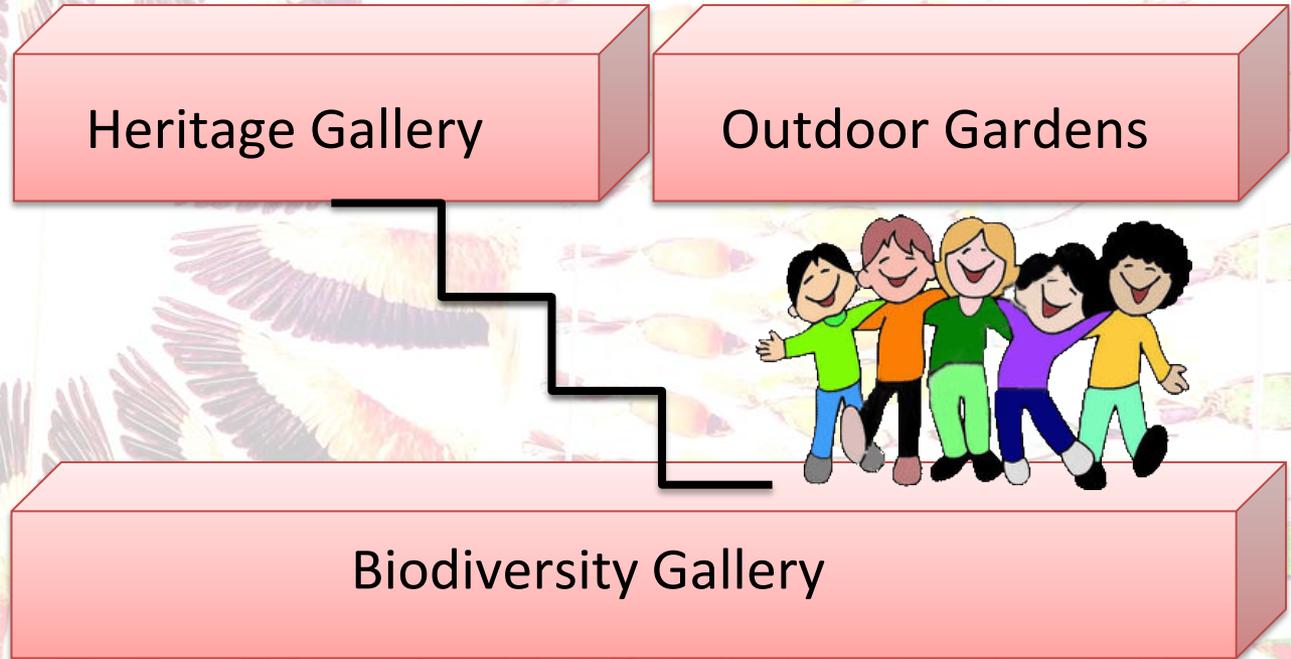
Heritage Gallery

Outdoor Gardens



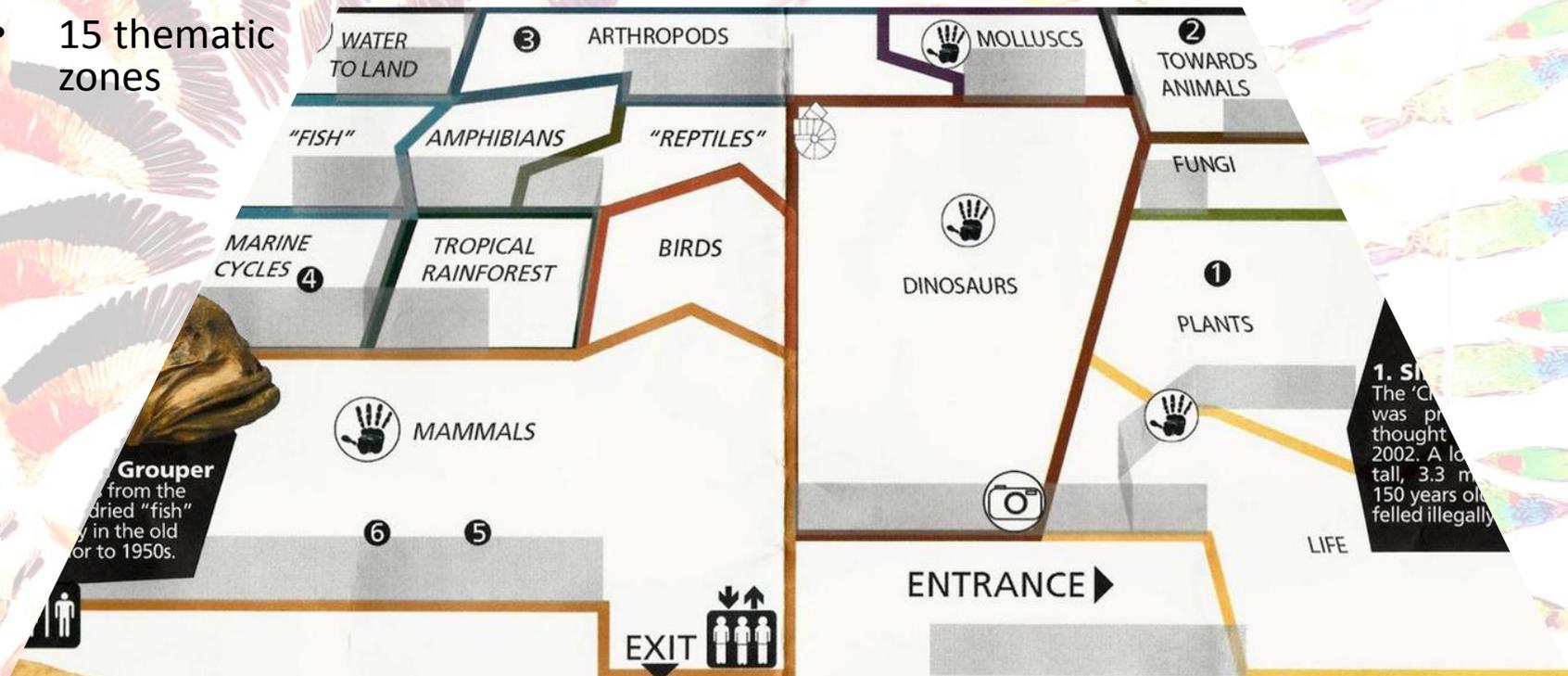
Level 1

Biodiversity Gallery



Biodiversity Gallery

- 15 thematic zones



Grouper

from the
dried "fish"
in the old
to 1950s.

1. S...
The 'C'
was pr
thought
2002. A
tall, 3.3
150 years
felled illegally

Let's get started...



Rafflesia arnoldii

- Largest flower
- Rainforest
- Bloom for ~7days
- Strong & unpleasant smell
- Holoparasite
- Lack chlorophyll
- No photosynthesis
- Tourists' attraction



10 Common Trees in Singapore

- Rain Tree
- Angsana
- Yellow Flame
- Senegal Mahogany
- Broad-leafed Mahogany
- Tembusu
- Sea Apple
- Saga
- Trumpet Tree
- Sea Almond



Rain Tree

- Large umbrella-shaped crown
- Leaves fold up before rain & in evening
- Clusters of small, fluffy white-pink flowers
- Popular for shading avenues
- Grow to 25 metres



Tembusu

- dark brown bark with deep fissures
- Perpendicular branching
- Clusters of creamy-white flowers with fragrance
- \$5 note tree
- Grow to 40 metres



Making of Herbarium Sheet

1. Collection label
2. Leaves
3. Flower, fruit & seeds

- Cost-effective
- Space-effective



Animals



Dinosaur Zone

- 3 gigantic diplodocid sauropods fossils
- >65 million years ago
- >80% complete fossils



Singapore Jubilee Whale

- Sperm whale
- 10.6-metre long skeleton
- Washed up off Jurong in the middle of SG's Jubilee Year



Heritage Gallery- Cabinets of Curiosities

- Specimen from Raffles Museum



Heritage Gallery- Singapore Today

- Geology
- Impact on natural landscape by British colonization
- Conservation work
- Building of the museum

The rock cycle

Concepts in geology

Igneous rock

Sedimentary rock

Metamorphic rock

In a glance

Colonising the landscape

"... the whole island may be described as having been covered with one universal mighty forest. The trees of which this consists are various, and many of them yet undescribed by botanists."

John Crawford, 1830

Conservation management in Singapore

Historically, the colonial and independent governments of Singapore have prioritised economic and urban development over protecting native biodiversity. Even after the Nature Reserves Act was passed in 1951 and the Malayan Nature Society (forerunner of the Nature Society of Singapore) was founded in 1954, natural habitats were still

Terrestrial conservation efforts

Gardens

- Mangroves to Forest
→ SE Asian plants
→ From mangrove to swamp
& dryland forest
- Phylogenetic Garden
→ Food plants, e.g. Pandan
→ From mosses, ferns to
gymnosperms & flowering
plants

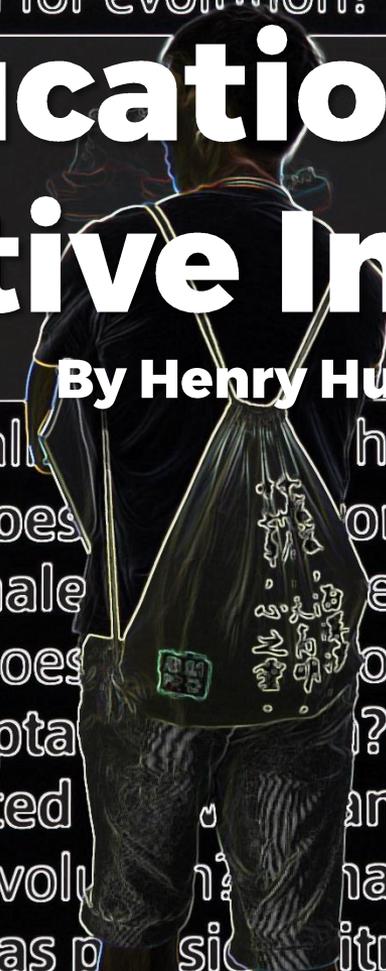


s share? How does life on Earth evolve? What does genetic isolation mean for evolution? Do all of our cells have exactly the same genetic information? How does the environment affect us as we evolve? How does the environment shape the evolution of life? Is biological fitness the same as physical fitness? What does genetic isolation mean for evolution? Do all of our cells have exactly the same genetic information?

Education and Positive Impacts

By Henry Hung

Are species related? Do all species have exactly the same genetic information? How does the environment shape the evolution of life? How are we related to other living things? What does genetic isolation mean for evolution? What does adaptation mean? What is a common ancestor? Are extinct animals related to modern animals? What does genetic isolation mean for evolution? What traits do animals share? How is physical fitness the same as biological fitness? How does the environment affect us as we evolve? How does the environment shape the evolution of life?



Genetic variation

Natural selection

Biodiversity and Evolution Education

- Exhibits based on taxonomical and phylogenetic approach
- Showcases the complexity of lifeforms and adaptations of organisms to the environment

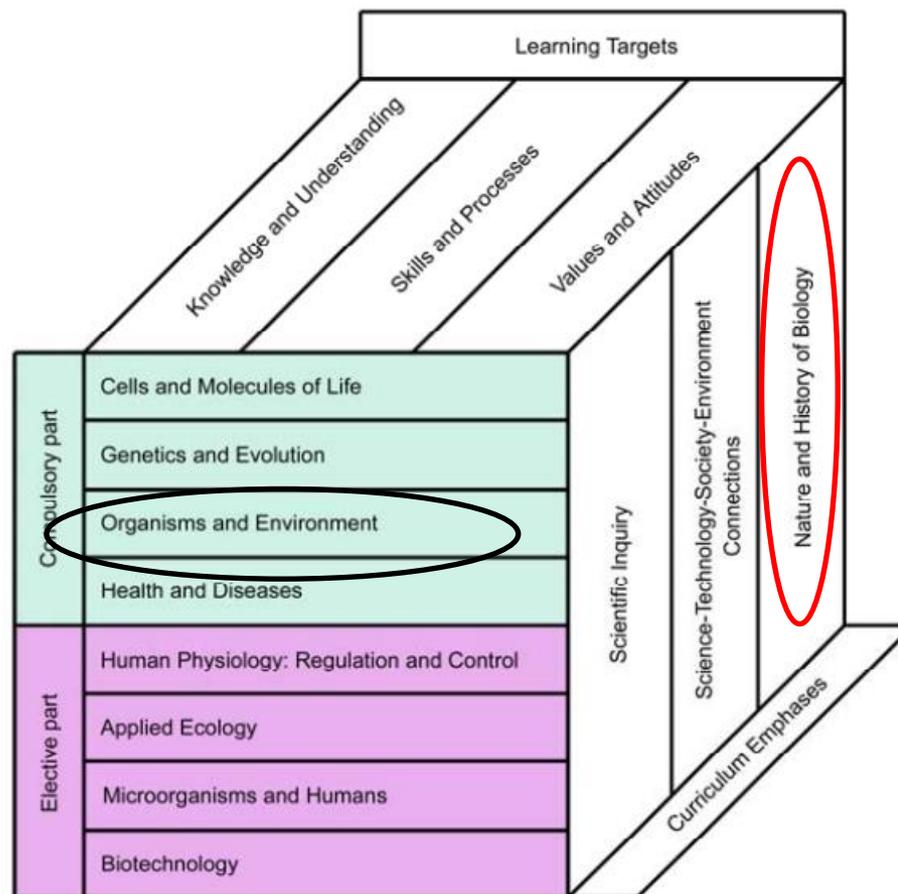


Biodiversity and Evolution Education

- Helps visitor develop curiosity and interest in origin of life, and the respect to life and the environment
- Helps visitor understand the dynamic nature of natural selection and speciation, and how they arise to the present biodiversity



Biodiversity and Evolution Education



Science Education Key Learning Area, Biology Curriculum and Assessment Guide (S4 – 6), EDB, Hong Kong, 2015

Biodiversity Challenges

- Compares the 'now' and 'past' – what have taken place in Singapore
- Emphasizes the factor of humans in land use: changing the landscape and habitats
- Addresses today's biodiversity problems caused by historical events

Clearing the land

Once the British established a trading port, they cleared the jungle and swampland near the Singapore River, and began to lay out a settlement. Although the initial plans left the rest of the island untouched, as trade grew, so did the settlement and the ambitions of its traders and colonial administrators, particularly after the opening of the Suez Canal in 1869.

Primary forest was logged for firewood, timber and products such as Gutta-percha (*Palaquium gutta* (Hook.) Baill.), which was in demand as a covering for submarine cables. Almost all large Gutta-percha trees were felled in Singapore between 1843 and 1847. The mangrove forests were also exploited for firewood and charcoal for the expanding port-settlement.

The British also reclaimed the land in front of Telok Ayer Street, using earth from Mount Wallich and other hills in the area. Farther west, they developed modern dock facilities at what is now Keppel Harbour.



Singapore in 1819

When the British arrived in 1819, Singapore was a small settlement of about 200 people. The island was mostly forested and swampland. The British had to clear the land to build a trading port.

The island was mostly forested and swampland. The British had to clear the land to build a trading port. The island was mostly forested and swampland. The British had to clear the land to build a trading port.

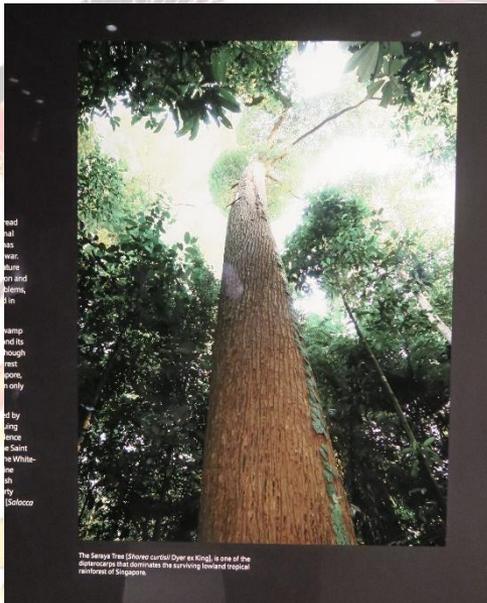
Biodiversity Challenges

- Alarms the audience about extinction and near-extinction events in Singapore since 19th century



Conservation Awareness and Efforts

- Introduces the conservation management in Singapore
- Addresses the conservation efforts in both terrestrial and marine
- Educates the audience to dedicate themselves in biodiversity conservation



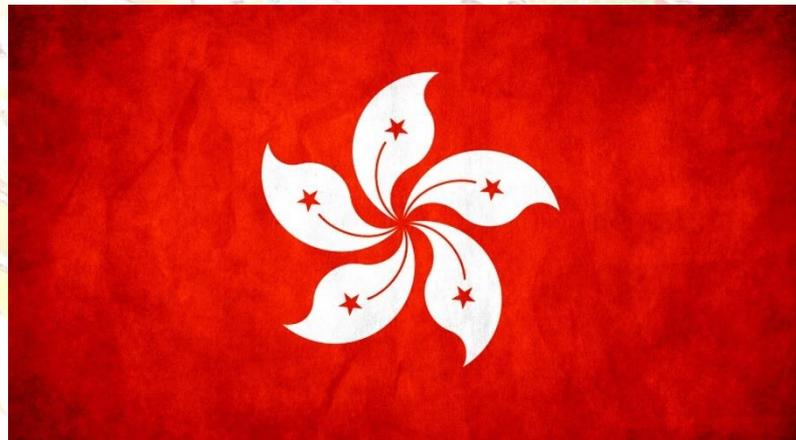


Comparisons between Lee Kong Chian Natural History Museum and Hong Kong Museum of History

-By Edwin Kwok



VS



Outline

1. Vision and Mission (Input)
2. Exhibition
3. Outcome (Output)



Vision and mission

NUS

- Stresses on biodiversity in Singapore and southeast Asia, chiefly on the richness of flora and fauna
- Raises the public's awareness by holding outreach to natural reserves
- Visualize biodiversity by a collection of specimen

Vision and mission

HK Museum of History

- Introduces visitors the history of Hong Kong, comprising natural history and human history
- Emphasizes on the history of modification of landscape in Hong Kong by human
- Simulates the pre-historical landscape of Hong Kong

Exhibition

- NUS museum illustrates biodiversity by **specimens** and **multimedia approach**, while HK Museum of History utilizes a more conventional way, **high-fidelity diorama**
- NUS museum stresses on **multisensory learning**, whereas screens in HK Museum of History are still **old-fashioned**
- Every exhibition in NUS museum is **well-labelled**, whilst Hong Kong Museum of History tends to give a **general picture** to visitors



Meticulous plant specimens



Specimens demonstrating fungal diversity!



A copious collection of invertebrate specimens





High fidelity
diorama mimicking
the landscape of
ancient Hong Kong





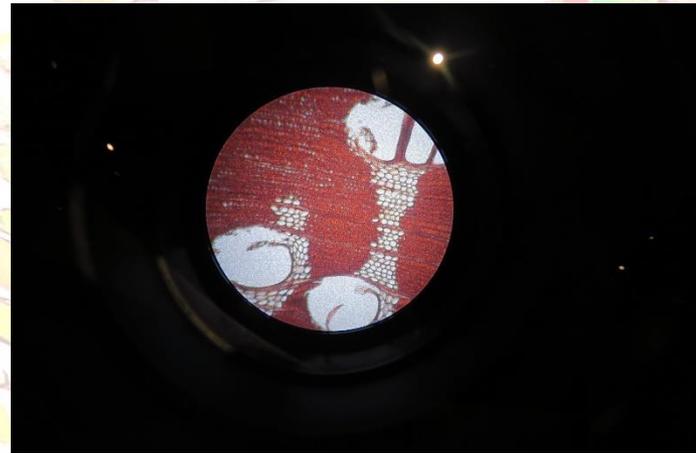
Specimens

Models

Multisensory presentation

Videos

Microscopic slides



Ten common trees in Singapore



Appreciate the diversity of texture of tree trunk, exemplified by some common roadside trees in Singapore, by first-hand experience



High fidelity dioramas in Hong Kong Museum of History

Asian Black Bear

South China Tiger

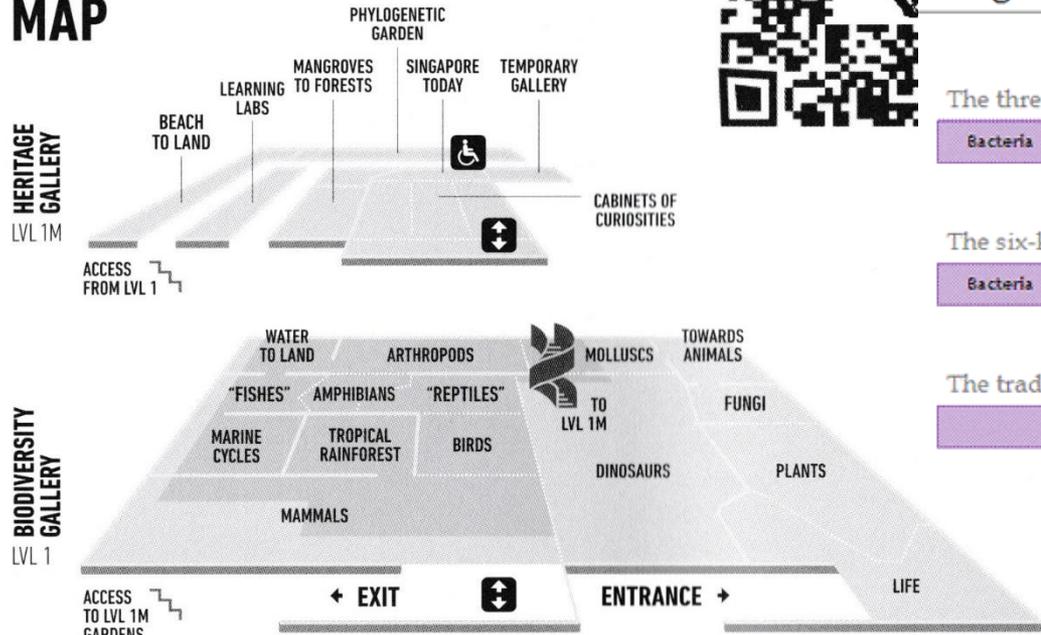
Outcome

- **After NUS Natural History Museum:**
 - A thorough understanding on **landscape and vegetation in Singapore**
 - Increased knowledge towards **life, phylogeny and geology**
 - **Appreciation** of life, conservation and biodiversity
- **After HK Museum of History:**
 - A comprehensive picture on **history of Hong Kong**, but more on human history
 - Modification of landscape by settlers
 - **Timeline** of development in Hong Kong

Conclusion

	HK Museum of History	NUS Natural History Museum
Main theme	History (Natural history as a part in the timeline of Hong Kong history)	Life, biodiversity and conservation (History as a part to introduce biodiversity)
History		
-Coverage	Detailed and multifaceted	Change of landscape and vegetation only
-Annotation	Connection between human's life and landscape	Mechanism of formation
Life and biodiversity		
-Specimen collection	Confined to several groups of animals only, like butterfly and Mollusk	A comprehensive review of biodiversity ranging from plants to mammals
-Annotation	Simple introduction	Underlying causes of a phenomenon or observation

MAP



Kingdoms and Domains

The three-domain system



The six-kingdom system



The traditional five-kingdom system



Based on phylogenetic tree

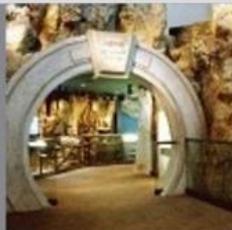
ENTRANCE BIODIVERSITY OF EARTH

As you enter the gallery, the number of known species is displayed beside each group of living organisms. For example, there are a few thousand species of mammals and over one million species of insects! This does not include the new species which have yet to be described.



**G1**

The Natural Environment

G2

Prehistoric Hong Kong

G3

The Dynasties:
From the Han to
Qing

G4

Folk Culture in
Hong Kong

G5

The Opium Wars
and the Cession of
Hong Kong

G6

Birth and Early
Growth of the City

G7

The Japanese
Occupation

G8

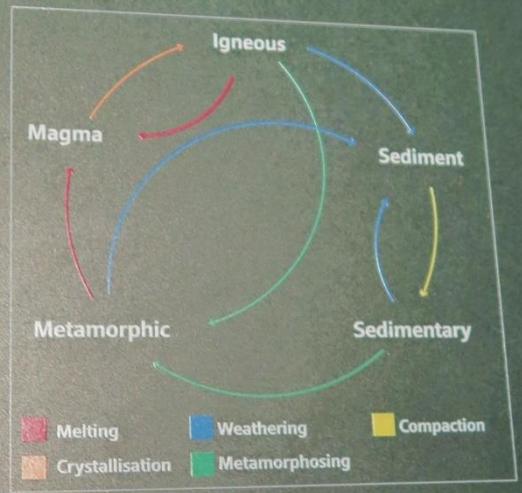
Modern Metropolis
and the Return of
China

Timeline of Hong Kong history



Metamorphic rock

At a glance



A flow chart explaining rock cycle



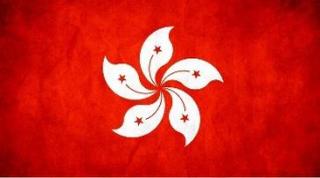
The orange coloration of Lea's Mycena comes from the pigment—**Leainafulvene**



Lea's Mycena
Mycena leaiana (Berk.) Sacc. 1891
Basidiomycota

This species has a distinctive orange colouration caused by the pigment leainafulvene that may have antibiotic properties.





La vita bella!
(Beautiful life)



SUGGESTIONS FOR IMPROVEMENT

-By Joanna Law

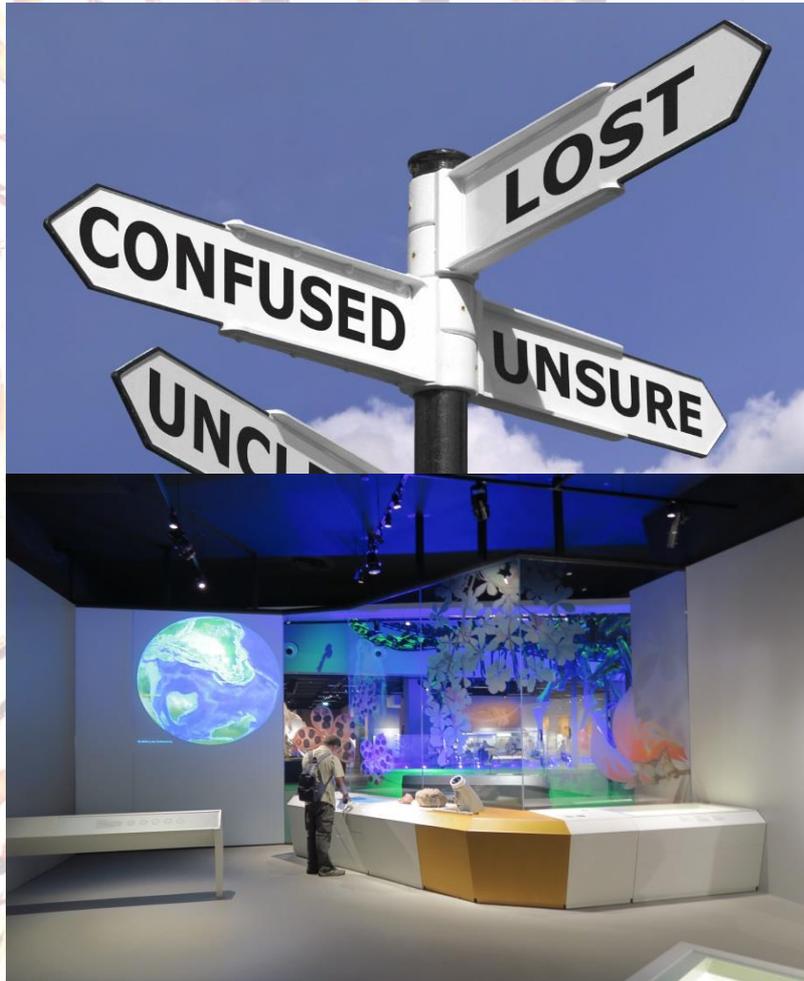
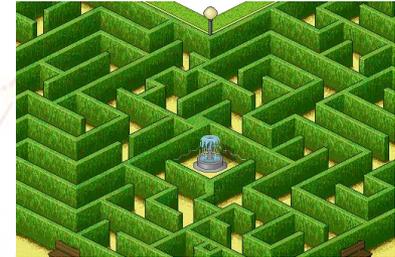


IMPROVEMENT



- Videos on the screen are played automatically
 - Difficult to catch the information
- **Better use touchscreen**
 - Visitors can choose the information that they want to read

IMPROVEMENT



- **Better route guidance**
 - Visitors can follow a learning journey
 - From general to specific
 - Linkage between different zones
 - add some footprints on the floor/number the zones



IMPROVEMENT

- Loud voice of tour guiding may disturb other visitors
 - use wireless tour-guiding device (transmitter and receiver)
 - E.g. Dazu Rock Carvings Heritage Site in Chongqing





IMPROVEMENT

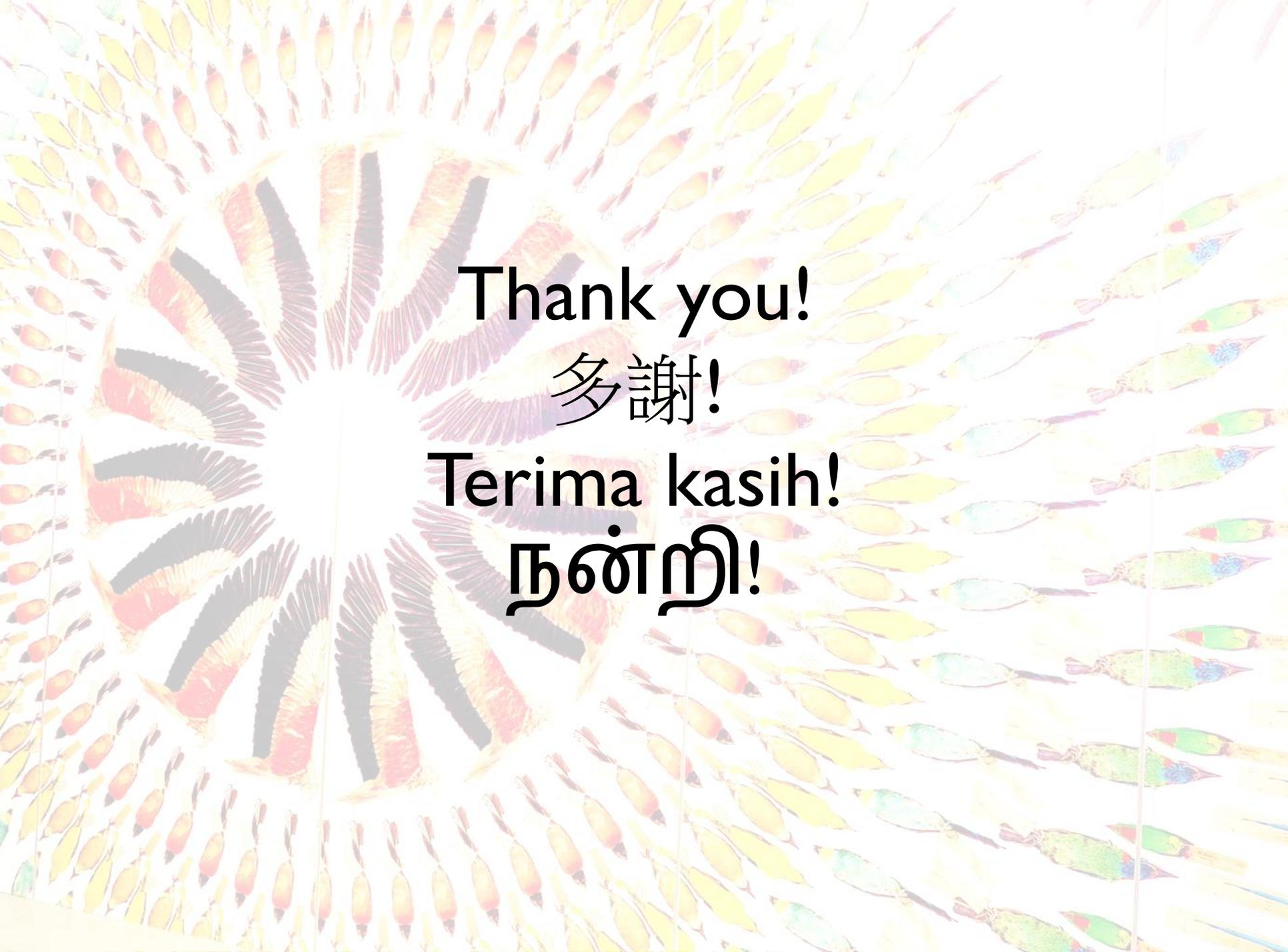
- Use audio tour-guiding
 - Visitors can learn more about the exhibitions even when there is no tour guide
 - E.g. The Metropolitan Museum of Art, New York



IMPROVEMENT

- Focus more on the message of conservation
 - Display many specimens and provide the names of the species
 - but seldom mention what threats the species are facing





Thank you!
多謝!
Terima kasih!
நன்றி!