NATIONAL PARKS | LET'S MAKE SINGAPORE OUR GARDEN

A Trip to Labrador Nature Reserve

Pre-Learning Journey Worksheet **Annex 1a**

Did you know? The high vantage point from the cliff at Labrador Nature Reserve led the British to identify it as a defence site to protect the entrance to the harbours of Singapore.

A Map of Labrador Nature Reserve.

Labrador Nature Reserve

The photograph below shows us a view of the sea from cliff at Labrador Nature Reserve.

Why do you think the British chose this location to build their fort?

Factsheet on Labrador Nature Reserve **Annex 1b**

Information

Labrador was identified by the British as one of the strategic defence sites to protect the entrance of the harbours of Singapore as early as 1843. The early fortification of the site was believed to be constructed in 1878 in conjunction with Fort Siloso in Sentosa. The fort was subsequently upgraded in 1892 with underground ammunition storerooms.

In the 1930s, more powerful guns were introduced and upgrading to fortification and underground complexes were carried out. Unfortunately, these guns failed to defend Singapore against the Japanese in World War II. Remnants of the past like war relics, a fort and secret tunnels used by the British Army during World War II can still be seen today. These military installations were built on the highest points inside the nature reserve.

Labrador Nature Reserve contains the only rocky sea-cliff on the main island of Singapore. The 10 ha coastal secondary vegetation was gazetted as a nature reserve on 1 January 2002. Labrador Nature Reserve has a rich variety of flora and fauna. 81 kinds of birds, including the Oriental Magpie-robin, Black-naped Oriole, Blue-crowned Hanging Parrot, the Rufous Woodpecker and Abbott's Babbler and raptors like Brahminy Kite, Oriental Honey-Buzzard and Black Baza soar above in the sky while monitor lizards sun along the footpath. The Southern Pied Hornbill has been sighted occasionally. Tree species like the Sea Almond, Sea Apple and Silverback can be seen here. Some 46 species of butterflies have also been recorded here. Birds, spiders and thousands of insects, some too small to be seen, all have their functions in keeping the rich forest a self-perpetuating habitat.

Let's visit Labrador Nature Reserve **Annex 2**

Take the "Twin Fortress Challenge".

1. Fort Pasir Panjang at Labrador Nature Reserve was one half of the Twin Fortress built by the British. What is the name of the other fort?

   .....

2. Where was the other fort built? And what is it known as today?

   .....

3. What was the purpose of both fortresses?

   .....

4. By 1881, mines were laid in the waters between the two fortresses to further strengthen the defence. Which part of the harbour were these mines also laid at?

   .....

5. What was created to enable the safe passage of ships through the minefield?

   .....

Singapore's Maritime History **Annex 3**

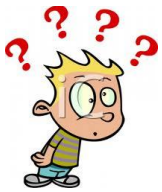
Recap...

We have learnt that 14th century Chinese traders described Singapore as a settlement that was "the hill back of Dragon's Tooth Strait..." The gate to the Dragon Tooth Strait was known as 'Long Ya Men' to the traders.

Dragon's Tooth Gate

It was originally a natural rock outcrop that stood in the waters just off Labrador's shore. These waters now house Keppel Harbour, Singapore's main port since the 19th century. The landmark was blown up in 1848 to widen the channel for modern ships to sail through.

What purpose did the rock serve?



.....

.....

Red Beacon

It served as a navigational guide in maritime history and marks the shortest distance between Sentosa and mainland Singapore.

What is the shortest distance between Sentosa and the mainland?

..... metres

Intricate Defence System **Annex 4**

Military installations played a significant role during World War Two. Military installations were built on the highest points overlooking the nature reserve below.

Fill in the table below with as much details as you can find about the military installations once built by the British.

Machine Gun Post	Quick firing gun
Tunnels	Observation Post
Casemate	1892 Storeroom

Did you know? The decisions made by the British have led dramatic changes to the landscape at Labrador Nature Reserve. The promenade area used to be part of old Pasir Panjang or ..... It was a popular seaside resort with private pavilions and beach houses from the late 19th century. During the late 1930s, the British felt that Pasir Panjang beach would be an easy place for the enemy to land. By 1940, the jetties and pavilions had been replaced by machine gun posts and barbed wire obstacles, and Pasir Panjang beach ceased to be a place of recreation.

Remnants of the Old Fort

This was the entrance to the old Pasir Panjang Fort which was built in 1886. It used to be guarded by a 9-foot iron gate called a ....., which spanned the gateway of this sea-wall, closing off entry into the fort from the seaward side. The fort was also ..... by the thick mangrove swamp and steep cliffs, which made it impossible for anyone to climb. Only ..... could pass through this iron-gate, and all supplies, ammunition and garrison support to the fort had to arrive by sea.

Nature's Wonders **Annex 5**

The secondary forest beyond the 6-inch quick firing cannon was formed by a process called ..... It provides for a diversity of .... The forest canopy consists mainly of tall Sea Apple trees which can grow up to 30 metres and some Sea Almond trees which can grow up to 25 metres. From March to May and from August to October, the synchronised flowering and shedding of leaves give the tree crowns a different colour.

Describe the Sea Apple tree by filling in the table below.

Crown	Flowers
Leaves	Fruits

Describe the Sea Almond tree by filling in the table below.

Crown	Flowers
Leaves	Fruits

Interesting Coastal Trees

Some interesting trees at Labrador like the Fish Poison tree and Sea Grape tree can be seen at the Promenade area. The Fish Poison tree has fluffy flowers, which open at night to release strong scents to attract nocturnal pollinators such as moths and bats. The Sea Grape tree bears reddish and fleshly fruits that resemble grapes. The trunk is of rusty red colour and has round shaped leaves with clear veins.

How do you think the Fish Poison tree got its name?

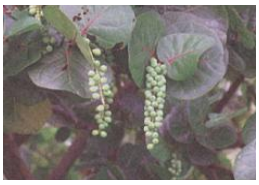
Look out for these lianas along the nature trail.

Fruits of the Fish Poison

Other Fascinating Plants

Fill in the name of the plants with the information provided.

The young purplish leaves of this plant can be eaten. The seeds of this fruit can be used as a remedy for swelling.



These fruits resemble grapes and can be made into wine.

The stilt roots of this pine were traditionally used by Hawaiians to heal the body after a bout of sickness.

The Casuarina Tree

Casuarina fruits looking like miniature durians.

Activity

Place this sheet against a casuarina tree, and make a bark rubbing of the tree's bark in the space provided.

Casuarina trees are usually found on sandy coasts. The wood of the trunk is so hard that it has been known to bend saw blades and iron nails.

The Nibong Palm

Fishermen use the spikes found on the stem as blowpipe darts to catch fish.

Activity

In the space provided, sketch one of the leaves found on this palm.

The wood of this palm is durable. It is ideal for constructing kelongs, which are traditional off-shore platforms used by fishermen.

Wildlife in Labrador **Annex 6**

The mammals, reptiles, birds and insects found in Labrador Nature Reserve all play important roles in the forest. There are some 81 species of birds and 46 species of butterflies have been recorded here and the list of species is still growing. One of the common sights is a Plantain Squirrel. You may even to spot the Malayan Water Monitor lizards and skinks roaming around the nature reserve.

Look out for these Malayan Water Monitor lizards and cicadas along the nature trail.

Try locating the Plantain Squirrel in the nature reserve and fill in the information in the table below. You might need to do some research first.

Describe the features e.g. colour	Where is the plantain squirrel usually seen?
What does it eat?	One amazing fact about the plantain squirrel.

Reflection Time **Annex 7**

What is one feature that you like most in Labrador Nature Reserve? Why?

How do you think the features in Labrador Nature Reserve have benefited visitors to the park?

What other features would you like to see in the nature reserve?

As students, what is one thing you can do to help make the park a better place for park users?

Without NParks, what do you think Singapore will be like?

How do you feel about working in a group? What has your group done well? What can be improved?

Task **Annex 8**

Introduction:

You are members the school's newsletter editorial team. Your team is to come up with a brochure on the interesting aspects of Labrador Nature Reserve and the importance of preserving this nature reserve.

Your Roles are:

1. To understand and appreciate the history and heritage of Labrador Nature Reserve
2. To learn about the importance of Labrador Nature Reserve in Singapore's history and heritage
3. To learn how Labrador Nature Reserve has evolved over the years
4. To promote Labrador Nature Reserve as a historical and heritage park to all walks of life

Your Task:

At the end of your visit to Singapore, your team is to complete your brochure with the relevant and necessary information.

Some useful questions to guide your team:

1. What is Labrador Nature Reserve's role and purpose in the history and heritage of Singapore?
2. Who is the organisation behind the management of Labrador Nature Reserve today?
3. Why Labrador Nature Reserve is important in Singapore's history?
4. Why should we visit Labrador Nature Reserve?
5. What are some of the important features that can be found in Labrador Nature Reserve?
6. What changes have Labrador Nature Reserve gone through over the years?

7. What are the areas that Labrador Nature Reserve that should be further conserved and preserved?
8. What can be done for the future of Labrador as a historical and heritage park?
9. How do the surrounding development areas or activities affect Labrador Nature Reserve?
10. What are the lessons learnt from the war and maritime history at Labrador Nature Reserve for the younger generation?

Process:

Assigning specific roles for each member of the team

Example

1. Group Leader (Lead and co-ordinate)
2. Scribe (Record information)
3. Photographer (Take photos)
4. Researcher (Search for information on the history, flora and fauna, what to look out for at the parks etc.)
5. Map reader (if you are carrying out the task without a guide)

Websites:

1. http://www.nparks.gov.sg/cms/index.php?option=com_visitorsguide&task=natureresерves&id=48&Itemid=75
2. http://www.nparks.gov.sg/cms/index.php?option=com_visitorsguide&task=parks&id=48&Itemid=73
3. http://www.wildsingapore.com/places/lp.htm
4. http://labradorpark.wordpress.com/

Project Rubrics **Annex 9**

Group Members: .....

.....

.....

.....

CATEGORY	4	3	2	1
Writing - Organization	Each section in the brochure has a clear beginning, middle, and end.	Almost all sections of the brochure have a clear beginning, middle and end.	Most sections of the brochure have a clear beginning, middle and end.	Less than half of the sections of the brochure have a clear beginning, middle and end.
Writing - Grammar	There are no grammatical mistakes in the brochure.	There are no grammatical mistakes in the brochure after feedback from an adult.	There are 1-2 grammatical mistakes in the brochure even after feedback from an adult.	There are several grammatical mistakes in the brochure even after feedback from an adult.
Spelling & Proofreading	No spelling errors remain after one person other than the typist reads and corrects the brochure.	No more than 1 spelling error remains after one person other than the typist reads and corrects the brochure.	No more than 3 spelling errors remain after one person other than the typist reads and corrects the brochure.	Several spelling errors in the brochure.
Writing - Vocabulary	The authors correctly use several new words and define words unfamiliar to the reader.	The authors correctly use a few new words and define words unfamiliar to the reader.	The authors try to use some new vocabulary, but may use 1-2 words incorrectly.	The authors do not incorporate new vocabulary.
Writing - Mechanics	Capitalization and punctuation are correct throughout the brochure.	Capitalization and punctuation are correct throughout the brochure after feedback from an adult.	There are 1-2 capitalization and/or punctuation errors in the brochure even after feedback from an adult.	There are several capitalization or punctuation errors in the brochure even after feedback from an adult.

Content - Accuracy	All facts in the brochure are accurate.	99-90% of the facts in the brochure are accurate.	89-80% of the facts in the brochure are accurate.	Fewer than 80% of the facts in the brochure are accurate.
Attractiveness & Organization	The brochure has exceptionally attractive formatting and well-organized information.	The brochure has attractive formatting and well-organized information.	The brochure has well-organized information.	The brochure\'s formatting and organization of material are confusing to the reader.
Attractiveness & Organization	The brochure has exceptionally attractive formatting and well-organized information.	The brochure has attractive formatting and well-organized information.	The brochure has well-organized information.	The brochure\'s formatting and organization of material are confusing to the reader.
Knowledge Gained	All students in the group can accurately answer all questions related to facts in the brochure and to technical processes used to create the brochure.	All students in the group can accurately answer most questions related to facts in the brochure and to technical processes used to create the brochure.	Most students in the group can accurately answer most questions related to facts in the brochure and to technical processes used to create the brochure.	Several students in the group appear to have little knowledge about the facts or technical processes used in the brochure.
Graphics/Pictures	Graphics go well with the text and there is a good mix of text and graphics.	Graphics go well with the text, but there are so many that they distract from the text.	Graphics go well with the text, but there are too few and the brochure seems \"text-heavy\".	Graphics do not go with the accompanying text or appear to be randomly chosen.

Copyright Acknowledgement:

- Picture of map in Annex 1a taken from http://www.nparks.gov.sg/cms/index.php?option=com_visitorsguide&task=naturereserves&id=48&Itemid=75
- Photograph of view of the sea from Labrador Nature Reserve taken from http://commons.wikimedia.org/wiki/File:Labrador_Park_cliff_overlooking_sea_20060419.jpg
- Photograph in Annex 2 taken from Labrador Park The Adventure begins by David Lim Kee Ann and Esmund Chua
- Picture of Lianas in Annex 5 taken from http://pilgrimparent.wordpress.com/2007/08/01/labrador-park-where-nature-meets-history/
- Cliparts and graphics in Annex 1a, 3,4, 5 and 7 are taken from http://office.microsoft.com/en-us/images/
- Rubrics in Annex 9 is created from Adapted from rubistar.4teachers.org
- All other information, resources, pictures and photographs are adapted from the National Parks Board and NParks Flora and Fauna websites