

Background Information for Teachers

Information on Learning Journeys Organisation

Name of organisation	<ul style="list-style-type: none">• National Parks Board (NParks)
When was the organisation founded?	<ul style="list-style-type: none">• 1990
Learning Objectives stated by the organisation	<ul style="list-style-type: none">• Combining the visual delights and rich biodiversity of our parks, gardens & nature reserve with thoughtfully planned recreational activities, NParks facilitates visitors' communion with Nature
What is the purpose of the organisation?	<ul style="list-style-type: none">• NParks conserves, creates, sustains and enhances the green infrastructure of our City in a Garden.• Responsible for providing and enhancing the greenery of Singapore• NParks also monitors and co-ordinates measures to ensure the health of Singapore's biodiversity.
What is the mission and vision of the organisation?	<ul style="list-style-type: none">• Mission: To create the best living environment through excellent greenery and recreation, in partnership with the community.• Vision: Let's make Singapore our Garden
How is the organisation so important to Singapore?	<ul style="list-style-type: none">• The organisation is important as National Parks Board (NParks) is responsible for providing and enhancing the greenery of the City in the Garden.• Beyond green infrastructure, NParks is committed to enhancing the quality of life through creating memorable recreational experiences and lifestyles.• NParks manages over 300 parks and 4 nature reserves. Adding to this is the extensive streetscape, or roadside greenery, that forms the backbone of our City in a Garden.• An island-wide Park Connector Network is also being developed to link major parks and residential areas.• As Singapore's scientific authority on nature conservation, NParks monitors and coordinates measures to ensure the health of Singapore's biodiversity.• This supports the overall thrust of our urban biodiversity conservation model, which aims to conserve representative eco-systems in land-scarce Singapore for future generations.• NParks is also the lead agency in the efforts to continually upgrade the Landscape Industry in Singapore.• It works closely with industry partners to

promote good work practices and create a thriving, innovative and professional industry that will support Singapore's aspirations of being a City in the Garden.

What are the NE messages / NE learning journey objectives that can be highlighted through this learning journey?

NE Messages:-

- Cultivate a sense of ownership for the environment where Singapore is our homeland, this is where we belong.
- Cultivate a sense of nationalism and pride in the students where we have confidence in our future.

Learning Objectives.

- Provide students with relevant knowledge on the importance of natural heritage in Singapore.
- Instil a sense of connection on how changes from the past influence our present.
- Understanding Singapore: Its constraints, Challenges and Opportunities that with the ever changing landscape, our natural history might disappear if no one spreads word of it

In what ways can the learning journey be relevant to students? (This can related to both personal experiences and curriculum matters)

The visit can be tied with:
Primary 1-6 English
Primary 4-6 Science
Secondary 1-4 Geography

Theme:	Learning Journeys
Name of Activity:	Singapore Botanic Gardens Heritage Tour
Venue/s:	Singapore Botanic Gardens
Duration:	1 –1.5 hrs
Level/s:	Primary 1-6, Secondary 1-4
Pre-requisite/s	Nil

Introduction:

During the learning journey, students will gain an insight into this last remnant of the same forest that used to cover the whole of Singapore at the Singapore Botanic Gardens. The Singapore Botanic Gardens Rain Forest is home to more than 300 species of plants of which most of them are endangered, rare or vulnerable. One will hear and learn the secrets about these giant trees and rare plants in the context of the fragile and unique rainforest ecosystem, comprising of both the plants and animals. Given the rich variety of animals and plants found here, students can interact with nature and enhance their knowledge and interests in them. At the same time, they will also learn about the importance of conserving our natural heritage and develop a sense of commitment and ownership of the parks and greenery.

Objectives of this Learning Journey:

1. Students will have fun as they walk and appreciate and at the same time learn about nature.
2. Students will learn about the importance of the rainforest at the Singapore Botanic Gardens in Singapore.
3. Students will gain greater awareness of the biodiversity of flora and fauna and enhance their knowledge and interests in the various species that exist here.
4. Students will learn about the importance of conserving our natural heritage, develop a sense of commitment and ownership of the parks and green, and to protect our home and rich history

National Education Message:

- The importance of national defence where Singapore is our homeland and we must ourselves defend Singapore as no one else will defend her for us.
- This is tied in with the need to protect the natural heritage of Singapore as well because it will be lost if we do not protect them.

Approaches

Programmes/Activities:

- Students will go on a learning journey to the Singapore Botanic Gardens.
- Guides assisted by teachers from the school, will lead and direct students in making various observations on the flora and fauna that exist here at to the Singapore Botanic Gardens. This will allow students to learn more about the nature and flora and fauna to meet the above objectives.
- Students will complete worksheets and take primary data (e.g. note taking and photographing) of all information which is required for the completion of an assignment or project.

Deployment:

- Guides will do a live commentary on the visit to the Singapore Botanic Gardens.
- School teachers are deployed to assist and also to help monitor and discipline students on site.

Assessment and Review:

- Students will complete the worksheets and activities individually or as a group.
- Students will be debriefed after the learning journey.
- As a post-activity, students will complete a reflection on their learning journey.
- Students will complete a feedback form.
- Students will complete an assignment or project based on their learning journey.

Lesson	Outline of Lesson	Period/s	Resources	Remarks
Lesson Structure: Pre-Lesson Journey				
Lesson 1 Introduction	<p>Students will be introduced to the usefulness of trees and about rainforests.</p> <p><u>Worksheet Activity</u></p> <ul style="list-style-type: none"> Students are to conduct a research on trees and rainforests and answer the questions on trees. <p><u>Briefing on Learning Journey to the Singapore Botanic Gardens</u></p> <ul style="list-style-type: none"> Students are given a briefing on the scenario and learning journey objective. 	30mins	Annex 1a, 1b	<ul style="list-style-type: none"> To enable students find out about the usefulness of trees and about rainforests. To enable students to learn more about the usefulness of trees and about rainforests. To prepare students and to provide information on the garden that they will be visiting.
Development	<p><u>Exploration of the features in Singapore Botanic Gardens</u></p> <ul style="list-style-type: none"> Students are divided into pairs/groups to research on Singapore Botanic Gardens. <p><u>Discussion Questions</u></p> <ul style="list-style-type: none"> Each pair/group will work on the question and pen down their answers in the worksheet provided. 	20 mins	Annex 1	<ul style="list-style-type: none"> To enable students to have prior knowledge on Singapore Botanic Gardens before going on their learning journey. To motivate the students to learn and have a sense of ownership in their learning. To incorporate the elements of cooperative and collaborative learning.
Closure	<p><u>Reflections</u></p> <ul style="list-style-type: none"> Students to share their thoughts and reflections on Singapore Botanic Gardens. 	10 mins		<ul style="list-style-type: none"> To sum up students' learning on Singapore Botanic Gardens.

Lesson Structure: During Learning Journey				
Lesson 2 Introduction	<p><u>Singapore Botanic Gardens</u></p> <ul style="list-style-type: none"> Students will read the factsheet on Singapore Botanic Gardens before commencing on their learning journey. 	10 mins	Annex 2	<ul style="list-style-type: none"> To enable the students to know more about the Singapore Botanic Gardens and what they can expect to see during the learning journey.
Development	<p><u>Breakup Session</u></p> <ul style="list-style-type: none"> Students are divided into different groups with the guides to explore the different features and areas. Teachers are to ensure that students ask the guides the relevant questions which are found in the worksheets. 	2 periods (60 mins)	Annex 3 , 3a, 3b and 4	<ul style="list-style-type: none"> To enable students to explore Singapore Botanic Gardens.
Closure	<p><u>Reflection</u></p> <ul style="list-style-type: none"> Teachers to get students to share their thoughts on the visit. 	20 mins		<ul style="list-style-type: none"> To sum up students' learning at Singapore Botanic Gardens. To allow students to evaluate how their group works.
Lesson Structure: Post Learning Journey				
Lesson 3 Introduction	<p><u>After the visit</u></p> <ul style="list-style-type: none"> Students are to form into groups of 4-5 and discuss and reflect on what they have learnt. Students are to discuss this using their post-visit reflection worksheet found in Annex 5. 	1 period (30 mins)	Annex 5 (Post-visit Reflection)	<ul style="list-style-type: none"> To allow students to sum up what they have learnt.
Development	<p><u>Task</u></p> <ul style="list-style-type: none"> Each group is read the task in Annex 6 and submit the collage on Singapore Botanic Gardens. 	4 periods (120 mins)	Annex 6 (Task) Annex 7 (Rubrics)	<ul style="list-style-type: none"> To consolidate students' learning through the completion of the allocated

	<ul style="list-style-type: none"> Rubrics for the submission of the collage can be found in Annex 7. 			task.
Closure	<p><u>Class Activity</u></p> <ul style="list-style-type: none"> Teachers are to go through the worksheet answers with students. 	1 period (30 mins)	Annex 8(Answers)	<ul style="list-style-type: none"> To sum up students' learning.

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Annex 1a

1. Penaga Laut (*Calophyllum inophyllum*)
2. Rubber Tree (*Hevea brasiliensis*)
3. Kapok Tree or White Silk-cotton Tree (*Ceiba pentandra*)
4. Tembusu (*Fagraea fragrans*)
5. Saga or Red-bead Tree (*Adenanthera pavonina*)
6. Malayan Terminalia or Jelawi (*Terminalia subspatulata*)

List down the information in the boxes below.

Trees with useful leaves Penaga Laut	Trees with useful seeds/fruits Saga
Trees with useful trunks Rubber Tree Tembusu	Trees with useful barks Kapok

Annex 1b

What is a Rainforest Ecosystem?

- An ecosystem is a community of all organisms in a given area, and the physical environment which they interact with.
- On the land there are terrestrial ecosystems such as forests, grasslands or rainforests. In the water, there are freshwater and marine ecosystems such as rivers and coral reefs.
- The rainforest biome is very complex. It includes a myriad of different species of plants and animals that are all adapted to rain, and lots of it.

Why are rainforests important?

- Tropical rainforests are important to everyone and not just to the plants and animals living there.
- For example, scientists are always discovering new plant species. Some of these plants contain substances that can be made into medicines.
- In addition, tropical rainforests store huge quantities of carbon, while producing much of the world's oxygen.
- Some people call tropical rainforests the lungs of the planet because they make so much of the oxygen that animals breathe.
- Another important role tropical rainforests play is in regulating global weather, maintain regular rainfall and also help to prevent floods, droughts, and erosion.

Annex 3

What can you see as you enter the Rain Forest?

- Understory layer showcasing the forest floor with leaf litter, small herbs, fungi, ferns and palms.

Rattan

- Cane, spikes, hooks, deter

Tongkat Ali Tree (*Eurycoma longifolia*)

- Aphrodisiac, tonic, blood circulation

Annex 3a

- a. What are giants?

- Things which are tall / high

b. How tall are giants?

- Accept any possible answers. E.g. Taller than 2 adults

Meraga Tree

- Bark, timber

Jelutong Tree

- Straight, chopsticks

Try to spot as many giants as you can as you explore the Rain Forest. List down the names of these giant trees in the spaces provided.

- E.g. Penaga Laut, Rubber Tree, Kapok Tree, Tembusu, saga, Malayan Terminalia

Annex 3b

Leaf Litter Plants

- Nutrients, decompose

White Gutta Tree (*Palaquium obovatum*)

- Coppery, ovate

Common Red-stem Fig

- Tall, syconia

Kempas

- Flooring

Strangling Fig

- Thicken

Meranti Laut

- Tallest

Tree Ferns

- Brown

Giant Mahang (*Macaranga gigantea*)

- Large, lobes

Annex 4

Common Treeshrew

- Small, coat, claws

Common Tree Frog

- Legs

Common Gliding Lizard

- Camouflaged, ribs, glide

Common Flameback

- Tail

Pink-necked Green Pigeon

- Body

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