
Title	The role of a Botanic Garden in teaching geography
Author(s)	Yee, Sze Onn
Source	<i>Teaching and Learning</i> , 8(1),96-102
Published by	Institute of Education (Singapore)

This document may be used for private study or research purpose only. This document or any part of it may not be duplicated and/or distributed without permission of the copyright owner.

The Singapore Copyright Act applies to the use of this document.

THE ROLE OF A BOTANIC GARDEN IN TEACHING GEOGRAPHY

YEE SZE ONN

Although the primary function of a botanic garden is the scientific study of plants, it has an important educational role which has not always been fully appreciated. A botanic garden offers many opportunities for pupils to learn and increase their knowledge of plant geography, ecology and botany. It also offers possibilities for integrating the study of various subjects like botany and geography. A visit to a botanic garden can help pupils see clearly the close relationship between plants, climate and soil and understand the processes and factors that have influenced the growth, distribution and spread of plants locally and throughout the world.

Among the many learning activities that the teacher can plan for his students are:

1. A study of the site and location of the garden.
2. A study of its relief and microclimate.
3. The identification of plants.
4. A study of the different ways in which plants adapt to their environment.
5. Field sketching and mapping.

The Singapore Botanic Gardens makes an ideal site for the kind of learning activities indicated above. It is centrally located and therefore easily accessible. It has a herbarium which is stocked with more than half a million dried specimens of ferns, palms, gingers and grasses and a reference library with a rich collection of materials on the flora of the region. Part of the gardens consists of a 4-hectare patch of jungle. Although the jungle is by no means an undisturbed area of primary forest, a walk through it still affords pupils the rare opportunity of observing plants and animals in natural surroundings. A fieldtrip

to the Gardens will prove to be a profitable and enjoyable learning experience in a pleasant learning environment for pupils at all levels. An example of a fieldtrip designed for a secondary 1/2 class of geography students is shown below.

A Field trip to the Singapore Botanic Gardens

Objectives

The purpose of this fieldtrip is to provide pupils with the opportunity to study vegetation at first hand. At the end of the fieldtrip, students will be able to:

- Identify and name at least six types of plants commonly found in the tropics.
- List 3 plants of economic value.
- Draw labelled diagrams of 3 different plant/life forms in a rainforest.
- Define the following terms widely used in plant geography.
 - (i) habitat
 - (ii) epiphytes
 - (iii) parasite
 - (iv) hydrophytes
- Explain the distribution of plants in relation to climatic and edaphic factors.

Learning Activities (Field)

As you walk along, carefully observe the plant and animal life in the gardens.

1. At the first study site, identify and name the palm that you see. Make brief notes on what you can observe of the plant. What economic value does this palm have?

2. At the marsh garden (study site 2) describe the environment or the habitat. How do these plants adapt to the conditions in which they thrive?
3. The Tropical House (site 3) exhibits various plants typically found in the forests of the humid tropics.
 - (i) What conditions are particularly favourable to the growth of these plants.
 - (ii) What is the term for plants which grow well in the shade?
4. Palm Valley (site 4)
Name 3 palms found in this valley.
In what ways are these palms different from each other?
Which of these palms are
 - a) of ornamental value?
 - b) economic value?
5. The Jungle (site 5)
As you walk through the jungle listen to the sounds you hear
 - i) How many types of sounds can you distinguish?
 - ii) What animals made those sounds?

You will notice that the vegetation is very luxuriant and that the trees are of different heights and close together.

- iii) Can you explain why?

You will also be able to see different root systems and plant forms

- iv) With the help of your teacher locate and sketch:
 - i) a tree with buttress roots
 - ii) a liane
 - iii) a parasite
 - iv) a strangler
 - v) a saprophyte.

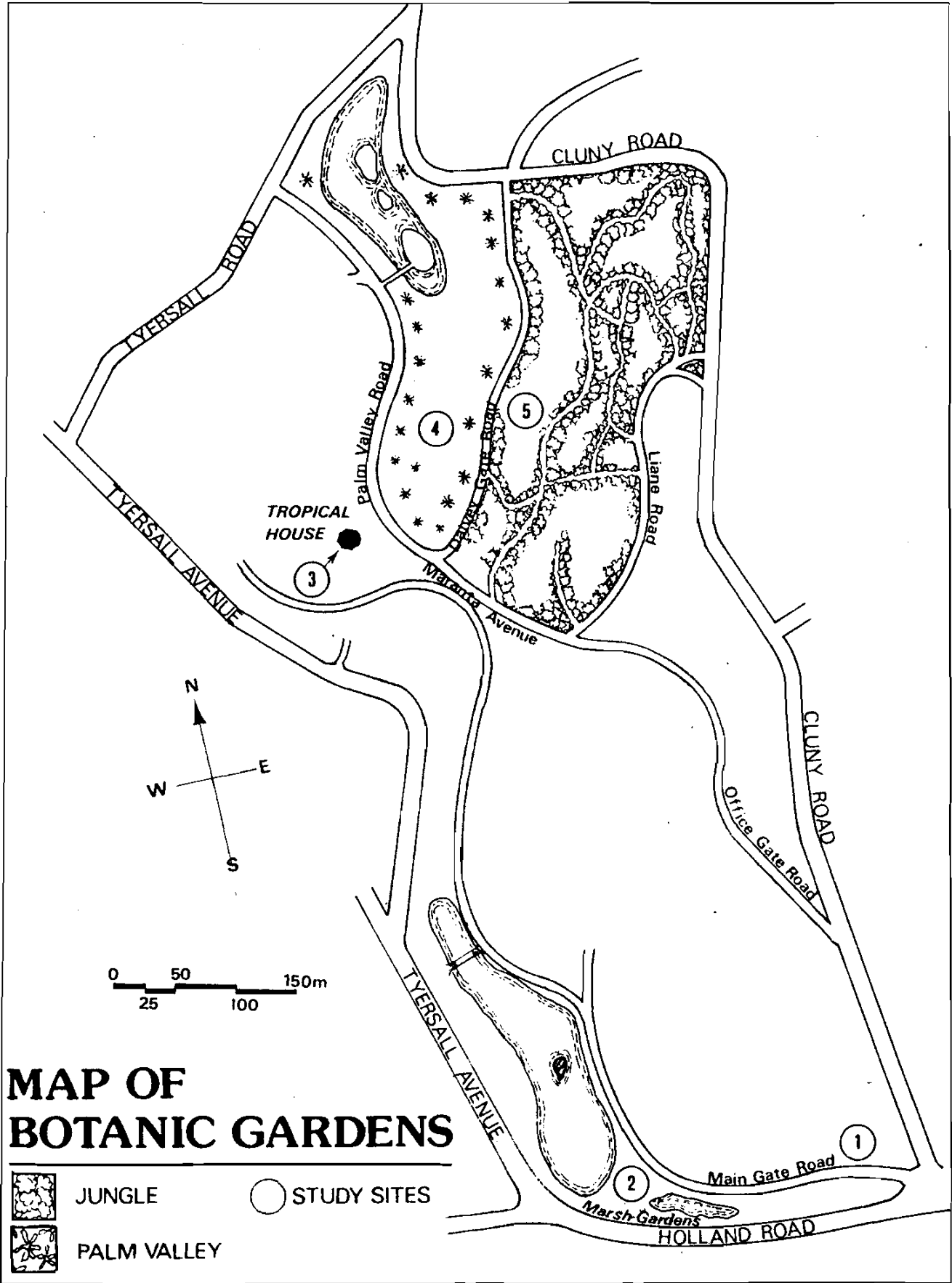
Follow-up Activities (Class)

When you return to school, complete the following activities in class.

1. Shade and name the areas under Tropical Rainforest on a world outline map.
2. Explain why the Tropical Rainforests are located in the areas you have shaded.
3. Prepare a chart to show six of the plants that you have identified. Write a brief description of each plant under the following headings.
 - leaves, flowers and fruits
 - root system
 - economic importance

References

- A Pictorial Guide to the Singapore Botanic Gardens 1986. *Gardens Bulletin* Vol 17, 1958 – 60, Singapore.
- Phang Wien Ho et al. A Guide to the Botanic Gardens Jungle. Singapore Science Centre 1983.
- Thomas, R.H. The Botanic Garden in Geography Teaching *Geography* Vol 56 Pt 4 Nov. 1971 pp 315 – 319.



(Redrawn with permission)



A cluster of Sago Palms at Site 1



The Marsh Garden

Several water loving plants such as the Siamese screw-pine, the papyrus, sedges and lilies are found in this boggy habitat. This site gives pupils an insight into the ways plants adapt to varying conditions of habitat.



Site 3: Palm Valley

Palms of economic as well as ornamental value including calamus, Latania and Licuala are found in this valley.