

Interactions at the Gardens Instructions and Answers for Teachers

- Venue: Water Lily Pond
- Estimated duration to complete all questions: 1.5 hours

Level / Subject:

- Lower Secondary (Science): Understanding Diversity of Living Things; Interactions within Ecosystems

Learning Objectives:

- Understand the concept of biodiversity
- Appreciate the various relationships present in a community

Things to bring:

- Camera
- Sketch book and writing materials
- Binoculars
- Cap / hat, umbrella / poncho, insect repellent, drinking water



ACTIVITY 1: SURVIVAL FACTORS (15 mins)

The *Water Lily Pond* is home to many different types of plants and animals. Look around you. What are the physical factors that will affect the survival of organisms living here? List them in the space provided.

Answer:

Temperature; oxygen level; pH of soil and / or water; availability of clean water; availability of food; sunlight (for plants); minerals (in the soil for plants, in the water for plants and animals); presence of other organisms e.g. prey, predators, decomposers, parasites, etc.

GROUP ACTIVITY: OBSERVE AND RECORD (1 hr)

After the Gardens was built, the variety of animal species increased as a result of the extensive range of plants found here. Examples include eagles, ducks, kingfishers, sunbirds, butterflies, dragonflies, beetles, lizards, and other freshwater macroinvertebrates and amphibians.

You will now conduct a survey of the environment to find out the type and number of organisms in and around the *Water Lily Pond*. Observe with your binoculars and record as many of the organisms you can find in the table provided. You may also sketch them in your sketchbook.

Location of Survey: _____

Date of Survey: _____

Time of Survey: _____

Type of Organism	Number spotted	Appearance of Organism (e.g. <i>size, shape and colour of its body parts such as head, eyes, neck, body, limbs, tail, wings, etc.</i>)	Other Observations and Remarks

Note to Teacher:

This activity is meant to be a field survey and students are required to only observe and record what they see. As a post-visit activity, you may task the students to research on the organisms that they had recorded to identify them, with the help of guidebooks in libraries.

Set aside some time for students to present their findings.

Examples of guidebooks:

1. A Naturalist's Guide To The Birds Of Singapore (by Yong Ding Li, Lim Kim Chuah and Lee Tiah Khee)
2. A Field Guide to the Butterflies of Singapore (by Gan Cheong Weei and Simon Chan Kee Mun)
3. Dragonflies of Our Parks and Gardens (by Robin Ngiam)
4. A photographic guide to the Dragonflies of Singapore (by Tang Hung Bun, Wang Luan Keng and Matti Hämäläinen)
5. A Guide to Common Insects in the Parks and Gardens of Singapore (by L.F. Cheong)
6. Fascinating Insects Of Singapore (Guidesheet by the Raffles Museum of Biodiversity Research)
7. A Guide to Freshwater Fauna of Ponds in Singapore (by Adam Quek, Li Yun Tan, Luan Keng Wang and Esther Clews)

ACTIVITY 2: INTERRELATIONSHIPS AT THE POND (15 mins)

Using the plants found at the *Water Lily Pond*, and the animals that you have observed and recorded, construct a food web of the pond community in the space provided.

Answer: Accept any reasonable answer.

Note to Teacher:

For more on *Understanding Diversity of Living Things and Interactions within Ecosystems*, check out these Secondary School programmes:

- A Blue Future
- A Breath of Fresh Air
- It's Complicated
- Life in the Pond