

A Glimpse into Floral Fantasy Teacher's Resource (Primary)

Programme Information

Venue	:	Floral Fantasy	
Suggested Duration*	:	Pre-visit Activity	- 30 mins
	:	On Site Activity	- 1 hour
	:	Post-visit Activity	- 30 mins
Level	:	Primary	
Subject	:	Art	

Learning Objectives

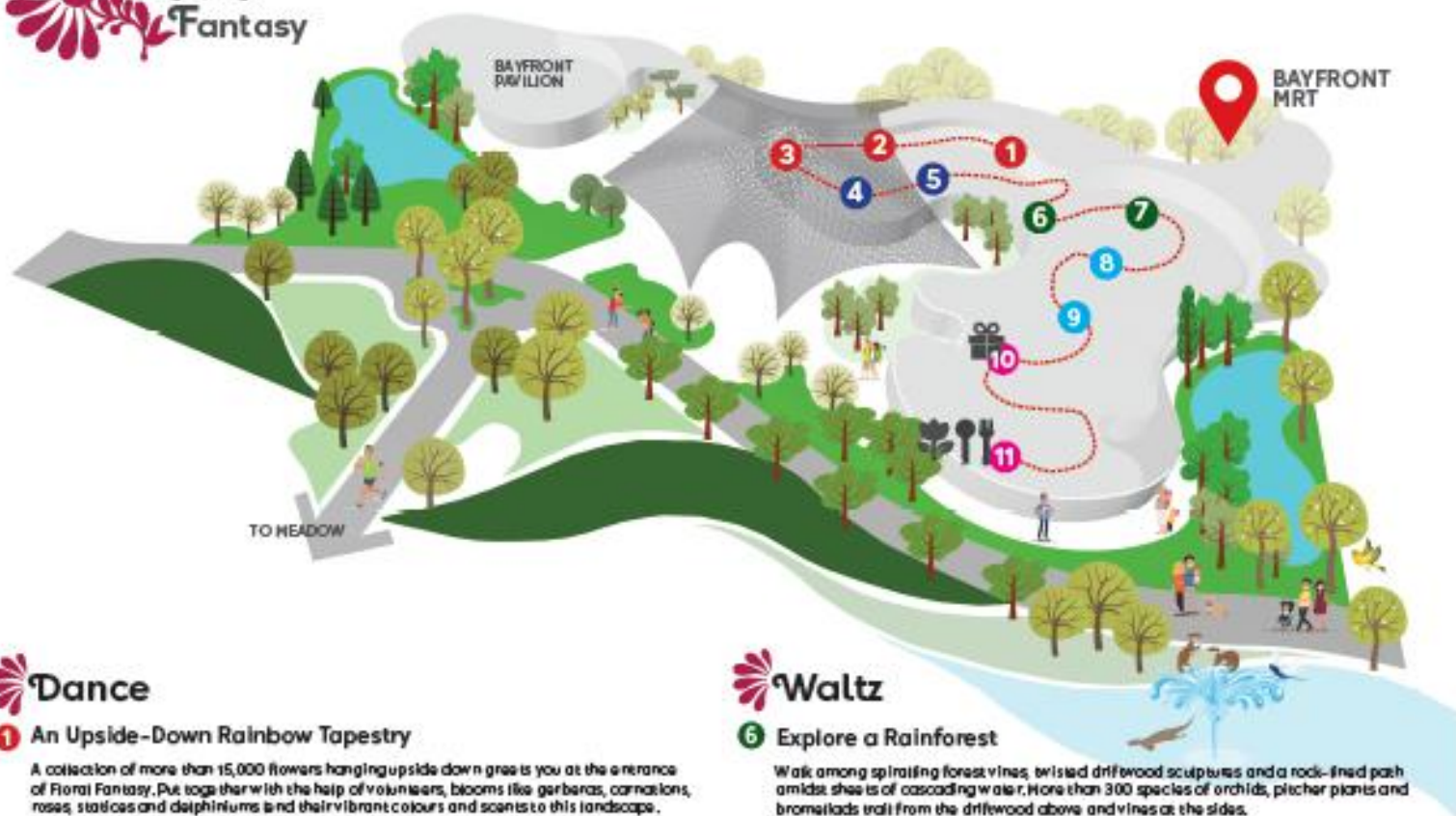
Students will be able to:

- Identify simple visual qualities
- Share their imagination, thoughts and feelings
- Discuss artwork using basic art vocabulary (elements of art and principles of design)

Getting Here



*This is a guide to explore Floral Fantasy, with suggested activities that can be completed. Teachers should plan their trips with their students in mind and to adapt or adjust the activities based on the curriculum or objectives of the fieldtrip to Floral Fantasy.

Dance

1 An Upside-Down Rainbow Tapestry

A collection of more than 15,000 flowers hanging upside down greets you at the entrance of Floral Fantasy. Put together with the help of volunteers, blooms like gerberas, carnations, roses, statice and delphiniums lend their vibrant colours and scents to this landscape.

2 The Dance of Flowers

Delicate spherical arrangements made out of 150 Phalaenopsis orchids and baby's breath perform a gentle, wave-like dance above you. As you walk under this dance of flowers, you are surrounded by the blossoms of peonies, hydrangeas and fuschias cascading from walls and planters.

3 Artists' Corner

A changing platform for emerging local artists to showcase their work to a large audience.

Float

4 Trees of Unique Forms

In a landscape of colourful blooms amidst flowing water and rocks, wind-swept-looking trees with unique sculptural forms take centre stage. Viburnums, cypripediums, daisies, pelargoniums and rhododendrons are among the more than 2,500 flowering plants of over 500 species found here.

5 Hanging Floral Chandeliers

Suspended over the water feature, each chandelier is created out of 250 Phalaenopsis orchids and tillandsias.

Waltz

6 Explore a Rainforest

Walk among spiralling forest vines, twisted driftwood sculptures and a rock-lined path amidst sheets of cascading water. More than 300 species of orchids, pitcher plants and bromeliads trail from the driftwood above and vines at the sides.

7 Poison Dart Frog Vivarium

This new vivarium is home to over 30 poison dart frogs of more than five different species and subspecies, such as the Green-and-Black Poison Dart Frog (*Dendrobates auratus*), Yellow-Banded Poison Dart Frog (*Dendrobates leucomelas*) and the Golden Poison Dart Frog (*Phyllotoxas terribilis*). Try spotting them among the foliage of more than 20 types of understory plants including begonias, orchids and bromeliads from South America and Southeast Asia.

Drift

8 A Cave of Mystery

Follow flowing rockscapes, beyond a curtain of vines... look up to see the pendulous hanging fronds of giant sword ferns and staghorn ferns, while more than 40 species of shade-loving aroids like anthuriums and philodendrons are nestled within the rocks. In this pocket cave, lights that mimic the rhythmic fading in and out of glow worms create a fantastical scene that draws you in. You will also find a collection of more than 50 species of exotic South American orchids and 30 species of begonias, hupcias and mosses growing on the rock surfaces.

9 4D Ride: Flight of the Dragonfly

Your four senses of sight, sound, smell and touch are triggered as you are taken on a simulated journey of a dragonfly's flight path through Gardens by the Bay. Flight of the Dragonfly is conceptualised and developed in collaboration with ST Engineering.

10 Bayfront Gift Shop

11 Cafe Aster by Far East Flora

At the garden-themed waterfront cafe with a view of the Supertrees and cooled conservatories, edible flowers are featured in many desserts and drinks! Fresh flowers from all over the world are for sale at the new walk-in floral glasshouse too.

PRE-LEARNING JOURNEY ACTIVITY | In school (30 mins)

Inform the students that they will be visiting a new attraction at Gardens by the Bay, *Floral Fantasy*. To prepare them for the visit, ask the students to raise their hand if they have visited Gardens by the Bay before. For those that have visited, ask them the following –

- When did you visit the Gardens?
- What did you see or do there?
- Who did you visit with?
- Did you enjoy yourself? What do you like about the Gardens?

For those that had not visited, ask them the following –

- What do you think you will find at Gardens by the Bay?
- Have you seen pictures of the Gardens?
- What will you be able to do at the Gardens?

Note: You may wish to ask the students that had not visited before, to answer the questions first. This can then be followed by additional input from those that had visited.

Using **Annex 1A to 1C** share with the students that Gardens by the Bay has several interesting attractions e.g. Supertrees, Flower Dome & Cloud Forest, and the Dragonfly & Kingfisher lakes.



Supertree Grove



Cloud Forest & Flower Dome



Dragonfly Lake



Kingfisher Lake

For Upper Primary, you may provide more details about each of the attractions listed above.

Background Information

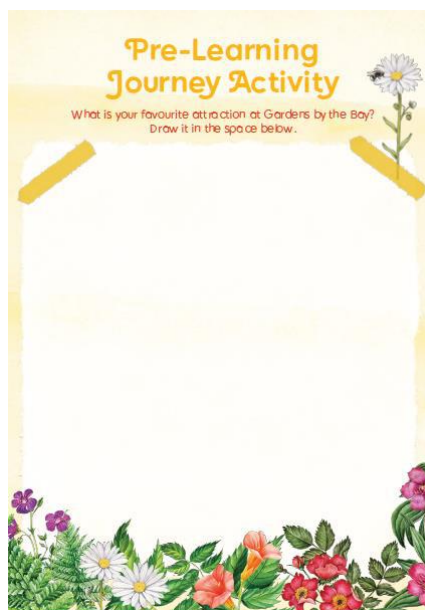
Supertrees: There are a total of 18 Supertrees that can be found at Gardens by the Bay, with the tallest one measuring up to 16 storeys in height. The OCBC Skyway provides splendid views of the Gardens and the surrounding Marina Bay area.

Flower Dome: Replicating the cool and dry Mediterranean climate, Flower Dome showcases exotic plants from five continents which are displayed in nine different gardens. It is a garden of perpetual spring!

Cloud Forest: A tropical highland amidst orchids, pitcher plants and ferns from the cool-moist Tropical Montane region of e.g. Cameron Highlands or Mount Kinabalu.

Dragonfly & Kingfisher Lake: The lakes are a rich source of aquatic life from fish to plants. The aquatic plants help ensure better water quality by acting as a natural eco-filter. The Dragonfly Lake is the largest water body that forms part of the lake system at the Gardens.

Referring to the **Pre-Learning Journey Activity**, guide the students to draw their favourite attraction at Gardens by the Bay.



BRIEFING BEFORE START OF VISIT | Arrival at Bayfront Pavilion Drop-off Point

Welcome the students to Gardens by the Bay and encourage them to take as many pictures as they like, featuring various parts of Floral Fantasy during their visit. Give a quick list of instructions to the students:

- Do not run or push your friends as you walk through Floral Fantasy
- Do not touch any plants/ display props unless instructed
- Whatever you bring to the garden, bring them back with you; whatever you find in the garden, leave them in the garden
- Raise your hand if you wish to speak or answer any questions
- Let your teachers know if you feel unwell

**Students should not take the 4D ride if they are unwell*

INTRODUCTION TO FLORAL FANTASY

Floral Fantasy has four zones that feature different experiences – Dance, Float, Waltz, and Drift. It is an experiential and immersive journey through four diverse garden landscapes, each showcasing a different ecosystem and perspective.

Note: Refer to the Floral Fantasy Area Plan – Zone 6 & 7 may not be conducive for a briefing due to the sounds from the water feature.

ACTIVITY 1: COLOURING BLOOM | ZONE 1

Background Information

Titled *An Upside-Down Rainbow Tapestry*, this zone features the seasonal rotation of blooms reflecting the seasons – spring, summer, autumn and winter. It is a collection of more than 15,000 flowers put together with the help of volunteers and the blooms lend their vibrant colours and scents to the entrance of Floral Fantasy. The following are examples of flowers that you will see.



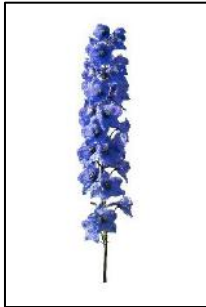
Gerbera



Carnation



Rose

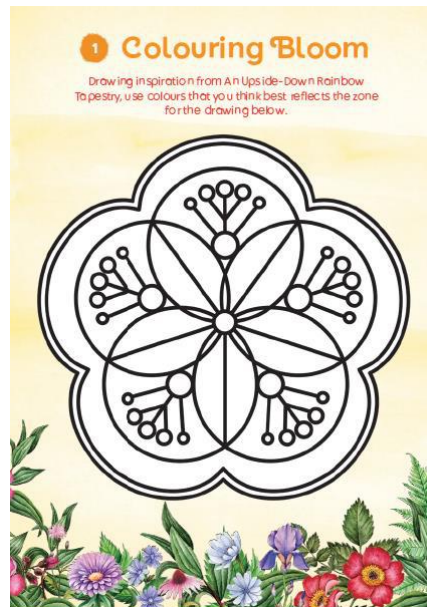


Delphinium



Sea Lavender

Referring to **Activity 1: Colouring Bloom**, guide the students to colour the flower based on the inspiration and colours they experience and see in this zone.



ACTIVITY 2: FLOWER FORM | ZONE 2

Referring to **Activity 2: Flower Form**, point out two flowers in Zone 2 – the hydrangea and fuchsia.



Share some information about the hydrangea and fuchsia with the students.



Hydrangea



Fuchsia

Hydrangea Fun Facts:

Each individual flower is relatively small, and in most species, are white. However, the display of colour is enhanced by a ring of bracts around each flower. The attractive colours of hydrangeas are from the bracts.

Bracts are modified leaves that are designed to look like huge, colourful floral petals (in the case of hydrangeas) to attract pollinators as its flowers are small. Another example commonly seen in Singapore is bougainvillea.

Did you know that the hydrangea can change from pink to blue and vice versa? Growers can control the colour of the hydrangeas by manipulating the levels of aluminium in the soil. Adding more aluminium using aluminium sulphate will result in a blue hydrangea, while removing aluminium from the soil will result in a pink one. The latter is often more challenging to achieve.

Fuchsia Fun Facts:

Fuchsia develops brightly coloured, drooping, tubular bell-shaped flowers. This flower not only helps to attract hummingbirds as its pollinator but also produces pollen that serve as a natural make-up for the indigenous people of New Zealand (Maoris).

Get the students to observe the flowers and ask them the following questions pertaining to the shape, form, colour and texture of both flowers:

Suggested Questions:

- How do you feel when you walk into this zone?
- Identify the differences between a hydrangea and a fuchsia. What do you observe?
- What are other unique flower shapes that can be identified in this zone?

Explain to the students that plants and their parts (such as flowers) not only vary in colour, size and smell, they also take on various shapes, textures, and forms. Many artists draw their inspiration from plants. After observing both flowers again, have the students sketch them in the activity sheet.

ACTIVITY 3: FEATURES OF WOODLAND FOREST | ZONE 4 & 5

Background Information

Zone 4 & 5 is a simulated enchanted woodland forest made magical with trees of unique forms and hanging floral chandeliers and air plants amidst colourful blooms.

A woodland is a low-density forest forming open habitats with plenty of sunlight and limited shade. Woodlands may support an understorey of shrubs and herbaceous plants. Compared to rainforests, woodland forests have sparse (10% - 30%) tree cover. Rainforests have greater than 30% tree cover.

What are the features that make the Woodland Forest in Zone 4 & 5 magical as compared to a naturally occurring one? Get the students to observe what they see and hear around them. In particular, have them focus on the placement of the features in this zone. Select 1 or 2 students to share their thoughts with the rest of the group.

Using **Annex 2** as an example of a woodland forest, have the students compare the similarities and differences of a simulated and natural woodland forest. Refer them to **Activity 3: Features of Woodland Forest** and get them to rank their favourite feature at this zone. They can then proceed to draw their version of this feature in the space provided.



To help the students along, you may ask them to think about the following questions:

Suggested Questions:

- Are the trees unique? Describe any tree that might be unique to you.
- Can you feel the sunlight on your skin? How does that make you feel?
- Are you able to see any hanging plants? What thoughts come to mind when you see them?
- What do the rocks remind you of? Describe any interesting features you see.
- Do you hear the sound of flowing water? What thoughts come to mind when you do?

ACTIVITY 4: EXPLORE A RAINFOREST | ZONE 6

As Zone 6 and 7 may not be conducive for a briefing, be sure to do so at Zone 4, before you move on. Ask the students if they know what a rainforest is. Gather responses from them and explain what it is (if you need to), sharing an example of a rainforest in Singapore's context.

Zone 6 and 7 simulate a rainforest experience complete with driftwood, spiralling vines and cascading water. While the area seems small, there are more than 300 species of orchids, pitcher plants and bromeliads on display in these zones.



Begonia



Bromeliad



Trumpet Pitcher

Background Information

Tropical rainforests are forests with tall trees, warm climates, and lots of rain. In some rainforests, it rains more than one inch nearly every day of the year! Rainforests are found in Africa, Asia, Australia, and Central and South America. The largest rainforest in the world is the Amazon Rainforest in South America. One of the rainforests we have in Singapore is the MacRitchie Nature Reserve.


Get the students to explore the "rainforest" here on their own. Point out to them that there is a narrow passage ahead so they should not push each other, or play, as they move along. They may gather at the Poison Dart Frog vivarium when they are done.

As the students explore this zone, they should look out for the features of a rainforest and select the one they would like to draw/ describe in **Activity 4: Explore a Rainforest**.


4 Explore a Rainforest

While you are on your rainforest adventure, can you spot the spiralling vines and bromeliads that are commonly found in a rainforest? What do they look like? Connect the dots and spot them in the forest!


Spiralling Vines



Bromeliad



What other features did you spot in this rainforest? Draw or describe one here.



Did You Know?

Woody vines such as creepers, vines and lianas are abundant in the tropical rainforest canopy. Rattan is a type of liana that is commonly used for furniture and rope-making.

Bromeliads can grow on the ground and on trees - small roots anchor the plants to supporting branches. The broad leaf base forms a water-holding cup that supports a thriving ecosystem of bacteria, dragonfly larvae, tadpoles, lizards, salamanders and frogs.

POISON DART FROG VIVARIUM | ZONE 7

The following is additional information on poison dart frogs that can be shared with students.

A vivarium is an enclosure or structure that is adapted to keep animals under semi-natural conditions for the purpose of observation and to raise awareness on the need for conservation. Explain that human action and climate change can have adverse impact on the smallest aspect of biodiversity, such as the Poison Dart Frog.

Information on Poison Dart Frogs:

Native to the tropical areas of Central and South America, they are considered vulnerable because of deforestation. They are known to be poisonous because of the food they eat in their natural habitat. However, the ones here are not poisonous because of what we feed them – fruit flies.

Information on the vivarium:

30 poison dart frogs can be found in the vivarium. There are more than 20 species of begonias and 50 species of orchids mostly from Southeast Asia and some from Central America. Even in a small vivarium like this, there is rich flora and fauna diversity.

After you have shared about this, you may want students to think about how habitats are being destroyed or removed to make way for development, and to reflect on the importance of conservation.

ACTIVITY 6: STAGHORN FERN | ZONE 8

A Cave of Mystery (Zone 8) is an artistic interpretation of the glow worm caves and temperate rainforests of Australia and New Zealand. The lights mimic the rhythmic fading in and out of glow worms.

Apart from ferns, there are also more than 50 species of exotic orchids and 50 species of begonias and mosses growing on the rock surface. Explain to the students, that even in such a small area, there is a huge variety of flora diversity. They can imagine how much more flora and fauna can be found in an actual rainforest!

Direct the students to look up to see the pendulous hanging fronds of gigantic sword ferns and staghorn ferns. In particular, share about the staghorn ferns, using the information below.



Bird's Nest Fern



Sword Fern

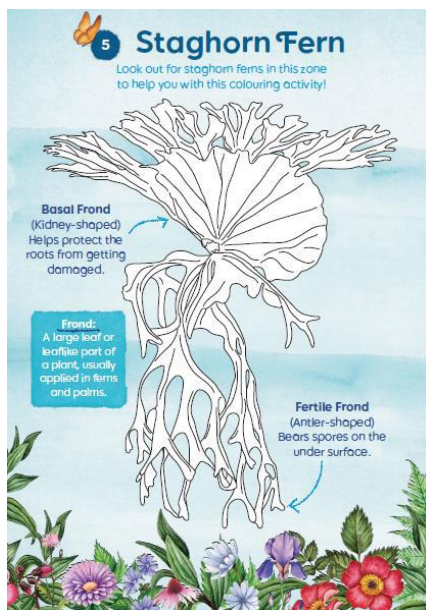


Staghorn Fern

Information on Staghorn Ferns:

Staghorn ferns are native to South America and can be found in the tropical and temperate surroundings of Africa, Southeast Asia, Philippines, Australia, and New Guinea. It is a unique hanging plant with two very distinct-looking leaves. The basal fronds are kidney-shaped and help to protect the roots from getting damaged. The fertile fronds are antler-shaped and bear spores on their under surface. You will be able to spot the spores underneath the fertile fronds.

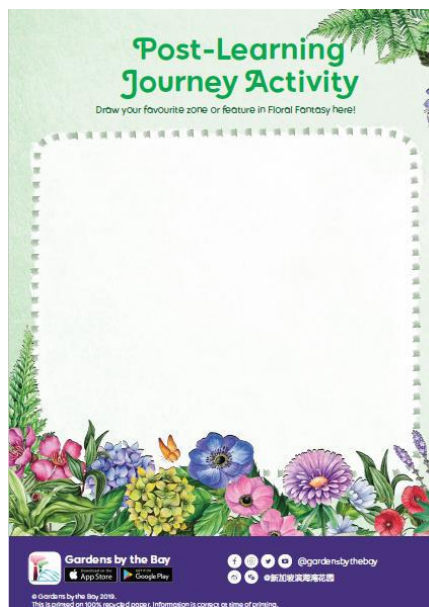
Referring to **Activity 6: Staghorn Fern**, help the students to differentiate the two distinctive fronds of the staghorn fern. Then, guide them to colour in the fern on the activity sheet.



POST-LEARNING JOURNEY ACTIVITY | In school (30 mins)

After the visit to Floral Fantasy, get the students to share about what they had seen and experienced at the Gardens. During the session, the students may share the photographs they had taken with the rest of the class, and these can be used to guide them through the reflection.

To wrap up the experience, have the students draw their favourite zone or features at Floral Fantasy in the **Post-Learning Journey Activity**. The students' works can then be displayed on the class notice board.



A Glimpse into Floral Fantasy Teacher's Resource (Primary)

Annex 1A: Supertrees



A Glimpse into Floral Fantasy Teacher's Resource (Primary)

Annex 1B: Cooled Conservatories (L: Cloud Forest; R: Flower Dome)



A Glimpse into Floral Fantasy Teacher's Resource (Primary)

Annex 1C: Dragonfly Lake & Kingfisher Lake (T: Dragonfly Lake; B: Kingfisher Lake)



A Glimpse into Floral Fantasy Teacher's Resource (Primary)

Annex 2: Woodland Forest

