Secret Life of Plants
Sharing and Activity Sheet for Students

Gardens by the Bay Avatar:
- Horticulturist

Level/ Subject(s):
- Upper Primary/ Science, English

Learning Objectives:
- Recognise the basic functions of plant parts
- Identify parts of a flower
- Understand the process of pollination

Hello students! My name is Hidaya. I'm a horticulturist and I've been working at Gardens by the Bay for 2 years! Today, I'll be sharing with you the functions of plant parts, parts of a flower and the process of pollination.

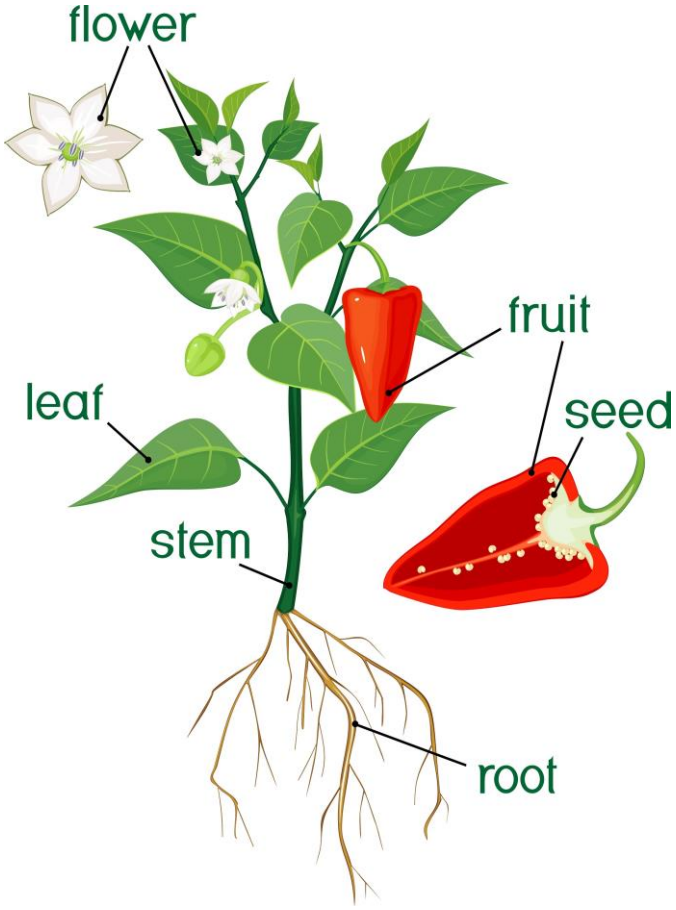
Have you ever wondered how plants ensure their continuity on Earth? How do plants reproduce themselves and ensure that their seeds are planted, since they are unable to move on their own?

Follow me as I take you through the world of plants!

Activity 1 – Plant Talk

Did You Know?

All green plants are able to make food using sunlight, water and air (carbon dioxide). This basic process that goes on within all plants is known as photosynthesis. To help them get these necessary resources, plants develop parts i.e. leaves, stems and roots that perform different functions. These parts work together to ensure the plant's survival.



Plant parts

Help me match the plant functions to the correct plant parts!

Plant Talk		Plant Part
"We come in numerous colours, shapes and sizes. Some of us bear pollen grains, while some do not. Without us, there will not be fruits."		Fruits
"We are the reason plants can stand upright! We help to transport water and nutrients throughout plants, keeping them alive."		Roots
"We come in varying shades of green, and may even be yellow or red! We absorb sunlight for plants to make food."		Stems
"Some of us can be eaten as food, while others may be poisonous! Whether our outer layers are thick or thin, fleshy or hard, we do our best to protect the seeds inside us."		Flowers
"Like a network of straws, we take in water and nutrients. Some of us love to be seen, and others prefer to be hidden underground. We provide support and stability too!"		Seeds
"Some of us are tiny, and some of us are huge! We need air, water and suitable temperature to start growing. We may look insignificant but we help ensure plant life continues!"		Leaves

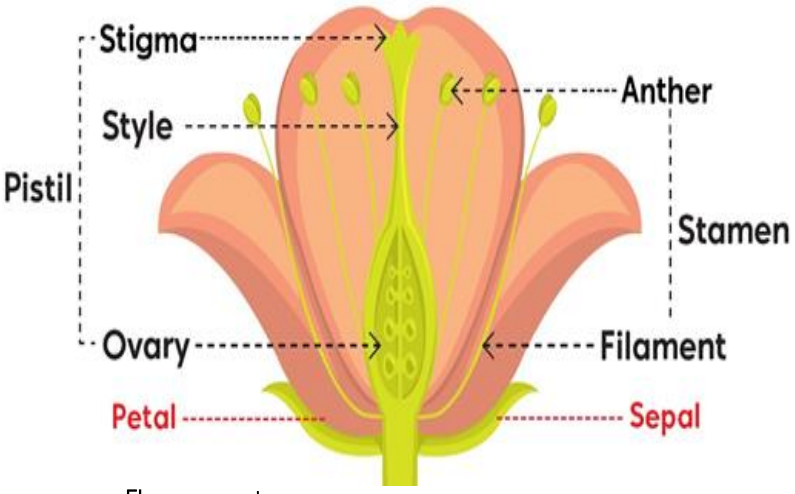
Flower Structure

We have learnt earlier that flowers are the reproductive organs of flowering plants. Now, let us take a closer look at the parts of a flower.

Flowers have eye-catching colours and nice scents to attract insects and animals to carry their pollen.

Flowers have 4 main parts – petals, sepals, pistil (female part) and stamen (male part).

The female part of a flower, the **pistil**, consists of the stigma, style and ovary. The ovary has one or more female reproductive cells called an egg.



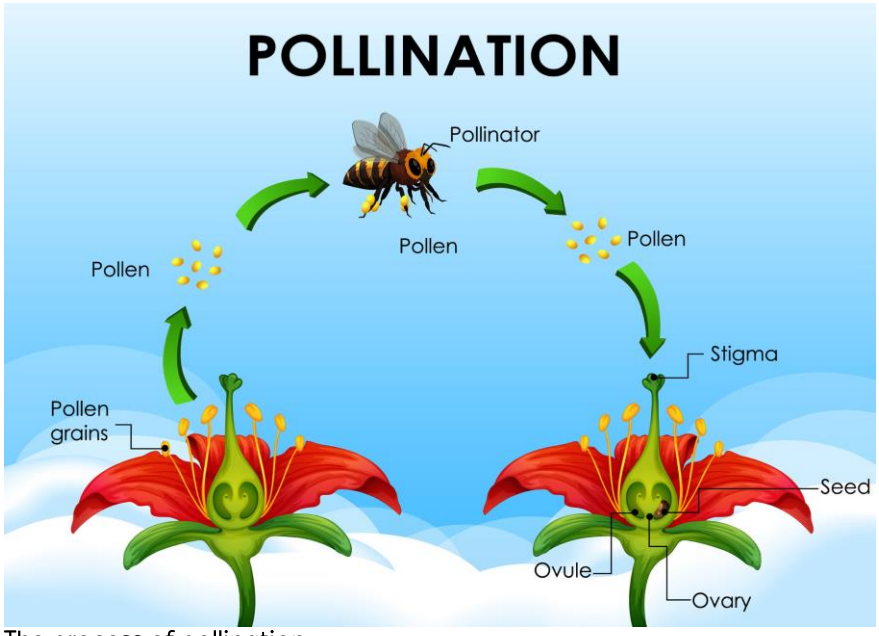
Flower anatomy

The male part of the flower, the **stamen**, consists of a thin stalk called the filament, with an anther at its tip. The anther is made up of pollen sacs that contain

Petals are parts of the flower that are usually brightly-coloured to attract pollinators to visit.

Sepals are the outermost part of a flower that encloses the flower bud while it is still growing. They protect the flower bud from injury and are usually green or leaf-like. In some flowers, they are colourful like the petals, attracting potential pollinators. In others, they may be hidden by the petals, hence not as easily identified.

Pollination



The process of pollination

Pollination is the process where the pollen grains from the anther (male part) are transferred to the stigma (female part). As plants are not able to move about freely, they have to depend on agents such as animals and wind to transfer their pollen grains.

A combination of characteristics such as colour, smell and structure of a flower can give us clues about its pollinator.

Different pollinators are attracted to specific hues. For instance, bees are attracted to bright colours like blue and yellow. Butterflies enjoy purple, pink, and white, while moths are drawn to dull white, green, and brown flowers.

In terms of scent, flowers that give off a strong smell at night attract moths, since they are nocturnal, whereas flowers with sweet scents are pollinated by bees.

The structure of flowers plays a part in attracting pollinators too. Flowers that are shallow and have nectar guides are usually visited by bees. Small, tube-like flowers that have nectar at the bottom can only be pollinated by insects with long mouth parts like butterflies.

Activity 2 – Flowers and their Pollinators

Now, observe these pictures of various flowers. Guess their pollinator(s) and give an explanation for your responses.

Flower	Image of Flower	Pollinator(s)/ Explanation
Common Name: Cannonball Tree Scientific Name: *Couroupita guianensis* *Clues:* - *Strong sweet scent* - *Shallow* - *Brightly-coloured*	 *Couroupita guianensis*	
Common Name: Bell Flower Scientific Name: *Portlandia grandiflora* *Clues:* - *Gives off a strong smell at night* - *In white or dull colours*	 *Portlandia grandiflora*	
Common Name: Golden Net-bush Scientific Name: *Pseuderanthemum reticulatum* *Clues:* - *Clusters in white and purple* - *Tube-like*	 *Pseuderanthemum reticulatum*	

I hope you have enjoyed learning how to identify various parts of a plant and understanding the process of pollination. I look forward to seeing you at the Gardens again!