BLENHEIM PALACE
EDUCATION

This is an introduction to the Blenheim Walled Garden

"A nation that destroys its soils destroys itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people."

Franklin D. Roosevelt, February 1937

Kitchen Garden

The Walled Garden was built over 300 years ago when the 1st Duke of Marlborough built Blenheim Palace. He had a big house, and he wanted a big kitchen garden. It was called a **kitchen garden** because all the fruit and vegetables grown here were sent to the kitchen at the Palace to be cooked or baked.

Q: Where are the fruit and vegetables?

A: Some fruits are growing along the brick walls. Some vegetables are growing in the vegetable patch.

Q: What grows here?

A: **Fruit:** apples, pears, figs, cherries, plums, strawberries.

A: **Vegetables:** beans, carrots, onions, potatoes, celery, leek.

A: **Herbs:** mint, thyme, parsley, tarragon, rosemary, chives.

The Walled Garden is called so because the garden is surrounded by brick walls. The brick walls provide protection and heat for the growing fruits and vegetables. The walls protect against frost and wind and stop hungry animals from entering the garden. Bricks absorb the heat from the sun and slowly release the heat to create a warmer environment inside the walled garden than outside of it. Glass traps and retains heat too.

Q: Can you spot the **glasshouses**? What do you think is inside of them?

A: Fruit and vegetables that need more heat to grow well.

A: The one right next to the wall has grapes and apricots.

Q: Who eats the produce?

A: The Duke and his family.

A: The produce is also sent to the restaurant and cafés on site.

Q: What is the difference between a fruit and a vegetable?

A: Botanically, a **fruit** grows from a flower and contains **seeds**.

A: Botanically, a vegetable does not contain seeds.

Did you know?

A tomato is technically a fruit because it grows from a flower plant, and it has seeds.

Did you know?

Raisins are dried white (green skin) grapes. Sultanas are dried white grapes. Currants are dried black grapes.

Growing plants

Traditionally, kitchen gardens were designed with a water pool in the centre. It was not a swimming pool, but a pool to collect rainwater. Before the invention of hosepipes and tap water, rainwater was collected to water the plants in the garden. The gardeners collected water from the pool with their watering cans. Water is one of the elements that plants need to grow well.

Q: What do plants need to grow well?

A:
- Most plants will grow from **S**eeds or bulbs.
- Although many plants grow in **S**oil, some plants can grow in water.
- The **S**un is an essential natural element for plants to grow successfully as is provides light and heat.
- Plants might need **S**pace.
- Plants might need **S**upport.
- Plants might need **S**helter.

The S's. This is how we remember what plants need to grow well.

Can you make up a rhyme or a song?

Q: What else do plants need to grow well?

A: **Food**. Nutrients and fertilisers.

- Here we feed our plants with natural fertilisers: compost and manure!
- We **compost** grass, weeds, kitchen scraps, tree leaves, etc.
- Our horses and cows supply us with **manure**. Horses' poo is the best!

With family and friends, stand next to each other at arms' length. Pretend you are a small seed: crouch down and put your arms around your legs. Then pretend you are growing into a plant by standing up slowly and stretching your arms in the air. If you can touch each other's hands, then you are too close.

Try again: stand next to each other but five steps away from each other.

You need to keep space between seeds.

Plant lifecycle

Plants and trees are important to all animals, insects and humans.

Q: How do plants grow?

A: Plants grow from seeds. Roots, stem, leaves, flowers and fruit emerge.

- The **seed** will start growing: this process is called **germination**.
- Then **roots** will start emerging underground and a **stem** will start growing above ground.
- The **stem** will carry the water and nutrients to grow **leaves**.
- The **leaves** will absorb energy from the sun and will produce **flowers**.
- The **flowers** will turn into **fruits**.
- Both the **flowers** and the **fruits** will make their own **seeds**.

Plants feed through their roots. Plants absorb water and nutrients through their roots. Water and nutrients are carried through the stem and leaves.

Q: How can seeds from one plant grow other plants?

A: **Pollination**.

A: It's the process of pollen from one flower travelling to the pollen of another flower.

Q: Who pollinates flowers?

A: Insects.

A: **Bees** and **butterflies** are the best pollinators.

- Flowers will attract insects by smelling good, looking colourful and tasting sweet. Insects will visit the flowers to drink the sweet liquid called nectar. When insects finish drinking the nectar, they take the pollen away with them.
- **Pollen** is dust-like elements in flowers. Insects collect pollen from the male part of one flower and deposit it with **female part** of another flower.
- It's the process of pollen of one flower fertilizing pollen of another flower that create seeds. Seeds can be blown by the **wind** or transported by **water**.

The flower that has the pollen taken away will die and then produce seeds. The seeds can then be used to grow more plants. We need insects like bees and butterflies because without them, there would be no pollination and less food in the world.

Bee nest in an oak log

We recently discovered several nests of wild honeybees in the ancient woodlands of Blenheim. Some of them have relocated to the Walled Garden. Honeybees prefer to live in gardens, woodland, orchards and meadows. They build nests inside tree cavities and hollow structures.

Q: Where can we find the Blenheim honey-bees?

A: In trees. In the Walled Garden walls.

Q: How do they make honey?

A: Bees drink the nectar from flowers, and they put in the nest.

Did you know?
90% of cocoa plants in the world are pollinated by insects. If you like chocolate, you ought to be thankful to all the pollinating-insects for their work! You must look after them well.

Before we explore the anatomy of a bee, let's explore the human anatomy.

SIGHT: We can see with our two eyes.

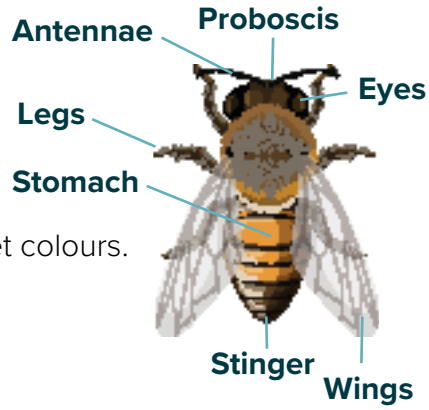
HEARING: We can hear with our two ears.

SMELL: We can smell with our nose.

TASTE: We can taste with our tongue, and we eat with our mouth.

TOUCH: We can feel with any part of our body; hands, arms, feet, legs, etc.

Bees have an interesting anatomy.



A bee has:

Five eyes: They cannot see red, but they can see ultraviolet colours.

Two stomachs: They have a stomach for eating and a stomach for storing nectar.

Six legs: They carry pollen on their back legs in basket-like structures.

Two pairs of wings: The wings beat at over 200 times per second.

A pair of antennae: They smell with the antennae.

A proboscis: They suck the nectar with a long nose-like mouth.

One stinger: They can sting, lose their stinger, and then die.

Did you know?
Female bees have a stinger while male bees do not. Hence, only female bees can sting.

Butterfly House

Bees and butterflies are attracted to sweet smells and purple-coloured flowers like lavender. Lavender is a purple flowering plant that smells sweet and repels nuisance insects.

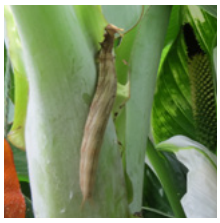
The largest butterfly in the world is called the Queen Alexandra's Birdwing. It's about 30 cm wide and it can be found in Papua New Guinea.

The smallest butterfly in the world is called the Western Pygmy Blue. It's about 1.5 cm wide and it can be found in the U.S.A.

Butterflies also have an interesting anatomy. A butterfly will:

- **SEE** with its eyes.
- **SMELL** with its ears (called antennae).
- **TASTE** with its feet and will eat with its nose (called proboscis).
- **HEAR** with its wings.
- **FEEL** with the hairs on its body.

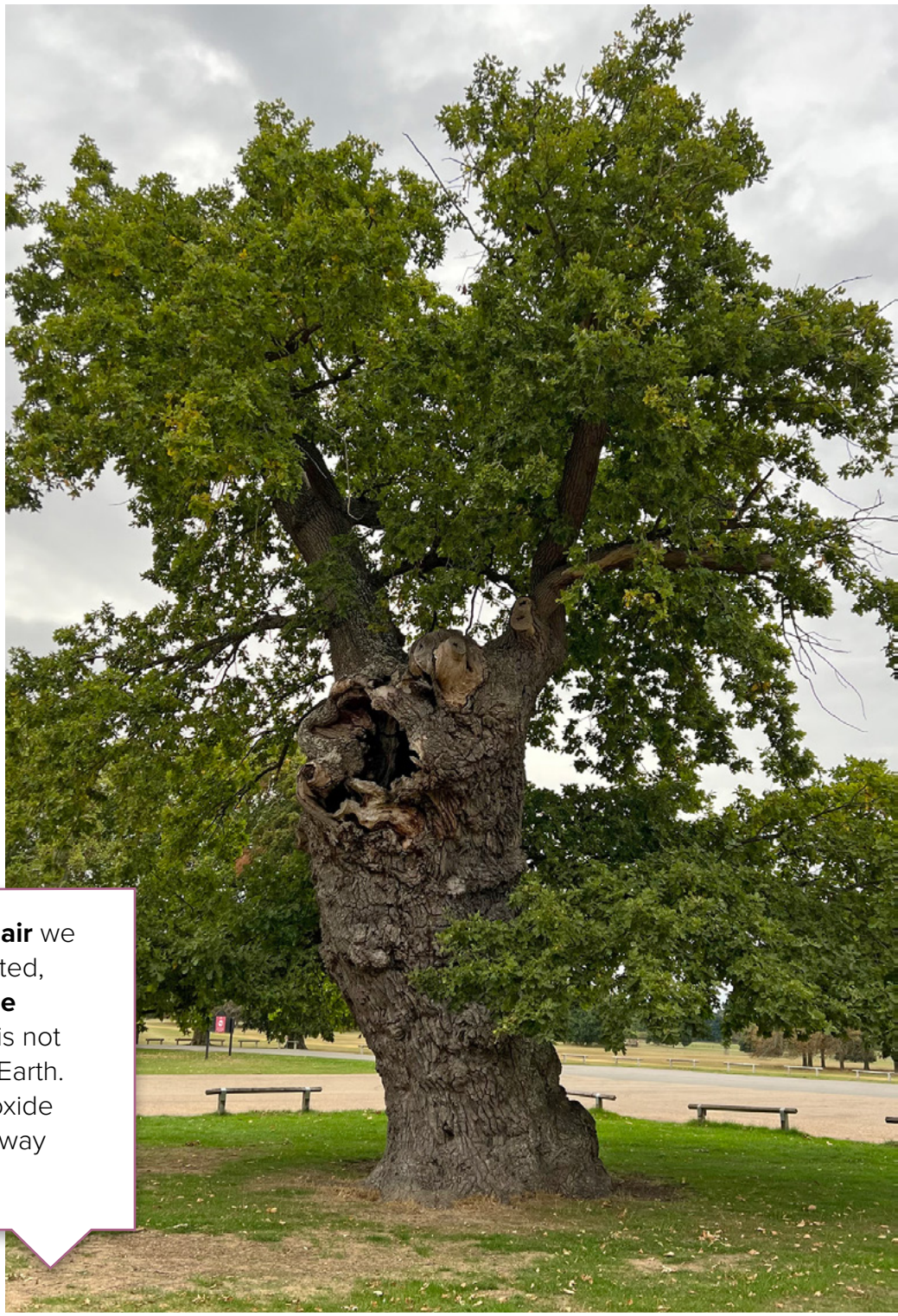
The lifecycle of bees and butterflies are very similar. There are four stages:

1. **Eggs:** they are very tiny. You may spot eggs under the big leaves.
2. **Larva:** from the egg out comes a caterpillar. You spot caterpillars on the big leaves.
3. **Pupa:** as it reaches a certain size, it attaches itself to a safe spot and it spins a silk-like belt around itself. It's not a chrysalis, or a cocoon. The metamorphosis takes places.
4. **Butterfly:** two or three weeks later, out comes a butterfly.

Freddie the Oak Tree

This is Freddie, our 600-year-old tree. If you give Freddie a hug and lend your ears to the trunk, you might be able to hear the water circulate from the bottom (roots) to the top (branches).
We have many oak trees at Blenheim and one of them is over 1000 years old!



Oak trees help us clean the **air** we breathe. The air is very polluted, and it causes **climate change** and **global warming**, which is not good for living creatures on Earth. Oak trees absorb carbon dioxide (sequestration) and keep it away from us for a very long time.

Q: How do we pollute the air?

A: We **pollute** the environment with our petrol and diesel vehicles because they emit carbon dioxide.

Q: How do oak trees clean the air?

A: They breathe through their green leaves. The leaves absorb the air. They will keep the carbon dioxide and release oxygen.

If you have any questions or comments about this self-led resource, please contact our Education Team at **education@blenheimpalace.com**

"Look after the land and the land will look after you. Destroy the land and it will destroy you."

Aboriginal proverb

Points of interest: