

This pack has been designed to support the teaching of Science and PSHE in special schools. It explores the relationship between pollinators and flowers and how humans rely on both for our wellbeing and that of our planet.

HOW TO USE THIS PACK

This pack contains a lesson plan which is aimed at lower level MLD learners but also contains adaptations and suggestions for higher level learners.

As well as an introductory activity and plenary, the pack provides seven main activities for the lesson, each with a specific focus:

- *Activity 2:* The parts of a plant
- *Activity 3:* Growing a sunflower
- *Activity 4:* Pollinator Bingo
- *Activity 5:* Butterfly I-Spy
- *Activity 6:* Pollinator Partners
- *Activity 7:* Relaxation thermometer
- *Activity 8:* Sensory Garden

The pack has been designed for use as a stand-alone lesson.

THE PACK INCLUDES:

Activity Cards

These are designed for teachers and provide instructions for each activity. They include key questions and discussion prompts.

Activity Resources (AR)

These are designed for students to complete independently, while working with a partner or group. They need to be photocopied or printed out.

Supporting Materials (SM)

These are designed to support the lesson and individual activities. They need to be photocopied or printed out and could be laminated.

OVERVIEW OF LESSON PLANS

The focus of the lesson plan is how spending time in a garden or outside space close to nature, helps us to improve/maintain our sense of wellbeing.

The activities are designed to encourage students to visit a garden or outside space regularly, as part of a healthy lifestyle. Students are asked to evaluate their mood before and after spending time in the garden or in an outdoor green space, to help them recognise the benefit to themselves.

Using a science approach, the lesson plan explores what a pollinator is and what it does. Students will examine the role of different pollinators within a garden's ecosystem and the subsequent importance of pollinators to humans. The students will be looking at how humans, plants and animals can work together to create a better environment for all.

The plan provides a mix of indoor and outdoor activities. The activities which encourage the students to look for pollinators would be best done when the weather is good and the plants are in flower (from late May to September).

The lesson plan is flexible and could be taught over a series of lessons, depending on how much time you have available and the needs of your learners. The plan could also be used as a jumping-off point to several other activities and pieces of work to further support students' understanding of how Nature and being outdoors are important to their own physical and mental health.

TOPIC INTRODUCTION

Depending on their needs, it may also be useful for students to do some simple online research about pollinators. A good website for looking up particular types of pollinators and insects is:

<https://www.buglife.org.uk/bugs/bug-directory/>

More information about the Zones of Regulation (used in Activity 7), can be found here:

<https://zonesofregulation.com/learn-more-about-the-zones.html#>

You may also wish to use other SEND lesson packs, which support PSHE, English, History and Art at <https://www.hrp.org.uk/schools/learning-resources/#gs.6eqyme>

LEARNING OBJECTIVES

For students to:

- Understand the importance of pollinators in the garden
 - Understand that animals and humans have similar requirements for growth and survival
 - Learn about the different types of pollinators found in a garden
 - Understand how the sensory experience of being in a garden or park can help us increase our sense of wellbeing
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CURRICULUM LINKS

Science

Students should:

- Be able to identify some key pollinators and insects in a local ecosystem such as garden or park
- Be able to identify the different parts of a plant
- Be taught how the process of pollination happens
- Be able to take measurements accurately

PSHE

Students should:

- Be taught about how to maintain physical, mental and emotional health and wellbeing
 - Be able to work in a small group cooperatively
-

BEFORE THE LESSON

- Set up the lesson power point (AR1)
- Gather the resources for AC3.
- Print out copies of all Activity Resources needed for each activity

Room set-up

It is envisaged that students will work in a combination of whole class, paired and individual groupings. However, the activities have been designed to be flexible and can be adapted to best suit the learning needs of the students.

Additional resources needed

For **Activity 3**, growing the sunflower seed, you will need soil, a plastic spritz bottle, plastic cups and sunflower seeds.

ACTIVITY 1

Introduction - What is a pollinator and what does it do?

The Introduction will set up the context for the session by defining what a pollinator is and what it does. Students will examine the role of pollinators within a garden's ecosystem and the subsequent importance of pollinators to humans. The students will be looking at how humans, plants and animals can work together to create a better environment for all.

Pack resources: Activity Card 1 | AR1 (slides 1-4)

ACTIVITY 2

The parts of a plant - Science focus

Key Question: What are the main parts of a plant?

Key skills – labelling a picture, discussing ideas, understanding keywords

The aim of this activity is for students to build their vocabulary and learn about the different parts of a plant. As a group they will create and label a large drawing of a plant as a group to do this. Students will each create a leaf, a bud and a flower which will be added onto the plant.

Pack resources: Activity Card 2 | AR1 (slide 5) | AR2

ACTIVITY 3

Growing a sunflower - Science, maths and PSHE focus

Key Question: What do plants need to grow?

Key skills – measuring, making comparisons, recording information

The aim of this activity is to develop student's understanding of the different things plants need to grow. They will compare these things to what humans need. Student will grow their own flower in a pot. They will take photographs and measure growth.

Pack resources: Activity Card 3 | AR3 | AR4

ACTIVITY 4

Pollinator Bingo - Science focus

Key Question: What are some of the different types of pollinators and insects?

Key skills – observational, recalling details, making decisions

The aim of this activity is for students to become familiar with different types of pollinators. They will play bingo to help them be able to recognise them by name and sight.

This activity is designed to be carried out individually or in pairs.

Pack resources: Activity Card 4 | AR1 (slide 6) | AR5 | AR6

ACTIVITY 5

Butterfly I-Spy - Science focus

Key Question: What butterflies do you have in your garden?

Key skills – observational, comparing information, making connections

The aim of this activity is for students to work in pairs to identify the butterfly species in their school garden or outdoor space.

Pack resources: Activity Card 5 | AR7

ACTIVITY 6

Pollinator Partners - Science focus

Key Question: Which flowers do different pollinators prefer?

Key skills – selecting facts, researching information, making comparisons

The aim of this activity is to learn why pollinators like particular flowers.

Pack resources: Activity Card 6 | AR8 | SM2

ACTIVITY 7

Relaxation thermometer – PSHE focus

Key Question: How does being in our garden help us keep well?

Key skills – understanding our emotions, personal response

The aim of this activity is for students to be able to measure how being in the garden helps them to feel relaxed. They will make a relaxation thermometer graph, which they can take with them into the garden.

Pack resources: Activity Card 7 | AR1 (slide 7) | AR9

ACTIVITY 8

Sensory Garden – PSHE focus

Key Question: How does being in our garden help us use our senses?

Key skills – using our senses, personal responses

They will use their senses to focus on the different aspects of being in the garden and consider what they can hear, see, smell, taste and touch. You may wish to take out a honey jar and spoons so everyone can have a taste outside!

Pack resources: Activity Card 8 | SM1

ACTIVITY 9

Plenary

Key Question: What can we do to help keep ourselves well?

The aim of this activity is to make comparisons between nature and themselves and to reflect on what both needs to thrive.

Pack resources: Activity Card 9 | AR10

IDEAS FOR ADDITIONAL ACTIVITIES

- Optional extension activity: students can use Symwriter to write about the pollinators and flowers they saw in the garden.
- Some students might like to write or use Symwriter to create a mini fact sheet (like AR8) for other types of pollinator, for example:
 - Bee:
 - I like blue flowers
 - I like plants with a lot of nectar
 - I like large flowers so I can land easily
 - I am a bee and I like cornflowers
- **Bug hotel**
You could build a bug hotel in your garden or school grounds to make it a safe place for a range of creatures from ladybirds to hedgehogs!
<https://www.rspb.org.uk/get-involved/activities/nature-on-your-doorstep/garden-activities/build-a-bug-hotel/>
- **Wellbeing film**
Students could make a short film for their peers about the importance of spending time outside in a garden or park and some of the wildlife they can look for whilst outside.
- **Flower pressing to create art and cards**
Students could press some of the flowers from the garden using either a wooden flower press or heavy books and blotting paper.

Introduction - What is a pollinator and what does it do?

The aim of this activity is to ascertain how much prior knowledge the students may already have about pollinators and to explain the role of the pollinator in the garden and also in our survival.

Show slide 1 on presentation AR1 to introduce the word 'pollinator.'

Explain that pollinators:

- Are animals which move pollen (a fine powder) from one plant to another plant. This movement of pollen is necessary for the plant to produce fruits and seeds
- Include a variety of animals and insects – the most common types of pollinators are bees, flies, butterflies, moths, wasps and beetles
- May travel long distances to visit our gardens
- Play an important role in our garden's ecosystem
- Work with plants and us to make our gardens and outside spaces better for everyone

Ask the following questions and show the corresponding images on AR1.

What is it?

Explain that a pollinator is an insect or animal which moves pollen from one plant to another. An example of a common and important pollinator is a bee.

What is it doing?

Explain that the pollinator is attracted to the plant because of its colourful petals and the smell of its nectar inside the flower. When a pollinator visits a plant, some of its pollen sticks onto the body of the pollinator and is rubbed off onto the next plant. Moving the pollen from one plant to another means both plants can make seeds for more plants.

Where is it?

Pollinators travel around gardens visiting one plant after another. Sometimes they travel long distances to visit the garden.

What is it like?

Emphasise that pollinators are very helpful, as much of our food as humans comes from plants such as fruit and vegetables, so pollinators like bees are important for our survival too.

You might show your students this short film on pollination on BBC Bitesize:

<https://www.bbc.co.uk/bitesize/topics/zy66fg8/articles/zx4ktv4>

ACTIVITY CARD 2

Pack resources: AR1 (slide 5) | AR2

The parts of a plant – Science focus

Key Question: What are the main parts of a plant?

The aim of this activity is to further help students understand the process of pollination by identifying the different parts of a plant.

Ask the students to sit around a large piece of paper on the floor. You can use either white paper with pens or black paper with chalks. Use the labels in AR2 to label the plant as you create it. For the leaves and flowers, each student can use the template in AR2 to create their own one which can be added onto the communal drawing.

1. Draw the **roots** of the plant on the middle of the paper, towards the bottom. Explain that the roots keep the plant in the ground and hold it up. They also take in water from the soil.
2. Next draw the stem in the middle of the paper. The **stem** holds up the plant and carries water to the leaves.
3. Next draw the leaves coming off the stem. Explain that a **leaf** takes in sunshine and turns it into food for the plant.
4. Finally draw some flowers and buds. Explain that the nectar inside the **flower** is what attracts the pollinator. You can also include buds and explain that for a **bud** to grow it will need the right conditions.

Optional: Students could add drawings of pollinators such as bees, beetles or butterflies onto the plant in another lesson.

ACTIVITY CARD 3

Pack resources: AR3 | AR4

Growing a sunflower – Science, maths and PSHE focus

Key Question: What do plants need to grow?

The aim of this activity is for the students to understand that in order for plants to grow and flourish certain conditions must be right. They will grow their own plant to help them understand this and also consider what humans need for growth.

1. Mindmap on the whiteboard as a group what humans need to grow – food, water, air and shelter.
2. Create a similar mind map for plants – warmth and light from the sun to make food, air, water, nutrients from the soil.

What is the same? What is different?

3. Discuss how plants and humans also both need time and space to grow.

Explain that the students will work in pairs to plant and grow their own sunflower seed, using AR3. They will be observing it, taking photographs and measuring the height of the plant as it grows using AR4.

Optional: You may wish to use Symwriter to write planting/growing instructions.

ACTIVITY CARD 4

Pack resources: AR1 (slide 6) | AR5 | AR6

Pollinator Bingo – Science focus

Key Question: What are some of the different types of pollinators and insects?

The aim of this activity is for students to be able to identify some of the different types of general pollinators and insects which they might find in a garden or park. They will play a game of bingo to help them do this.

Students will play in pairs.

1. Give each pair a set of bingo cards (AR6) to cut out (there are 11 altogether) and a blank bingo play board (AR5) to stick their pictures on. They can choose their six favourites to make their board. Can they name the ones they have chosen for their board?
2. Go through all 11 pollinators and insects using Slide 6 on AR1 so students can identify them before they start the game. The 11 pollinators on Slide 6 are (left to right, top to bottom): bee, wasp, hoverfly, butterfly, moth, beetle, spider, ant, shield bug, crane fly, centipede.

Play the game with each pair of students having their own play board. You may wish to laminate the boards so students can play several times to familiarise themselves with the pollinators and insects. There is an option for students to each make their own play board, which enables them to have more independence during the game.

ACTIVITY CARD 5

Pack resource: AR7

Butterfly I-Spy – Science focus

Key Question: What butterflies do you have in your garden?

The aim of this activity is for students to be able to learn more about the butterflies they are most likely to see in a garden or other green area. They will be able to compare the different butterflies by comparing their size and appearance. They will use the laminated playing cards (AR7) to help them. For additional information on these butterfly species, visit: <https://butterfly-conservation.org/>

This activity takes place in the garden and the students can work in pairs.

How do the different butterflies compare?

Each pair will use a set of the laminated cards (AR7), magnifiers and a short ruler to help them. They could also use whiteboard pens to tick off any pollinators they see, as the laminated cards can be wiped clean after each visit to the garden. There are 8 cards in the set.

ACTIVITY CARD 6

Pack resources: AR8 | SM2

Pollinator Partners – Science focus

Key Question: Which flowers do different pollinators prefer?

The aim of this activity is to learn why pollinators like particular flowers.

Ask the students to think of a person they get on well with. It might be a special friend or a family member. Ask them to consider what it is that makes them get along - is it a common interest, or a special quality that person has?

Explain to the students that pollinators prefer some flowers to others. This might be because the flowers have a lot of nectar, or the shape of the petals might make it easier for a pollinator with bigger wings to land on.

Give the students a copy of worksheet AR8.

In pairs they can look at which pollinators prefer which flowers and examine why this is. They can then use Pollinator Factsheets (SM2) to add two facts of their own on AR8 about the pollinators or their plant partners.

ACTIVITY CARD 7

Pack resources: AR1 (slide 7) | AR9

Relaxation thermometer – PSHE focus

Key Question: How does being in our garden help us keep well?

The aim of this activity is for students to be able to measure how being in the garden helps them to feel relaxed. They will make a relaxation thermometer, which they can take with them into the garden.

You may wish to link this activity to the Zones of Regulation. Show them the Zones of Regulation chart and explain how they work. If it is a strategy which you already use in school then you can remind them of how it works before you do the activity.

Give each student a copy of AR9. They can cut out the thermometer and colour in each section. You can colour in the thermometer on the board to show them which colour to use. Start at the bottom of the thermometer with light green and work up to red.

- 5 Red (*angry*)
- 4 Orange (*frustrated*)
- 3 Yellow (*worried*)
- 2 Blue (*sad*)
- 1 Darker green (*calm*)
- 0 Light green (*happy*)

Before going outdoors, ask each student to say which Zone they feel they are in.

Repeat this process after the students have spent some time outdoors.

Is there a change? Do they feel better?

Going into the garden can be highlighted as a 'green zone' activity.

ACTIVITY CARD 8

Pack resources: SM1

Sensory Garden – PSHE focus

Key Question: How does being in our garden help us use our senses?

The aim of this activity is for students to recognise how our different senses are engaged in the garden.

Take the students out into the garden. Ask them to look at SM1 to identify what they can see, smell, hear, and touch.

They can add words or drawings or take photos to add onto their sheet.

You may like students to have a taste of honey in the garden to connect it in their minds with the bees!

ACTIVITY CARD 9

Pack resource: AR10

Plenary

Key Question: What can we do to help keep ourselves well?

The aim of AR10 is to test if the students can recall two ways which we can help the pollinators and flowers in the garden to keep healthy and two ways we can help ourselves well.

Students could share their responses after they have completed the activity.

WHAT IS IT?



WHAT IS IT DOING?

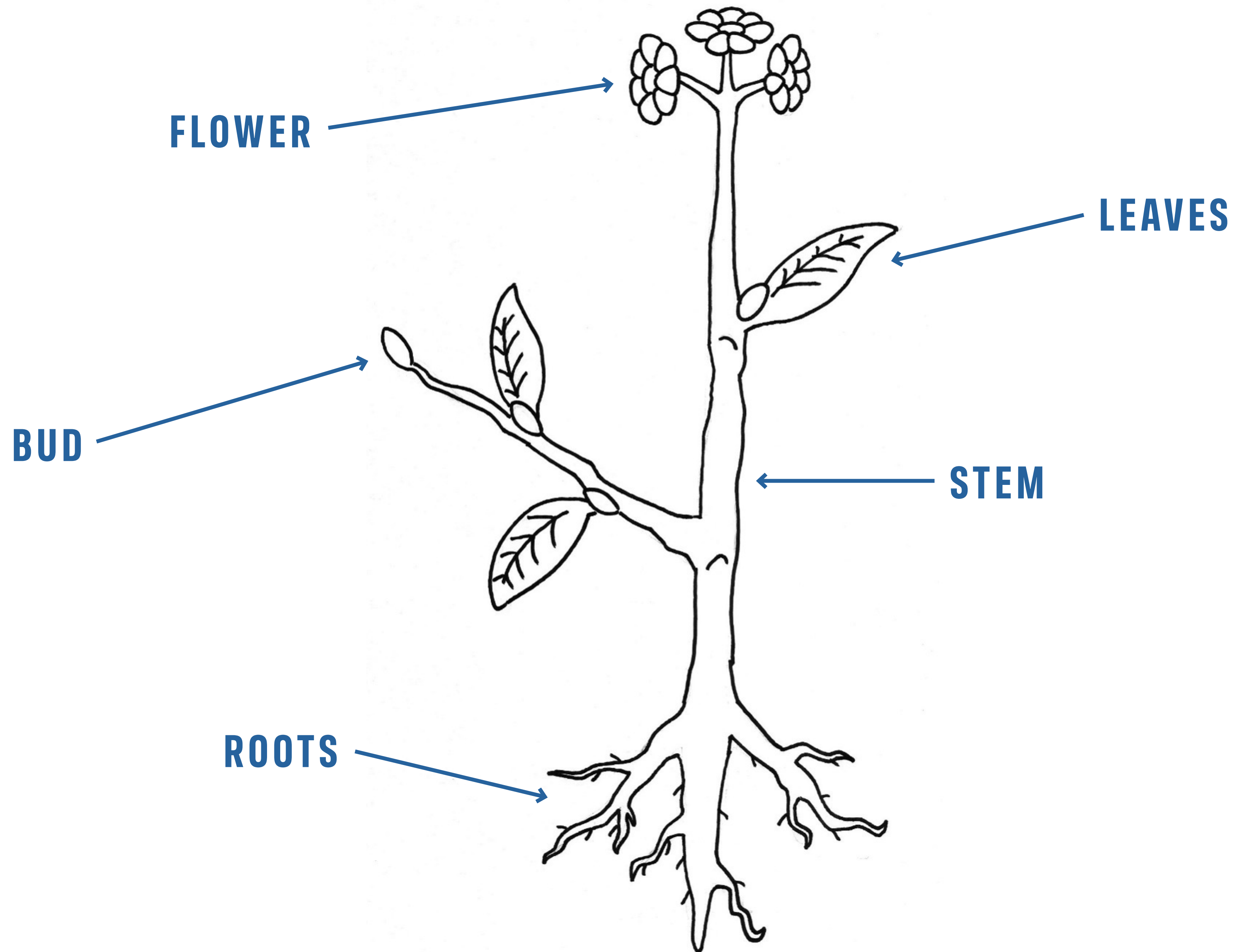


WHERE IS IT?

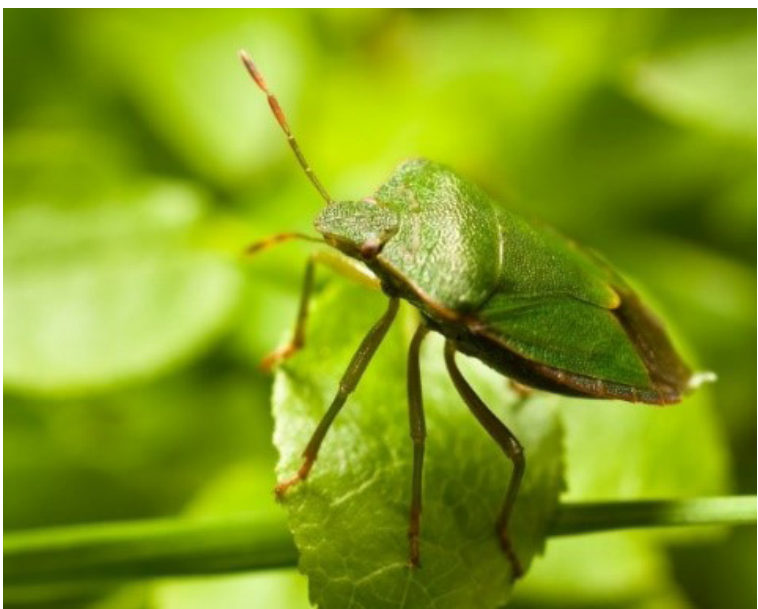


WHAT IS IT LIKE?





POLLINATORS AND INSECTS





Leaf**Flower**

What will I need:



SOIL



SPRITZ
BOTTLE



SUNFLOWER
SEED



PLASTIC
CUP



RULER

What will I do:

1. Put some soil in the plastic cup.
Leave a small space at the top.



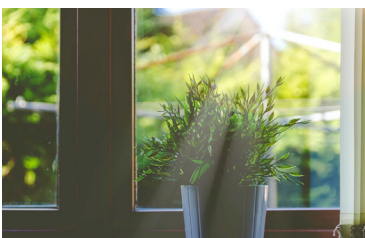
2. Make a small hole in the soil
with your finger.



3. Drop the seed into the hole.
Cover the seed with soil.



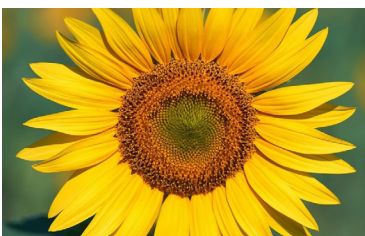
4. Spray the soil with small drops
of water.



5. Put the cup somewhere in the sun.



6. Wait for 7-10 days!

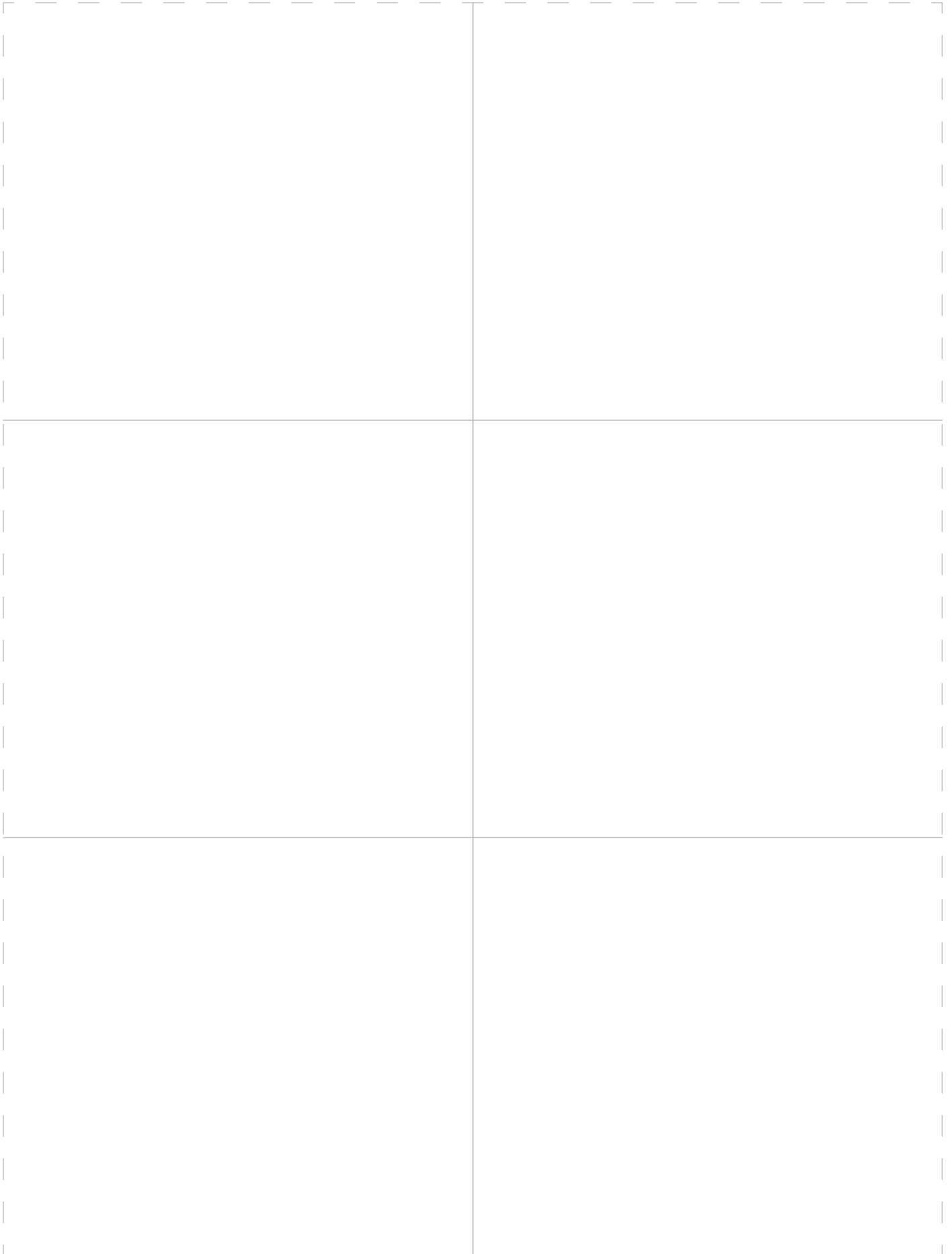


7. Measure your sunflower. Record the
length and take photos of your flower.

AR5

POLLINATOR BINGO PLAY BOARD

Cut around the outer edge of the rectangle.



Cut around the outer edge of each rectangle.



BEE



WASP



HOVERFLY



BUTTERFLY



MOTH



BEETLE

Cut around the outer edge of each rectangle.



ANT



CRANE FLY



SHIELD BUG



SPIDER



CENTIPEDE



PLOVER



SPECKLED WOOD



BRIMSTONE



COMMA



HOLLY BLUE



CLOUDED YELLOW







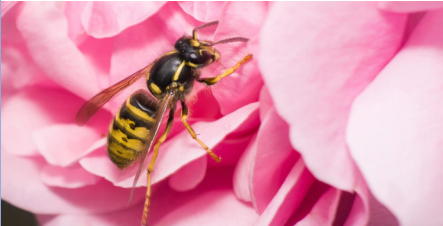







PAINTED LADY

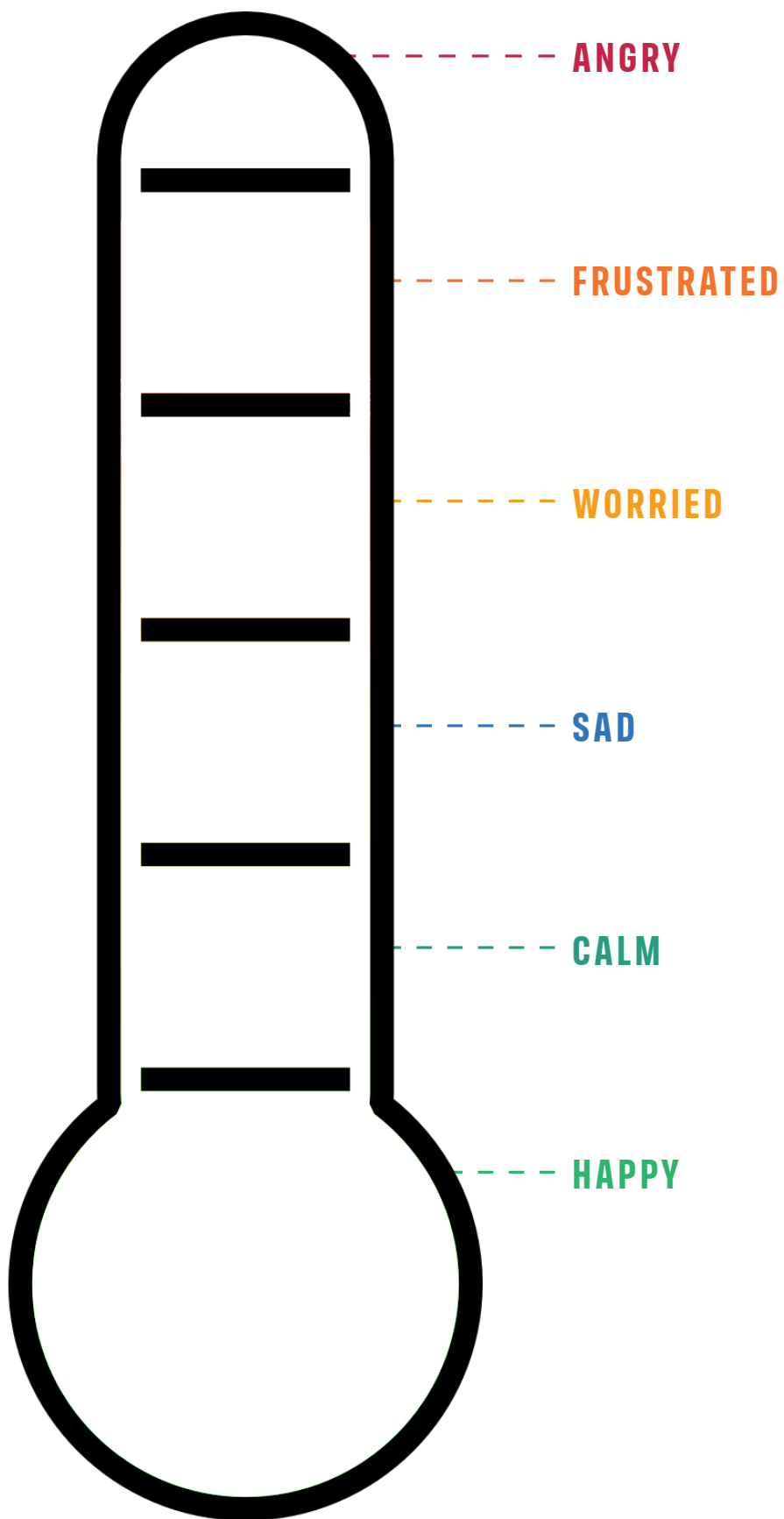


CABBAGE WHITE



PEACOCK

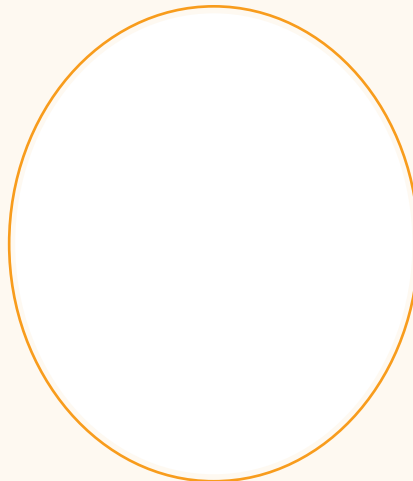
Pollinator	Favourite flower	Pollinator or flower fact
<p>BUTTERFLY</p> 	<p>CORN MARIGOLD</p> 	<ul style="list-style-type: none"> - Butterflies like the big bright flowers - -
<p>HOVERFLY</p> 	<p>DILL</p> 	<ul style="list-style-type: none"> - Hoverflies like the small flowers - -
<p>WASP</p> 	<p>POPPY</p> 	<ul style="list-style-type: none"> - The red flowers make good feeding stations for wasps - -
<p>BEE</p> 	<p>CORNFLOWER</p> 	<ul style="list-style-type: none"> - Large flowers make an easy landing for bees - -
<p>MOTH</p> 	<p>VIPER'S BUGLOSS</p> 	<ul style="list-style-type: none"> - Moths like the small flowers - -
<p>BEETLE</p> 	<p>BLUE FLAX</p> 	<ul style="list-style-type: none"> - Beetles like delicate petals - -



POLLINATORS AND PLANTS

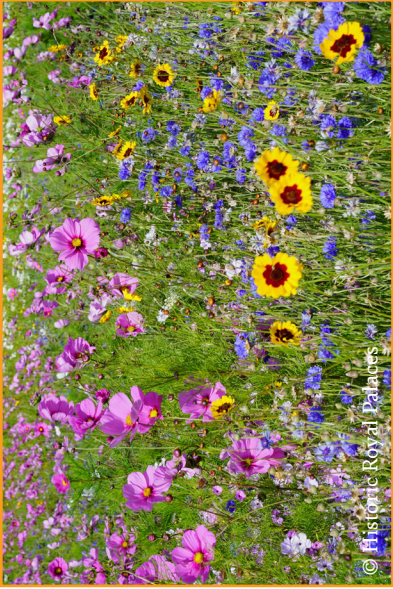


ME





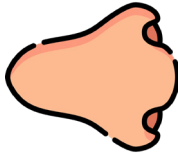
TASTE



LISTEN



TOUCH



SMELL



LOOK



BEE



1. Bees have five eyes and six legs.
2. Honey bees collect nectar and pollen from flowering plants.
3. Female bees in the hive are called worker bees.
4. The Queen bee in the hive is important as she lays the eggs.
5. Male bees in the hive are called drones.

WASP



1. The smallest known insect in the world is a wasp!
2. Wasps do not have nectar sucking mouth parts like bees but have powerful jaws and a short tongue.
3. Wasps can be found everywhere except Antarctica.
4. Females are larger than the males as they carry the eggs.
5. Female wasps are more dangerous than males as they have a stinger!

BEETLE



1. Beetles are the largest group of insects.
2. They can be found in all areas including mountain tops, wetlands and deserts.
3. Adult beetles have two sets of wings.
4. Beetles cannot see very well.
5. Beetles can be many colours including red, purple, orange, green and yellow.

MOTH



1. Moths have four wings.
2. Most moths are active at night.
3. There are more types of moths than butterflies.
4. Moths are important pollinators.
5. Moths have a stronger sense of smell than butterflies.
6. Moths eat wool, silk, cotton and other natural materials.
7. Moths fold their wings downwards.

BUTTERFLY



1. Butterflies have four wings.
2. Butterflies use their feet to taste.
3. Butterflies only live for a few weeks.
4. Butterfly flap their wings five times every second.
5. Butterfly wings are transparent (can be seen through).
6. Butterflies fold their wings upwards.

HOVERFLY



1. Hoverflies do not sting!
2. Hoverflies can fly at 3.5m per second.
3. Hoverflies feed on pollen and nectar.
4. Hoverflies live on all continents except Antarctica.
5. Hoverflies build nests in trees or other places in the garden.