

# The All-Ireland Pollinator Plan



# What is Pollination?

Pollination happens when pollen is moved from one flower to another

*Pollen* is the fine powder inside a flower. Flowers use pollen to make new seeds.

To make a seed, plants need to move pollen from one flower to another flower of the same type. It's hard for flowers to do this because they can't move like you or me. Instead, they have clever ways to get help.



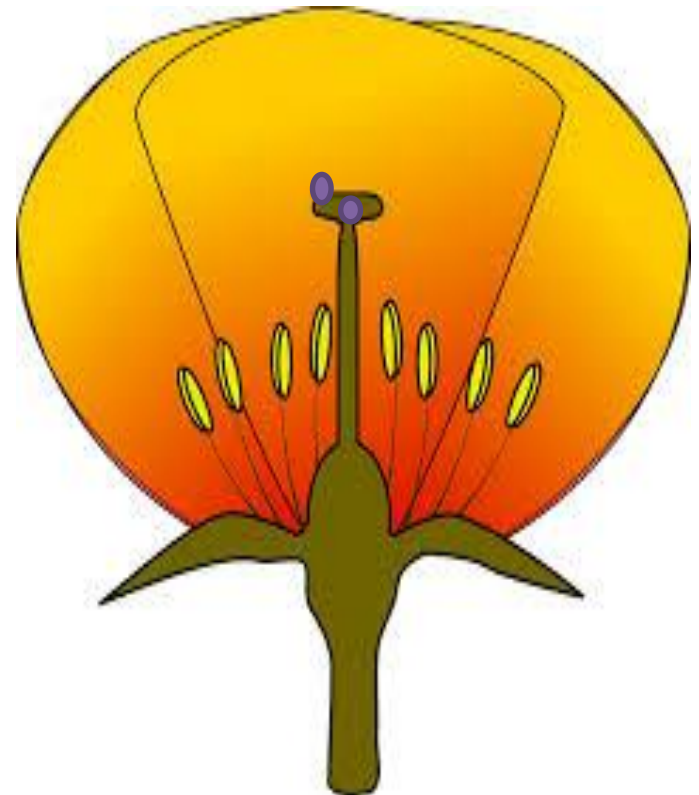
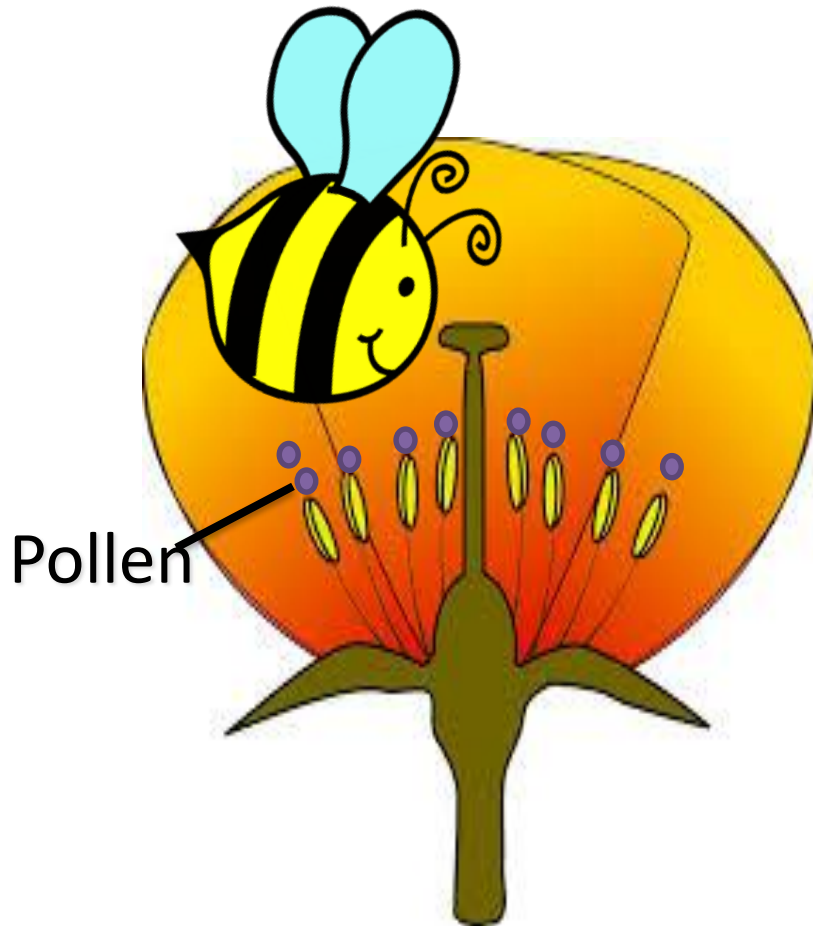
## WIND POLLINATION:

Some flowers have pollen so light the wind blows it from flower to flower. These are the plants that cause hay fever in summer as the pollen gets blown up your nose or into your eyes!

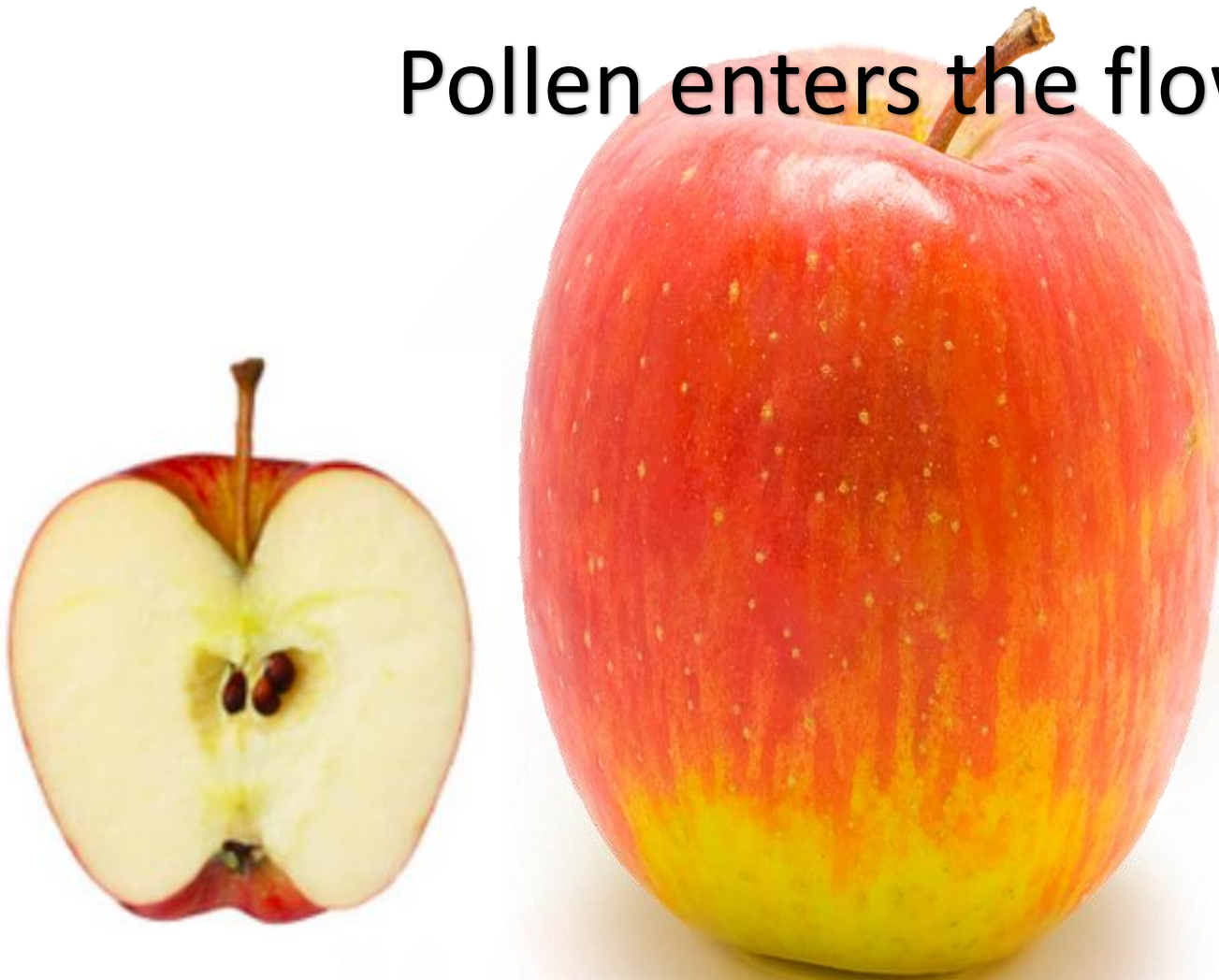
## INSECT POLLINATION:

Other flowers have bright colours and sweet smells so that they can attract an insect to help.

An insect is called a **pollinator** if they move pollen from flower to flower, helping the plant to reproduce.



Pollen enters the flowers



To create the seed contained inside yummy fruit!



Pollination ➡ Seed ➡ New plant



# But What is a Pollinator?



In Europe most pollination is carried out by insects, especially bees.



Bees have special hairs on their bodies that pollen sticks to. When **honeybees** and **bumblebees** get covered in pollen, they spit on their front legs and then brush the pollen into a sticky ball they store on their back legs. They do this so they can bring it safely back to the baby bees (larvae) back in the nest who eat only pollen.

Adults need lots of energy to collect all this pollen for the babies. They get this energy from **nectar**.

**Nectar** is the **sweet, sugary liquid** inside flowers.

Bees are crazy about nectar!

As the bee goes from flower to flower, collecting nectar and pollen, it is like an accidental delivery man, bringing the pollen from one flower to the next. And once a flower gets pollen from another flower of the same kind, it can start to make seeds which will eventually grow into new plants.

So the plants get pollinated and the bees bring pollen home to feed the babies. Everyone wins!



A balanced diet

**Info Box:**

Baby bees eat only pollen.  
It is very important that there are lots of different flowers in the countryside so that the adult bees can bring them back different types of pollen to eat.

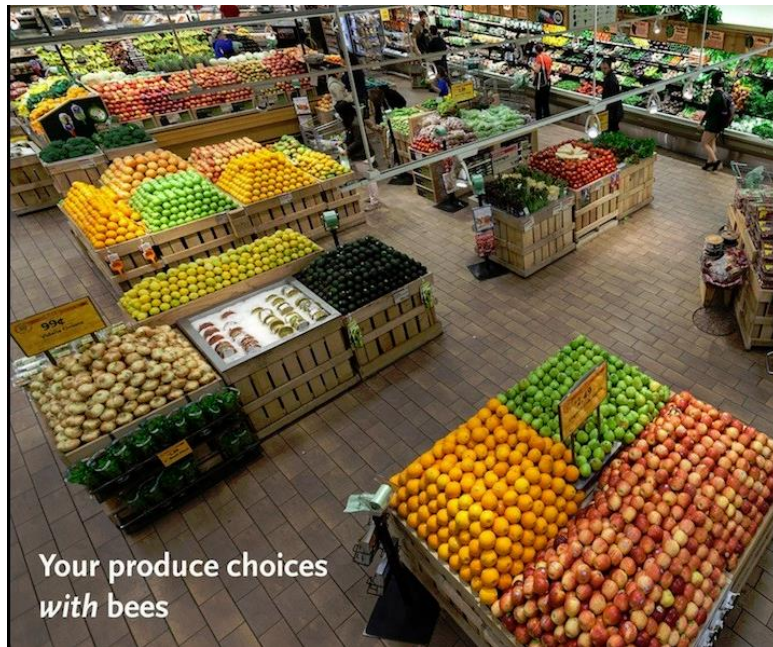


# What's So Important About Pollination?

So pollination occurs when pollen is moved from flower to flower, and that means the plant can make seeds. These little seeds will grow into new plants. We eat a lot of plants so it's very important that there are always enough to feed the people in the world. The plants we eat are called *crops*.



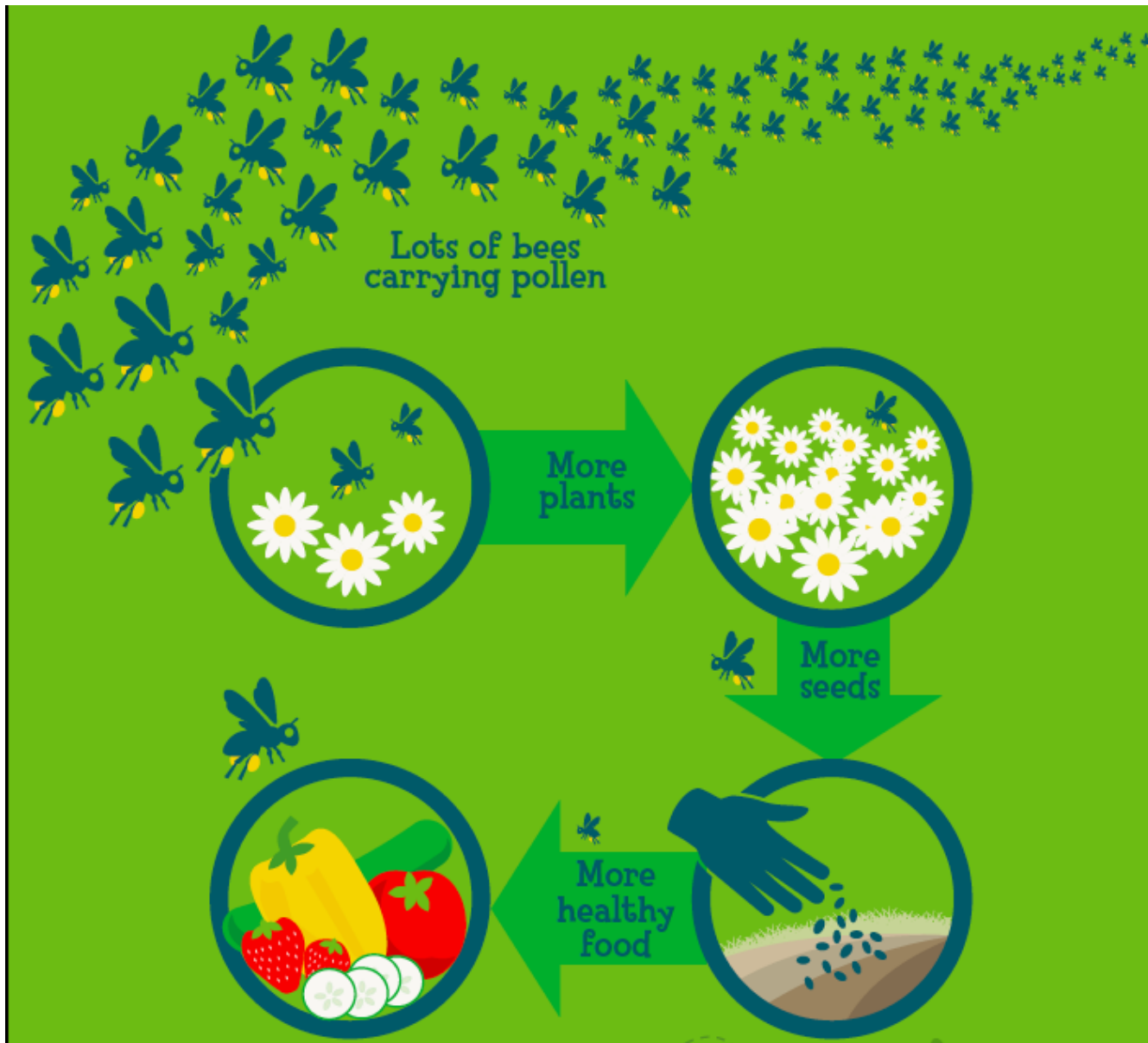




Bees are really important to make sure we keep on growing healthy and delicious food; so that when we go to the supermarket we can choose from lots of fruit and vegetables.

Meals would get pretty boring if it was just bread, rice and corn, day after day!







# What is all the fuss about fruit and vegetables anyway? Why are they so important?

You need vitamins, minerals and lots of other super important stuff in fruit and vegetables to feed your body and brain as they grow.

Food is like fuel for your body, and fruit and vegetables are jam-packed with all the good stuff (ice-cream, not so much). If you eat lots of healthy, nutritious food, then you'll be better able to run, jump, do your homework and save the world (or whatever it is you get up to at the weekend).





Fruit and vegetables that are pollinated by bees and other insects have been discovered to be the best for you.

That's why it's important for us to help bees and other pollinators to do their jobs, because it means we get to eat the juiciest pears, the sweetest strawberries and the tastiest apples there are.



We need to make sure none of these pollinating bees and insects disappear forever. It wouldn't be just our healthy lunchboxes that would suffer, others need bees too:

## Farmers

Lots of crops are pollinated by bees, and this helps the farmer with all the work that has to be done on the farm.

If farmers had to pollinate the plants by themselves this would take too much time and cost too much money.



## Gardeners

Lots and lots of people around the country grow their own fruit and vegetables on small plots in their back gardens, on allotments or in community gardens. They need bees to be able to do this.

Growing your own food is a fun and cheaper way to get all your fruit and veg. Do you know anyone who grows their own food?



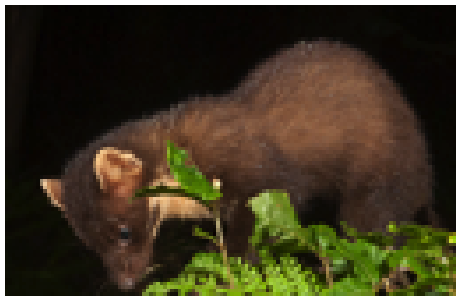
### Info Box:

For a strawberry flower to turn into a strawberry it needs to be visited five times by a humblebee or 15 times by a honey bee. That's just for one strawberry! Apples need to be visited even more times.



## Animals and birds

Lots of our animals and birds feed on fruits and seeds from wild plants that grow in the countryside. Without bees and other insects pollinating these wild plants, they wouldn't produce the fruits and seeds that animals and birds need to eat. Fruits are the part of the plant that surrounds and protects the seed.



## Other plants

In Europe there are 264 crop plants that we eat. In Ireland alone we have another 2,300 flowers and trees that grow in the wild. They need to be pollinated too! We know that some of these wild flowers and trees provide important food for our animals and birds. They also provide them with shelter.



*Wild plants like buttercups and daisies provide us with a beautiful, colourful place to live. Without bees pollinating our plants, our countryside would be a very dull and boring place.*

*We all understand how important it is to look after the environment and know all the things we can do to take care of our planet. Pollinators do lots to protect the environment too.*



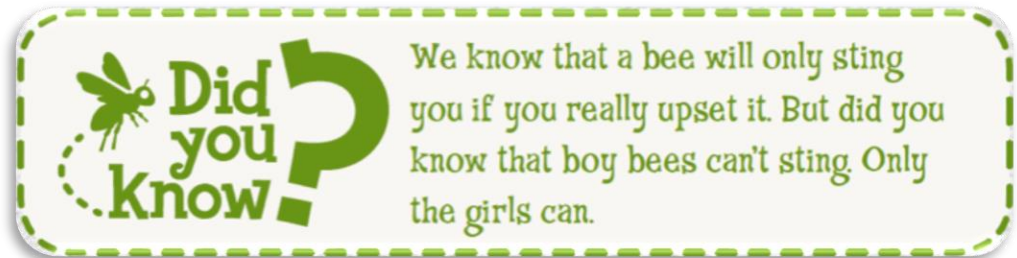
# Are Pollinators In Danger?

**Yes!**

A lot of our hard-working pollinators are in danger of disappearing forever (becoming extinct).

Lack of flowers to provide food, changes to their homes, and the use of chemicals on our crops spell trouble for bees and insects.

We need to work to protect them or they may not be around for much longer.





## Large carder bumblebee

This gorgeous blonde haired bumblebee is fairly common in Ireland but there are less and less of them in Europe.



## Great Yellow bumblebee

Unfortunately this bumblebee is in danger of disappearing forever in Ireland. It's a very fussy eater and now only has 4 places in Ireland where it can make its home.

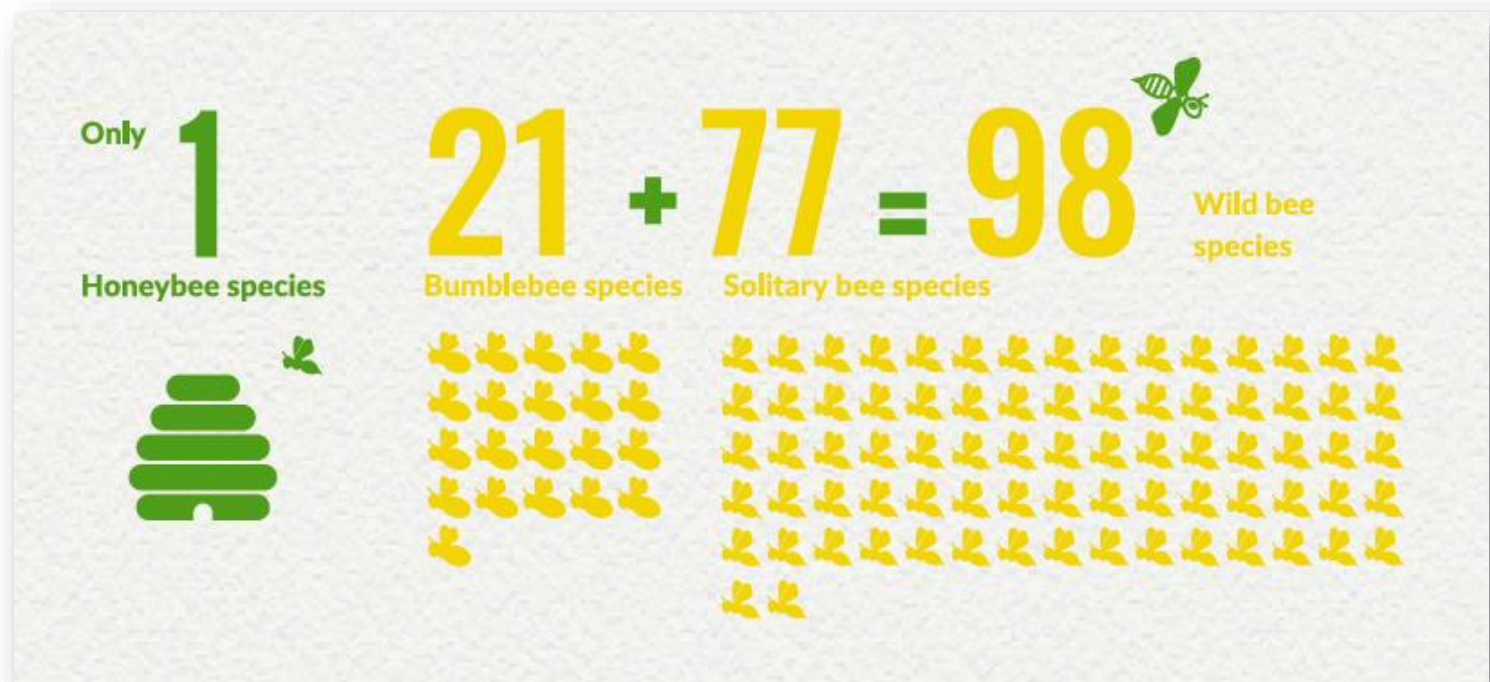


## Shrill carder bumblebee

This bumblebee is also in danger of disappearing from Ireland. It has a higher pitched buzz than any of our other types of bumblebee.

# A Bit About Bees

In Ireland we have 21 Bumblebee species, 77 solitary bee species and one honeybee.





# There's no need to be afraid!

The most important thing to know is that you shouldn't be scared of bees. To them we're just big boring giants who walk around their world. Unless you threaten them, bees will not attack humans. They won't chase after you if you leave them alone. If a bee comes close to you, attracted by your bright colourful T-shirt, or the nice smell from your shampoo, just sit still and it will fly off when it realises you're not a flower!



# Honeybees

make honey from nectar and live in hives that have been built by people. They store the honey and use it as food for themselves when it's too wet or cold to go outside.

We love honey too and lucky for us, Honeybees generally make much more honey than they can eat themselves – leaving the rest for us!



Honeybees talk to each other by dancing! When a bee wants to let its friends know where the best food is, it does a figure-of-eight dance called the waggle dance!



The **Bumblebee** is probably the most famous of bees (and cutest) with its fat, furry, stripy body. They are very important pollinators of crops like strawberries and tomatoes. So the next time you dig into a bowl of strawberries and ice cream, stop for a moment and think of the big bumbler that made it possible!



Bumblebees and solitary bees live in nests they make themselves. Bumblebees make their nests on the ground, hidden in long grass.

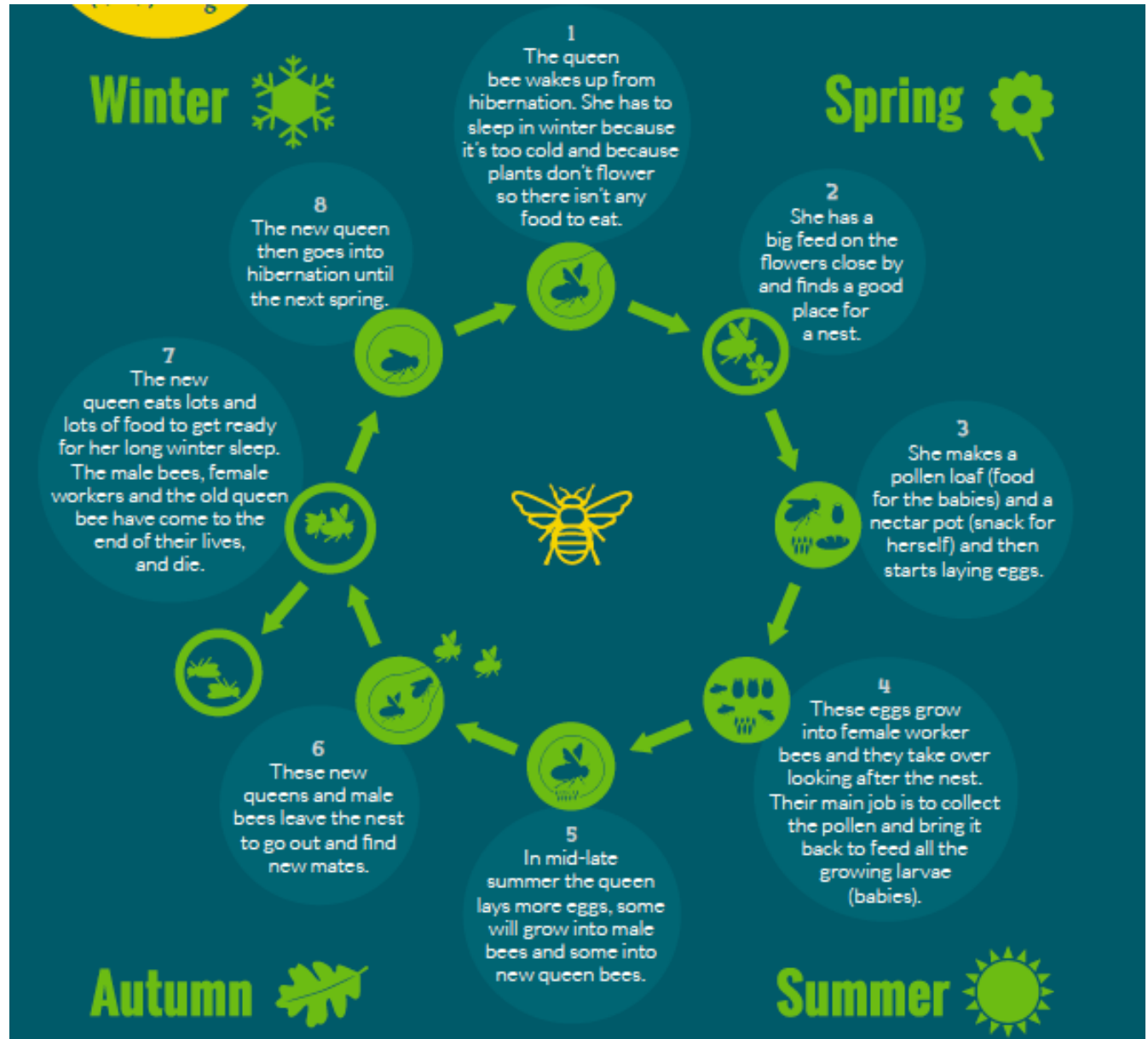


Most bumblebee queens come out of hibernation in early spring. Some types of bumblebees are fussy eaters and like to feed on flowers that grow in grassland meadows. These bumblebees have to wait until early summer to come out of hibernation so that the grassland flowers will be there when they wake up.

Just like birds, queen bumblebees sit on their eggs to keep them warm before the eggs hatch and the babies (larvae) emerge.



# Bumblebee life cycle



**Solitary bees** are bees that live alone and not in a hive or nest like honeybees or bumblebees. They take a whole year to grow into an adult bee. This means they don't have time to look after their babies when they are born. Mum leaves a supply of food and the young bees need to look after themselves.



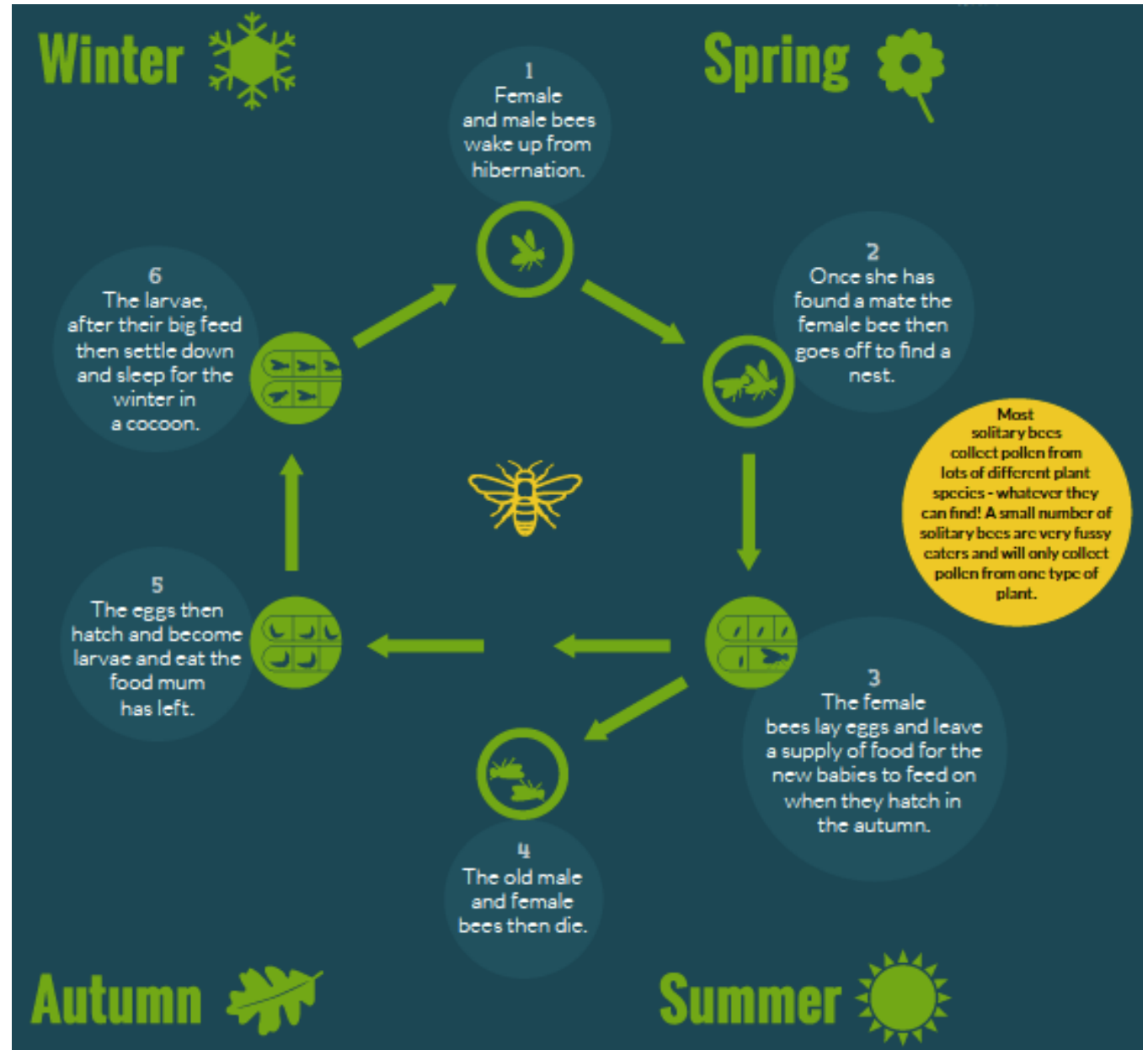


# Solitary bee life cycle

Solitary bees nest in tiny burrows that they make in soil or wood.



Solitary bees come out of hibernation when they know their favourite types of flowers will be there for them. Solitary bees that like to collect Willow pollen come out in early spring. Solitary bees that like Heather pollen wait until later in the summer.



# Other Pollinators Doing Their Bit

It's easy to think that bees and hoverflies are doing all the pollinating work, but did you know that butterflies, moths, beetles, wasps and ants like to feed on flowers and do their bit for pollination too? In fact, an Irish flower called the Butterfly Orchid is only pollinated by moths that fly around at night. Wonder why it's not called the Moth Orchid then, hum?



Butterfly  
Orchid





It's very important that we help bees by providing habitats where they can live. These are areas where they can make a safe home and will have enough food (flowers) to feed their families.



Gardens, grasslands, sand dunes (keep an eye out next time you are at the beach), bogs, woodlands, parks and hedgerows are all very important. All these different kinds of spaces give the bees good places to nest and a choice of yummy things to eat – bees get bored eating the same thing for dinner every night too!





# Our Changing Environment

Bees and insects don't like change. They love routine and it is really important for them that the seasons (autumn, winter, spring and summer) come and go when they are meant to and that the climate (weather) stays the same. If the environment starts to change, then this can cause big problems for our insect friends.

If the warm weather comes too soon, bees will wake up early from hibernation and because the flowers have not yet come out the bees will go hungry with no food to eat. Bees and insects find it hard to live in extreme weather like storms and floods, or snow and frost when it should be warm.

## **The All-Ireland Pollinator Plan 2015-2020** is a plan of action.

As grown-ups, we decided that bees need our help so we sat down and came up with a big list of 81 things we could do. Lots of different people have agreed to help. We're doing this because we know how important bees are and we don't want them to disappear from Ireland.

Bees need flowers and safe places to live right across Ireland, not just in the countryside. Here are some of the things we will try to do:

- Councils won't cut the grass along our roadsides as often so that flowers can grow amongst the long grass. Short grass looks neat and tidy but it doesn't provide anything for bees to eat – we know they need flowers
- Parks will plant flowers that bees love. This will provide them with healthy and nutritious pollen and nectar.
- Parks will have areas where bumblebees and solitary bees can make their nests.
- Farmers will try to make sure their farms have lots of flowers for bees to feed on.
- We will try to use fewer and less harmful weed and pest killing chemicals that can make bees sick.
- We will help beekeepers to have lots of healthy hives of honeybees
- Scientists in Ireland will try to understand bees better so we know exactly what they need to stay healthy.
- We will teach as many people as possible to identify the different types of bees we have in Ireland so they can help us count and check they are all doing okay.
- We will produce a pollinator-friendly map of Ireland showing areas where people are doing something to help bees.
- We will try to tell as many people as possible how important bees are and what they can do to help.

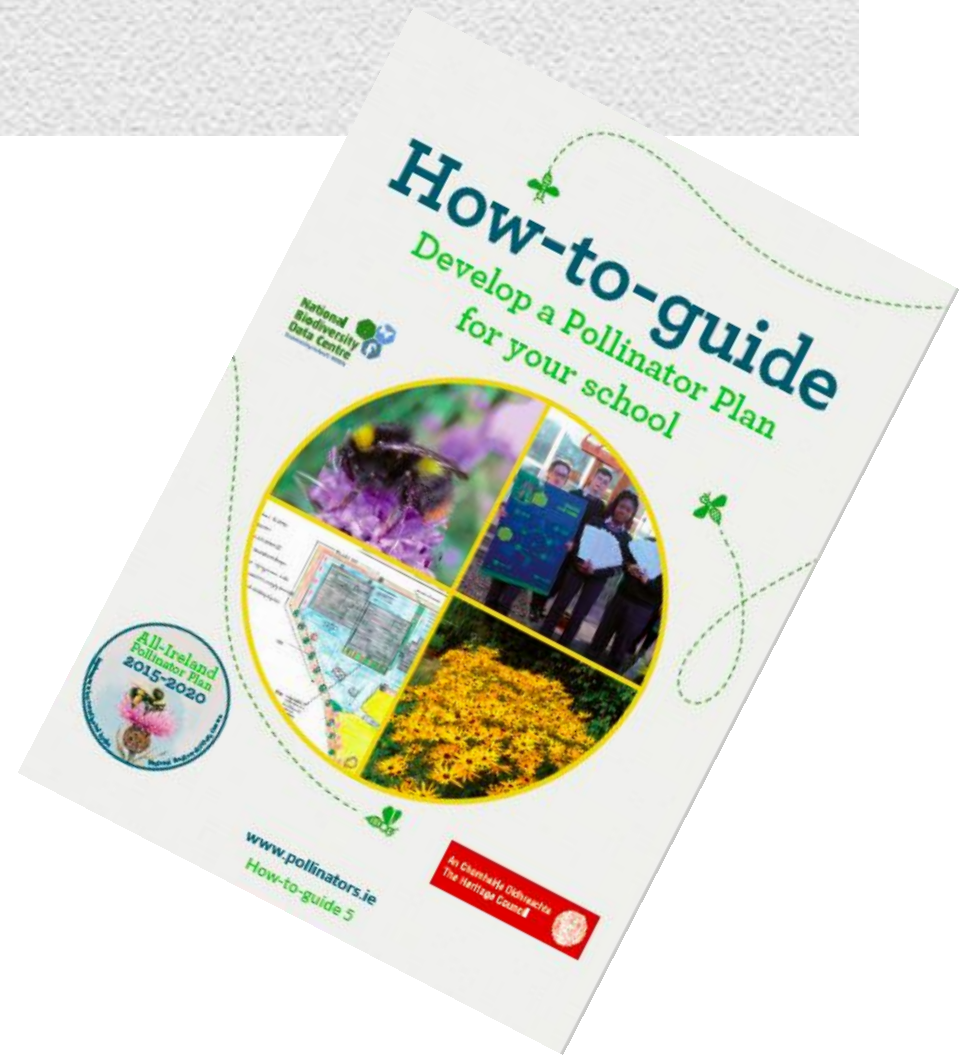
# What Can You Do To Help In Your School?

- Create awareness of Pollinators through a class project
- Create a Pollinator Plan for your school:  
Pollinators need:

Food = pollinator-friendly flowers

Shelter = Safe nesting areas

See our *How-to-guide* for all the steps you need to create a Pollinator Plan for your school







If your school is working on the Green-Schools' Biodiversity programme, you can use your Habitat Map activity to identify what plants on your school grounds are good for bees.

From these findings you can include some or all of the actions above in your 'Action Plan' step.

You could also do a **Bumblebee Survey** in Year 1 (between April and June) and again 12 months later as part of your 'Monitoring and Evaluation' step to see how your actions are making a difference to the number of visitors buzzing and bumbling around your school!

# What Can You Do To Help In Your Garden At Home?

At home you can do the exact same things to make sure your garden is bee-friendly. It doesn't matter if you have a large garden or a small garden – it can become a place where bees want to live or just to visit for a snack. Even if you only have a window box you could make sure to plant it with flowers that bees like.

Tell your parents about how important pollinators are and how we can help them. If your parents are really interested maybe they can go onto the website where they'll find out more information and can learn how to recognise all the different types of bees that we have in Ireland. Lots of grown-ups help us by bringing their children on a 1-2km walk once a month from March to October and writing down how many bumblebees they see. This helps us to keep track of what is happening. If the numbers of bumblebees goes down we know they are in trouble. We hope that if lots of you make your schools and gardens bee-friendly then we'll see their numbers going up instead!

Lots of graphics, information and posters to download on [www.pollinators.ie](http://www.pollinators.ie)





# Life Cycle Posters to download

## Life Cycle: Solitary Bees

Solitary bees take one whole year to pass through a complete life cycle, and may only survive as adults for a few weeks. This isn't long enough for them to raise their offspring, so the young bees have to fend for themselves. Some species are cavity nesters and will nest in hollowed twigs or holes in wood or masonry. One species, *Osmia aurulenta*, lives on sand dunes and will only nest in empty snail shells. Most solitary bees in Ireland are mining bees, and make their nests in bare ground or in south facing banks of stable soil, clay, sand or peat.



## Life Cycle: Bumblebees

Most bumblebee queens emerge from hibernation in early spring. Some species are associated with grassland floras and don't emerge from hibernation until early summer when these resources are most likely to be available.



# Video clips & animation

<https://www.youtube.com/user/biodatacentre>

Blooming Bees animation:

<https://youtu.be/uBIKqFywxTY>

Introduction to All-Ireland Pollinator Plan:  
(Second Level schools)

<https://youtu.be/HD7dTR25vFE>

Save our Magnificent Meadows:

<https://www.youtube.com/watch?v=GK-GaNjtU0I>

[www.pollinators.ie](http://www.pollinators.ie)

There are lots of games and resources to help teach about pollination online:

- There are lots of classroom activities here:

<http://www.polli-nation.co.uk/activity/>

- Animations about Pollination and helping pollinators:

<http://dontmowletitgrow.com/busy-flo/>