A BIT ABOUT POLLINATION

Photo: Cryn Russell

Pollination is part of the life cycle of flowering plants. All plants with flowers reproduce (make new plants) by creating seeds inside the **ovary** of the flower. These seeds grow into new plants.

Some flowers have male reproductive parts, some flowers have females reproductive parts, and some flowers have both.Flowering plants make seeds when **pollen** passes from the **stamen** (male reproductive part) to the **pistil** (female reproductive part) of the plant. Plants can't move the pollen by themselves. They need the help of **pollinators** or wind or water.

Pollinators are animals, especially insects and birds, that pick up pollen from the stamen of one flower and carry it to the pistil of another flower. Sometimes it is carried to a flower on the same plant, sometimes it is taken to a different plant. This is called **pollination**.

Most flowering plants can't produce seeds without the help of a pollinator.

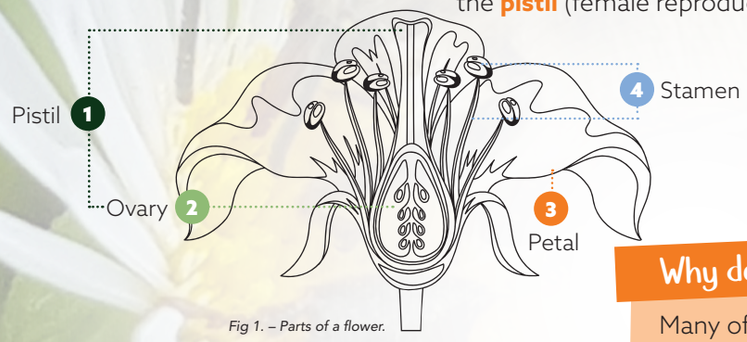

Fig 1. – Parts of a flower.

Blueberries are just one of the fruits that wouldn't exist without bees. ▶

Photo: Wikimedia Commons

Why do flowers look and smell good?

Pollinators and plants have a special relationship. Pollinators help plants reproduce while plants provide food such as pollen and nectar for pollinators.

Flowers attract pollinators with their colours, shapes and smells to encourage animals to visit and pollinate them. Many animals visit flowers for their sweet nectar or their nutritious pollen. Both nectar and pollen are good sources of food for the pollinators.

Why do we need honey bees?

Many of the fruits and vegetables we eat come from plants that are not native to New Zealand. They were introduced to New Zealand from other countries (for example, apples, blueberries, pears). Clover was also introduced to feed farm animals. The problem was getting enough pollinators for these crops to produce enough seeds, so we introduced the domesticated honey bee and bumble bee from Europe. Native bees were too small or there weren't enough to produce big crops.

Photo: Wikimedia Commons

▲ Honey bees were introduced to New Zealand to help pollinate clover for farm animals to eat.

Without honey bee pollination there wouldn't be any: apples, apricots, blueberries, nectarines, pumpkins, cherries, pears, cucumbers...and the list goes on.

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Glossary:

Bee bread: a mixture of pollen and honey.

Larvae: the young form of honey bees and other insects.

Nectar: a sugary fluid made by flowers to attract pollinators. Honey bees carry it back to their hive to make honey.

Ovary: the part of the pistil where seeds are made.

Pistil: the female part of the flower where the ovary is found.

Pollen: tiny grains produced by the male part of the flower. They are transferred to the female part of the flower to fertilise the egg in the ovary

Pollen basket: the part of the bee's back leg where pollen is carried for the trip back to the hive.

Pollinator: an animal that moves pollen from the male part of a flower to the female part of a flower on the same plant or a different plant.

Stamen: the male part of the flower where pollen is produced.

Waggle dance: a dance bees do in the hive to show other bees where to find nectar.

Worker bee: female bee that collects nectar to make honey and pollen for the hive. There are thousands of worker bees in each hive.

HOW BEES POLLINATE FLOWERS

Bees carry pollen back to their hive in "pollen baskets" on their back legs. Different flowers produce different coloured pollen.

Photo: Ilona Hart.

STEP 1: GET IT

Worker bees usually fly up to three kilometres from their hive to find food. They have been known to fly as far as ten kilometres in one flight if good flowers are hard to find.

Bees are attracted to flowers because of their nectar and pollen. Bees will collect pollen directly or pollen may fall onto their bodies when they are collecting nectar. When the bee wriggles around to find the nectar its body rubs against the **pollen**.

Photo: Peter Bray.

▲ A bee covered in dandelion pollen.

STEP 2: SPREAD IT

When a bee flies to another flower on the same or different plant, some of the pollen rubs off onto the **pistil** of the next flower. The pollen fertilises the eggs in the **ovary** and produce seeds and fruit. Honey bees collect extra pollen and put it into a **pollen basket** on their back leg to carry back to the hive.

STEP 3: STORE IT

Honey bees collect nectar and pollen for their hive. Pollen has lots of protein in it and is a good source of food for the **larvae**. The bees store the pollen in honeycomb cells and make it into '**bee bread**' to feed to the larvae.

Photo: Hamish Pulley.

Honey bees store pollen in honeycomb cells to make "bee bread" for growing bees. ▶

▼ Many different animals pollinate flowers including this bellbird on a harakeke (flax) bush.

Photo: Ilona Hart.

Other pollinators

- NATIVE BEES
- BUMBLEBEES
- BUTTERFLIES
- MOTHS
- BATS
- GECKOS
- and also, THE WIND

Watch a video on pollination here: https://www.youtube.com/watch?v=txv2k70oY7U&t=64s

STEP 4: COMMUNICATE IT

When they return to the hive the bees tell each other about the best places to find good flowers with nectar and pollen by doing a **waggle dance**.

You can learn more about the waggle dance here: https://youtu.be/LOZrNs22FAU.

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How you can help bees and other pollinators:

1. Plant bee-friendly plants like rosemary, harakeke (flax) and sunflowers are all bee favourites.
2. Provide a saucer of clean water for bees. Put a few pebbles or sticks in the water so the bees have something to stand on.
3. Ask your parents to avoid using pesticides in your garden when plants are flowering.
4. Suggest your parents could take a break from lawnmowing and let the clover flowers grow.

Find out more about other pollinators here: https://www.epa.govt.nz/assets/Uploads/Documents/Everyday-Environment/Publications/Pollinator-factsheets-and-activity-sheets/Meet-our-pollinators-activity-sheet.pdf