TO BEE OR NOT TO BEE...

Queen bee (with paint dot on back)

WHERE DO BEES COME FROM? THE QUEEN!

The largest bee in the colony, the **queen** produces all the eggs - about 1,000 eggs a day. That's one busy mama!

An egg develops into a drone, worker or a new queen, depending on whether it's fertilized, the size of its honeycomb cell and what the larva is fed. It takes 16 to 24 days for an egg to become an adult bee and chew its way out of the honeycomb.

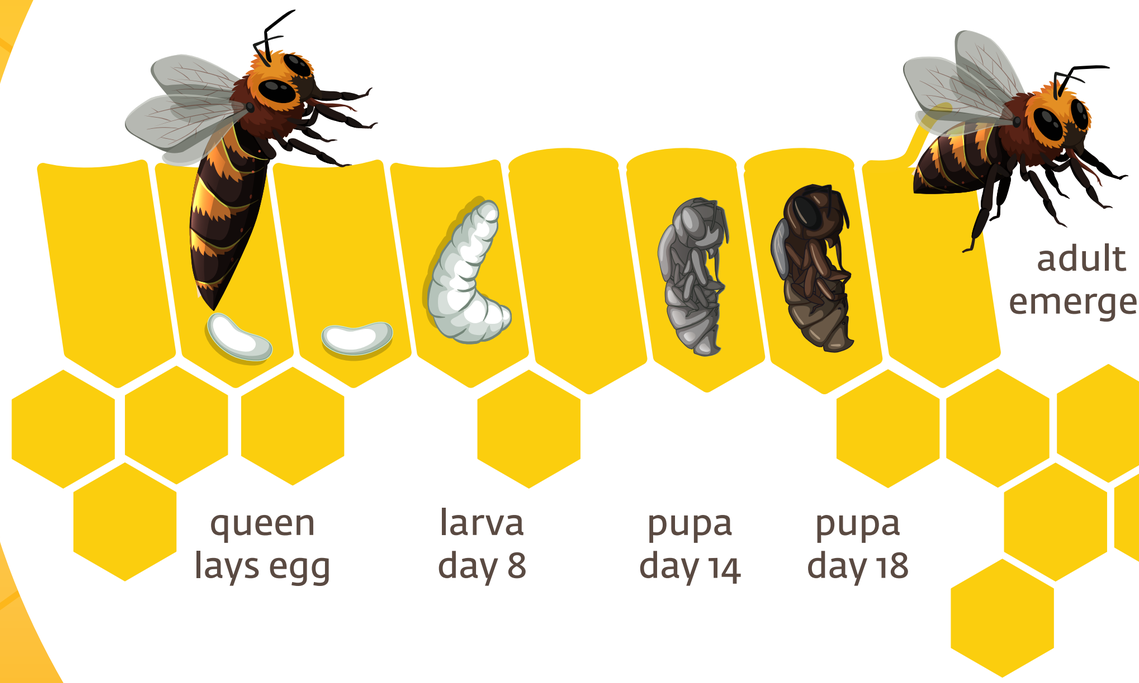
BUSY BEES

While the queen remains in the hive, the bees you see out in the garden are the **female workers bees**. They make up 99% of the colony and do all the work! They build and defend the hive, raise the young bees, make wax combs and produce all that delicious honey.

DRONES

Drones are the only males in the colony. Lacking stingers, their sole purpose is to mate with a queen, which they do mid-flight. With extra large eyes, they are excellent navigators.

LIFE CYCLE OF A HONEY BEE



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WIRELESS COMMUNICATION

SMART PHONES FOR BEES?

Honey bees are highly social but they're way too smart for smart phones. Instead they communicate using scent and the art of dance.

While searching for food, bees use their on-board "satellite navigation" system. They make a mental map of their home range and track their position so they never get lost. When a scout bee finds a patch of flowers loaded with nectar and pollen, she gathers the scent of the flowers, returns to the hive and performs a dance to guide her fellow workers to the food source.

Round dance

ROUND DANCE

When the flowers are within 50 metres of the hive, the scout dances in a circle in both directions, telling the workers to fly out in all directions to search for flowers nearby.

WAGGLE DANCE

When flowers are farther away, the scout dances in a circle, "waggling" her abdomen, and zigzags across the centre to form a figure eight. The direction tells the workers which way to fly relative to the sun. The length of the waggle and her speed tells them how far to fly. Can you dance like a honey bee?

Waggle dance

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CAN YOU I.D. THIS BEE?

Can you recognize these bees and honey bee look-alikes? Some are friendlier than others!

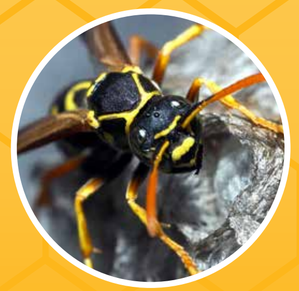
BUMBLE BEE

North America is home to over 40 species of these adorable fuzzy pollinators that are non-aggressive and mostly nest in the ground.

YELLOW JACKET

Keep your distance from these aggressive bright yellow and black wasps that nest in the ground and can sting repeatedly.

PAPER WASP



Notorious for crashing picnics, these black and yellow predators eat insects and the occasional burger. They build papery nests from plant fibres and saliva.

WESTERN HONEY BEE

Domesticated honey bees (*Apis mellifera*) pollinate 80 percent of our food crops, storing pollen in "baskets" on their knees. These docile bees will only sting in self-defence.

HAIRY BELLY BEES

These solitary bees look for holes in wood or bee "condos" to nest in. Smaller and rounder than honey bees, they carry pollen under their abdomen, making their bellies look hairy! This group includes mason bees, blue orchard bees and leafcutter bees.

CARPENTER BEE

These solitary bees make their homes in dead trees or wood structures. The females are black-coloured, while males are tan.

SWEAT BEE

These friendly but solitary metallic blue-green bees nest in the ground and lick sweat from animals on hot summer days.

LEAFCUTTER BEE

These crafty solitary bees cut out pieces of leaves to build their nests.

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THE BEES KNEES

Worker bee gathers pollen stored in "pollen baskets" on her knees to bring back to the hive.

WHY ARE HONEY BEES IMPORTANT?

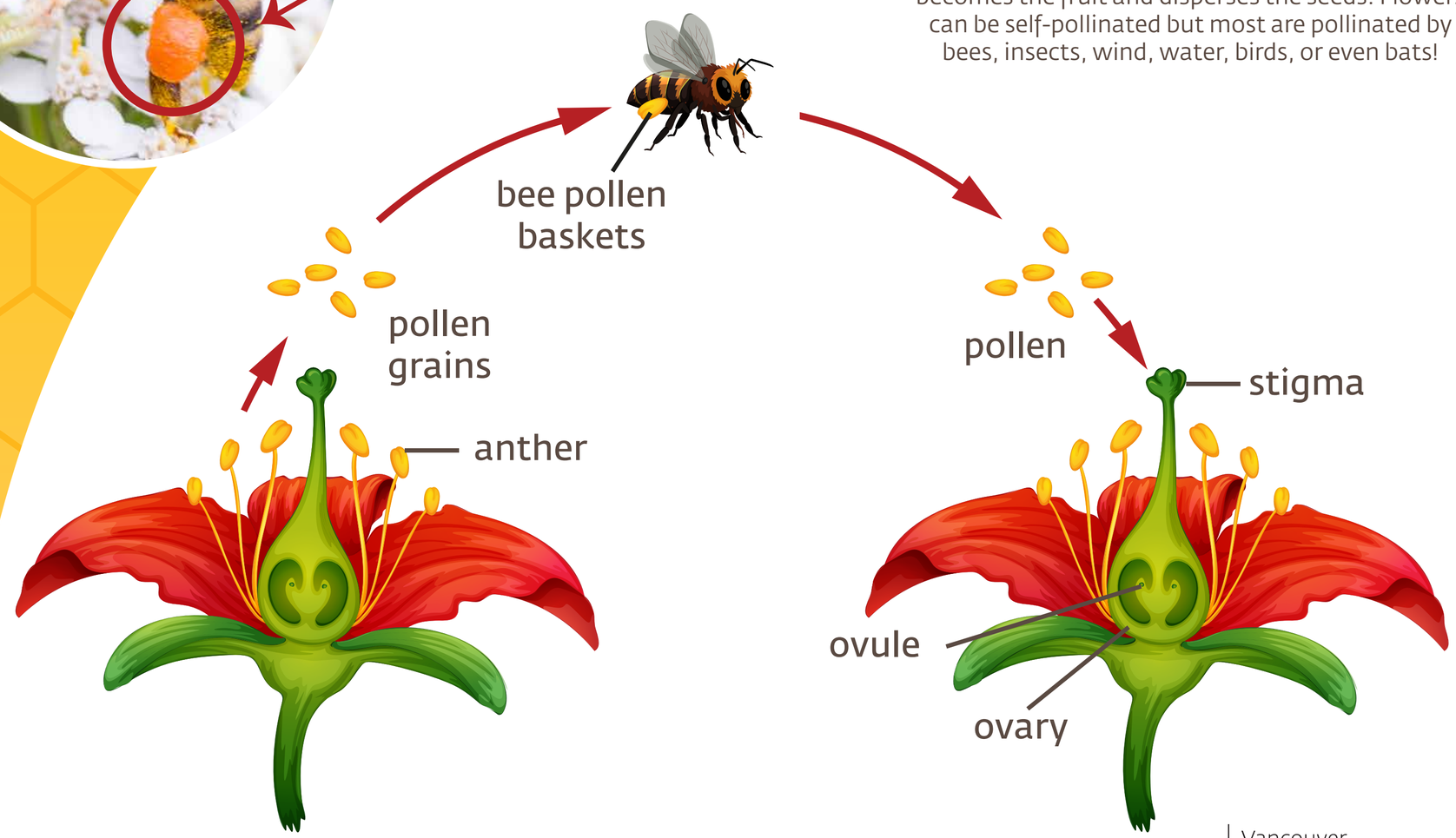
Honey bees are amazing pollinators, pollinating up to 5,000 flowers a day! They collect nectar and pollen which they store between special hairs on their knees called "pollen baskets" to take back to the hive.

BEE THANKFUL

Over a quarter of all the food we eat is pollinated by honey bees, including fruits, berries, vegetables, nuts, legumes, sunflowers and other seeds. In Canada and the United States, honey bees contribute over $20 billion dollars per year in crop yields.

PERFECT POLLINATORS

When a bee visits a flower, she picks up pollen from the male anthers and transfers it to the stigma of the next flower. This fertilizes the ovules, which become seeds, while the surrounding ovary becomes the fruit and disperses the seeds. Flowers can be self-pollinated but most are pollinated by bees, insects, wind, water, birds, or even bats!



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HONEY I'M HOME

We humans live in small families but honey bees live in colonies of 20,000 to 80,000 bees!

Wild honey bees build hives in sheltered spots, while beekeepers, called **apiarists**, keep **domestic bees** in wooden homes to harvest their honey. These hives contain wood-framed honeycombs made by worker bees who secrete the wax.

The **brood chamber** at the bottom of the hive is where the queen lives and workers raise the young bees. The queen deposits her eggs at the centre of the honeycomb while pollen is stored near the "nursery" and honey is stored in the outer honeycomb.

A screen **queen excluder** on top of the brood chamber keeps the queen from laying eggs where your honey is made!

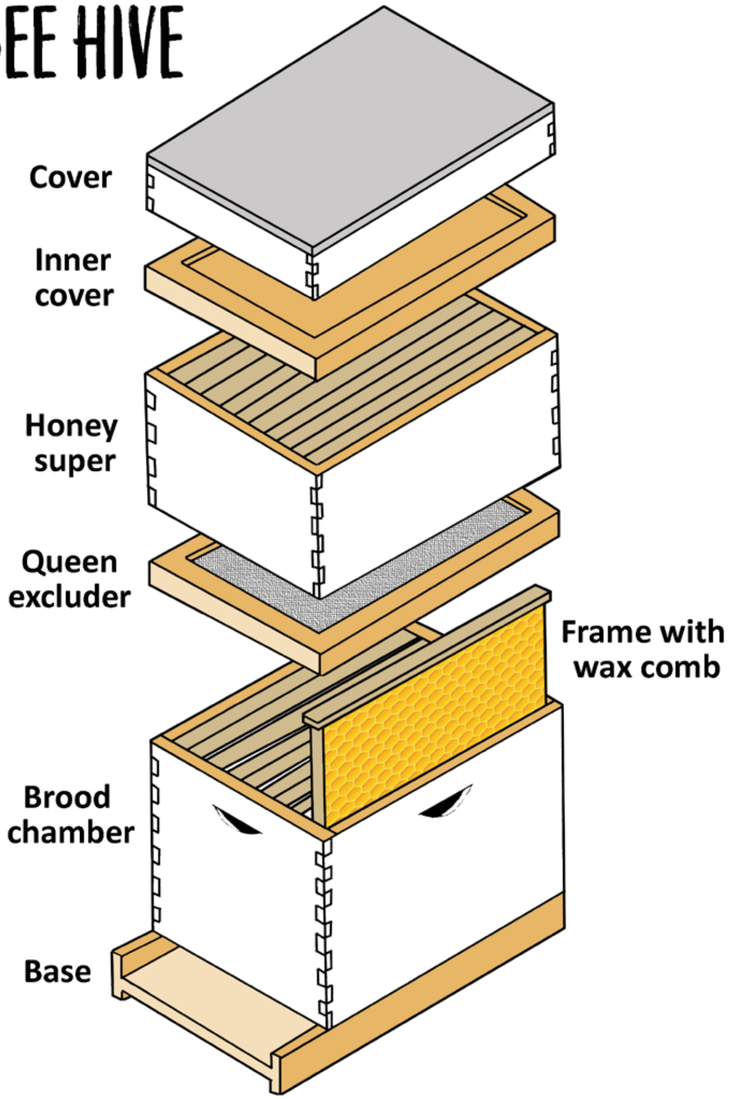
Honey supers are where workers store most of the honey. An inner and outer cover tops off the hive, keeping the bees safe and warm in their busy home.

DID YOU KNOW?

Honey bees fly over 65,000 km to make one cup of honey – that's more than two and a half times around the world!

Wild honey bee hive

BEE HIVE



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