



WHAT'S THE BUZZ ABOUT BEES?

Bees have been on planet Earth for 100 million years. That's a lot longer than us humans and even longer than some dinosaurs! They are insects that are important for our planet. This is because of the special relationship between bees and plants. But many bees are disappearing.

Let's find out more about the world of bees, and why there are fewer buzzing about...

- | | | | |
|----|--|----|---------------------------------------|
| 4 | There are around 20,000 different species of bees | 26 | Who is queen bee? |
| 6 | What is a honey bee? | 28 | How do honey bees talk to each other? |
| 8 | The bee's knees | 30 | What is a swarm? |
| 10 | We love honey bees and we love honey | 32 | Who eats honey bees? |
| 12 | Where does honey come from? | 34 | So what's the sting in the tail? |
| 14 | What's happening in the hive? | 36 | Why are there fewer bees about? |
| 16 | What makes bees so bee-riliant? | 38 | What would we do without bees? |
| 18 | What is pollination? | 40 | Why do we need to help the bees? |
| 20 | Why do we need pollination? | 42 | What can you do to help? |
| 22 | And there's a lot more to know about the honey bee | 44 | Have a bee-friendly garden |
| 24 | How is a worker honey bee born? | 46 | The bee all and end all |

THERE ARE AROUND 20,000 DIFFERENT SPECIES OF BEES



Some bees live with lots of other bees. They are usually called **SOCIAL BEES**.



Other bees live on their own. These are called **SOLITARY BEES**.



BEES CAN BE FOUND ALL OVER THE WORLD!

Bees can be found on every continent except Antarctica.

SOME BEES ARE VERY BIG...



The **WALLACE'S GIANT BEE** is the largest bee in the world at almost 4cm (1½in) long. It can be found in Indonesia, and lives in termite mounds.

SOME BEES ARE VERY SMALL...



The **DWARF BEE** is the world's smallest bee at just 2mm (¼in) long. That's 20 times smaller than the Wallace's Giant Bee. You might need a magnifying glass to see this one!

SOME BEES ARE ANGRY...



KILLER BEES escaped from a science experiment and have since spread across South and Central America. These bees get very defensive, stinging ten times more often than other bees.

SOME BEES CAN COOK...



When **JAPANESE HONEY BEES** spot an enemy hornet, they form a hot bee ball by surrounding the dangerous suspect, and they cook it with their body heat.

SOME BEES YOU MIGHT KNOW ALREADY...



BUMBLE BEES are the fluffy bees that you may have seen buzzing around your garden. But you might not know that the Old English word for bumble bee is "dumbledore"!

BUT THE MOST FAMOUS BEE IS THE HONEY BEE...



WHAT IS A HONEY BEE?

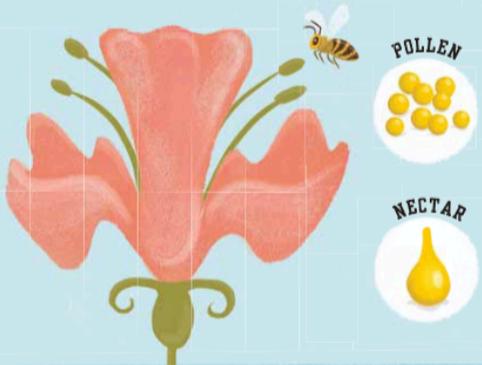


Like all bees, a honey bee is an **INSECT**. All insects have six legs, and generally have one or two pairs of wings.

Honey bees live together in a large group called a **COLONY**. Every colony contains a queen bee and worker bees.

The colony lives in a **NEST**. Some nests are wild, and some are kept by humans in beehives.

FROM FLOWERS A HONEY BEE COLLECTS...



POLLEN is a powder made by flowers. Honey bees collect pollen to feed to baby bees.

NECTAR is a sweet, sticky liquid made by flowers. The honey bees love it! They use nectar to make honey.

IN THE BEEHIVE A HONEY BEE MAKES...



BEESWAX is used by honey bees to make hexagonal cells, which together make a honeycomb. Honey bees fill the comb cells with honey, pollen, and eggs.

HONEY is made from the collected nectar. Honey bees store honey in the comb cells and eat it when there are no flowers available.

WHAT DOES A HONEY BEE DO...

WHEN IT IS WARM?

During the spring and summer, when there are lots of flowers around, honey bees are busy collecting nectar and pollen to feed the growing colony. Honey bees use the nectar to make honey in the nest. This will feed them through the late autumn and winter.

WHEN IT IS COLD?

Honey bees can't fly in the cold, so in the late autumn and winter they stay in the nest and eat the honey that was stored over the warmer months. They keep warm by huddling into a tight ball with the queen taking the warmest spot at the centre.

THE BEE'S KNEES

A honey bee's body is made up of three different sections. It has a **HEAD**, a middle section called the **THORAX**, and the end section which is the **ABDOMEN**. Its body parts make it very skilled at flying, finding flowers, and collecting nectar and pollen.

A honey bee doesn't have a nose. Instead it uses its **ANTENNAE** to smell as well as taste.

A honey bee has **FIVE EYES!** It has two big eyes, which are excellent for detecting flowers, and three small eyes that detect light.

The **MOUTH** has a long tongue which the honey bee uses like a straw to reach into flowers and suck up lots of nectar.

LEGS carry pollen to the nest. The front legs push pollen off the bee's body onto its back legs where it is packed into **POLLEN BASKETS**.

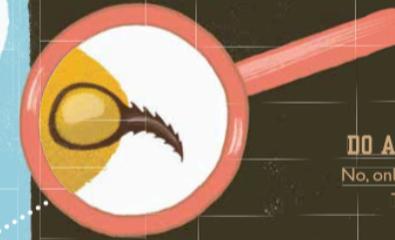
A honey bee stores nectar in a **HONEY STOMACH** while it is carrying it to the nest.

SPIRACLES are tiny holes all over a bee's body that the bee uses to breathe through.



WHY DO BEES BUZZ?

You have probably heard the buzz of a honey bee, but have you ever thought about what causes it to make that sound? For a bee to fly, its wings have to beat very fast. This makes vibrations in the air that we hear as a buzz sound. For some bees, buzzing is very important. The **bumble bee** lets out a loud buzz whilst shaking its body and wings. This shakes pollen off flowers, allowing the bumble bee to collect more pollen to take back to the nest.



THE STINGER

Honey bees use their stingers to protect the colony.

DO ALL HONEY BEES STING?

No, only the female honey bees can sting. The male bees are harmless!

DOES A HONEY BEE DIE WHEN IT STINGS?

Yes, when it stings a mammal (like us!) a honey bee dies. Do you see how the stinger has a jagged surface? When a honey bee stings, the jagged spikes get stuck into the mammal's skin and the stinger is pulled off the bee. A honey bee can't survive without a stinger. The queen, however, is lucky. Her stinger has a smooth surface, allowing her to sting, sting, and sting again without doing her any harm at all!



WE LOVE HONEY BEES AND WE LOVE HONEY

Honey is really important to honey bees because they need it to survive the cold months. In fact, honey is so important that worker honey bees spend most of their lives making it. With the hard work of honey bees comes a sweet reward! Do you like to eat honey as much as honey bees do?

Let's find out how honey bees make honey...



ONE TEASPOON OF HONEY

=



THE LIFETIME'S WORK OF 12 HONEY BEES

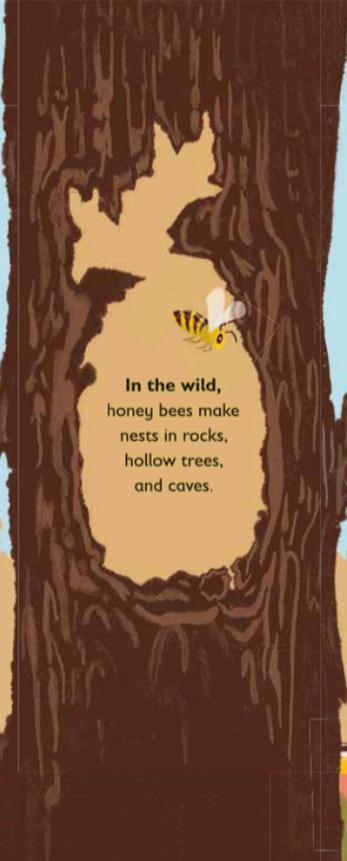


ONE JAR OF HONEY

=



88,500 KM (55,000 MILES) OF FLYING
(That's one and a half times around the world!)



In the wild, honey bees make nests in rocks, hollow trees, and caves.

WHERE DOES HONEY COME FROM?

Some honey bees live and make honey in the wild. Others are domestic and make honey that is collected by humans. These honey bees are kept in beehives and are cared for by **BEEKEEPERS**. It is this special relationship between honey bees and beekeepers that allows us to find honey in the shops and on our breakfast tables.



Beekeepers keep their honey bees in **BEEHIVES**. These homes protect honey bees from the cold and rain, as well as keeping them cool in the summer. Inside the hives, honey bees build honeycombs and fill them with honey that can be collected by beekeepers and put into jars.



Humans have been collecting honey for 13,000 years – that's a very long time! Jars of honey were even found in Egyptian tombs. The Pharaoh Tutankhamun loved honey so much that he was buried with it!

MEET THE BEEKEEPERS WHY DON'T THEY GET STUNG?



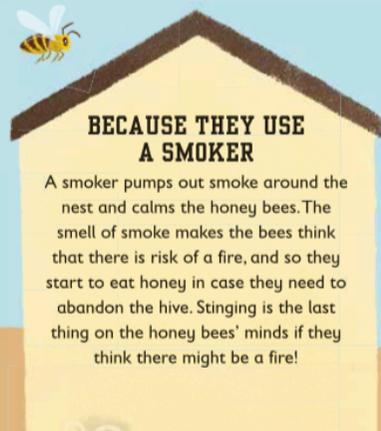
BECAUSE THEY KNOW THE HONEY BEE

Knowing about how honey bees behave and what they get up to inside the hive is important for keeping a healthy colony. Having this understanding means that a beekeeper can stay calm when checking the hive and collecting honey. A calm beekeeper means that the bees will be calm too.

BECAUSE THEY WEAR A BEE SUIT



A bee suit has gloves, a hood, and a veil. Every part of a beekeeper needs to be covered so that they can't get stung.



BECAUSE THEY USE A SMOKER

A smoker pumps out smoke around the nest and calms the honey bees. The smell of smoke makes the bees think that there is risk of a fire, and so they start to eat honey in case they need to abandon the hive. Stinging is the last thing on the honey bees' minds if they think there might be a fire!

WHAT'S HAPPENING IN THE HIVE?

There are about **35,000 HONEY BEES** in a beehive. The colony has three types of bees: a queen, worker bees, and drones. Each type relies on the other to keep the colony healthy.

THE QUEEN [FEMALE]



HOW MANY: There is just one queen in a beehive.
HER LIFE SPAN: 5 years.
HER JOB: As the mother to most of the bees in a hive, the queen must lay eggs. She can lay 2,000 eggs every day!

THE WORKER [FEMALE]



HOW MANY: Thousands.
HER LIFE SPAN: 40 days.
HER JOB: The worker bee has the most jobs to do including cleaning and guarding the hive, foraging, and making honey.

THE DRONE [MALE]



HOW MANY: Hundreds during the summer.
HIS LIFE SPAN: Just a few weeks.
HIS JOB: A drone bee doesn't do much work, but is needed in the summer to mate with a queen from another colony. In autumn the drones are pushed out of the hive.

HOW DO HONEY BEES MAKE HONEY?

1.

Honey bees **collect** nectar from flowers with their tongues and store it in their honey stomachs.



2.

These bees **fly back** to the hive and **pass** the nectar to another bee using their mouths.



3.

This bee makes spit bubbles with the nectar until it turns into honey, which is then **stored** in wax cells.



4.

The bees **seal** the honey in each cell with a wax lid on top to keep it fresh.



The warm hive is the perfect place to make honey. Bees flap their wings to keep air flowing through the hive, keeping the colony dry.

