

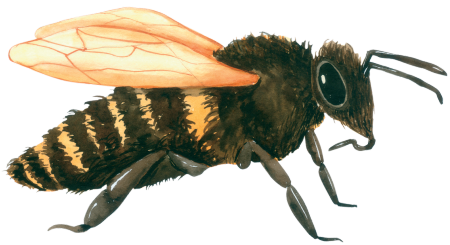


## How to print mini bee unit

Print on A4 size paper and then simply  
cut around the outer borders to form your  
mini bee flash cards,

Thick card stock looks best.

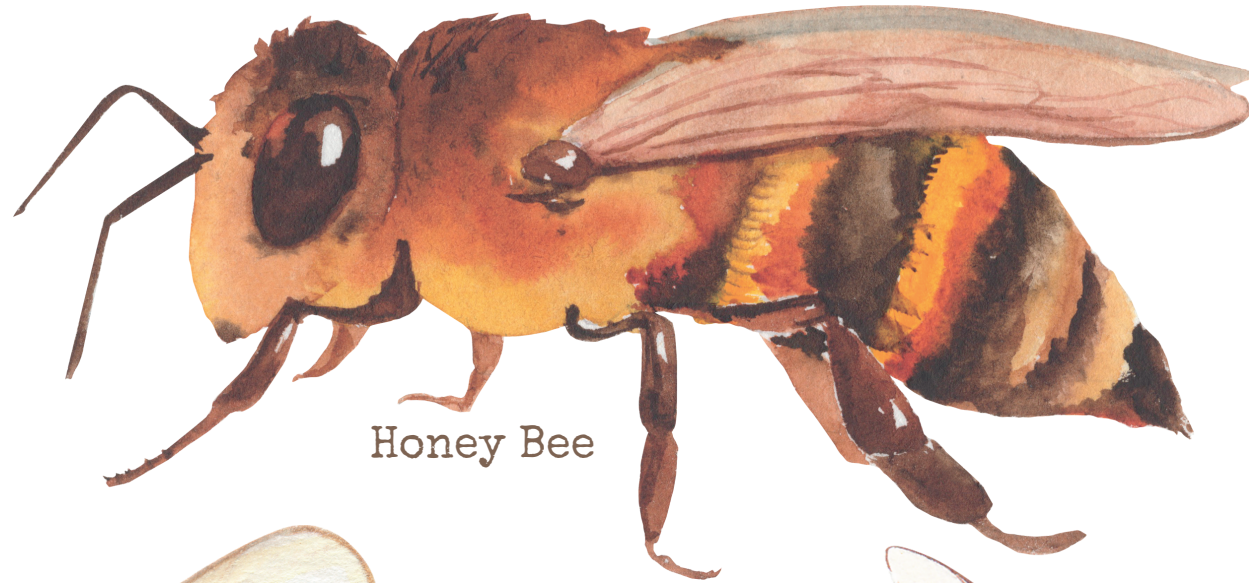
Create your own questions for your child to  
answer using our great bee facts.  
eg: How many eyes does a bee have?



[www.barefootchild.info](http://www.barefootchild.info)

[#embracethewilding](https://twitter.com/embracethewilding)





Honey Bee



Mason Bee



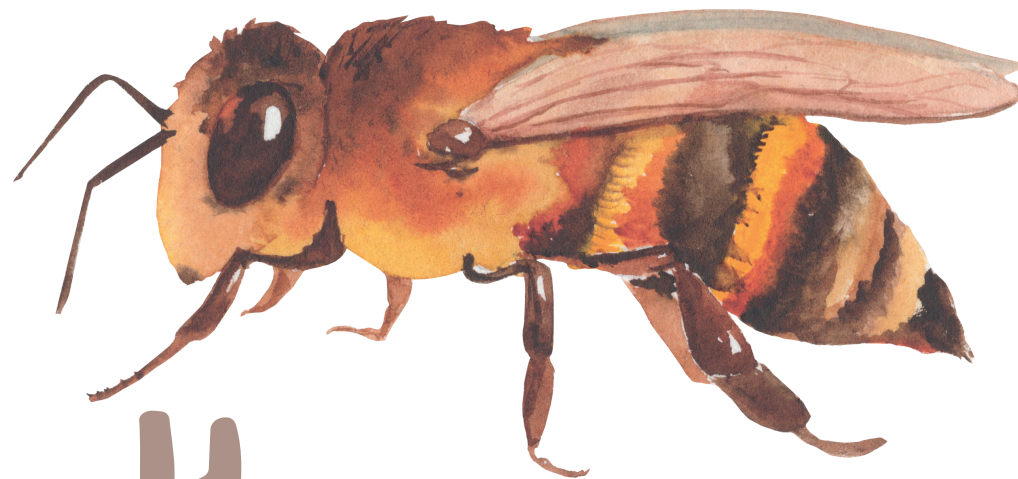
Bumble bee

A detailed illustration of a Mason Bee, showing its fuzzy thorax, yellow and black striped abdomen, and transparent wings. The bee is shown in profile, facing left.

M is for

## Mason Bee

They're called masons because of their nesting habits, in which they use mud and other materials to build their homes. Mason bees are typically found in the Northern Hemisphere. More than a hundred species are native to the USA and Canada. Mason bees are solitary bees, which means they don't live in colonies. This, of course, means that they don't have workers or queens either. Female mason bees are responsible for building their own nests, scouting and foraging for their own food, and defending themselves. Mason bees hibernate in winter and emerge in spring. Male mason bees are the first to surface, and once they do, they wait patiently for the females to follow so that they can mate. Male mason bees only live for about two weeks after they emerge. Females make it to six weeks. There is generally only one generation of mason bees up and running at a time. Since they have such fleeting life spans, they are extremely active and work almost a hundred times harder than an entire colony of honeybees will. This makes them excellent and valuable pollinators.



H is for

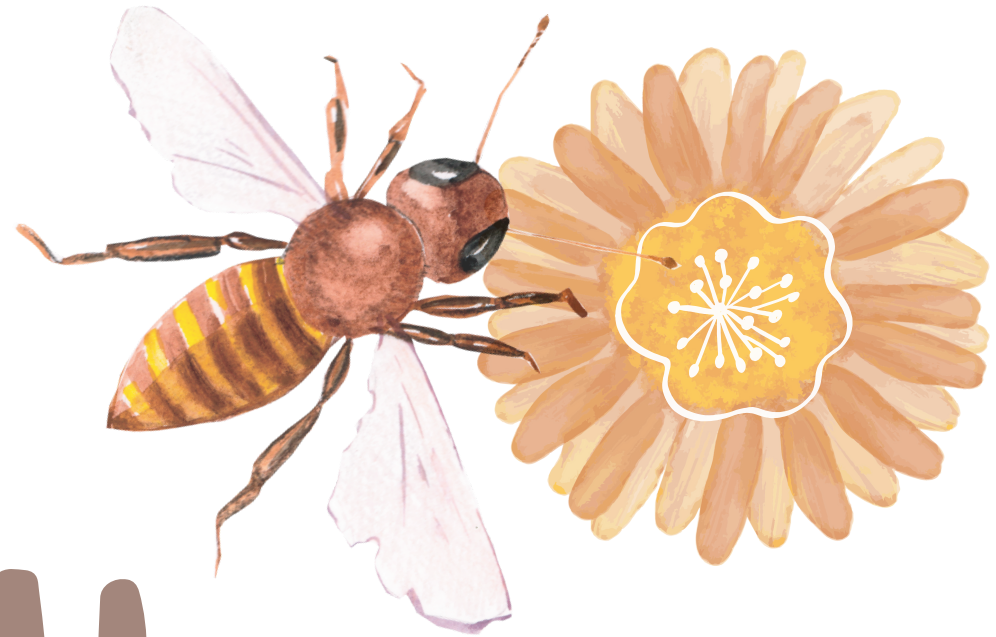
## Honey Bee

Honey bees are social insects. Their colonies include a queen, drones and worker bees. They are known as eusocial insects, meaning they are one of the most socially organized animals on the planet. Known for their distinct orange and black stripes, they also have hair on their thorax and a pollen basket on their hind legs to help carry pollen they collect from flowers. They have a unique ability to produce honey. Honeybees are very important to our environment as they help pollinate crops and flowers and produce a tasty honey humans enjoy. Worker bees (all female) will live for 2 to 4 weeks in the summer, or as long as 11 months if they live through the winter. Drones (all Male) only live for 4 to 8 weeks, and do not live through the winter and the special Queen bee, on the other hand, live for 2 to 5 years, until another queen is born to replace her.



**B** is for  
*Bumble Bee*

Most species of bumblebee live in colonies, but their colonies are much smaller than the honey bees who can have up to several thousand individuals, the bumblebees colony will only consist of around 50 – 150 individuals. Bumble Bees make a very loud buzz and have a soft long, branched setae, called pile, that covers their entire body, making them appear and feel fuzzy. The female worker bumblebee has a stinger and is capable of stinging although they are never too willing to sting. A male bumblebee has no stinger and therefore cannot sting. Worker bumble bees live 2-6 weeks, drones 2 weeks and queens can live up to a year but she does spend much of it in hibernation she goes into hibernate during the winter, usually underground and emerges to find a new nesting ground ready to start a new colony in spring. They do not produce honey.

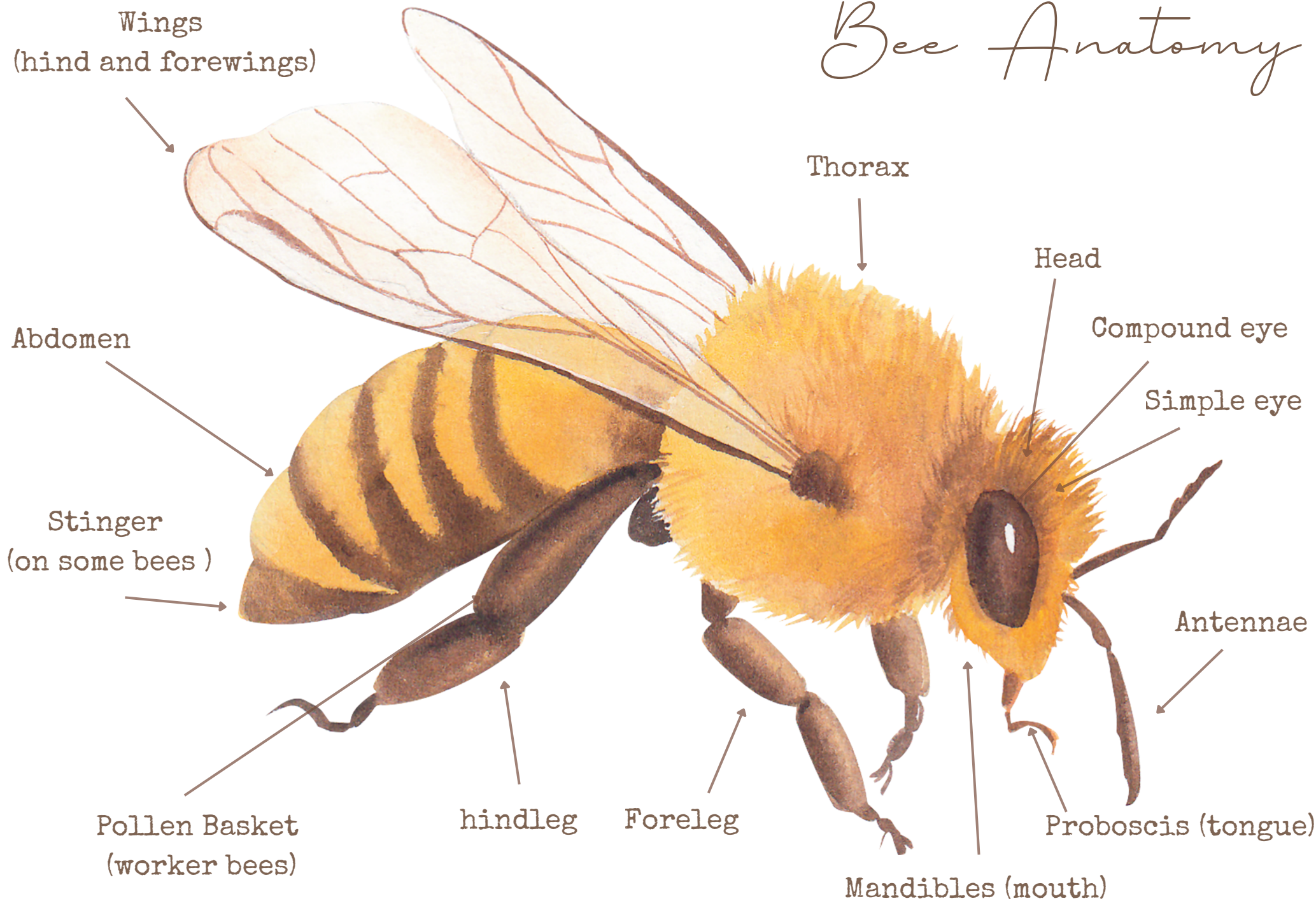


**H**as a bee ever landed on you, and instead of getting scared, you appreciate the possibility that you got confused for a



*flower?*

# Bee Anatomy



# Label the correct *Bee Parts*



- Pollen Basket (worker bees)   hindleg   Mandibles (mouth)   Antennae   Stinger   Compound eye   Thorax   Wings  
Foreleg   Proboscis (tongue)   Simple eye (on some bees)   Head   Abdomen (hind and forewings)

BEES HAVE TOTAL OF **5** EYES AND **2** TYPES OF EYES. TWO COMPOUND EYES ON THE SIDE OF THE HEAD AND THREE SIMPLE EYES ON TOP OF THE HEAD.

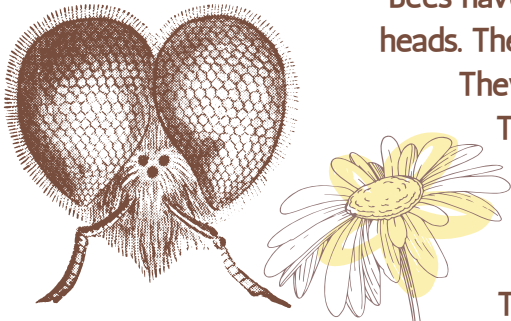
## Bee Eyes

### Simple eyes

Bees have three eyes at the centre of their heads. These eyes look like small black dots. They can detect light, but not shapes. They also help bees detect danger coming from above their heads.

### Compound eyes

The two large side-eyes are called compound eyes. Each eye has thousands of tiny facets called ommatidium. These macro lenses placed in all angles help the bee see ultraviolet markers of the flowers that store the nectar they're on the hunt for, Apart from that, it can spot other bees, pick any movement and colour.



Scientific name: Corbiculae

## What is a Pollen basket?



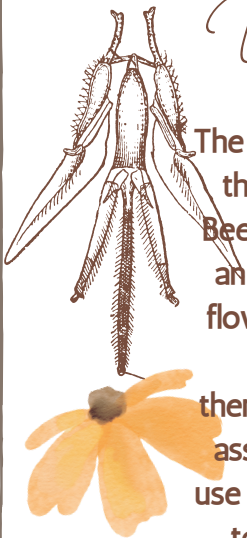
Do you like to stuff the pockets of your pants and jackets with things you find during the day?

Well so do bees. That's right! **Only the female honeybees**, bumble bees, orchid bees and stingless worker bees have these tiny pockets, called pollen baskets, that they use to store pollen from the plants they visit. When the bees are flying from plant to plant, the pollen sticks all over their bodies. When the bees are covered in pollen, they are able to use brushes and combs they have on their legs to collect it. They then store the pollen in these pockets. The pockets are on a bee's back legs. These pockets make it easier for the bees to collect pollen. It would be very tiring for the bees to have to go to their hives to deposit the pollen after each flower they visit. With the pockets, they can visit 100 flowers or more on each trip. A full pocket can contain up to 1 million grains of pollen! To help the pollen stay in the baskets as they fly around, the bees mix it with nectar to make it a little sticky and form a pellet. They also have long hairs on their legs to help keep the pockets in place. The bees bring the collected pollen to their hives, where it is stored in a cell in the hive. It is then eaten by the bees, which rely on pollen as a source of protein.

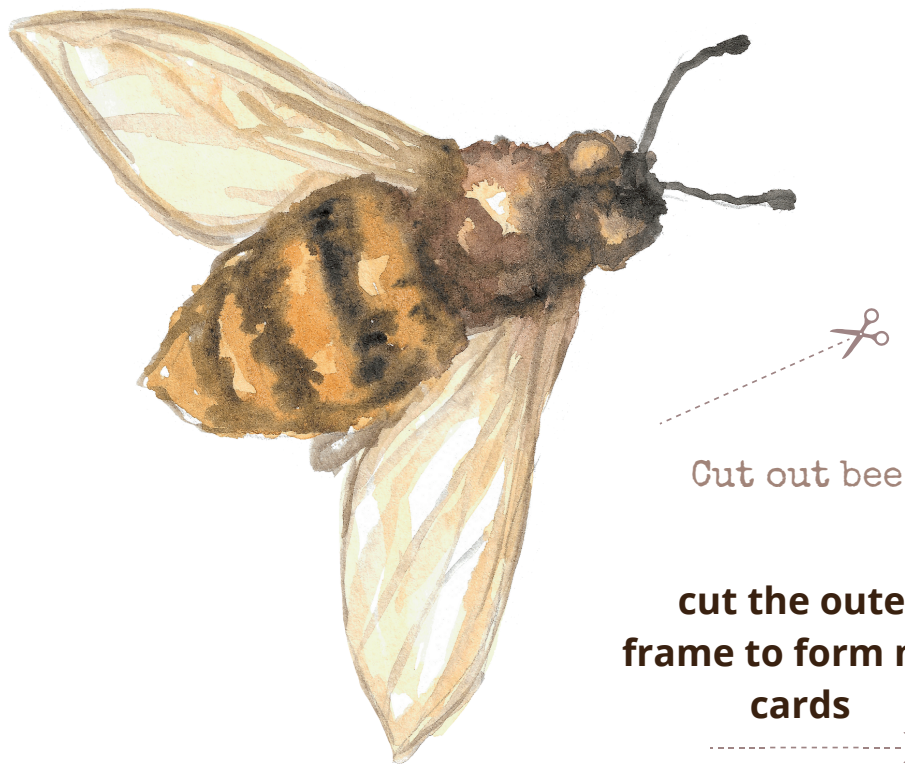
## What is a Proboscis (bee tongue)

### Proboscis

The bees' tongue known as a proboscis functions as a straw the bee uses its tongue to suck up nectar from flowers. Bees need long tongues so they can reach into the flowers and get to where the nectar is. When the bee gets to the flower, it unrolls its long tongue to enable it to suck up the nectar. Bees also make use of their tongues to keep themselves clean. This is done by licking their furs. They also assist to clean each other as well as the queen. Then they use their tongues like a broom to lick the inside of their hive to keep it clean also the proboscis is used as a way for communication and honey making for the honey bee



cut the outer frame to form mini cards



Cut out bee

cut the outer  
frame to form mini  
cards



## Importance of a Bee's Antenna

The antennas on a bee are very important, they act as odour receptor to detect sugar (nectar), With two flexible antennae, bees can detect at least two different paths of nectar, and they can compare which one is stronger and adjust their flight path accordingly another way antennae's are important is The queen bee releases a pheromone to attract drone bees , This pheromone also controls the behaviour of the rest of the colony,Without the queens chemical to regulate the workflow, workers will forage less, and they might even start producing drones. They also use these antennas for touch, and for hearing.A sensor at the base of the antenna can detect the vibrations of sound waves and wind, allowing them to understand other bees dancing and determine how fast they are flying.

## How do Bees *Communicate* with each other ?

Bees have a number of ways to communicate—they use dance, vibrations, sounds, and even pheromones.

### Dance

Honeybees have different roles within the hive. The older honeybees are scouts, which means that they're the ones flying out in search of food and water sources. Once a scout discovers an ample food source, she quickly returns to the hive to pass on the directions to her sisters. Back in the hive, our scout will perform either a waggle dance or a round dance to communicate the location. They'll do this across the middle of the honeycomb, among the forager bees. The style of dance they do tells how far the source of food is



### Pheromones

So, honeybees mostly use dance to communicate, but bumblebees are known to secrete pheromones. When the forager bumblebee has found an abundant food source and returns to the nest, it will run across the comb. It does a few series of runs throughout the nest while fanning its wings. This method is not as thorough as the dance that honeybees do. The pheromones will only tell the bees which type of flower it is, not its exact location.



### Vibration & sound

Solitary bees use other ways to communicate. This is probably because they have no need to communicate foraging sites to their fellow workers since they live alone. So instead, they may use vibrations and sounds to communicate with potential mates or to scare off predators.

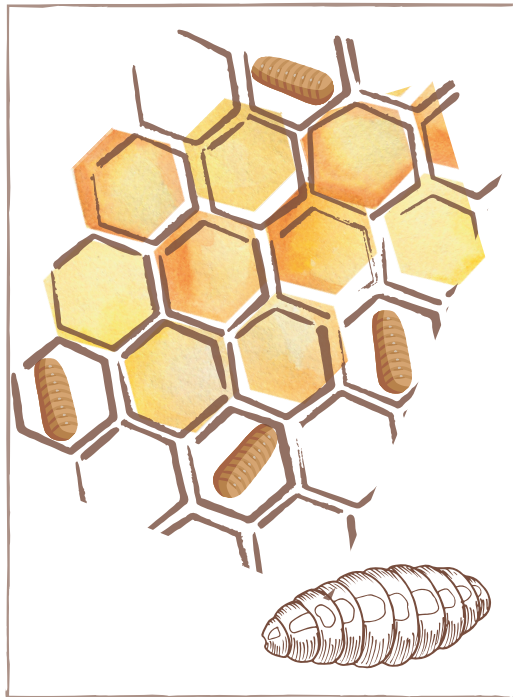


# LIFECYCLE OF A BEE

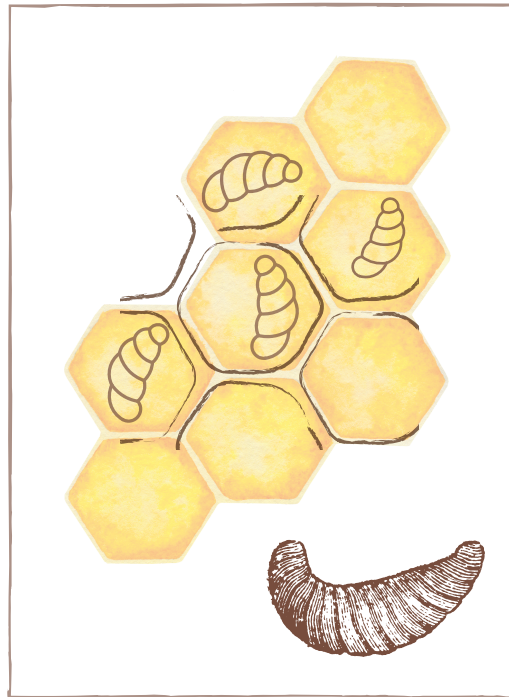


## Instructions:

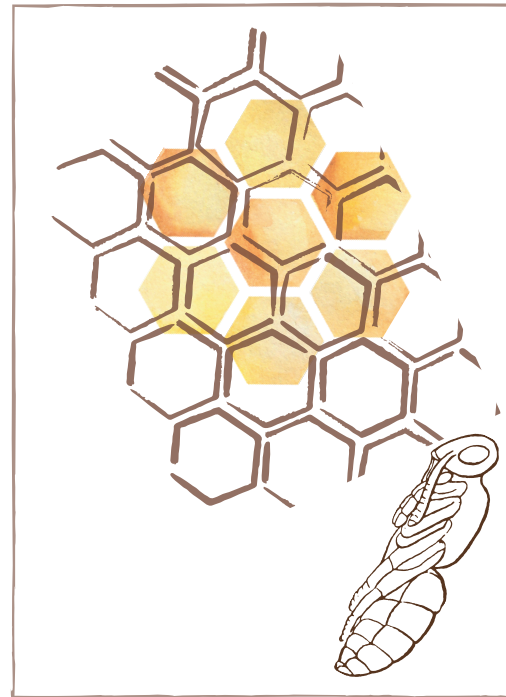
- On a blank piece of paper, write an appropriate heading
- Cut around the below cards
- Paste onto the sheet, in the correct order
- Label each image
- Use arrows to show the direction of change



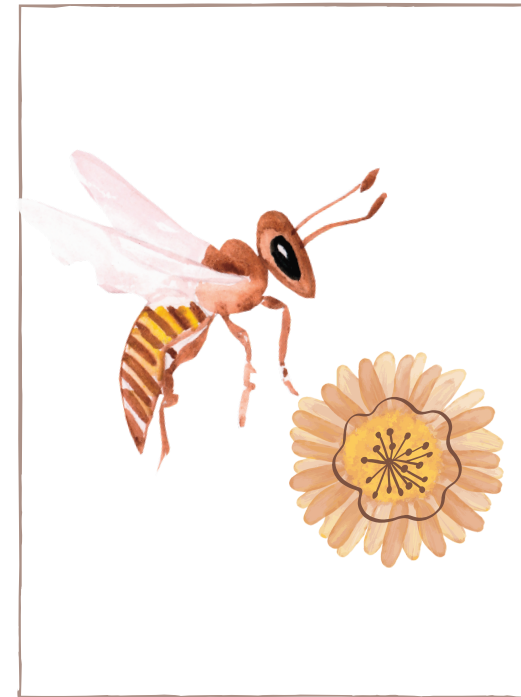
EGG



LARVAE

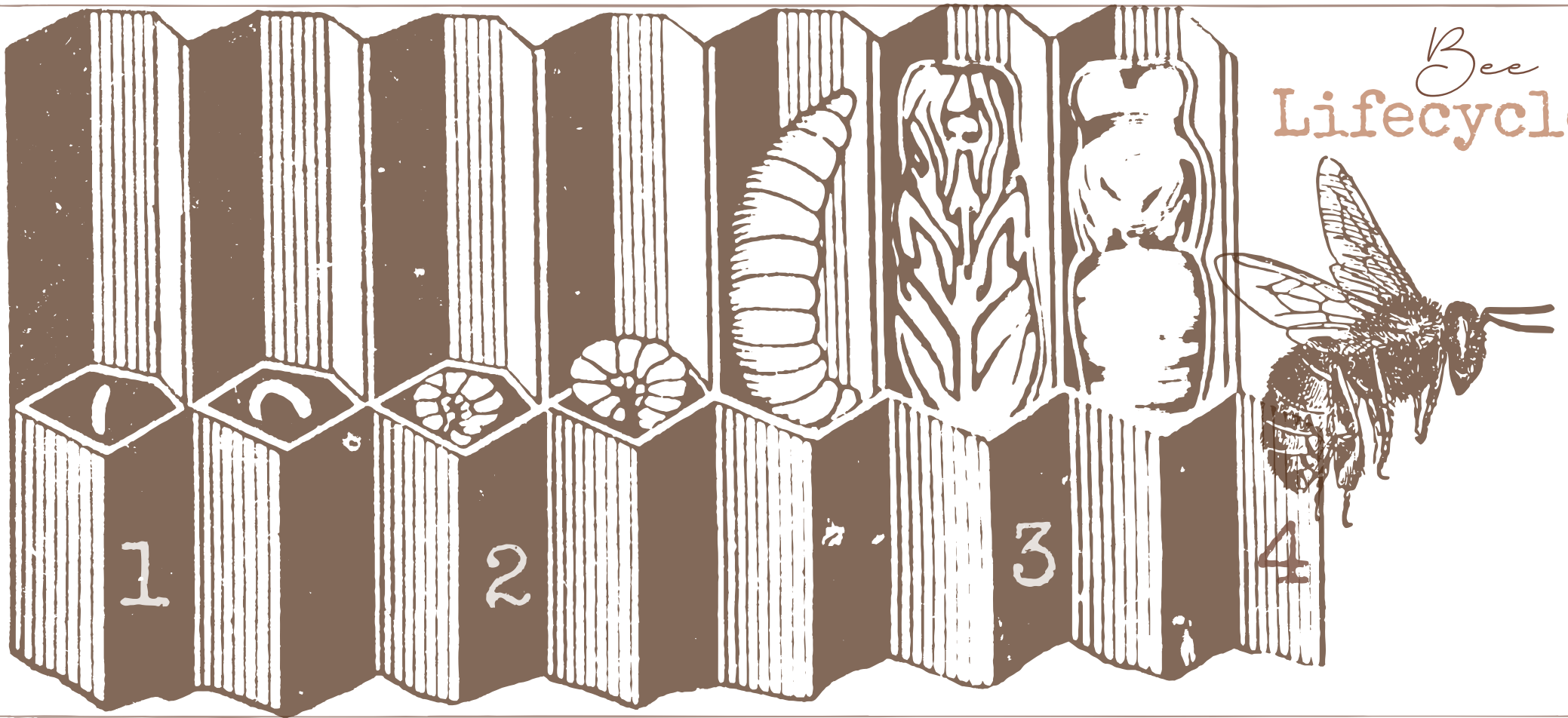


PUPA



ADULT

# Bee Lifecycle



## 1 Egg

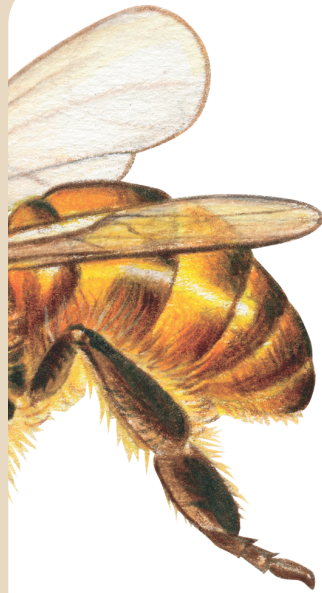
After three days, the egg hatches into a worm-like form called a larva. The worker bees feed the larva royal jelly for the first few days and then switch to honey and pollen. An exception to this is a future queen: this larva continues its diet of royal jelly. A larva eats almost constantly and grows quickly. Within just five days, it grows 1 500 times larger than its original size. At this point, worker bees cap the cell with wax and the larva spins a cocoon around itself. The larval stage lasts about six days. It's shorter for the queen, longer for the worker bees and longest for the drones.

## 2 Larvae

## 3 Pupa

In the pupa stage, the tiny organism hidden under the capping is starting to look like an adult bee. Its legs, eyes and wings develop and, finally, the little hairs that cover its body grow. After seven to fourteen days in this stage, depending on the type of bee, the now adult bee chews its way out of the cell. This stage is shorter for the queen, longer for the worker bees and longest for the drones.

## 4 Adult



Mason Bee



Pollen flower



Bumble Bee



Honey Bee

Name:

# STEM: LIVING THINGS | BEE HOMES



Instructions: Research and draw how you think each one of the different bees homes (nests) look

BUMBLE BEE

A large, empty rectangular box with a thin black border, intended for drawing a Bumble Bee nest.

HONEY BEE

A large, empty rectangular box with a thin black border, intended for drawing a Honey Bee nest.

MASON BEE

A large, empty rectangular box with a thin black border, intended for drawing a Mason Bee nest.

Name:

# Bee life cycle



List each stage of a bees life cycle and write a short description of what you have learnt about them

Step One:

Step Two:

Step Three:

Step Four:

