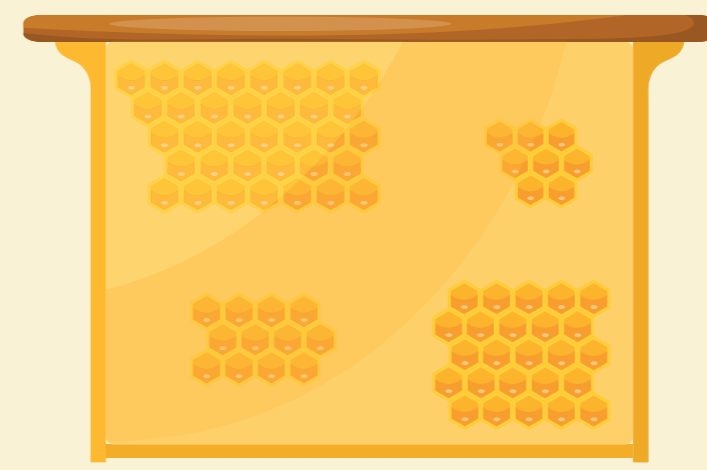
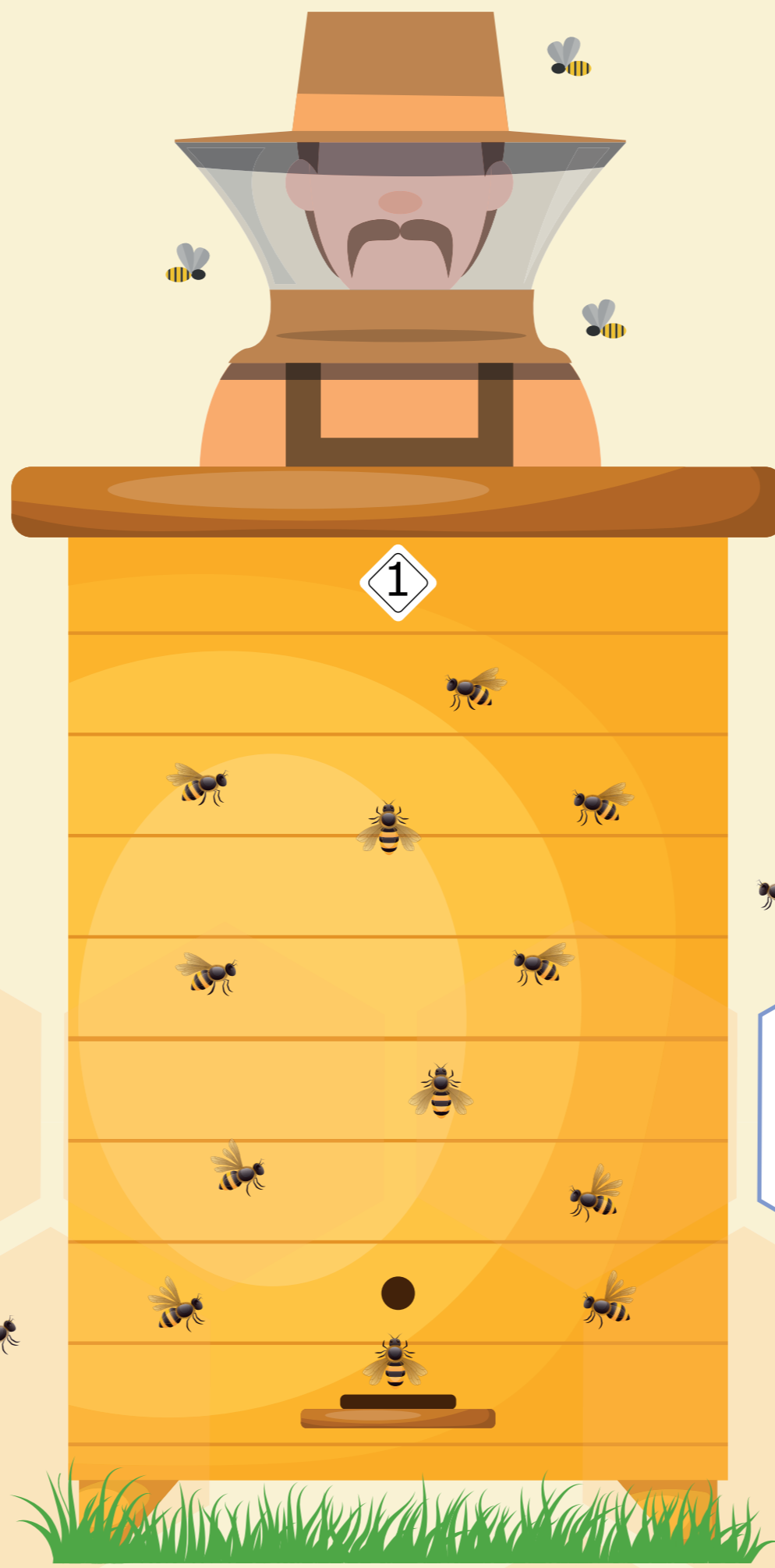
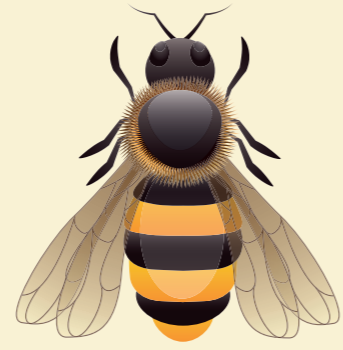
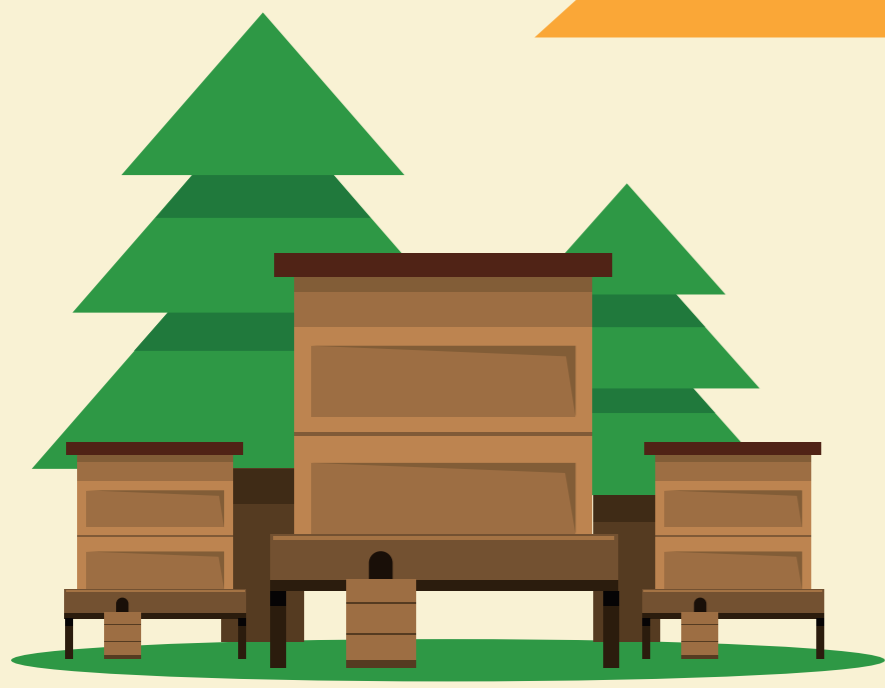


# THE WORLD OF BEES



**IN ANY HIVE IN THE SUMMER THERE ARE THREE TYPES OF HONEY BEE:**



A SINGLE QUEEN

1

The drone's primary role is to mate with a virgin queen, and in the early Autumn they are evicted by the workers and die.



HUNDREDS OF MALE DRONES



THOUSANDS OF FEMALE WORKER

**How Far Does a Bee Fly?**

2

A honey bee can fly as far as 5 miles for food, however an average distance would be less than a mile from the hive.



1/2 MILE



3

15-20mph (21-28km/h) the normal top speed of a worker when flying to a food source.



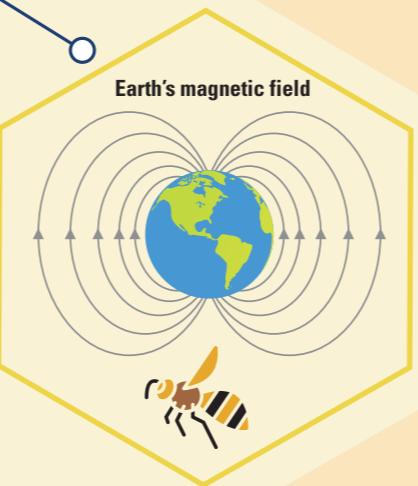
5

12mph (17km/h) when returning with nectar, pollen, propolis (resin collected from tree buds) or water.

**How Does a Honey Bee Navigate?**

6

Bees use the position of the sun to help them know where they are and where they need to go back to; bees' eyes are sensitive to polarized light so they can see when the sun is obscured!

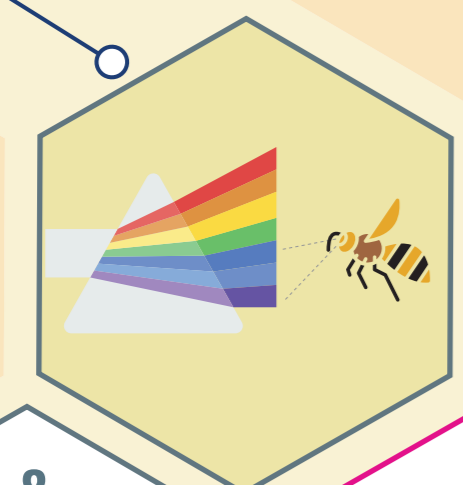


Earth's magnetic field

7

There is now some evidence of sensitivity to the earth's magnetic field too.

**Can a Honey Bee See Colour?**



8

Yes, bees' eyes are sensitive more to the **BLUE** end of the light spectrum and into **ULTRAVIOLET**.

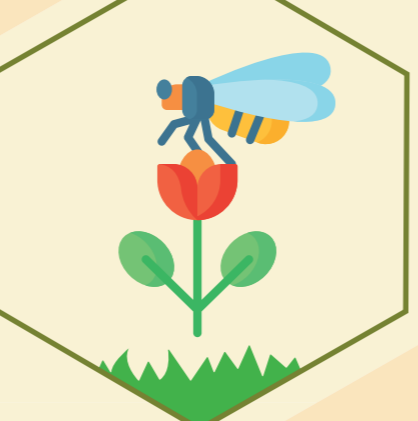


9

Flowers reflect large amounts of ultraviolet light and will appear very bright to a bee. Bees are totally red blind.

10

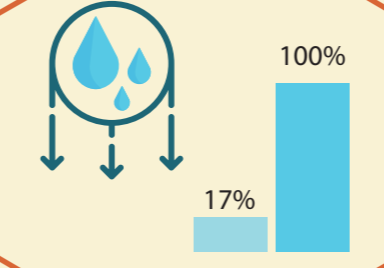
Bees take nectar, which is a sweet sticky substance exuded by most flowers and some insects (honeydew), and mix it with enzymes from glands in their mouths.



**How Do Bees Make Honey?**

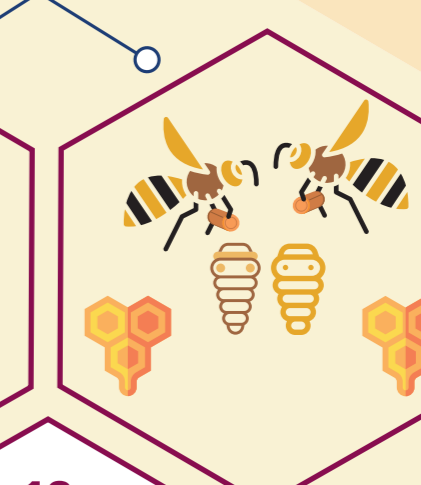
13

Bees collect about 20kg of pollen every year - that's 1 Million pollen loads at 20mg per trip!



11

This nectar/enzyme mix is stored in hexagonal wax honeycomb until the water content has been reduced to around 17%.



12

Honeybees mix plant pollen with honey to make bee bread that is fed to the growing larvae.

12

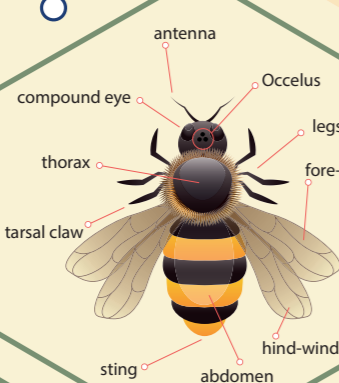
It provides a rich source of protein and fat whilst honey provides energy (carbohydrate).

**How Much Pollen Can Bees Collect?**

**Anatomy of a Bee**

14

Incredible as it may seem, the honey bee has **FIVE** eyes, two large compound eyes and three smaller ocellus or simple eyes in the centre of its head.



14

The honey bee has four wings in total. The front and rear wings hook together to form one big pair of wings and unhook for easy folding when not flying.

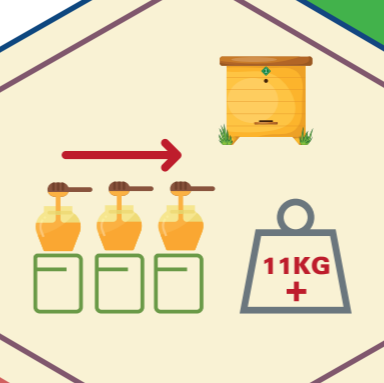
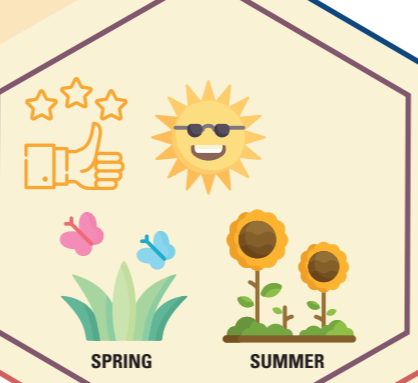
14

The honey bee has three pairs of legs, six legs in total. However, the rear pair is specially designed with stiff hairs to store pollen when in flying from flower to flower.

**How Much Honey Can One Beehive Produce?**

16

Bees fly about 55,000 miles to make just one pound of honey, that's 2.2 times around the world.



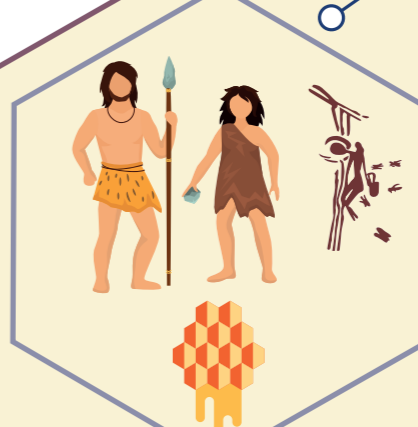
15

One hive can produce 27 kg (60 lb) or more in a good season, however an average hive would be around 11 kg (25 lb) surplus.

**Honey and History**

17

Honey has been delighting humans for more than 40 centuries. 8000 year old cave paintings have been found showing honey foragers collecting honey.



18

The Romans were allowed to pay their taxes in honey but no-one did during the entire 1,000 year reign of the Roman Empire.