

MAKE THE MOST OF YOUR BEE HOTEL

Your Support Materials



Prepared by Christine Wood for
THE YORKSHIRE GARDENS TRUST



What's in here to help me?

2. A letter for the staff
3. A letter for the children
4. Cut out Facts – Did you know that?
8. What type of creatures are bees?
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September 2020

Dear Members of Staff,

Thank you for using one of our complimentary bee hotels and for your ongoing involvement with the Yorkshire Gardens Trust.

We hope you find this pack of information useful, either to support you in planning lessons about the importance of bees, or for your pupils to use themselves, to learn more about their new bee hotel and bees in general.



Within the pack of information there are suggestions of activities and a list of websites and resources where additional information or packs for schools can be obtained.



There is also a list of books about bees, which may support the children's learning, but also create interest and curiosity about the world of bees.

In the meantime, we hope this additional resource pack adds value to your busy bee activities in the classroom. Your feedback is invaluable to us so that we can develop our future resources wisely in supporting schools within Yorkshire.

Some of the plants in this booklet which the bees love, are poisonous. Please check the RHS website article on poisonous plants;

<https://schoolgardening.rhs.org.uk/resources/info-sheet/a-checklist-of-potentially-harmful-plants> and their list is here;

<https://www.rhs.org.uk/Advice/Profile?PID=524>

Enjoy your bee learning activities!

The Yorkshire Gardens Trust

**Please email us anytime at education1@yorkshiregardentrust.org.uk **



September 2020

Dear Children,

We hope you enjoy watching bees use your new bee hotel!

Bees use bee hotels:

- As a place to leave pollen, which they have collected from flowers;
- As a place for the queen bee to lay her eggs;
- As a safe place for young bees to eat the pollen and grow!



You will need to find a sunny spot in your school grounds for your bee hotel; near flowering plants would be the best place.

So, what do you know about bees? You probably know that they have stripy bodies and make honey, but there is a lot more to learn about bees. In this pack of information, you can find out all about bees, including the types of plants that bees and other pollinating wildlife like best.

We hope you will be 'busy bees' and really enjoy learning about these remarkable creatures.

Enjoy yourselves!

With best buzzy wishes,



The Yorkshire Gardens Trust



Cut Out these Facts - Did you know that?

1. Bees have been around for millions of years!

Image Graphic Mama Team on Pixabay



2. There are 250 species of bee in the UK, including 24 different types of bumblebee.



3. That honey bees dance!

Image Graphic Thanks for your like on Pixabay



4. That the earliest evidence of honey being used was 8-9,000 years ago in Spain.



5. That not all bees live in hives or nests in social groups. Some bees are solitary.



6. That the habitats of bees include marshes, sand dunes, quarries and gravel pits.

Open Clip Art Vectors on Pixabay



7. That during summer months, there can be between 35,000 and 40,000 bees in a hive.



8. That it takes over 22,000 bees to create enough honey to fill one 454g jar.



9. That during a year, the queen bee will produce between 100,000 and 200,00 bees that will each spend between 10 and 20 days collecting nectar!

Open Clip Art Vectors on Pixabay



10. That bees have a special stomach for carrying nectar.

Image Pixel Perfect on Pixabay



11. That a honey bee can fly as fast as 15 miles per hour and it beats it's wings up to 12,000 times each minute!



12. That some bees may sleep on flowers!

Clickr free vector images on Pixabay



13. That bees are vital to not only pollinate the food we need to survive, but to also pollinate the trees and flowers that provide habitats for wildlife.

Clickr free vector images on Pixabay



14. That sadly, bees are in severe decline and if they were to become extinct, our planet would be in serious trouble, as these amazing creatures are so important to most ecosystems.



Suggestion!



Why not cut out the facts and share them in your classroom?

Selected images from Pixabay

What type of creatures are bees?

Bees are INSECTS.

They have:

- 3 main parts to their body
 - HEAD
 - THORAX
 - ABDOMEN
- 6 legs
- 5 eyes
- 2 pairs of wings
- 2 antennae
- A STING! (Bees will only sting if they feel threatened, or if they think their colony is threatened.)
Ouch!
- The LEGS of bees can be very hairy!



The hind legs of a bee have 'BASKETS' where they hold the pollen they have collected.



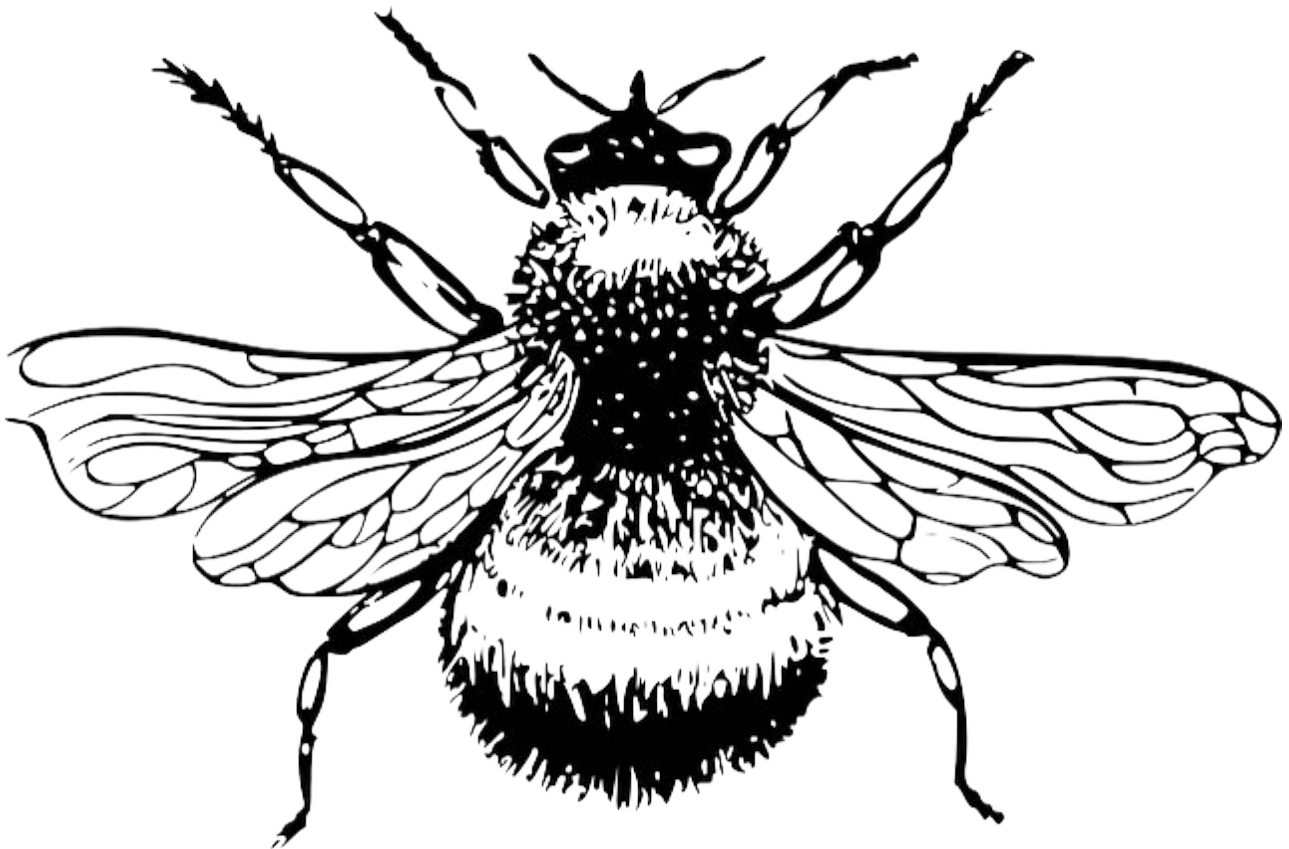
- The MOUTHPARTS of a bee can chew and suck.
- They have a long PROBOSCIS, which can unfurl and sucks up nectar like a straw.



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Have you heard the expression, 'the bees' knees'?

Do bees have knees?



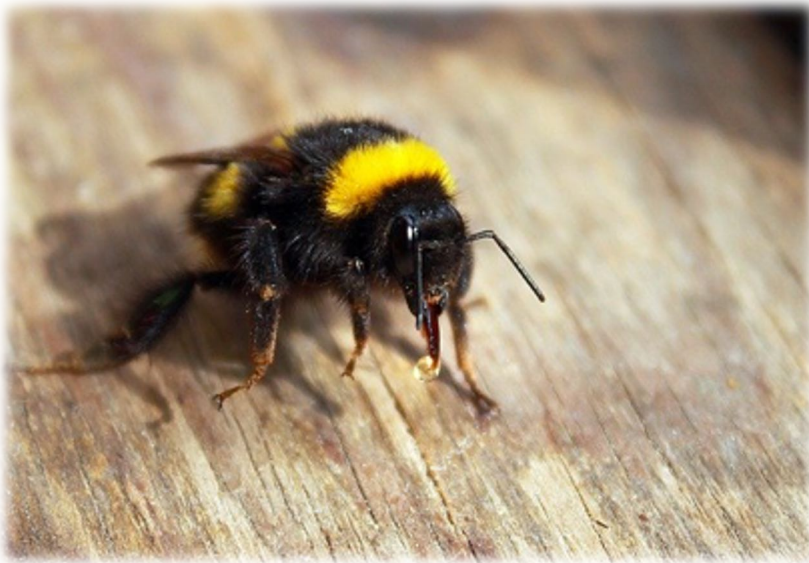
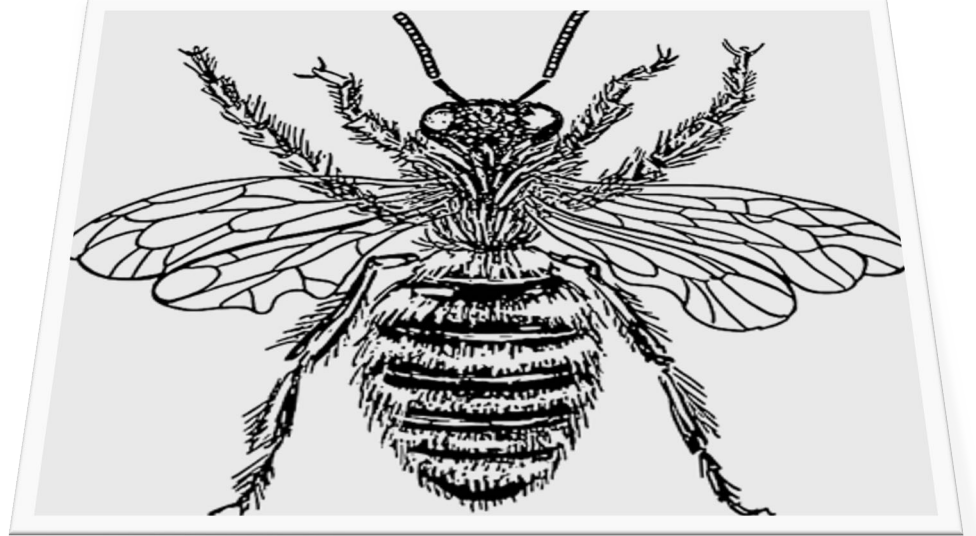
Yes, they do!

Bees have 6 leg sections and each section is connected by a joint, which could be described as a knee!

Which Bee Bits? Activity

Draw or paint your own bee and label all the different parts of its body.

Here are a few bee images to help you with your drawing.



Remember to label:

- The Head
 - The Thorax (middle section of the body)
 - The Abdomen (larger part of the body)
 - 6 legs (all positioned on the thorax)
 - 2 pairs of wings (positioned on the thorax). The forewings (positioned towards the front of the thorax) are smaller than the hind wings (positioned towards the back of the thorax).
- 5 eyes. 2 large eyes and three smaller eyes in the centre of its head.
 - 2 antennae, positioned near the centre of the bee's 'face'
 - The sting (positioned at the rear of the abdomen)

Try to capture the special **rich yellow colour** in your drawing or painting!



Bees, Hives and Honey

In any hive there are thousands of honey bees. There is a single queen bee, the ruler or mother of the hive, thousands of female worker bees and in the summer, hundreds of male drones.

- **The Queen Bee**

Every hive begins with the queen laying an egg in a cell of honeycomb. A queen bee can lay 2,000 eggs every day! After 3–4 days, larvae will hatch out of these eggs.



- **Larvae**

Larvae are fed on pollen and honey by other bees in the colony.

- **Young Bees**

When the larvae are strong enough, they emerge from their honeycomb cell, either as a drone (male bee), a worker bee (female bee) or another queen.

Every hive has only one queen bee. When bees swarm, half the bees leave the colony with the old queen bee and the bees that remain make a new colony to take over the hive.

- **Worker Bees**

Worker bees are female bees. At first, worker bees begin as cleaners, making sure that the hive is kept tidy and free of waste. Eventually, they will be promoted and their new role in the hive will be to feed the larvae.

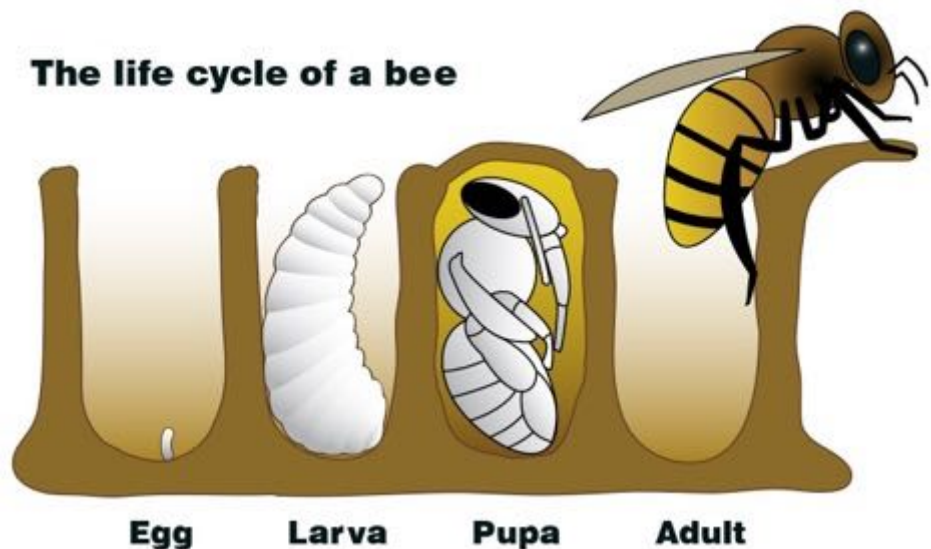
Older worker bees do everything from building wax comb, to receiving pollen from forager bees, to guarding the hive from predators.

- **Forager Bees**

The final job for worker bees is to leave the hive to find pollen, nectar and water for the rest of the colony.

The Honey Bee Life Cycle

- Worker bees typically live for 5 to 6 weeks.
- Workers that live over winter may live for 4 to 6 months!
- A queen bee can live for 3 to 6 years
- A drone lives for about 55 days.



It's a very busy life for all of them!

How they make honey

Step 1: Forager bees collect nectar and pollen from flowers. Pollen is carried in special pollen baskets on their back legs to feed the colony. Nectar is carried in a 'honey stomach', which is used to make honey for the bees to feed on during the winter.

Step 2: Forager bees pass the nectar onto the worker bees within the hive. These bees mix it with saliva before storing it inside the cells of honeycomb.

Step 3: Worker bees beat their wings around the honeycomb to encourage any water in the nectar and saliva mixture to evaporate. This part of the honey-making process gives honey its anti-bacterial properties and prevents it from spoiling.



Have you ever tried real bee honeycomb? How sweet is it?

OR

Honey on toast! Mmmmmmmmmmm!

AND

Can you taste the flowers they have eaten in the honey?



Bee-friendly Plants

- Planting bee-friendly flowers can help boost the population of bumblebees and in return, the bees will pollinate flowers, fruit, vegetables and crops.
- Bee-friendly flowers are rich in pollen and nectar.
- The best habitats for bees are those that offer plenty of flowers for them to feed on during the period from March until October, when bees are the most active.

Top 8 bee-friendly wildflowers to grow in your school garden – Woodland Trust

Bluebell (*Hyacinthoides non-scripta*)

Perennial bulbs, with stunning blue bell-shaped flowers that have a sweet scent. They look spectacular when grown in groups. Make sure you plant true native British bluebells to give bees an early spring feast.

Bluebells grow well along a hedge or under trees and provide a great early food source for bees.

Flowers: May to September.



Image Sally Wynn on Pixabay

Foxglove (*Digitalis purpurea*)

Tall, hardy biennial with pink trumpet-shaped flowers. Foxgloves tolerate shade well, but flower best in full sun. It freely self-seeds.

This classic cottage garden plant is loved by long-tongued bumblebees such as the garden bumblebee and the common carder bee.

Flowers: June to September.



Image pasja1000 on Pixabay

Comfrey (*Symphytum officinale*)

A very hardy perennial, and great for the back of a herbaceous border. It prefers damp places but will grow almost anywhere.

It has a long flowering period that's loved by bumblebees, especially species with long tongues.



Image Hans Bijstra on Pixabay

Flowers: May to August.

Clovers (*Trifolium* species)

In summer, you'll find red clover (*T. pratense*) and white clover (*T. repens*) literally abuzz with the sound of bumblebees.

The flowers of red clover are particularly adored by both rare and common bumblebees. Grow clovers in a wild part of your garden or allow them to colonise an area of your lawn!



Image Couleurs on Pixabay

Flowers: May to September (red clover); April to October (white clover).

Greater knapweed (*Centaurea scabiosa*)

A beautiful thistle-like wildflower. It produces masses of large vibrant purple inflorescences that act as magnets to pollinating insects.

Greater knapweed is a common meadow wildflower, but it also looks fabulous among other plants in a herbaceous border.

Flowers: July to September.

Image Ian Lindsay on Pixabay

Hellebore, stinking (*Helleborus foetidus*)

An unusual looking native evergreen perennial plant. It has light green bell-shaped purple-edged flowers that hang from a thick upright stem. It gets its name from the unpleasant smell of its crushed leaves.

Stinking hellebore flowers in late winter, so is great for early emerging queen bees. It grows well in shady spots.

Flowers: January to May.

Image Hans Braxmeier on Pixabay

Honeysuckle (*Lonicera periclymenum*)

This native plant is a vigorous climber and a great addition to a wildlife garden. In summer, its highly fragrant, tubular, pink and cream flowers are buzzing with bees and other pollinators. It is a common species in hedgerows and woodland.

Train it up a wall, fence or over an obelisk. If you prune honeysuckle hard, it thickens up to become an ideal nest and roost site for birds.

Flowers: June to September.

Image bernswaelz on Pixabay



Wood anemone (*Anemone nemorosa*)

An ancient woodland plant and one of the most beautiful wild flowers of early spring. The star-shaped flowers of the wood anemone have six white petals around a green centre with yellow stamens.

It tolerates poor soils in both shade and sunlight. Plant it in the shade under trees and shrubs, or out at the front of the border in full sun.

Flowers: February to May.



Image HOerwin56 on Pixabay

Why not see how many of these you can grow in your school garden or grounds to feed your bee hotel guests?

Some Classroom Activities

Food Technology

Honey Cake

Ingredients

170g clear honey

140g unsalted butter

85g dark muscovado sugar

2 beaten eggs

200g sieved, self-raising flour
water

For the icing

55g icing sugar

1 tbsp clear honey

Hot water



Method

1. Preheat oven to 180C/350F or Gas mark 3. Butter and line an 18cm round cake tin.
2. Measure the honey, butter and sugar into a large pan. Add a tablespoon of water and heat gently until melted.
3. Remove from the heat and mix in the eggs and flour.
4. Spoon into the cake tin and bake for 40-45 minutes until the cake is springy to the touch and shrinking slightly from the sides of the tin.
5. Leave to cool slightly in the tin before turning out onto a wire rack.
6. While the cake is still warm, make the icing by mixing the sugar and honey together with 2-3 teaspoons of hot water. Trickle over the cake in whatever design takes your fancy.

From BBC Good Food – a James Martin recipe

Simple Creative Activities Only yellow, blue and black paint needed, and a spot of glue here and there!

Paper plate bumble bee



Kitchen roll bee



Egg carton bee





Some Super Bee Books

- The Honeybee
- By Kirsten Hall, illustrated by Isabelle Arsenault

- Bees
- By Laura Marsh (a National Geographic book)

- Explore My World: Honey Bees
- By Jill Esbaum (a National Geographic book)

- Bee and Me
- By Alison Jay

- Bees: A Honeyed History
- By Piotr Socha

- The Honey Makers
- By Gail Gibbons

- Give Bees A Chance
- By Bethany Barton

- Please, Please the Bees
- By Gerald Kelley

- Thank You, Bees
- By Toni Yuly

- What On Earth? Bees
- By Andrea Quigley

- Buzz, Bee!
- By Jennifer Szymanski

- Bees in the City
- By Andrea Cheng

- Unbelievables: Honeybees
- By Douglas Florian



Bee References and Resources

The information in this bee hotel pack has been taken from a range of sources. Please see below websites where additional information and images can be found;

- Bumblebee Conservation Trust
www.bumblebeeconservationtrust.org

- The Beekeepers Association
www.bbka.org.uk

- The Honey Association
www.honeybee.org.au

- The Woodland Trust
www.woodlandtrust.org.uk

- National Geographic Kids
www.natgeokids.com

- World Wildlife Fund
www.wwf.org.uk

This site shows a Youtube video of how to make a habitat for bees.

- Royal Horticultural Society
www.rhs.org.uk

- Twinkl
www.twinkl.co.uk

This site has lots of activities and information, including PowerPoints for EYFS, KS1 & 2.

- Pinterest
www.pinterest.co.uk

This site has lots of ideas for creative activities.

- Pixabay
www.pixabay.com

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We acknowledge the use of images from the above invaluable resources and we are very grateful for their use in this document. Please do not copy these images for transmission or use other than in support of children's learning about your bee hotel.



National Curriculum Science Programme of Study objectives
which can be covered when learning about bees, their habitats and life cycle

EYFS

Knowledge and Understanding of the World

The world: children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

KS1

Y1: Animals, including humans

Pupils should be taught to:

- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals;
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).

Y2 – Living things and their habitats

Pupils should be taught to:

- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other;
- identify and name a variety of plants and animals in their habitats, including micro- habitats;
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

KS2

Y3 - Plants

Pupils should be taught to:

- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers;
- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Y4 - Living things and their habitats

Pupils should be taught to:

- recognise that living things can be grouped in a variety of ways;
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment;
- recognise that environments can change and that this can sometimes pose dangers to living things.

Y5 - Living things and their habitats

Pupils should be taught to:

- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird;
- describe the life process of reproduction in some plants and animals.

Y6 - Living things and their habitats

Pupils should be taught to:

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals;
- give reasons for classifying plants and animals based on specific characteristics.



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**BE A
BUZZY
BUDDY!**

**HELP TO
LOOK AFTER
YOUR
BEE HOTEL!**