

Welcome to our 'Bee-friendly Zine'!

This zine was created by artist & gardener Andrea Ku to help you, help bees!



As well as being a gardener, Andrea has been a beekeeper for 10 years and has over 30 hives throughout Liverpool. She harvests honey and makes lip balms, candles and furniture polish using beeswax from her hives.

Did you know that bees pollinate over a third of our food? This means they play an important part in making sure we get enough to eat and we need to take care of them in return.

This zine is jam packed full of fun facts and creative activities to help you learn about bees and what we can do to protect them.

To find the answers, please visit:

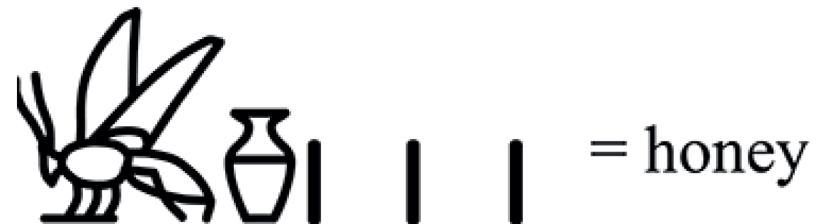
<http://www.b4biodiversity.co.uk/bluecoat-zine.html>

Want to share your creations with us? Tag us on social media and we'll share our favourites.

This resource has been created with support from Liverpool City Council's Without Walls Programme.

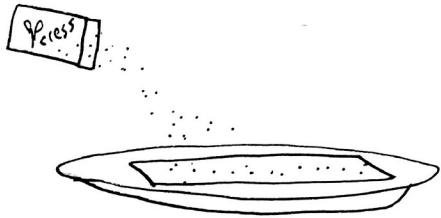
Ancient Beekeeping

The ancient Egyptians loved honeybees and honey. Hieroglyphics found in tombs in Egypt show how important beekeeping was to the people of ancient Egypt.



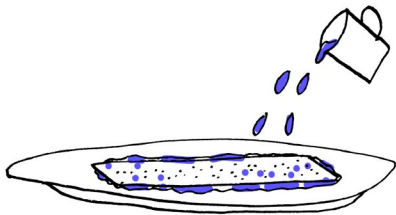
Hieroglyphics is an old writing system used in ancient Egypt to record daily life. Beekeeping appears in a lot of their writing.

How to grow cress

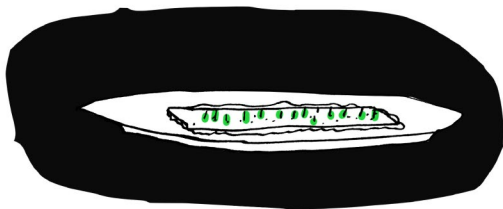


You will need a plate and a few strips of kitchen or toilet roll folder over a few times.

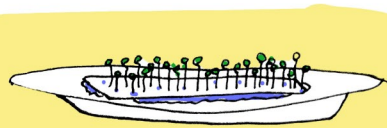
Pour the cress seeds evenly onto the tissue.



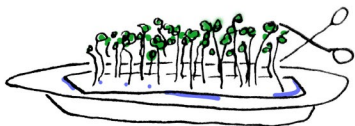
Gently pour water over the seeds ensuring the tissue is damp but not soaking!



Cress seeds need to be in a dark warm spot for 24 hours to make the seeds sprout & look for light. Don't forget to keep the tissue damp.



After 24 hours have passed, move the plate into a light and warm space - by a window is perfect. The seeds will grow very quickly now!



When your cress is about 5-8cm tall, it is ready to harvest. Do this by carefully cutting the cress from just above the tissue. Enjoy your cress in a salad or a sandwich!

How to sow wildflower seeds

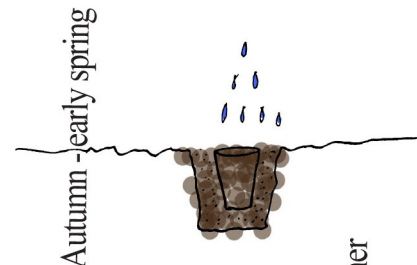


Put some soil into a compostable paper cup or an origami paper pot.

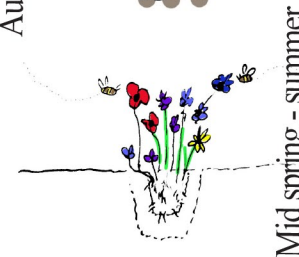


Pour the seeds over the soil evenly. Lightly water the pot.

Leave the pot outside for a few days in a sheltered spot like inbetween plant pots or in a corner. Keep watering if you see the pellet has dried a little.



Plant the pot into the cold ground sometime between October-end of November. Water a little (about a cup size of water) whenever there has been less than a week's worth of rain.



When spring comes, you will see the wildflowers sprouting and growing. Watch for bees visiting them!



When the flowers have finished flowering, you can collect the seeds from them and plant again in autumn!

Bees love wildflowers because they are full of pollen and nectar! The seeds will grow into cornflowers, corncockles and poppies.

Beeswax - Facts!

Bees make hexagons called 'cells' which are like lots of little storage spaces. Inside the cells, the bees store pollen and nectar. The queen also lays eggs inside the cells.

When hexagons are made, the bees make them with the hexagon points at the top and bottom



It takes a lot of energy for bees to make wax. They eat about 1kg of honey to make 1/4kg of wax.

Only worker bees make wax.

Any work that needs doing is done by worker bees and all worker bees are females!

Wax comes from the bees 8 wax glands which are under its tummy



Bees have to hang together in a line to collect the wax from the bee in front. It looks like they're doing the conga!



Beeswax was one of the first 'plastics' to be used to make things like candles, to repair ships and making moulds. It was also the first substance to use to make false teeth and dental fillings!

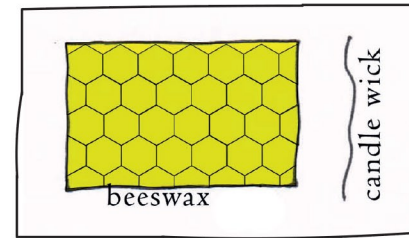


There are still some things made from beeswax today like candles, balms, furniture polish and wax wraps.

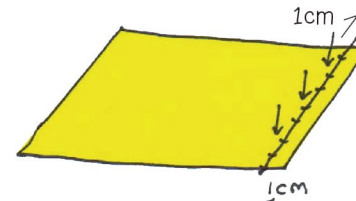
Do some research to find out what we can do to help honey bees make beeswax for their hives

HOW to roll a beeswax candle

NB This activity will require adult supervision.



Prepare a flat clean surface ready to roll your beeswax candle.



Keep the wax in landscape orientation.

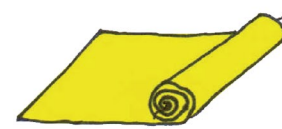
Place the wick 1cm in from the end and push it down into the wax a little.

Make sure there is just over 1cm of wick that sticks out at the end so it can be lit.



Start rolling the wax over the wick and make sure you keep the wax rolled very tightly.

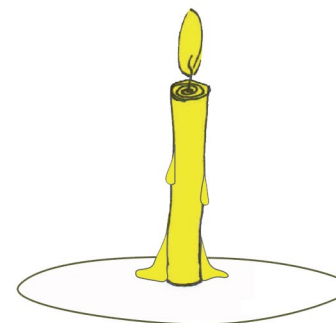
The less gaps there are in the candle rolling the better it will burn.



When you have finished rolling the candle, roll it in your hands to make sure there are no gaps and the base is very flat so it can stand up.



Put your candle on a flat base with something to catch wax drips, like a plate.



Never leave lit candles unattended. Put burning candles out when you leave the room, and make sure they're out completely at night.

There are 3 types of bees in the UK

SOLITARY BEES

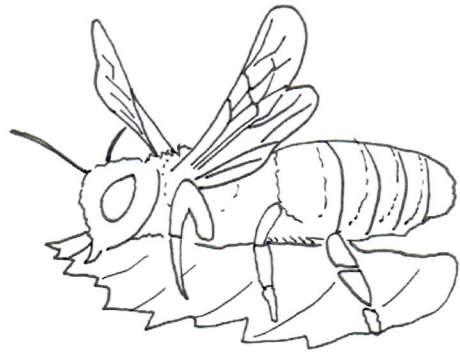
Over 250 species

They live alone

Very friendly

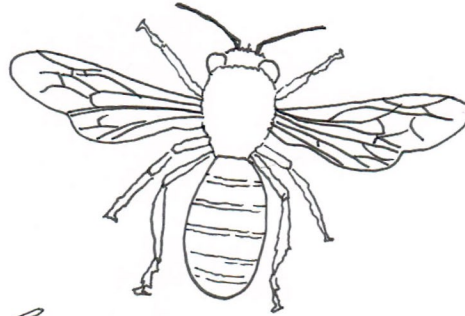
Live in the ground or in walls

Here are 3 types of solitary bee



Leafcutter Bee

Orange Tailed Mining Bee



Ashy Mining Bee

BUMBLE BEES

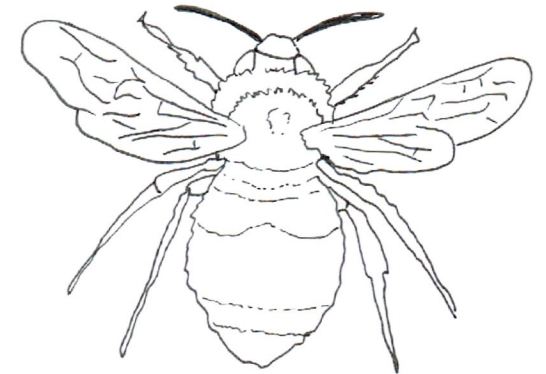
24 species

Big fluffy hairy bees

Live with up to 300 others

Live in the ground or tree stumps

Here are 2 types of bumble bee



Early Bumble Bee

HONEY BEES

1 species

'European Honey Bee'

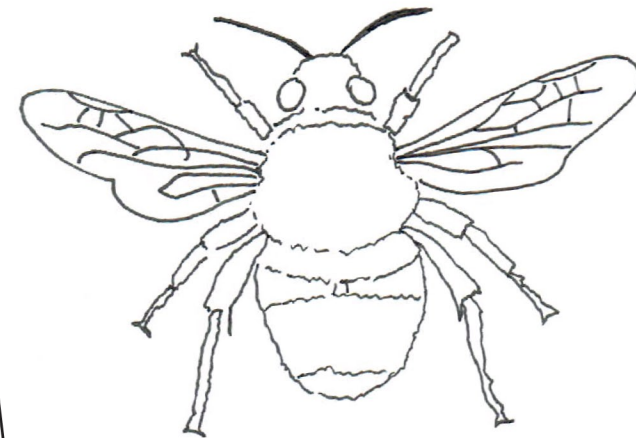
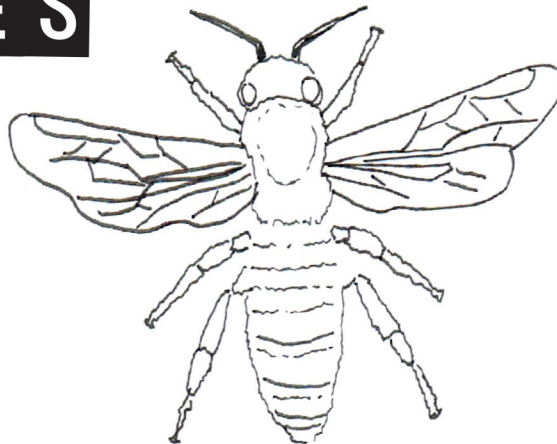
Lives with up to 60,000

3 castes, like classes:

Queen (female)

Drones (males)

Workers (females)



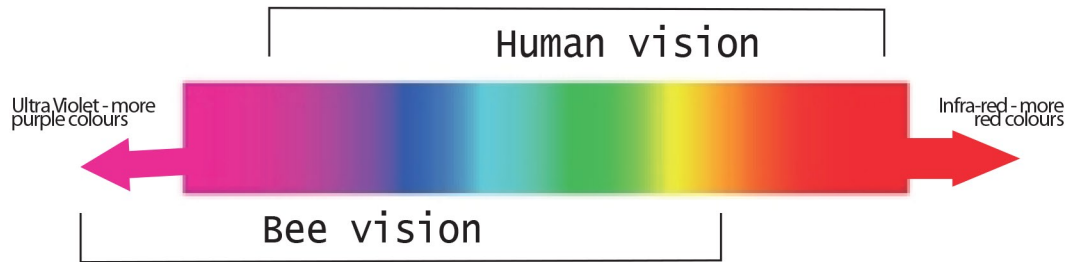
Banded White Tailed Bumble Bee

Go to www.b4biodiversity.co.uk to find out what colours to colour the bees in

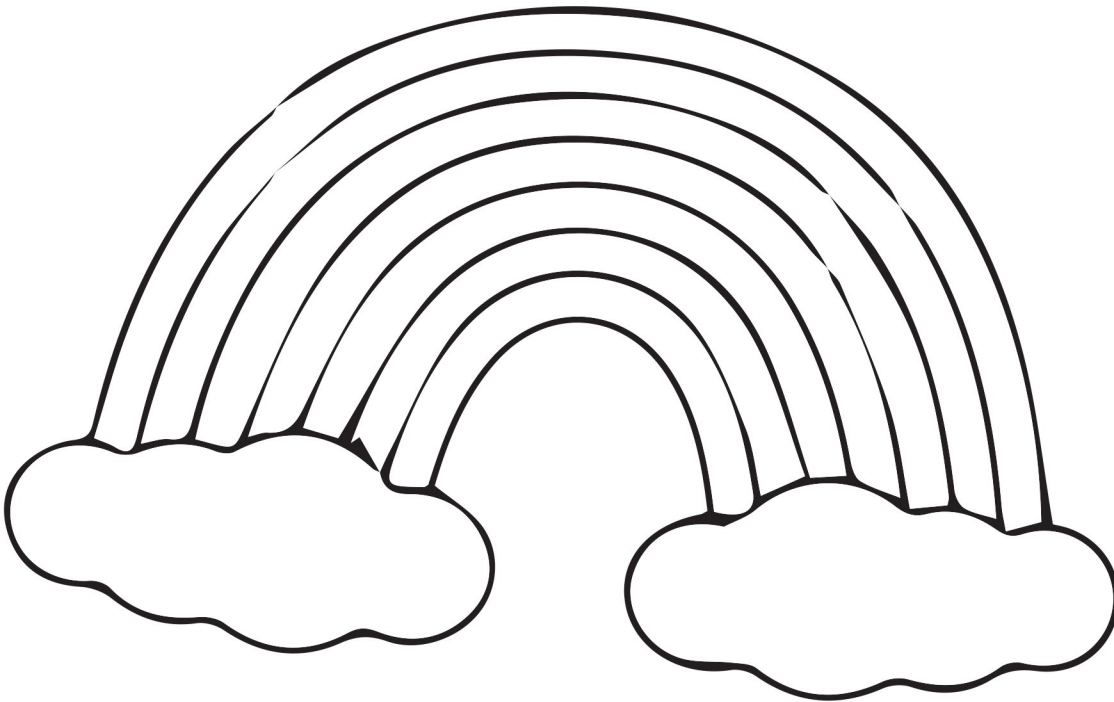
How do Flowers attract Bees?

Flowers attract bees by smell and **patterns**

Bees see yellows, greens, blues & purples the clearest.
They cannot see the colour red but they see other colours that we can't see.



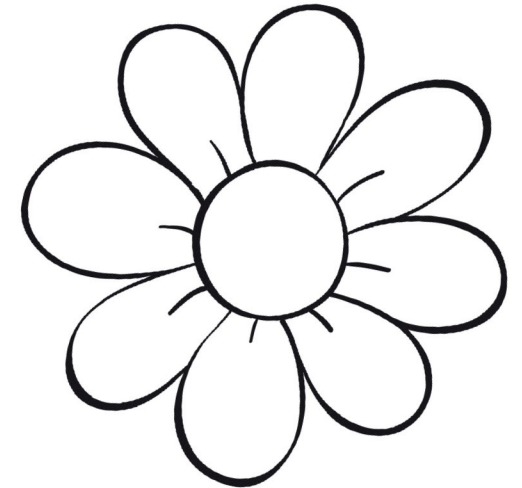
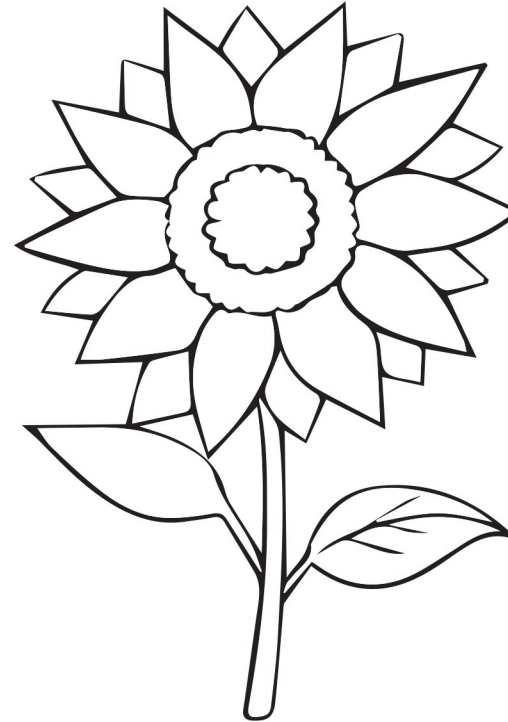
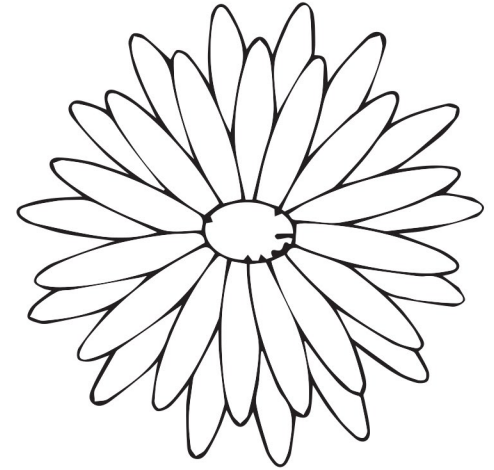
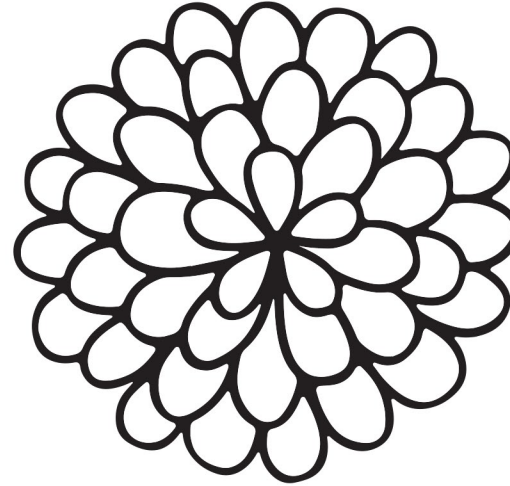
Colour in the rainbow with the colours only bees can see.



Bees can see patterns that we can't see

The patterns look like targets or lights on a runway.
Do some research on bee vision to see what they look like.

Create some designs on the flowers that would attract bees.



BEES MAKE CELLS THAT ARE HEXAGON SHAPES

Inside the cells, bees store
pollen, nectar & honey.
The queen also lays eggs in them.

Go to www.b4biodiversity.co.uk
to find out what you need to
draw in the cells and how to
colour them in.

Pollen can
be any
colour!



Nectar is
often light
yellow or
orange



Eggs hatch and develop into
larva and then a pupa. Then
the bee emerges (like being
born) as an adult bee



Honey can be
from light
yellow to
orange or
even black!

Bees make hexagon cells because
they are the strongest natural
shape and take up the least space.

Some bee experts say the
hexagons started as circles and
when the circles are joined
together, they make hexagons.