Solitary Bee Week

Education Pack
Solitary Bee Awareness Week

Solitary Bee Week

Although most people are aware of honeybees and bumblebees, solitary bees are less well known, they are the unsung heroes of the pollinating world.

With over 200 species in the UK alone, solitary bees make up 90% of the bee population and along with other pollinating animals they are responsible for one third of all the food we eat.

Solitary Bee Week is a week of action and education, to raise awareness of these incredible bees.

About this pack

This pack is designed to encourage the exploration of British wildlife, ecosystems and food cycles. The activities and advice aim to help your school or organisation understand the importance of solitary bees and the vital role they play within our environment.

We believe that if we all work together we can make a huge difference to all of our pollinator friends.

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Why do we need bees?
Bees play a vital role in our eco system. When we think of bees, most people think about honey. Not all bees are make honey, in fact there are three main types of bee in Britain and over 270 different species, honeybees, bumblebees and solitary bees. 90% of bees in Britain are solitary bees and yet so few people know about them. All species of bee collect nectar and pollen, and are responsible for pollinating one third of the food we eat. Our wildlife also rely on bees and other pollinators (flies, butterflies, moths, beetles) to pollinate plants to make food such as berries and seeds.

What is a solitary bee?
Solitary bees don’t produce honey or wax. Solitary bees do not live in colonies like the honeybees and bumblebees do. Solitary bees are a non-aggressive species, meaning they are safe to encourage into your garden without worrying about children or pets, they do not have a large store of honey to protect. The females will only sting if handled roughly or if stepped on and the males have no sting.

Why do solitary bees need our help?
Solitary bee populations are facing massive decline. The biggest contribution to this decline is habitat loss. As farming has become more intensive more hedgerows have been lost, hedgerows which used to provide rich habitat for a number of species. They are also threatened by the use of pesticides and by less land given over to meadows and wild flowers. Already in parts of China, pollination is being undertaken by hand, using paintbrushes, because there are simply not the bees to do the job.
Here are a few of our favourite Solitary bees to look out for along with their distinctive characteristics.

**A Ashy Mining-Bee**
This bee nests in the ground.
They are black and white and often nest along sunny footpaths and in short turf.
This bee is an important pollinator of oilseed rape (used for cooking).

**B Red Mason Bee**
These bees nest in stone walls and bee hotels. Females gather mud to build their nest cells and are efficient pollinators of fruit-tree blossoms.

**C Leaf Cutter Bee**
Unlike mining bees that live in the ground, leaf cutter bees like to nest in holes in wood or walls. They cut neat holes out of leaves, often on rose bushes.
The female uses the leaves to line her chosen nest cavity and build snug cells for her young.

**D Wool Carder Bee**
These bees also like bee hotels. Female wool carder bees gather balls of plant hairs (from plants such as lamb's ear) to build their nest cells.

**E Tawny mining bee**
This is a ground nesting bee and makes volcano-like mounds of soil at its nest entrance in lawns and mown banks.
The bright orange females forage on spring blossoms.

**F Hairy-footed Flower Bee**
These look very similar to bumblebees and are amongst the earliest bees to emerge in spring. They dart rapidly between flowers and blossoms, particularly favouring lungwort, deadnettles and wallflowers.
They nest in banks, walls or the bare ground.

**G Long horned bee**
One of the UK’s largest solitary bees
Long-horned bees get their name from the males’ unmistakable and unusually long antennae. These bees are found in a variety of habitats, including coastal grasslands, soft cliff faces, heathland edges, woodland clearings.

**H Ivy Bee**
This bee looks similar to a honeybee.
As suggested by its name, ivy is the main plant used by this bee for pollen. Ivy bees nest in loose, light or sandy soil on southern-facing banks and cliffs with ivy nearby for foraging.
When conditions are suitable there may be thousands of nests in the same area.
A ASHY MINING-BEE, ANDRENA CINERARIA
B RED MASON BEE, OSMIA BICORNIS
C LEAF CUTTER BEE, MEGACHILE CENTUNCULARIS
D WOOL-CARDER BEE, ANTHIDIUM MANICATUM
E TAWNY MINING BEE, ANDRENA FULVA
F HAIRY-FOOTED FLOWER BEE, ANTHOPHORA PLUMIPES
G LONG HORNED BEE, EUCLERA LONGICORNIS
H IVY BEE, COLLETES HEDERAE
The Solitary Bee
When you hear bee you may think of the honey or bumble, but there’s two hundred and fifty species a lot more humble.

In pollination by honey bee we are worth a hundred and twenty, so it’s always important that our numbers are plenty.

Remember when you look down on your empty plate, we pollinated one in three of those mouthfuls you ate.

We are the unsung heroes I hope you’ll now see, that you owe so much to the solitary bee.
ACROSTIC POEM

An acrostic poem is a poem that uses the first, last or other letters in a line to spell out a particular word or phrase. The most common and simple form of an acrostic poem is where the first letters of each line spell out the word or phrase.

Children can create their own solitary bee poem using this acrostic poem worksheet.

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BEE A POET

These poems have been written about some of the different types of solitary bee to look out for in your school or garden.

ACTIVITY

Have a go at guessing which solitary bee belongs to which poem.

1. Red Mason
2. Leaf Cutter
3. Carpenter
4. Woolcarder
5. Mining bees

A 100 species but most of us fox red and black, carry half our body weight of pollen without a sack. Mostly in the soil so we’re not very big, You really should worship the ground that we dig. Burrows in the garden 60 centimetres deep, Sometimes we leave behind soil in a heap. Pollinating flowers, fruit, crops and seed, Let us nest in your lawn to do a good deed.

B Earned our name from nesting in soft wood, for pollinating crops, we are very good. Yellow stripes like the bumble but a black hairless back, no need to fret because a sting is what we lack. From spring to late summer we can be found, Small holes in soft wood show we are around. We nest in the wood of your homes and trees, So you see us the most out of the solitary bees.

C Identify us by the yellow spots on our side, in woodlands, clearings and chalk where we hide. Compared to the others we are large and robust, Look out in your garden from May to August. Gathering fibres from woolly plants to make a nest, we pollinate thistles, lavender and pea plants the best. Now whenever you have mint leaves in your tea, I hope you’ll think of the woolcarder bee.

D Rarely seen because we’re so fast, If you’re in the garden, we will surely sneak past. Look like honeybees but orange underneath, Found in the woods, farmland and heath. Compared to a bumblebee we are very small, Nesting in the ground or cracks in the wall. From April to August we might be seen, Circular holes in leaves show we have been.

E Black, brown orange and furrier females, You’ll find us in lowland England and Wales. Incurved horns and males slightly thinner, think of us when you have strawberries for dinner. Pollinating your flowers from March to July, nesting in walls, gardens and mud if its dry. Specialising in apples, pear and plumb trees, we really are the most industrious bees.
The following guide provides simple instructions for your class to create their own bee hotel.

**You will need**
- Wooden outer structure - must be untreated wood with protection from the winter rain and a sturdy back (or be put against a wall or solid fence)
- Logs or wooden blocks - ensure logs are not split as this attracts pests and mould.
- Drill
- Sandpaper
- Bundles of dead plant stems (brambles, thorns etc).

Bee hotels provide an interesting educational environment for the observation of bees. Solitary bees will nest in hollow areas and build cavities to maintain their survival. Correct structure and placement of your bee hotel ensures bees are protected from the harsh winter weather and predators. It is important to note that solitary bees are non-aggressive and safe around children and pets and rarely sting.
BUILD A SOLITARY BEE HOUSE

1. Before your class activity, prepare the outer box and logs. An old drawer or crate will do fine, but you may make your own. Avoid using glass or plastic boxes as these attract moisture and mould.

2. Drill multiple open ended holes in each of the logs and wooden blocks with diameters ranging from 2-10mm to attract various species of bees. Smooth all surfaces and holes to avoid damage to wings. Make sure that the logs do not exceed the depth of the box as this will expose them to the winter elements.

3. The class can now arrange the logs in the box so that the logs are stable and not likely to collapse. Any gaps can be filled with dead plant stems as some species may prefer these to the drilled holes.

4. Position your bee hotel in a dry, warm and sheltered area where the holes are unlikely to be obstructed by plant growth or get damp. Make sure the hotel has a sturdy back or is against a wall to protect from wind.
Children can create their own poems about their favourite solitary bee. Give your solitary bee a name and write a short poem to introduce them to their friends.

He is a list of our favourites.

1. Red Mason,
2. Leaf Cutter,
3. Carpenter,
4. Woolcarder,
5. Mining bees.

Choose a bee and give it a name (Lenny the leafcutter, Martha the Mining Bee) mind map words that rhyme with it.

How does it nest?
Where does it live?
Why is it different from a bumblebee or honeybee?

Key words and starting points
- Pollination
- Trees
- Wings
- Buzz
- Ground
- Flowers
- Garden
- Nest
- Alone
- Red
- Stripes
- Leaf
- Wood
- Solitary
- Bee
- One
- Unique
- Brown
- Black
- Hole
Wordsearch

- Pollination
- Food
- Red Mason
- Leafcutter
- Lavender
- Daisy
- Hollow
- Protect
- Alone
- Harmless

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CONGRATULATIONS

THIS AWARD CERTIFIES THAT

HAS EARNED THEIR STRIPES TO BECOME A

SOLITARY BEE HERO

DATE

SIGNED

Green&Blue

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