

Lesson Plan 4:

What pollinators need: Food, Shelter, Safety



Objectives

In this lesson, students will:

- learn what bees need to survive: Food, Shelter and Safety

Food:

Bees feed on flowers - they gather pollen to bring back to their nest to feed to the baby bees, and the adults drink the nectar from flowers to give them energy. Some flowers offer better food (pollen and nectar) than others



Shelter:

Bees need safe nesting sites.

Bumblebees nest in long grass, often at the base of a hedgerow. (21 species)



Mining solitary bees nest in south/east-facing banks of bare earth. (62 species)



Cavity-nesting solitary bees nest in existing cavities in wood or stone. (15 species)



Safety:

Pesticides include herbicides, insecticides and fungicides. Insecticides harm or kill bees, while Herbicides remove their food source, wildflowers.



Class Discussion:

Have a class discussion about what bees need to survive and our top 10 tips for helping bees:

10 ways to help pollinators



- 1 Let Dandelions bloom**
Dandelions provide vital food for hungry bees in spring.
- 2 Reduce mowing**
Mow every 6 weeks from mid-April to allow flowers like clover to grow and provide food.
- 3 Pollinator friendly bulbs**
Plant Crocus, Allium or Snow-drop bulbs. They provide better food than Daffodils and Tulips.
- 4 Pollinator friendly bedding**
Begonias, Petunias and Busy Lizzies don't provide food for pollinators. See our website for alternatives e.g. *Calamintha nepeta*.
- 5 Plant native flowering trees**
Willow, Hawthorn and Blackthorn flowers provide important food for pollinators.
- 6 Don't spray**
The overuse of herbicides is making it difficult for pollinators to find enough flowers to feed from.
- 6 weeks**

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All-Ireland Pollinator Plan



- 7 Bare soil for nesting**
Most of our bees need bare soil to nest. Create a small south-facing earth bank to provide shelter.
- 8 Put up signage**
Inform the public where land is being managed for pollinators. See our website for templates.
- 9 Junior Pollinator Plan**
Download the Junior Plan from our website and help educate the next generation.
- 10 Record your actions**
Log your actions on our website to help us track the increase in pollinator resources in the landscape!

The All-Ireland Pollinator Plan 2015-2020 is a strategy addressing pollinator declines and protecting pollination services on the island of Ireland. See the website to find out what other actions you can take to help.

National Biodiversity Data Centre
Documenting Ireland's Wildlife

Bord Bia
Irish Food Board

Department of Agriculture, Food and the Marine
An tAonad Talmhaíochta, Bia agus Mara

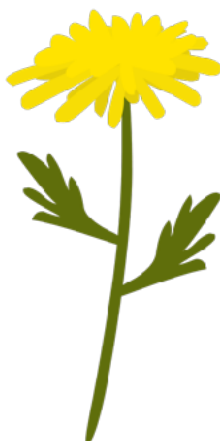
An tOimhaire Oidhreachta
The Heritage Council

www.pollinators.ie

Using our life cycle posters at pollinators.ie/schools, explain why bees need lots of flowers for food from early spring right through to to Autumn.....



Discuss and draw some native plants that are really important for bees

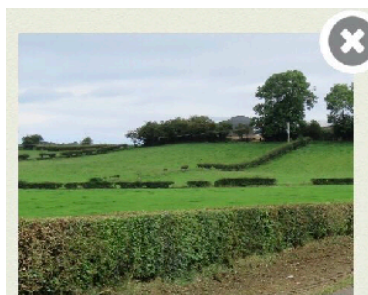


Willow and Dandelions are really important in early spring.



Willow

Flowering hedgerows (that are not clipped too tightly) provide lots of pollen and nectar for bees.



= NO FOOD



= FOOD

Blackthorn and Hawthorn
in our hedgerows are really
important food sources



Clover is a very common wildflower offering
food in summer months. So much so, it used
to be called 'Bee's bread'



Brambles give us flowers for pollinators
and yummy blackberries later in the year



Ivy is a great plant as it flowers very later in the
year when there is not much else in flower for
bees. It also has berries in winter - which is great
news for birds.

Activity: Create a play Bee garden

Create a play garden with all that pollinators need:

Food, Shelter, Safety

For instance a garden for a **cavity-nesting solitary bee** should have lots of flowers for food; a small bee hotel for its nest, and for safety and a sign that says: "Protected for Wildlife" or 'No spraying'

You will need:

- an old shoe box
- Toilet roll inserts
- Coloured paper to cover the hotel and to make paper flowers

How to make it:

1. Cover the outside of your box in whatever design you want.
2. Fill the box with toilet roll inserts
3. You can use your bees you made in previous lessons to play with your bee garden
4. Lay down paper flowers and have your bees pick up pollen to bring back to the bee hotel for the baby bees.



Solitary bee



Make your own garden sign



4th to 6th Class:

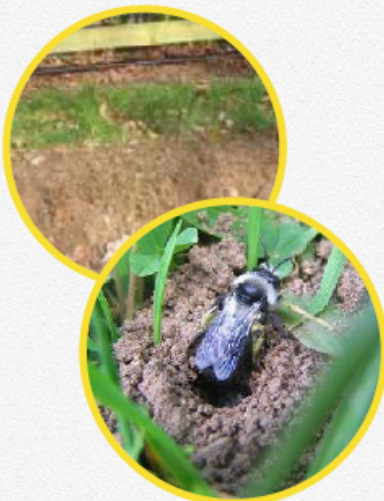
Did you know small bee hotels are much better than the very large ones?



MYTH: A very large bee hotel is a good action to help bees

Small bee hotels should be placed 1.5-2m off the ground in a sheltered south or east facing location

- They must be close to food sources – solitary bees don't fly far!
- You'll know your box is being used if the cavity entrances have been closed off with pieces of leaf or mud. If it's not being used consider moving it to a new location



Bee nest boxes only target a small number of our cavity-nesting solitary bees. Don't forget that 80% (62 species) of our solitary bees nest in bare ground which is even easier to create by scraping back vegetation!



4th to 6th Class:

- Find photographs online or use the images below to develop a photo collage activity to learn about food, shelter and safety.
- Beside each photograph, ask students to explain what aspect of food, shelter or safety is featured, and how?

This exercise will help critical thinking and will support what the children have learned from previous lessons.

Examples:

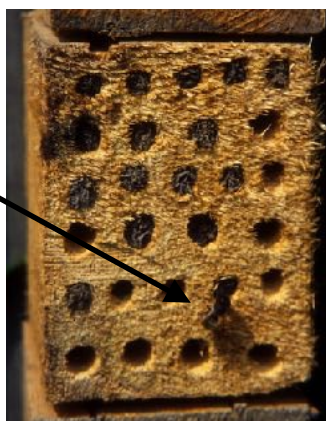
Reduced mowing of a lawn results in lots of wildflowers to feed the bees



Protective signage



Holes drilled in wood for solitary bees to nest inside



Sprayed with pesticides



Bare earth makes a great nesting site for mining solitary bees





Bare earth
makes a great
nesting site for
mining solitary
bees



Bee hotel for
solitary bees
to nest inside



Dandelions = Food

Tightly
mown grass
is like a
barren
desert for
bees



Unfortunately not all
flowers are as good as
others. Daffodils and tulips
have very little pollen and
nectar



Sunflowers are full of
goodness for bees

4th to 6th Class:

Discussion:

- What do you think of these photographs?
- Which looks better?
- Which would be better for bees?



Before mowing



After mowing

