

## Brilliant Bees - The Pollination Story

**Overview:** This active session can be used to reinforce students' understanding of the role that pollinators play in the process of reproduction in plants. It can also be used to explore examples of human impact (both positive and negative) on specific environments. Although this lesson requires making some resources, they are very popular with young people and can be used again and again.

**Who:** Years 2-4

**How long:** 1-2 hours

### Curriculum links

We have designed this lesson to cover the following areas of **Primary Science Curriculum:**

#### Year 2- Plants:

- Describe how seeds and bulbs grow into mature plants- pupils should be introduced to the processes of reproduction and growth in plants.

#### Year 2- Living things and their habitats:

- Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.

#### Year 3- Plants:

- Identify and describe the functions of different parts of flowering plants (flowers).
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

#### Year 4- Living things and their habitats:

- Recognise that environments can change and that this can sometimes pose dangers to living things.

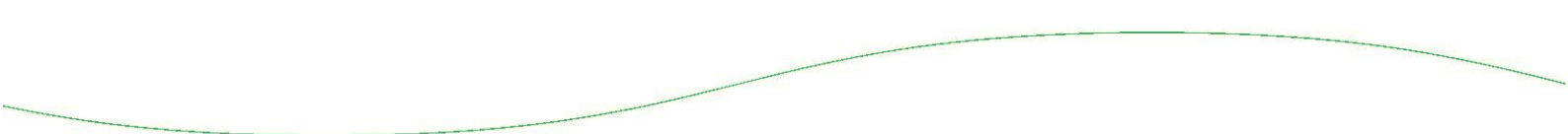
### Children will learn:

- How and why bees, and other pollinators, move pollen from one flower to another.
- Why bees and other insect pollinators are so important.
- About the dangers faced by insect pollinators as a result of human action.
- How they can help look after pollinators around their school.

### Resources

For this lesson, you will need:

- Access to [Explorify](#) resources (it is free to create an account!)
- 5 sets of different coloured ribbons (approx. 30 ribbons of each colour)
- Pictures of 5 different coloured flowers (matching the colours of ribbons you've used).
- 5 baskets
- An open space
- A whistle
- The Littlest Bee Story- PowerPoint (see downloads)
- A stopwatch
- Pollinator Survey Sheet ([Pollinators and Flowering Plants Survey](#))



### Getting Started [20 minutes]

- Begin by using the [‘Feathery friend?’](#) Zoom In, Zoom Out activity from the Explorify website (this is free to use, but you need to create a free account first).
- Start by asking everyone: What do you think this image is? Why? What does it remind you of? Why?
- Use the navigation buttons, on the left-hand side of the image, to slowly zoom out. Every time you do, ask the class: Can you describe the colours, shapes and textures? What do you think the image is now? Have you changed your mind?
- When the image is fully visible, ask the class if their original guesses were correct? Do they know what kind of bee this is?
- Establish that it is a Bumblebee. It is easily identifiable as Bumblebees have round bodies covered in soft hair called pile. This makes them look and feel fuzzy. Their yellow, orange and black warning colours make them very noticeable and can often protect them from predators.
- Explain to the class that there are 250 native species of bee in UK all of which play a very important part in our eco system.
- Ask the class to look more closely at the image of the bee from initial activity and use this to help them answer the question: What do bees do?

**Teacher note:** it is a common misconception among children that all bees create honey. Less than 4% of all bee species make honey.

- After feedback from the class, establish bees, and other insects, are known as ‘pollinators. As part of the reproduction process, they move pollen (the yellow grains you can see in the picture) from one flower to another, which enables that flower to produce seeds!
- Use Eden’s [Guide to Pollinating Insects](#) to introduce the class to some common pollinating insects found in the UK.
- To demonstrate how pollination works, play **The Pollination Game:**
  - Set up 5 different flower stations around the room (a basket containing a picture of a coloured flower with matching ‘pollen’ ribbons e.g. a red flower with red ribbons in one basket, a white flower with white ribbons in another).
  - Explain to the class that their challenge is to become bees, and move pollen from flower to flower so that they can make seeds.
  - The children must work together, to move pollen from basket to basket. The aim is for none of the pollen to remain in its original basket.
  - They have 3 minutes to complete the challenge before night fall (the classroom lights start to fade).
  - **Rules:** The bees can only carry 1 piece of pollen at a time. Also, they must not bang into each other (this will be watched by all the adults) and if they do both bees that touched will be out!!!
  - This game can be repeated as many times as you like!

### Main activity [30 minutes]

- Having completed the game, ask the class to think about the following question: Why is pollination so important? Provide each pair of children with a post-it notes and ask them to write their thoughts on it before coming to stick their answer up on the board.
- Explain to the class that without bees, and other insect pollinators, we simply wouldn't be able to survive ([The Woodland Trust- Why are bees important?](#)). As well as making us feel happy when we see them buzzing from flower to flower, they're extremely important to the health of the environment. Without them we wouldn't have all of the beautiful flowers around us. We also wouldn't have a lot of the food that we eat!

**Teacher note:** According to the [Friends of the Earth](#) website, here is a list of some foods that we eat that depend on bees for pollination: **apples, avocado, blackberry, blueberry, brazil nut, cabbage, cantaloupe, cashew, celery, peppers, coconut, peach, pear, plum, tomato, turnip and watermelon**

[Friends of the Earth](#) also tell us that:

- Bees pollinate over 130 fruits and vegetables and are responsible for pollinating three quarters of the world's flowering plants.
- Nearly 35% of the food the world depends on requires animal pollinators – like bees – to reproduce.
- Bees not only pollinate our food, they also help plants and trees grow – which is vital to clean, breathable air.

- Read the story '**The Littlest Bee**' (see slide deck available from downloads).
- Explain to the class that, just like in the story 'The Littlest Bee', insect pollinators are in danger. The use of harmful chemicals (pesticides), as well as other human activities that lead to issues such as habitat loss and climate change, are responsible for a rapid decline in insect pollinators. [Friends of the Earth](#) tell us that 'last year, beekeepers reported that 45% of their hives died'.
- Play '**The Pollination Game**' for a second time:  
Explain to the class that this time you will be blowing a whistle to represent the spraying of pesticides. Explain to the class that these pesticides will impact their ability to think properly and make them confused. Every time they hear the whistle they have to spin round three times and change which basket they were heading for, picking a different one on the other side of the room. If you blew the whistle a few times it will make them a lot less efficient (which is effectively what actually happens in the real world). At the end of the 3 minutes, check the baskets, were the bees successful this time around? Why not?
- Discuss the affects that the decline in pollinators will have on the habitat and food production. Take feedback from the class.
- Explain that although this sounds scary, there are ways in which we can help! One of the most important ways to help bees is by protecting areas that contain lots of nectar-rich, bee-

friendly flowers, such as wildflowers! Simple changes to the way we look after our gardens, schools, parks and roadsides can help pollinators thrive and bring the wonder of 'wild' back into our lives. To help pollinators, we should:

1. Mow less and leave space for life-cycles to unfold.
  2. Choose seeds/plants with pollinators in mind and avoid buying those treated with pesticides.
  3. Help scientists learn by recording what you see.
- With the third action in mind, explain to the class that you are going to carry out a pollinator survey around your school!



**Teacher note:** You could sign up to a national survey such as:

- The '[Pollinators and Flowering Plants Survey](#)' that is being carried out by Learning through Landscapes.
- '[FIT Counts: help us monitor pollinators](#)' that is being carried out by the UK Pollinator Monitoring Scheme.
- '[Plant and Pollinator wildlife surveys](#)' being carried out by the National History Museum.

\*Each of these surveys requires the children to carry it out the survey in a different way. Look at all three and pick the one that is best suited to your class.

### And Finally

- If you have taken part in a national survey, remember to submit your results to help scientists meet the aims of their project.
- You could also use the data you have collected as a 'spring board' for positive change around your school (see the 'Optional Extras' below). Perhaps you could then carry out another survey and track the impacts of your actions!

### Optional Extras:

- Why don't you plant an area of pollinator friendly wildflowers somewhere around your school? Use Eden's '[Wildflowers in Schools](#)' information and resources to help your class, choose and prepare an area to successfully grow wildflowers on your school grounds.
- Why not try making your own insect home – or 'bug hotel' – to give pollinators somewhere to live? Use Eden's '[How to build an insect home](#)' resource to help you pick the best time, place and materials to use for your insect home and use our step-by-step guide to ensure your hotel will be popular with all of its guests!

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