Keep Scotland Beautiful

Your charity for Scotland's environment

Inviting Pollinators to the Schoolyard

Stages: P2 – S4

Time: Project

Purpose: Pupils will investigate the value of pollinators and plant pollinator friendly plants. This activity has been adapted from a lesson created by Vitor Martins and Maria José Araújo (Portugal) for the FEE 2021-22 GAIA 20:30 Biodiversity Lesson Plan Competition

Curricular links

LIT 1-4-04a, 1-4-05a, 1-4-06a, 1-4-08a, 1-4-14a, 1-4-15a, 1-4-18a
SCN 1-4-01a, 1-02a, 2-02a-b, 3-4-02a, 1-03a
SOC 1-4-08a
TCH 1-4-01a, 1-4-02a

Introduction

Without bees, like *Apis mellifera**, the availability and diversity of fresh produce would decline substantially, and human nutrition would suffer. This lesson aims to raise pupils' awareness about the importance of pollinators. Use this lesson to teach pupils about the crucial role pollinators play in ecosystems and to human wellbeing and the threats they face. By supporting pollinators' needs, we support all biodiversity, including access to food for humans.

*Of the 20,400 species of bees in the world, more than 90% do not live in hives nor make any honey but are nevertheless effective and crucial pollinators.

Activity outline

Session 1 (50 minutes) – Classroom – Importance of pollination for the preservation of biodiversity
Session 2 (50 minutes) – Classroom and outdoors – Preparation of the flower beds
Session 3 (50 minutes) – Outdoors – Transplantation of the plants (schoolyard or pupil's homes).
Extra session 4 (periodic) – Monitoring and identification of insects.

Equipment needed

- Flower seeds: view our Garden for Life resources for suggestions, especially 'Garden for Butterflies' and 'Garden for Bumblebees'.
- Plant pots or seed trays (these can be repurposed from other materials, e.g., yoghurt pots or other plastic tubs)

LEARNING ABOUT FORESTS

Adapted from Vitor Martins, Maria José Araújo (Portugal) entry to the FEE 2021-22 GAIA 20:30 Biodiversity Lesson Plan Competition.

- Plant labels (these can be repurposed from other materials, e.g., cut up yoghurt pots, ice lolly sticks)
- Compost (peat free)
- Clear plastic or glass sheets to help seeds germinate (you can repurpose clear plastic stationary for this)
- Space to plant seedlings outside (see Session 2 for how to select an area for planting)
- Trowel/s or spade/s to plant out seedlings

Session 1: The Importance of Pollination for the Preservation of Biodiversity

Opening discussion

Open a discussion with pupils about creating a pollinator garden by asking about pollination:

- What do you already know about pollinators and pollination?
- Why are pollinators important for the natural world?
- Why are pollinators important for humans?
- What do you want to learn more about?

You may want to watch this TED video from filmmaker Louie Schwartzberg, which has amazing video shots of different pollinators in action. The video contains an introduction, and the pollinator videos start at 3.05 minutes.

Research

Following on from the discussion, ask pupils to research how pollination works and why it is important for biodiversity and humans. BBC Bitesize can be a useful starting point for this, including articles on pollination for younger and older pupils.

Instruct pupils to use laptops, tablets, and book resources to find some activities

Ask pupils to record the activities down, take a screenshot, or bookmark the page to share with the rest of the class later.

Next, ask pupils to research ways to promote and protect pollinators.

While pupils are researching ask them to pay attention to which plants are mentioned that are considered the most appealing to pollinators (e.g., plants *Lavandula angustifolia* or *Rosmarinus officinalis* are attractive to the honeybee). Our Garden for Life resources will be helpful for this, especially 'Garden for Butterflies' and 'Garden for Bumblebees'.

Ask pupils to also look for information about which factors (biotic and abiotic) are necessary for the survival of both pollinators and plants (e.g. light intensity or soil pH (again BBC Bitesize has some useful information for younger and older pupils).

Combine research findings

After the research activity, invite pupils to reflect on their findings.

Make a mind map of the types of plants that pupils found the best and most interesting.

You can then select which seeds you want to plant and purchase these in preparation for the next session.

Session 2: Preparation of the Flower Beds

Find a site for your pollinator garden

Prior to this session have a discussion in school about where you would be allowed to plant a pollinator garden, either inside or outside your grounds.

During the session, ask pupils to walk around the potential areas so they can choose a site. Ideally the site will receive a good amount of sunlight, be sheltered from strong winds and be protected from damage by pupils / the general public.

Start planting your seeds.
Guide pupils to begin preparation for the pollinator garden.
Explain which seeds have been chosen and why (referring to pollinator friendly plants and pupils' mind map).
Instruct pupils to plant each seed (either in seed trays or individual pots), following instructions on the seed packets for how deep to plant the seeds.
Once planted, instruct pupils that all seeds should be watered with warm water and then covered with polyethylene or glass to create the effect of a greenhouse to help seedlings grow.
Allow pupils to do the planting.
Make sure all pots are labelled so you know what has been planted in each.
Once all seedlings are planted, ask pupils to help tidy up the remaining soil, pots, etc.
Place plants in the box for seedlings in a safe, well-lit place that can easily be accessed by pupils for watering and observation.

Session 3: Transplantation of the Plants

Checking seedlings are ready
Have pupils measure their seedlings periodically.
As soon as the seedlings have grown approximately 5 cm, ask pupils to take off the clear plastic or glass and leave the plants by a window.
Instruct pupils to look for signs that the plants are ready to be transplanted to a permanent place:

- About 3 weeks' time has passed.
- There are at least two sets of true leaves.
- The plant looks healthy.
- The growing conditions and weather are suitable outside (refer to seed packets to help with timings).

Transplanting seedlings outside
Take the box of seedlings outdoors and bring them to the predetermined permanent space.
Have pupil volunteers carry the necessary gardening equipment outdoors: trowels / spades, labels etc.
Ask pupils to photograph the process to share with parents and other pupils later.
If transplanting is not possible, then you could send the seedlings home with pupils. (Have pupils write down transplant instructions for them to follow with their parents/ guardians at home.)

After transplanting
Hold a session after the activity for pupils to reflect on the process of making a pollinator garden.
Have pupils draw, write, or even perform highlights from the experience.
Create a mind map together about what the next steps could be in the pollinator garden:

- Pollinator hotel
- Additional flowers
- Making a watering schedule

LEARNING ABOUT FORESTS

- Putting rocks on sticks around the flower to protect them from being stepped on.
- A sign to prevent people from picking them.
- A plaque to educate the rest of the community about the importance of pollinators.

Session 4: Monitoring and Evaluation of Pollinators

Preparing for monitoring
Review the names of various local pollinators with pupils.
Ask pupils to suggest a good way to record sights of pollinators in the new pollinator garden.
Agree on a chart format and display it in the classroom.

Monitoring your pollinators
Assign chart monitors each week at least two who are responsible for recording pollinator sightings that they or other classmates may see.
Make sure the chart includes a way of charting the frequency and type of pollinators that have been spotted.

Follow-up activity
Follow up with any suggestions pupils may have for improving the pollinator garden and conditions for pollinators in the local environment.

Dissemination ideas

Encourage pupils to document the progress of their pollinator garden with the rest of the community (article, photography, and video journalism).
Hold a photo contest with pollinators and pollinator friendly plants at school.
Create an event to replicate the seeding and the planting process in the local community to create more urban gardens for insects in the balconies, home gardens.