

POLLINATOR POWER

*Grades 7 - 8, Science and Technology
Prepared for Monarch Mayhem 2020*

OVERVIEW & PURPOSE

This lesson plan intends to give a more in depth look at interactions between pollinators and humans.

UNIT: Interactions in the environment, pollination.

Estimated time to complete: 45 minutes to 1 hour.

OBJECTIVES

1. Students will understand what pollinators need to live and how humans impact their environment.

VERIFICATION

Steps to check for student understanding

1. Students will discuss in groups what pollinators need to survive and share this with the teacher and peers.
2. Students will complete an activity on how they can improve the habitat around them to encourage pollinators.

PRESENTATION

Pollination Recap: pollination is the transportation of pollen from the male part of a plant's flower (anther) to the female part (stigma). This helps the plant reproduce and creates a new generation of seeds.

Today we are going to talk about the human impact on pollinators and the plants that rely on them.

Let's begin by going over the three requirements for life. Pollinators need food, shelter and water to survive. Think about the schoolyard, does it provide all of these? What about your backyard? How about your local park? It is likely that these areas are missing one or more of these requirements for pollinators to live there.

Pollinators are vitally important to Canada's economy, food security and biodiversity. This is because they pollinate thousands of native plants and most of our food crops. Without a healthy population of pollinators, it would be impossible to enjoy many of the foods we rely on. Everything from blueberries and strawberries to almonds and sugarcane. It's not just humans that rely on pollinators, they are also an integral part of the food web. This is why the human impact on the environment is an important topic to discuss.

Activity #1: Divide the class into small groups (at a distance) and ask them to come up with ideas of where pollinators eat, drink and live. Write the three requirements on the board and get each group to give you an example of these needs in relation to pollinators.

Now we are going to go into more depth of what pollinators need and how we as humans can improve our environment for pollinators.

Food: Pollinators eat sugary nectar which is produced by flowers to attract them. Some pollinators also eat pollen. There are over 1 000 species of pollinators in Canada, which are mostly made up of insects, and they are actively feeding from spring to fall. This means the ideal pollinator habitat has flower blooms across these three seasons. Their larvae (for butterflies these are caterpillars) eat all different kinds of plant matter. 'Host plants' are a type of plant that insect larvae need to survive. For example, monarch caterpillars will only eat milkweed leaves.

Shelter: Because there are so many species of pollinators, there are a wide variety of homes they live in. Some bees live under the ground and require an area of bare soil to dig in. Carpenter bees cut a hole into dead wood or logs to live in. Some pollinating flies need water for their young (larvae) to live in. In the winter, many pollinators will hibernate in leaf litter or beneath the ground. As you can see, shelter is a complex topic!

Water: Pollinators drink from bird baths, insect water dishes, ponds, puddling areas and other unchlorinated water sources.

Ways humans impact pollinators: the use of pesticides, which are a poison to eliminate a 'pest' species, such as mould, weeds or insects, also poison pollinators who visit the affected areas.

Activity #2: Think about your schoolyard again, what could your class do to improve or create pollinator habitat - without stopping students using it? Design a garden and be sure to include at least one of each of the three requirements for pollinators to survive.

Optional: Have students look up native flowering plants to their area using Pollinator Partnership Canada's *Ecoregional Planting Guides*:
pollinatorpartnership.ca/ecoregional-planting-guides

Hand out pollinator-inspired snacks.