



Pollinators

Total time ~45 minutes

Overview

Students will learn about pollinators and their role in plant reproduction.

Objectives:

After this lesson students will be able to:

- **Identify** when pollinators visit flowers
- **Understand** how a pollinator works
- **Learn** different pollinators and which plants they visit

Preparation:

- Create imaginary garden
 - Can either be printed from given worksheet or used in the powerpoint as a guessing game
- Print out pollinator table to hand to students
- Write out vocabulary words and reflection questions on the board

Vocabulary:

- **Cross pollination:** when a flower uses a pollinator
- **Self pollination:** when a flower pollinates on its own (fruit plants)
- **Flower:** the reproductive structure found in flowering plants
- **Nectar:** a sweet liquid secreted by flowers to attract and reward pollinators
- **Pollen:** powder-like substance in flower made up of grains that is transferred from the male stamen to the female stigma enabling reproduction
- **Pollination:** necessary step in reproduction of flowering plants; where pollen is transferred from male stamen to female stigma enabling fertilization and reproduction

Materials:

Pollination Diagram
Pollinators PDF
Imaginary Garden Worksheet

On the Board:

Vocabulary
Student Reflection
Questions: “What are your favorite flowers?” “Why do plants have flowers?” “Do you think all flowers are trying to attract the same pollinators?” “Why are there so many different flowers?”

Suggested Snack:

Additional Resources:

Powerpoint:

https://docs.google.com/presentation/d/1U_XUYQ5IJiWr4v3sq2ugbWRLTb0nsbTST79bGSE6Kw0/edit#slide=id.g8745d1ed8d_0_203

Pollination Diagram:

https://www.calacademy.org/sites/default/files/assets/docs/pdf/297_flower_diagram.pdf

Pollinators PDF:

<https://docs.google.com/document/d/1ptVYFhkU-dIAeJRPc2wXLGpM2J5n-b1IZE0WG6uof4/edit?usp=sharing>

Imaginary Garden Worksheet:

<https://docs.google.com/document/d/1s7TX4f-v4kB3drnuQ>

- **Pollinator:** an animal (such as insects or bats) that involuntarily transfer a flower's pollen from the stigma to the stamen
- **Stigma:** the pollen receiving tip of a flower (female part)
- **Stamen:** the pollen producing reproductive organ of flower (male part)

[LPhyjwsn13ZyxIgOSHX9epiMQ0/edit?pli=1](https://www.imaginarygarden.com/answer-key/LPhyjwsn13ZyxIgOSHX9epiMQ0/edit?pli=1)

Imaginary Garden Answer Key:
 A: Butterfly
 B: Bird
 C: Moth
 D: Fly
 E: Bee
 F: Bats

1. Introduction

- Introduce students to vocabulary words
- Introduce students to what we learn today: pollination
 - Angiosperms go through a process of four steps: flower, pollination, fruit, and seed dispersal.
 - Today we will focus on pollination:
 - Pollination:** Transfer of pollen from stamen to stigma of flowers. Pollen can be carried by insects, other animals, wind or water. There are two types of pollination, self-pollination which is when pollen lands on stigma of its own flower and cross-pollination which is when pollen is transferred to another plant or flower.
- Watch 8 minute YouTube video: “**Pollination for Kids**” (start at 2 minutes)
<https://www.youtube.com/watch?v=CUPzbTuJlgc>
- Ask students: did you guys hear any of the vocabulary words that we learned about?
- Show **Pollinator Diagram** and review the diagram of the inside of a flower and how cross-pollination works
- Ask students: What is self-pollination? When pollen from the same plant arrives at the stigma of a flower or at the ovule.
- Hand out **pollinator table** which can be found as pdf in additional resources

2. Lesson

Pollinators:

- Birds**
 - Birds visit flowers during the daytime
 - Birds use their beaks to reach inside flowers to drink nectar and do not rest on the flower
 - Birds have good vision but a poor sense of smell

- iv. Birds are attracted to bright colors like red or orange and very little scent
- v. Example of pollinator birds are hummingbirds, spiderhunters, sunbirds, honeycreepers, and honeyeaters

b. Bees

- i. Bees visit flowers during the daytime.
- ii. Bees land on flower petals to gather pollen.
- iii. Bees are attracted to sweet smelling flowers.
- iv. Bees seek bright colors like yellow, blue, and violet and can see colors in the UV spectrum.

c. Moths

- i. Moths visit flowers during the nighttime.
- ii. Moths use their long mouth parts to reach inside flowers to drink nectar.
- iii. Moths do not rest on the flower petals to eat.
- iv. Moths are attracted to flowers that are pale colors, or white.
- v. Moths are attracted to sweet smelling flowers.

d. Flies

- i. Flies visit flowers during the daytime.
- ii. Flies land on flower petals to gather pollen.
- iii. Flies are attracted to flowers that smell like rotting meat because they lay their eggs on rotten meat.
- iv. Flies like to visit flowers that are low to the ground.
- v. Flies like to visit flowers that are pale colors with dark brown or purple patches.

e. Butterflies

- i. Butterflies visit flowers during the daytime.
- ii. Butterflies use their long mouth parts to reach inside flowers to drink nectar.
- iii. Butterflies rest on the flower petals when they eat.
- iv. Butterflies are attracted to flowers that are bright colors like violet, red, or orange.
- v. Butterflies have good vision but a weak sense of smell.

f. Bats

- i. Bats visit flowers during the nighttime.
- ii. Bats land on flower petals to feed on the nectar deep inside the flower.
- iii. Bats are attracted to large flowers with strong smells.
- iv. Bats like to visit flowers that are white because they are visible at night.

3. Activity (Imaginary Garden)

- a. Review the **pollinator table**

- b. Introduce students to an **imaginary garden**
- c. Ask students to guess which pollinator corresponds to the flower

4. Activity (Garden-based)

- a. Split students into groups of six and ask them to go around the garden and find plants that different pollinators would be attracted to
- b. Make observations and drawings of plants in garden notebook
 - i. Milkweed - pollinated by butterflies (monarchs)
 - ii. Hibiscus - pollinated by butterflies and birds (hummingbirds)
 - iii. Sage - pollinated by ants and beetles
 - iv. Lilac - pollinated by bees
 - v. Basil - pollinated by bees
 - vi. Fruit: apple, apricot, strawberries - pollinated by wind, bees, self-pollination

5. Snack

6. Student Reflection Question: “What are your favorite flowers?” “Why do plants have flowers?” “Do you think all flowers are trying to attract the same pollinators?” “Why are there so many different flowers?”

Plants have flowers because they are important for reproduction and attracting different pollinators. Different flowers attract different pollinators which is why there are so many different flowers.
