



PLANTS & THEIR POLLINATORS

Topic: Plants & Animals

GRADE LEVEL

2nd

STUDENT OUTCOMES

-Understand the mutually beneficial relationships between plants and the animals that pollinate them

-Recognize how plants adapt to attract specific pollinators

TIME FRAME

Year-round
45 minutes

LOCATION

Kemper Center for Home Gardening

KEY TERMS

Pollination
Pollinator
Pollen
Nectar
Flower
Bee
Mutualism

MATERIALS NEEDED

For each small group:

- Leader sheets: "Plants & Pollinators"
- Pictures of Plants and Pollinators

For each student:

- Activity Sheet #1
- Activity Sheet #2
- Activity Sheet #3
- Pencil
- Clipboard (recommended)
- Colorful pencils (optional)

PREPARATION BEFORE ARRIVAL

Make sure each child has all three activity sheets and a pencil.

PRE-VISIT ACTIVITY

Watch the video "SciShow Kids Flowers and Their Pollinators" (<https://www.youtube.com/watch?v=pnBoM4idf1k>) with the whole class. Then, show students the pictures of the three different plants alongside the three different animal pollinators. Ask them if they can recognize any of the animals or plants. Then see if they can match which plant gets pollinated by which animal. **Hint:** They can look at the shape of the plant and also the shape of the animal and notice how they might go together. How does the shape of something help it function? (**Answers:** Monarch Butterfly pollinates Common Milkweed, Bumble Bee pollinates Shasta Daisy, Ruby-throated Hummingbird pollinates Trumpet Creeper.) Ask students, how do the plants help the animals survive? And how do the animals help the plants survive? Their answers may vary. Animal pollinators rely on plants for food. Plants rely on animal pollinators for pollination. This is a **mutualistic relationship** in nature, where different species benefit each other.

BACKGROUND INFORMATION

Plant and pollinator relationships are an example of **mutualism**, when two or more species benefit one another. Plants provide food for pollinators in the form of nectar or pollen. While the pollinator seeks food inside the flower, pollen dusts the bodies of the pollinators and then brushes onto the female parts of the next flower that the pollinator investigates. By doing so, the pollinator helps perform **pollination** of the plant. Only after being pollinated can the plant reproduce and create fruits with seeds which will become offspring plants. More than 80% of the world's flowering plants need a pollinator to reproduce. We need pollinators since most of our food comes from flowering plants.

Over hundreds and thousands of years, many flowers and pollinators have developed special relationships. A pollinator capable of detecting certain colors or scents, or possessing structures that best fit certain flowers, passes these advantages on to its offspring. Over many generations these traits have become well established. Meanwhile, flowers also evolved, adapting specific characteristics that suit particular pollinators.

POST-VISIT ACTIVITY

Have students create bar graphs of the data they collected on **Activity Sheet #1**. Ask them if they recognize any patterns or similarities between each person's results. Remind the students about the flowers they saw in bloom at the Garden and which pollinators were visiting the flowers.

Use **Activity Sheet #3** to pose the following challenge to students. **Challenge:** each student is in charge of creating a wildflower garden at their school to help supply food for a newly discovered pollinator. Design both the ideal plant(s) for this pollinator and also design the newly discovered pollinator. What do the plants look like? What does the newly discovered pollinator look like? How do they function to support one another? How will the pollinator travel? How will the flower attract the pollinator?

When students finish their designs, invite them to write a few sentences describing how their plant(s) and newly discovered pollinator benefit one another. Allow students time to share with each other their designs and also how their plant(s) and pollinator mutually support one another.

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LEADER SHEET

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1. Linnean Plaza

Welcome students to the Garden and introduce yourself. Invite students to discuss their favorite flower. After sharing, ask students, **“Why do you think plants have flowers?”**

(Answer: Plants have flowers to attract pollinators.)

Today we are going to explore the Garden. Before we go, let's see what we might already know about plants and pollinators.

1. Ask students: Why do plants need pollinators? (Listen to responses)

Answer: Many plants have flowers that rely on pollinators to help them become pollinated. This helps the flower turn into a fruit and form seeds. The seeds can grow to become new plants. Plants need pollinators in order to reproduce.

2. Ask students: Why do pollinators need plants? (Listen to responses)

Answer: Pollinators need plants because they get most of their food from the nectar and pollen located inside flowers. Many pollinators also have special relationships with certain plants in which they lay their eggs on or among certain plant species.

3. Ask students: What is pollination? Can you put it in your own words?

Answer: Pollination is when a pollinator moves from flower to flower looking for food (nectar) and collecting pollen on their bodies along the way, which they spread onto other flowers, thus pollinating them. Pollination allows a plant to reproduce and create seeds, which become new plants. Most plants need pollinators to reproduce and make their fruits and seeds.

2. Kemper Center for Home Gardening

Walk to the Kemper Center for Home Gardening. Stop to notice plants and pollinators along the way. Pause just before the Kemper Center and let students know what they will be doing once there.

1. Observe

As we enter the Kemper Center, let's observe interactions we see among flowering plants and animal pollinators.

- Which pollinators are visiting which flowers?
- Do different pollinator species visit the same kind of flower?
- Are some flowers not getting any attention at all from pollinators? Why do you think?

We are going to observe and record the evidence of pollinator and plant interactions the way scientists do.

2. Activity

Ask students to find their **Activity Sheet #1**. (Be sure to have the students save their Activity Sheets because they will use them again back at school).

Encourage the students to notice when a specific pollinator is visiting a flower of a specific color, and have them make tally marks to represent their observations.

Example of student work:

Colors of Flower	Tally Marks for Pollinators						
	Bee	Butterfly	Hummingbird	Fly	Moth	Bumblebee	Other
Red							
Orange							
Yellow							
Green							
Blue							
Purple							
Pink							
Other							

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3. Discuss

After collecting data and filling out their Activity Sheet #1 with tally marks, encourage students to share with the rest of the group their findings. Helpful questions to ask the group could be:

- Did you notice anything similar or different in your data compared to your classmates?
- Did you notice any patterns or similarities with your data and the data that your classmates collected?
- Was there one type of pollinator that visited many different flowers?
- Was there one type of pollinator that only went to one type of flower?
- Which flowers were visited the most by pollinators? Why do you think?
- Were there any flowers that were not visited at all during this time that we were observing? Why do you think?

Listen and learn about what the students observed. Then introduce the next activity.

Teacher's Notes

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4. Draw

Ask students to find their **Activity Sheet #2**. Encourage students to look around them and see if there is a flower that interests them that they would like to draw. Invite students to draw and record observations of their flower and any pollinators that come to visit it. Remind students that they need to stay close enough to you so that way you both can see each other.

Allow students time to draw their flower and record information that they observe.

5. Share

When it seems like students have finished, call them all back together. Allow time for them to share with each other their drawings and any information they wrote down.

6. Conclusion

We've seen a lot of beautiful plants today and the pollinators that visit them.

- What was your favorite flower that you saw today?
- What was your favorite pollinator that you saw today?
- Did anything surprise you today that you saw?
- Is there something that you think you will remember really well from today?

Teacher's Notes

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Monarch Butterfly (*Danaus plexippus*)



Bumble Bee (*Bombus* sp.)



Ruby-Throated Hummingbird (*Archilochus colubris*)

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Common milkweed (*Asclepias syriaca*)

















Shasta daisy (*Leucanthemum* sp.)



Trumpet creeper (*Campsis grandiflora*)

PLANTS & POLLINATORS: ACTIVITY SHEET #1

Flower Color	Tally Marks for Pollinators 						
	Bee 	Butterfly 	Hummingbird 	Fly 	Moth 	Bumblebee 	Other
 Red							
 Orange							
 Yellow							
 Green							
 Blue							
 Purple							
 Pink							
Other							

PLANTS & POLLINATORS: ACTIVITY SHEET #2

Observe the plants around you. Pick a flower that you would like to draw. Notice the color, shape, and size of the flower. Does the flower have a smell? Does the flower have any pollinators that visit it? Write down any information about the flower that you think is important below and then draw your flower.

Circle your answers

Flower Color: **Red** **Orange** **Yellow** **Green** **Blue** **Violet** **Brown** **Black** White

Flower Size: **Small** **Medium** **Large**

Pollinators: **Bee-**  **Bumble bee-**  **Butterfly-**  **Fly-**  **Moth-**  **Hummingbird-** 

Draw your flower:

PLANTS & POLLINATORS: ACTIVITY SHEET #3

Draw your own plant and pollinator

Design your own flower. It can be any shape, color, or size that you want. Then, design and draw a pollinator that will visit your flower to pollinate it. **Remember:** the shape, size, and color of each flower is important. The plant is trying to attract a pollinator. The pollinator also has a body structure that fits well with the plants that it pollinates. They fit together!

