

# Lesson 9:

## Pest or Pollinator?



### Time Allotted

60 Minutes

### Target Audience

Grades 1-8

### Objectives

- Students will discriminate between helpful vs. harmful bugs
- Students will define four different roles bugs may play in a garden
- Students will examine the value of a diverse presence of organisms in a garden space

### Materials

- Whiteboard
- Writing utensils
- Paper
- Magnifying glasses

### Summary

Students will become acquainted with different bugs and their roles — be it harmful or helpful — in the garden.

### Background

A garden can provide a home for a wide variety of creatures, playing various roles, performing tasks both welcome and unwelcome. There are roughly 1 million known species of insects on the planet, making up nearly 75% of the animal kingdom. Often, these tiny creatures have a negative association, being called things such as “creepy,” “crawly,” “slimy,” or “pests” with little credit being given to their necessary role in a balanced ecosystem. Much can be discovered about these bugs simply by observing them in their environment. Through observation, students will be able to determine the roles the bugs play in the garden.

Pests, like weeds, are merely an unwanted presence often considered detrimental to a space. Pests flourish in simpler environments, therefore encouraging diversity of plants and creatures in a garden can aide in maintaining balance and keeping pests in check. Even “helpful” bugs can become “harmful” if their population is not kept in check, and “harmful” bugs can play a useful role. For instance, caterpillars become food for birds who also may help with pollinating our plants or help keep other bug populations in check.

### Method

1. Create a KWL (Know-Want to Know-Learned) chart on the board to begin a “bug brainstorm.”

Have students copy the chart to fill in for themselves beginning with what they already know and want to know about bugs.

K	W	L
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2. Ask:

What is a bug?

What do bugs eat?

Where do bugs live?

What is their life cycle like?

How do we know if a bug is “good” or “bad”?

Are all bugs “bad”?

3. Have the students list as many bugs as they can. Based on what they know about the insects, have them determine if each is a “good/helpful” or “bad/harmful” bug in a garden. (ie: ladybug, butterfly, grasshopper, snail, spider, aphid, praying mantis, worm, beetle, fly).

4. Introduce students to the following roles a bug may play in the garden:

- Pest — harmful to food supply, homes, or bodies (hornworms, cabbage loopers (inchworms), aphids, termites, ticks)
- Pollinator — help with pollination of plants, especially important for food crops (butterflies, bees)
- Predator — prey on pests (can help keep “pest” populations down) but may also eat “good” insects, such as ladybugs, praying mantis, lacewings, spiders
- Decomposer/recycler — responsible for the decomposition of dead organic materials (worms, flies, beetles\*).

5. Give students magnifying glasses and have them explore the garden to find out what bugs live in the garden, drawing pictures and writing descriptions of their appearance (color, legs, wings, etc.), where they found the bug, and whether they think the bug they found is beneficial/harmful.

6. Have the students present their findings and as a group come up with answers to the following questions for the ‘L’ (learned) section or their KWL chart:

- What is a bug?
- How do we determine whether a bug is beneficial? Harmful?
- Were the bugs we discovered in the garden harmful or helpful?

## Extensions

- Read *The Magic School Bus in a Beehive* and invite a beekeeper to visit the class. Have students complete the Honeybees worksheet following this lesson.
- Research the different bugs identified in the garden and create a “Garden Bug Guide” or have students create informative signs for the garden.
- Research the life cycles of different bugs and create drawings or diagrams to illustrate each.
- Research different methods of pest control in agriculture/garden space. Compare the pros and cons of each.
- Research methods of attracting “good” bugs to the garden. Figure out which methods would be suited to your garden space, implement them and record the results.

## Sources

Garden Buddies: Making Friends with Beneficial Insects <http://www.kidsgardening.org/node/11528>

\*Some beetles and their larvae can be pests; research specific varieties to distinguish between them. For more information on decomposers and the process of decomposition, see the composting lesson.

# Honeybees



BEEES COLLECT \_\_\_\_\_ AND \_\_\_\_\_ FROM \_\_\_\_\_ FLOWERS.



BEEES CARRY \_\_\_\_\_ FROM \_\_\_\_\_ PLANT TO PLANT IN A \_\_\_\_\_ PROCESS CALLED \_\_\_\_\_.

THIS PROCESS IS ESSENTIAL FOR PLANT REPRODUCTION (FRUIT PRODUCTION).

...DID YOU KNOW... HONEY CONTAINS BENEFICIAL NUTRIENTS SUCH AS \_\_\_\_\_ AND \_\_\_\_\_.

THIS IS \_\_\_\_\_ PANTS \_\_\_\_\_ BEEKEEPERS MUST WEAR SPECIAL CLOTHING TO PROTECT BOTH THEMSELVES AND THE BEEES. WHILE THEY ARE HARVESTING HONEY,

*Busy Bees... bees must visit 2 million flowers to make 1 pound of honey!*

BEEES LIVE IN A: \_\_\_\_\_ (CIRCLE ONE)

CONDO - HIVE - TREEHOUSE

COLOR THE BEE'S HOME:



SMALL BEE  
BEE WARRIOR  
ALMOST HOME!

A COMMUNITY OF BEEES IS CALLED A \_\_\_\_\_ IN A \_\_\_\_\_, EVERYONE PLAYS AN IMPORTANT ROLE.

TAKE A CLOSER LOOK!



CAN YOU MATCH THE BEEES TO THEIR ROLES?

CAN YOU NAME THE STAGES OF METAMORPHOSIS?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



QUEEN:



WORKER:



DRONE:

LAYS EGGS

TENDS AND DEFENDS THE COLONY. COLLECTS POLLEN & NECTAR.

FERTILIZES EGGS