

Friend or Foe?

Adapted from: Corvallis School District Second Grade Insect Unit

Overview: Students will learn that there are many types of garden insects. Each type plays a role in the garden ecosystem. Some are “good garden bugs;” others are undesirable in the garden.

Subject area: Science

Grade level: 2nd

Next Generation Science Standards:

2-LS4 Biological Evolution: Unity and Diversity

- **2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.

Objectives: Students will be able to discuss what makes something a pest and identify some of the beneficial insects that are the natural enemies of common garden pests.

Prep time: 30 minutes

Lesson time: 30 minutes

Teacher Background: A pest is any plant or animal that bothers or annoys us, our pets or animals. It may cause damage, occurs where we do not want it, and causes or spreads disease. This is a broad definition, and in fact people do not always agree on what is or is not a pest. A dandelion may be a pest to one person and a wildflower to another. It is important to remember that pests aren’t “trying” to hurt or bother us. All plants and creatures have roles in the environment. Depending on their roles in food chains, they can be producers, consumers, predators, prey, or decomposers. Each of these roles is important for food chains to function. But what happens when hungry aphids infest your entire kale crop, or rats steal your bell peppers? In these scenarios, we consider them to be pests.

A garden is a complex ecosystem teeming with life. While a few of the insects that live in a garden can cause damage to plants, there are also many creatures that are essential to the health of the plants and the ecosystem.

Insects are the most common creatures we see in the garden. Some insects are pollinators that are essential for the growth of fruit, vegetables, and flowers. Other insects are parasites or predators that prey on garden pests. These beneficial insects are the natural enemies of garden pests.

Insects are an essential link in many food chains, providing food for other insects, birds, and animals. Being able to identify the insects and animals living in a garden and understanding the predator-prey relationships between these organisms is essential in developing a safe plan to control or manage pests.

Materials needed:

- White board or chart paper
- Markers
- 2 sets of Insect Cards (attached; print one set for the class and one set for the teacher)

Space needed: School Garden or Classroom

Staff needed: 1

Discussion: *What is a pest? What are things that pests do that make them pests to us?* Key points include: bothers or annoys, damages things, occurs where we don't want it, makes us sick.

Presentation steps:

1. Discuss different types of insects that live in a garden. *Which ones could be pests?* Write students' suggestions on the board.
2. Discuss the three main categories of garden insects and have the students sort each example into the appropriate category:
 - a. Pollinators
 - b. Predators
 - c. Pests
3. Distribute one set of insect cards among the students (one per student). If you have more students than cards, make more copies of the aphid card.
4. Using the second set of insect cards, show students each insect card and read its name aloud.
5. Have students look at their card and determine if they are a friend in the garden, or a pest/foe.
6. Students will need to pair up with another student who has an insect card that "matches" their card. For example, if they have a card with a pest, they look for a student with a card of a beneficial insect that eats/preys upon that pest. If they have a beneficial insect card, they look for a student with a pest card that their beneficial insect likes to eat/prey upon.
 - a. Students look at their card and determine if they are a friend in the garden, or a pest/foe.
 - b. Each student reads the name of their insect aloud, and tells the group what it eats or what other insect eats it. "I am a _____. I am a garden (friend or pest). I eat (or am eaten by) _____."
 - c. If a student hears the name of their insect, they should raise their hand.
 - d. Have students mingle and meet their "matches".
7. After students have mingled for a few minutes, have each pair of "matching" students show their insect cards to the group, and explain why their insect cards are a "match."
8. If there is a garden, have students try to find their garden insect, and observe where it is located and how it behaves.

Conclusion: Ask the students to review, *what is a pest, and what makes it a pest? Ask students what happens if we get rid of all our garden pests? Do the good insects in the garden still have something to eat?*



I am an Aphid. I am a garden pest. I eat broccoli plants and kale. I am eaten by Lady Bugs, Parasitic Wasps, Assassin Bugs, Soldier Beetles, and Damsel Bugs.



I am a Tomato Hornworm. I am a garden pest. I eat tomatoes. I am eaten by Parasitic Wasps, Lady Beetles, Lacewings, and Ground Beetles.



I am a Mealy Bug. I am a garden pest. I eat the stems of fruit trees. I am eaten by Parasitic Wasps, Lacewings, and Lady Bugs.



I am a Cucumber Beetle. I am a garden pest. I eat cucumbers, melons, and squash. I am eaten by Tachinid Flies, Lacewings, Damsel Bugs, Assassin Bugs, Soldier Beetles, and Ground Beetles.



I am a Slug. I am a garden pest. I eat leafy vegetables and berries. I am eaten by Ground Beetles.



I am a Lady Bug. I am a garden friend. I eat Aphids, Mealybugs, and Tomato Hornworms.



I am a Parasitic Wasp. I am a garden friend. I eat Aphids, Mealybugs, Stink Bugs, and Tomato Hornworms.



I am a Damsel Bug. I am a garden friend. I eat Aphids and Cucumber Beetles.



I am an Assassin Bug. I am a garden friend. I eat Aphids and Cucumber Beetles.



I am a Ground beetle. I am a garden friend. I eat Slugs, Tomato Hornworms, and Cucumber Beetles.



I am a Soldier Beetle. I am a garden friend. I eat Aphids and Cucumber Beetles.



I am a Lacewing. I am a garden friend. I eat Mealybugs, Tomato Hornworms, and Cucumber Beetles.