

Love for the Bugs!

Overview: Insects of all shapes and sizes are important residents in the garden. Although a few of them are pests, most play a role in helping our plants thrive. In this lesson, students will take a closer look at insect life in the garden and learn how to identify those that are giving us a helping hand as we grow.

Grade Level/Range: 4th – 6th Grade

Objective: Students will:

- Search for insects in garden or green spaces and use observation skills to predict the role they play.
- Research the observed insects and confirm if they are garden pests or beneficial.
- Create a tool to help friends and family identify garden insects.

Time: 1+ hours

Materials:

- Garden Journal
- Clipboard
- Pencil
- Digital camera (optional)
- Internet access

Background Information

There are over one million known species of insects in our world, making up nearly 75% of the animal kingdom. Unfortunately, we often give insects a bad rap by focusing on those we consider pests, especially those that cause damage to our food supply (such as aphids, whiteflies, and potato beetles), our homes (such as termites), and our bodies (like mosquitoes and ticks).

However, these pests are a very small percentage of the insect population. Most insects play unseen but important roles in our ecosystem and some provide us with very obvious benefits, such as products (honey and silk), protection from pest insects (ladybugs and lace wings), pollination of food crops (most common fruits need insect pollinators), and decomposition of dead organic materials. Here is a little bit more about these helpful insects.



This hoverfly resembles the stinging hornet pictured above; however, it is an important, non-stinging pollinator. (Although hornets can give painful stings, they can be beneficial in the garden as predators of pest caterpillars.)

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Pollinators

Many insects are pollinators and many of our pollinators are insects. From the busy honey bee to the graceful butterfly, these important critters aid flowering plants in producing their fruit and seeds. Use the Pollinator Patch Program (<https://kidsgardening.org/program-spotlights-pollinator-patch/>, put together by KidsGardening and Cabot Creamery Co-Operative) to learn more about pollinators.

Decomposers

A host of insects live on and below the soil surface, crunching away on dead organic matter. Their work returns nutrients to the soil and helps improve soil composition. Explore further in this KidsGardening Lesson: Soil is Alive! <https://kidsgardening.org/lesson-plan-soil-is-alive/>

Beneficial Insects

Many insects eat other insects and serve as a way to keep their populations in check. Lady bugs consume huge quantities of aphids which would otherwise munch the leaves of vegetable crops. Parasitic flies lay their eggs on tomato hornworms that would decimate our prized tomato plants. Lacewings, praying mantises, and spiders are also common insects that view the pests in our garden as an all-you-can-eat buffet. They are part of the circle of life and their presence creates balance in population sizes.

How can you make sure your garden makes a good home for these hard-working insects? Just like people, insects want to spend time in a safe and welcoming environment. To make sure your garden is hospitable for beneficial insects:

Avoid pesticides. Don't use any pesticides (organic or chemical). Although some target specific pests, many will harm both problem and beneficial insects.

Use diverse plant materials. Make sure your landscape includes plants the beneficial insects need for food. Although many will prey on other insects, they may also need nectar and pollen for a well-balanced diet in different stages of their lives. You can usually achieve that by planting a diversity of plant species and plants native to your area. Many are attracted to plants in the cabbage, carrot, and sunflower families. Examples of beneficial insect-attracting plants are bee balm, borage, broccoli, buckwheat, calendula, candy tuft, chervil, chives, cilantro, clover, daisy, dill, fennel, goldenrod, mint, parsley, Queen Anne's lace, sunflower, sweet alyssum, tansy, thyme, and yarrow.

Provide a source of water. Even beneficials need to quench their thirst. Shallow pools of water in filled with perching stones or gravel can meet their needs.



This tomato hornworm (a pest on tomato plants) is covered in the pupae of parasitic wasps, which will eventually kill the caterpillar.

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Give them some shelter. Let an area of your garden or green space go “wild.” A wooded area or hedgerow 10' to 20' north of the garden is ideal, but even a small undisturbed area will give beneficials a place to shelter and nest. You can also just leave a little lawn — turfgrass is home to certain beneficial insects.

Laying the Groundwork

Introduce students to a beneficial insect. You may want to use our article on ground beetles <https://kidsgardening.org/digging-deeper-beetle-banks/> or select an insect from the collection of articles about Beneficial Insects from The University of Florida Extension: https://edis.ifas.ufl.edu/entity/topic/Beneficial_Insects. As you learn about your garden star, ask student to create a list of the ways your spotlighted insect is beneficial for your plants.

Exploration

1. Go on an insect hunt in your garden or green space. Before traveling to your space, explain to students that their job is to observe, draw, and gather information about garden insects. They can work as individuals or in teams. Remind them to look in the soil, under leaves, on flowers, and in the air. Instruct them to write about and draw pictures of their findings. Encourage them to include as much detail as possible. If tools are available, they can also take a digital photo of the insect.
2. For each insect observed, ask students to look for clues on whether the insect is beneficial or a pest in your garden. For instance, if the insect is on a leaf, does it look like it is damaging/chewing the leaf? Are there lots of them in a cluster? Does it look like there is any sticky residue around them? Ask them to use their observations to label each insect found as beneficial or pest.
3. Return indoors and use observations to confirm the identities of the insects you discovered and research what role they play in the garden ecosystem. With this new information, ask them to label each insect found as a pest or beneficial and say why they chose that designation. To dig deeper, ask them to consider, *Is the insect always a pest or always a beneficial? Could an insect be a pest and a beneficial at the same time? Could an insect change their role during different parts of their life cycle?*

Making Connections

Being able to identify beneficial insects in all stages of their life cycle is an important way to make sure we protect them. Use your observations and research to create an insect guide that can be used by others in your garden or green space schoolyard. You can create your own field guide cards (<https://kidsgardening.org/garden-activities-pollinator-field-guide/>) for a fun and handy reference that can stay in the garden.

Branching Out

Guide students in completing a site assessment of your garden or green space and together come up with a list of ideas of how you attract more beneficial insects. The KidsGardening article Encourage Pollinators and Beneficial Insects (<https://kidsgardening.org/gardening-basics-encourage-pollinators-and-beneficial-insects/>) can serve as a resource to guide your brainstorming. Try to implement a few of their recommendations and give young gardeners a chance to observe and measure the impact on beneficial insect populations.

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