

Recommended Grade Level:

1-5

Season:

Spring/Fall

Outdoor

Garden Bug — Friend or Foe?

Description:

Students will learn about the common types of garden pests and friends. They'll discover the benefits and problems that bugs bring to the garden and search the garden for the creatures. After learning the definition of symbiosis (helpful bugs) and parasitic (harmful bugs), the students will predict where these bugs may be in the garden. They'll also learn ways to prevent these pests and how to encourage the beneficial ones. Students will also discuss healthy and unhealthy foods and how they affect their bodies.

Background:

Bugs are present in every garden and it may take close inspection to find them. Teach your students to turn over rocks, inspect the underside of leaves and to get on their hands and knees to see what's happening in the soil. Many interactions occur in the garden and the students will love to hunt for them. Garden bugs have helpful and harmful relationships and this can be explained through symbiotic (helpful) or parasitic (harmful) interactions. A symbiotic relationship is an interaction between two different organisms that help each other thrive. Parasitic relationship is an interaction where a plant or animal lives or feeds on another type of plant or animal and usually does damage or kills.

Materials:

- Garden Bug – Friend or Foe Insect Chart
- Garden Bug – Friend or Foe Insect Data Sheet (optional)
- Map of your garden space (you can provide a copy or have students draw a garden map)
- Clipboards or garden journal
- Magnifying glasses (optional)

Preparation:

1. Make copies of the Garden Bug – Friend or Foe Insect Chart for each student.
2. Draw a map of the garden and make copies for each student or have students draw a map of the garden in their garden journals.

Activity:

1. Explain a symbiotic and parasitic relationship to the students.
2. Give students a copy of the Garden Bug – Friend or Foe Insect Chart (this can go on a clipboard or taped into their garden journals) and the garden map (or have them draw a map of the garden).
3. Take students to the garden and allow them to explore the garden looking for the bugs in the chart. Explain to the students that the garden is home to these bugs and every bug has a purpose in the garden. Discuss which bugs are safe to touch and remind them to be respectful to the bugs and not harm or remove them from the garden.
4. Have students plot where they find the bugs on their garden map. Some of the bugs from the chart may not be present in your garden. If so, have students research and discuss the bugs they find in the garden to discover what it is and determine if the unknown bugs are harmful or beneficial to the garden.
5. Come together as a group and share what was found in the garden and determine if the bugs are friends (symbiotic) or foes (parasitic).
6. Explain to students that there are ways to attract good bugs and prevent pests in the garden.
 - To attract beneficial bugs:
 - Don't use pesticides. They kill bad bugs, but also the good ones.
 - Plant perennials and herbs that bloom throughout the growing season to attract bees, butterflies, birds and beneficial insects.
 - Provide water. All living things need water to live and grow.
 - To get rid of garden pests:
 - Add compost to the garden. Compost provides nutrients and improves the health of the soil and increases beneficial organisms. The more beneficial bugs that you have in your garden, the less harmful ones will come around.
7. Then discuss what types of foods are like friends and foes to our bodies. Ask students:
 - What foods are like friends to our bodies?
Healthier foods like fruits, vegetables, whole grains, low-fat dairy.
 - What foods are like pests or foes to our bodies?
Unhealthy foods like fried foods, sugary beverages, sugary foods.
 - Why is it important to eat healthy foods?
They help our bodies grow strong and be healthy.

Tying it Together:

1. What were some clues that you learned to look for when you searched for these bugs?
Leaf damage, yellow or brown leaves, leaves that look like they have been chewed.
2. What was the difference of a plant that had symbiotic bugs versus a plant that had parasitic bugs?
Plants with symbiotic bugs were green and growing well. Plants with parasitic bugs had damaged leaves and were not growing well.

Special Care:

Students can photograph or shoot a video of garden bugs to document them and then match them to the chart.

Digging Deeper:

Have the students inspect plants in their yard or neighborhood for the presence of bugs and make a list of what they discovered as a homework assignment.

National Standards:

NGSS

- Interdependent Relationships in Ecosystems.
- Structure, Function and Information Processing.
- Matter and Energy in Organisms and Ecosystems.

Lesson Extensions:

Language Arts: Students write compositions that explain the cause-and-effect relationships of a common garden bug and the plants that are their host, based on research and their discoveries in the garden.

Math: Using the Garden Bug – Friend or Foe Data Sheet, students tally the number of each type of bug (species and symbiotic/parasitic) in the garden. Compare collected data using fractions/decimals/percentages. For example: If 20 bugs are found and six of them are ladybugs, $\frac{6}{20}$ or $\frac{3}{10}$ or 3:10 or .3 or 30% are ladybugs. Students can create representations of symbiotic vs. parasitic bugs as well.

Science: Collect data for several different days or different seasons throughout the year. Make comparisons about what they find at different times and growing seasons in the garden.







Literature Connections:

Bugs In The Garden by Beatrice Alemagna







What Lives in the Garden? By John Woodward

Garden Bug – Friend or Foe Insect Chart

Beneficial Bugs in the Garden

| | | |
|---|---|---|
|  |  |  |
| Butterfly | Earthworm | Lacewing |
|  |  |  |
| Preying Mantis | Bee | Ladybug |

Harmful Bugs in the Garden

| | | |
|---|---|---|
|  |  |  |
| Earwig | Billbug | White Grub |
|  |  |  |
| Sowbug | Thrips | Spittlebug |

Garden Bug – Friend or Foe Insect Data Sheet

| Beneficial (Symbiotic) Bugs “The Good Bugs” | Harmful (Parasitic) Bugs “The Bad Bugs” |
|---|---|
| | |