GARDEN BUGS—FRIEND OR FOE?

Garden

Grades Pre-K–2 • 45 mins • Spring • Outdoor

NEW! GRADES PRE-K—2 | SCHOOL PARTNER LESSON PLAN

SUBMITTED BY
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ESSENTIAL QUESTIONS

- Big Idea: Insects can be beneficial and detrimental to our garden.
- Big Question:
  - 1st Grade (Plant Parts) What parts of a plant need protection from insects?
  - 2nd Grade (Plants have basic needs) How can insects help or hurt plants' survival?
  - Simplify question for Pre-K/K: How many legs does this creature have?

MATERIALS

- Garden Bug—Friend or Foe Insect Data Sheet (draw in journals or on paper)
- Map of your garden space (you can provide a copy or have students draw a garden map)
- Paper for drawing
- Clipboards
- Magnifying glasses

VOCABULARY

- Niche/nicho
- Community/comunidad
- Ecosystem/ecosistema
- Environment/medio ambiente
- Interact/interactuar
- Habitat/hábitat
- Adaptations/adaptaciónes
- Function/función
- Structures/estructuras
- Flower/flor
- Symbiosis (helpful bugs)/simbiosis
- Parasitic (harmful bugs)/parásito

ASSESSMENT

- Farm & Food journals for tracking and note-taking (optional)
- Continue asking students: Is that an insect? Why?

CUNNINGHAM ELEMENTARY SCHOOL
AUSTIN Independent School District

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PARTNERS FOR EDUCATION, AGRICULTURE & SUSTAINABILITY

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PREPARATION (15 MINS)

- Make copies of the Garden Bug—Friend or Foe Insect Chart for each student.
- Collect small transplant pots, stickers, sticks, decorative tape, grass, leaves, nuts, and cones.

TEACHER BACKGROUND

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. A 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. In the world, there are a total of thirty-eight harmful insects in the Insect Identification database.

LESSON DESCRIPTION

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.

LEARNING OBJECTIVES

- The external characteristics of an animal are related to where it lives, how it moves, and what it eats.
- Physical characteristics of plants help them survive in different environments.
- Compare the parts of a plant to its function to see how it is uniquely suited to perform that role.
- An interaction is a relationship between two or more things.
- Each population inside an ecosystem has its own niche or role.

ACADEMIC STANDARD CONNECTIONS

Texas Essential Knowledge and Skills (TEKS) for Science, Elementary, Revised 2022

K.10 Organisms and environments. The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

(A) sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape

2.9 Organisms and environments. The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:

(C) compare the ways living organisms depend on each other and on their environments such as through food chains.

Lesson Sequence

Engage

Cultivate Curiosity (5–10 mins):

- Opening ritual: Gratitude: I am grateful for the bugs that help our garden grow!
- Word of the Day: Insect! "Has six legs!" (students repeat)
- Engage: Introduce BIG QUESTION: Today we are going to be investigating if we want bugs in our garden. Now turn and talk to a shoulder partner and share: are insects good?
- Do not answer the big question, instead, encourage students to share their thoughts and suggest how they might gather information to answer their question.
- Explain that some bugs are helpful to the garden and some harm the plants we want to eat. Show the students examples on the Garden Bug—Friend or Foe Insect Chart.

Explore

Root Around (5–10 mins):

- Give students a copy of the Garden Bug—Friend or Foe Insect Chart (this can go on a clipboard) and the garden map (or have them draw a map of the garden). Tell the children we will be looking for these bugs in our lesson today.
- Divide into two groups. Specialists will work with students to explore the garden and look for bugs that are beneficial or harmful. Teachers will lead the students through the tasks listed below. If one student is having a great time at their station when it is time to switch, it is okay to let them stay there.

Explain

Grow Understanding (5–7 mins):

- 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.
- Have students plot where they find the bugs on their garden map.

Elaborate

Observe The Fruits (5–10 mins):

- Explain to students that there are ways to attract good bugs and prevent pests in the garden.
- Have students share out ideas to attract good bugs and track on paper/white board.
- 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.

Evaluate **Reflect (5 mins):**

- Make sure everyone has an opportunity to share and repeat all ideas written down, and help to correct any misconceptions students may have had.
- Gather in a circle and give the students one moment to think of one word that describes something they liked about the lesson.

ADAPTING FOR INDOORS

- Create a bug hotel using natural materials (leaves, bamboo, sticks, paper shreds, moss) and re-use plastic nursery pots. Students can fill the inside with materials they think a bug would like to call home, and decorate the outside to customize their project.
- You can talk about including different materials and textures for native bees and other insects that are beneficial to your garden.
- Next time you're in the garden, hang or display your bug hotels for your bug friends!

POSSIBLE EXTENSIONS

- After exploring the garden, have the students draw their garden bugs in their Farm & Food journals, count how many legs they have, label bug parts, and add color. They can decide whether they think that bug would help or hurt our plants as they grow.

ADDITIONAL RESOURCES

- Print out common insect ID guides, or purchase guides to help students identify what they find in the garden.
- Pre-draw an outlined map of their garden but let them fill in landmarks and color as a possible indoor classroom extension.

OTHER COMMENTS

- For younger students, you can practice counting the legs with them. Bringing in toy bugs/insects helps break down some fears about bugs, and makes it easier to count the legs together to decide whether it is an insect or not (six legs).
- We want to be mindful before calling any bugs inherently 'bad' in the garden as we discuss respecting nature and being a part of our garden ecosystem. One way to discuss this further is to reaffirm that when certain bugs are on certain parts of plants, they can be harmful to their growth or survival. We can 're-home' bugs that are harming our edible plants to other parts of the garden to help out.

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