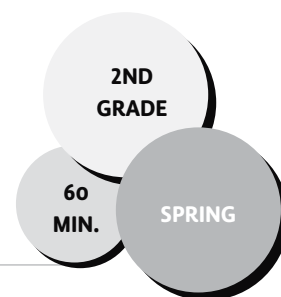


Planting for Beneficial Insects

THEME: GROWING AND ACCESSING NOURISHING FOOD



ESSENTIAL QUESTION

How do plants and animals rely on each other?

LEARNING OBJECTIVES

- ✓ Students will be able to explain the interdependence between beneficial insects and plants in a garden ecosystem.
- ✓ Students will be able to transplant a seedling in the garden.

CONCEPTS

beneficial decomposers pest
pollinators predators

ENGAGING THE CLASSROOM TEACHER

- Prior to the lesson, ask the teacher whether they are able to support students in the other rotations, particularly the pollinator count, during Action Step 4 while you are planting. If not, consider streamlining the lesson to just the planting and beneficials vs. pests study.
- If doing rotations, ask the teacher if they already have an easy way to split the class into three groups.
- During Action Step 2, suggest that the teacher circulate through the garden, supervising students during the insect hunt, ensuring they're being respectful.

LESSON DESCRIPTION

In this lesson, students consider the interdependence of plants and animals in the garden through learning about beneficial insects, going on an insect hunt, planting beneficial insectary plants, and collecting data on the amount of pollinators in the garden. This lesson can be paired with lessons Be a Bee! and Insect Homes.

MATERIALS

- Beneficial Insects Poster

Insect Hunt:

- 10 Magnifying glasses, magnifying bug viewer cups, or plastic cups

Planting for Beneficials Station:

- 1 transplant for each group of 2–3 students
- Trowels
- Watering cans
- Hose for filling watering cans

Pollinator Count Station:

- Pollinator Count worksheet (p. 274)
- Clipboards
- Colored pencils
- Receptacle for collecting finished worksheets (optional)

Beneficials vs. Pests Station:

- Beneficials vs. Pests Flash Cards (pp. 275–277)

PREPARATION

- › Identify the beneficial insectary plants that thrive in your region, and check the planting guidelines.
- › Choose an appropriate area to establish your beneficial insectary planting, considering many of these plants are perennial and

therefore will return year after year.

- › Research the beneficial and pest insects in your region. Use the appropriate Beneficials vs. Pests Flash Cards. You'll likely have to make multiple sets of these, so several pairs of students at the station can use them at a time.
- › Set up the Beneficials vs. Pests Station with flash cards and any other materials on local beneficial insects and pests.
- › Set up a station for students with the Pollinator Count worksheet, colored pencils, and clipboards. You might also want to include a receptacle for their finished worksheets so they have a place to put them when it's time to switch.

SAMPLE BENEFICIAL INSECTARY PLANTS

- | | |
|-------------|--------------|
| • Beebalm | • Echinacea |
| • Buckwheat | • Fennel |
| • Calendula | • Lavender |
| • Cosmos | • Lemon balm |
| • Dill | • Sunflowers |
| | • Zinnias |

ACTION STEPS

1. Engage: Gather students in a circle and ask, *What are ways you help others? What are things you like getting help with?* Discuss responses and then say, *Plants and animals help each other as well. How do plants help us and other animals? How do animals help plants?* Explain that today they're going to consider how we can help the plants and animals in our garden by planting plants that insects like. **(5 min.)**

2. Hunting for Insects: Explain to students that they'll go on an insect hunt to look for insects or other critters that are helpful and those that are harmful in our garden. Ask students, *Which insects or other critters do you think you'll find in our garden today that are helpful to the plants?*

Which do you think we'll find that are harmful?

Show students what they'll be using to catch and collect their specimens, whether it's an insect box or a paper cup. Elicit ideas for ways that students should be caring toward these living creatures and the garden while they're hunting. For example, discuss putting logs or stones back in place and being calm and still around bees. Pass out insect boxes or cups, and let students know how you'll call them back when it's time. **(10 min.)**

3. Show and Tell: Gather students back in a circle, and have them share about the insects and other critters they found. Ask them to share where they found their critter as well as whether they think their critter is harmful or helpful to the garden. If students brought back their specimens to the circle in closed containers, you could have students pass them around the circle so that everyone gets a chance to see everyone else's. Call out "switch!" every 15 seconds or so, and have all students pass the containers clockwise. Show students the Beneficial Insects Poster. Explain, *Some animals help in the garden by decomposing dead plants, such as earthworms and roly polys, or pill bugs.* Have students say "decomposers." *Some help by pollinating plants so they can create tasty fruit, such as bees, butterflies, moths, and flies.* Have students say "pollinators." *Other critters help by eating the pests in our garden. These are ladybugs, beetles, spiders, and centipedes.* Have students say "predators." See if you can associate a gesture with each type of beneficial insect to help students remember each one. **(5 min.)**

4. Stations: Explain each station they'll be rotating through, and let them know the signal and how they should clean up when it's time to switch. Divide students into three groups. **(5 min.)**

a. Planting for Beneficials: Show students the plants you've selected, and briefly say the purpose of planting each one. Demonstrate proper tool safety to students as you model planting a start, then have groups of two or three students plant and water a transplant. **(10 min.)**

b. Pollinator Count: Have students or pairs of students take a clipboard, colored pencil, and worksheet and walk around the garden looking for bees and other pollinators. Remind students to stay where you can see them and that bees won't bother them if they stay relaxed. **(10 min.)**

c. Beneficials vs. Pests Study: Have students study the index cards you've prepared at this station. Then students can take turns testing each other. For example, they'd show a picture of the insect and say, "Ladybug! Helpful or harmful?" And have their peer guess. Once students have studied and tested each other, have them perform a second insect hunt to find some of the insects they learned about. Set the expectation that they may not find too many, but they should see if they can find one beneficial and one pest. **(10 min.)**

REFLECTION

Have students discuss the following questions in small groups, then share with the class: **(5 min.)**

Social and emotional learning

- *How do you feel about helping the plants and animals in our garden today?*
- *Ask yourself: Was I safe and respectful in the garden today?*

Check for understanding

- *What was the most interesting insect you saw today?*
- *Which plants do insects seem to like the most in our garden?*
- *What are the different ways that insects can be helpful in our garden?*
- *How will the plants we planted today help our garden grow and thrive?*

ADAPTATIONS

Health Connection: Point out that, just like some insects are good for the garden, there are lots of tiny microorganisms living inside our digestive system (or our gut)! These tiny living organisms help us stay healthy. The best way to have lots of good microorganisms in our bodies is to eat all kinds of plant foods like those found in the garden.

Data Collection Extension: With your class, track the presence of pollinators through the months or seasons. It'll be interesting to compare the presence of pollinators around plants already in your garden (for example, brassicas like kale or broccoli left to flower) versus the plants you planted during this activity.

ACADEMIC CONNECTIONS

Next Generation Science Standards, Life Science Disciplinary Core Idea






NGSS.LS2.A

Interdependent Relationships in Ecosystems

- Plants depend on water and light to grow.
- Plants depend on animals for pollination or to move their seeds around.

Name: _____ Date: _____

Pollinator Count Worksheet

PLANT	1	2	3	4	5	6	7	8	9	10
Example: ROSEMARY 										
1.										
2.										
3.										

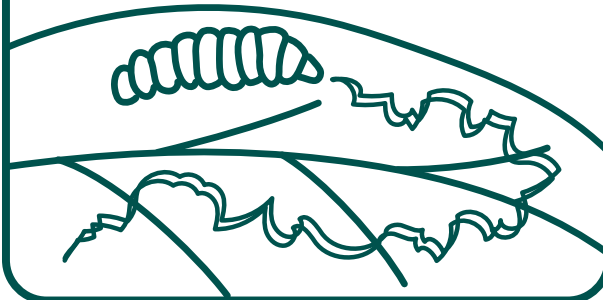
Beneficials vs. Pests Flash Cards

cabbage worm



codling moth

leaf miner



aphids



slug

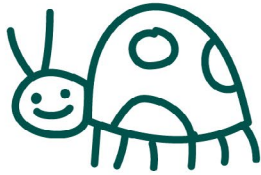


snail



Beneficials vs. Pests Flash Cards

lady bug



spider



praying mantis



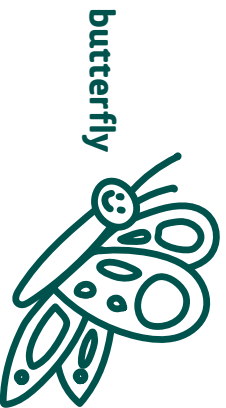
centipede



BENEFICIAL CREATURES IN THE GARDEN



POLLINATORS



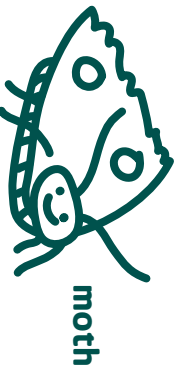
butterfly



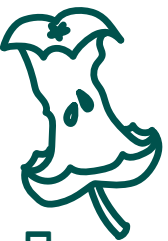
bee



fly



moth



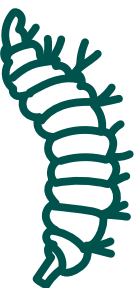
DECOMPOSERS



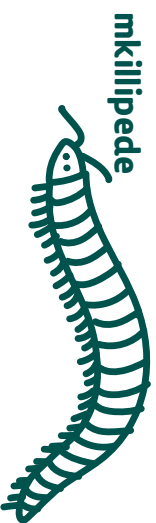
earthworm



rolly poly
pill bug



black soldier
fly larvae



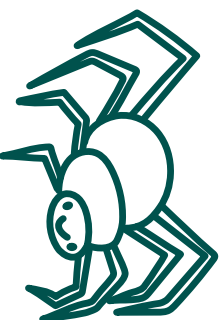
millipede



PREDATORS



ladybug



spider



praying
mantis



centipede