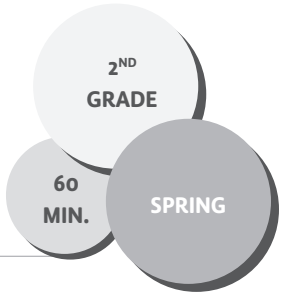
Planting for Beneficial Insects

THEME: GROWING AND ACCESSING HEALTHY 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.

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.

MATERIALS

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. 343)
- ☐ Clipboards
- ☐ Colored pencils
- ☐ Receptacle for collecting finished worksheets (optional)

Beneficials vs. Pests Station:

- ☐ 10–15 Local Beneficials vs. Pests Flash Cards (see following for instructions for creating these)

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. Create Beneficials vs. Pests Flash Cards using index cards with a picture of the local critter on the front and information about them on the back, including what plants or other critters they prey on and where you might find them. 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 index 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
- Buckwheat
- Calendula
- Cosmos
- Dill
- Echinacea
- Fennel
- Lavender
- Lemon balm
- 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 fifteen seconds or so, and have all students pass the containers clockwise. Explain, *Some animals help in the garden by decomposing dead plants, such as earthworms and roly polys, or pill bugs. Some help by pollinating plants so they can create tasty fruit, such as bees, butterflies, moths, and flies. Other critters help by eating the pests in our garden. These are ladybugs, beetles, spiders, and centipedes.* ***(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.)***

- *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?*
- *Ask yourself: Was I safe and respectful in the garden today?*

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.

Insect Homes: Discuss the habitats that pollinators and other beneficial insects enjoy, and have students create insect homes using natural materials they find 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.										