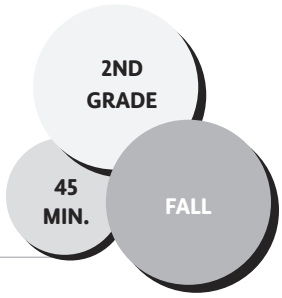
Biodiversity in the Garden

THEME: EXPLORING THE ECOLOGY OF FOOD



ESSENTIAL QUESTION

Why is biodiversity in the garden important?

LEARNING OBJECTIVES

✓Students will be able to describe the variety of life they find in the garden.

✓Students will be able to sow seeds.

CONCEPTS

companion planting biodiversity sow
tool safety transplant

Engaging the Classroom Teacher

- During Action Step 2, suggest that the teacher circulate through the garden, encouraging students to use their keen observation skills while looking in their circle.
- During Action Step 5, suggest that the teacher help pairs or groups of students follow the instructions for planting their seed or transplant.

LESSON DESCRIPTION

In this lesson, students consider the importance of biodiversity by observing and drawing all the life in one square of their garden. They then learn about companion planting, and they sow or transplant "plant friends" in the garden.

MATERIALS

- ☐ Yarn or string
- ☐ Scissors
- ☐ Seeds or transplants appropriate for your growing region

For each pair of students:

- ☐ Magnifying lens
- ☐ Biodiversity in the Garden Worksheet (p. 236)
- ☐ Clipboard
- ☐ Pencils
- ☐ Watering can

PREPARATION

› Research what plants grow well in your climate in the fall.

› Measure and cut a 48-inch piece of yarn for each pair of students.

› Prepare a bed for planting.

ACTION STEPS

1. Engage: In the garden, gather students in a circle and explain, *Today we're going to be thinking about all the different types of plants and animals that we find in nature and in our garden.* Demonstrate for students how to take a piece of string and tie the two ends together to make a circle. Then lay your string in a square shape on the ground where students can see. Ask students, *From where you're standing, how many different living things can you see in this circle? How many living things do you think we'd find if we looked closer?* Explain that you'll give pairs of

students a piece of string that they'll lay on the ground somewhere in the garden and then look closely with magnifying lenses to observe all the living things they can find. ***(5 min.)***

2. Life in a Square Foot: Explain that pairs will draw a picture together of each different plant or animal they find in their square, and they should label the living creatures if they think they know their name. Note that some of the creatures might be in the soil. Say, *You'll have to get really close and be really still to see all the living creatures!* Review the expectations for being in the garden, such as students staying where you can see them and not disturbing freshly planted seeds. Pass out string, magnifiers, pencils, and clipboards with the Biodiversity in the Garden Worksheet to pairs of students. Circulate through the garden, encouraging students to look closely and try to identify all the life they discover. ***(10 min.)***

3. Discussing Benefits of Biodiversity: Call students back together, and have them share what they found. Go around the circle and have each pair share one living thing they observed that hasn't already been said. Explain that having all these different types of living things on Earth is called biodiversity. Have students repeat the word biodiversity, and then ask, *Why do you think it's good to have a variety of life in our garden? How does having a variety of life in our garden help the plants and animals who live here? How does it help the people who harvest food from there?* Have pairs turn and talk to each other. Get to the idea of variety in the garden meaning eating a rainbow of colors, or a variety of food on our plate. ***(5 min.)***

4. Learning about Companion Plants: Explain to students that certain plants help other plants in the garden. Say, *These are plant friends. Like a friend, certain plants can help other plants grow strong and be healthy. For example, the marigold plant, which has beautiful flowers, can attract bees and other pollinators, so a plant will grow fruit, but it can also keep away pests that would hurt the plant. Or a sunflower can help give plants, like beans or cucumbers, a place to climb because that's what they like.* Explain that they'll be planting some plant friends in the garden today. Then describe how the plants you have for students to plant support each other. ***(5 min.)***

5. Planting: In the fall, you might have pairs of students plant carrots and radishes because the radishes will help break up the soil for the carrot taproots. Or consider planting nitrogen-fixing fava beans with nitrogen-loving lettuce. Or plant garlic next to a brassica such as cabbage, kale, or broccoli to help deter aphids. Model for students how each crop needs to be planted, noting the difference between seed depth or spacing. Remind students about tool safety, and then give each pair (or small group of students) two plant "friends." As students are watering their plants, you might have them say encouraging words to their plants such as, "Be good friends and help each other grow!" ***(15 min.)***

REFLECTION

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

Social and emotional learning

- *Ask yourself: Was I safe and respectful in the garden today?*
- *How are you a good friend?*

Check for understanding

- *What were you surprised to find inside your circle?*
- *How did we help the plants in our garden today?*
- *Why is biodiversity in our garden important?*
- *Why is eating a rainbow of foods, or a variety of foods, important?*
- *Why is it important to have all kinds of people in our community?*

ADAPTATIONS

Literacy Extension: To further the discussion about the importance of biodiversity as it relates to the value of how humans share similarities, differences, and are unique, read Sonia Sotomayor's *Just Ask: Be Different, Be Brave, Be You*, which uses garden imagery and metaphors to convey the book's theme.

Science Inquiry: Have students create a control garden bed in which you don't plant a companion crop. Over the season, students can make observations about the health and growth of the crop with a nearby plant ally, versus the crop growing alone.

Compost Study: Have students investigate the biodiversity in the worm bin or compost pile at your school. Explain that plants grow well with a variety of life in the soil, just like we grow well when we eat many different plants.

ACADEMIC CONNECTIONS

Next Generation Science Standards, Life Science Disciplinary Core Idea

NGSS.LS4.D

Biodiversity and Humans

There are many different kinds of living things in any area, and they exist in different places on land and in water.

Name: _____ Date: _____

Garden Observation Worksheet

Directions: Draw everything big and small you see!