



School Garden Unit

Maintain Garden Guide

LESSON: **Diverse Life in the Garden**

GRADE: 2nd grade

TIME: 45 minute sessions as needed

SUMMARY:

Students will go on a garden scavenger hunt, observing weather conditions and the diversity of life. Based on their observations they will determine when to water, weed, and care for their garden. They will observe their investigation test plots and begin to draw conclusions about the importance of sunlight and water for plants. Finally, in their garden journals, they will sketch their observations.

GARDEN TASK: *Maintain*

OBJECTIVES: Iowa Core Science

- **2-LS2-1.** Plan and conduct an investigation to determine if plants need sunlight and water to grow.
- **2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.

21st Century Skills

- **21.K-2.ES.2** Recognize different roles and responsibilities and is open to change.
- **21.K-2.ES.4** Develop initiative and demonstrate self-direction in activities.

MATERIALS & RESOURCES:

- Scavenger Hunts – laminated copies for each child or group
- Garden gloves and “rainmakers” – recycled plastic containers with holes in the bottom for watering
- 60 counters (or poker chips, buttons, etc.)
- Garden journal notebooks / colored pencils

PRESENTATION / INTRODUCTION:

Start each trip to the garden with students completing and discussing the Garden Scavenger Hunt. Discuss the wide variety of plants (including weeds!) and creatures in the garden. How do these compare to other habitats?

Check on the investigation test plots. Observe the plants, looking at color, size, number of leaves, etc. What differences are you noticing? Why? Considering these observations, do you think plants need sunlight and water to grow?

Based on the scavenger hunt observations, plan how students can maintain their plants today.

DIRECTIONS:

1. **Weeding:** Gardeners should pull weeds to ensure their plants get the sunlight, water, space, and nutrients from the soil that they need. Weeding is easiest when weeds are small, so short but frequent weeding sessions are helpful.
 - As seedlings first grow, students may have difficulty differentiating the plants and weeds. Point out patterns the plants were planted in (rows, clusters, etc.). Also refer to the seed packages or online resources for photos of baby plants. Making garden signs with photos can be helpful.
2. As weeding could become tedious, make it into a game with challenges. Who can pick the largest pile of weeds? See how many different kinds of weeds they can find. Have students search for the smallest weed, largest weed, longest root, etc.
3. **Watering:** As a class, observe and chart the weather daily. After several days without rain, test the ground by inserting a trowel or dowel a few inches. If it comes out clean, the soil is dry. Damp soil will cling to the trowel. Ask

Expert advice

Make it a goal to avoid watering the garden. Mulching around small plants not only cuts down on weeds but also helps the soil hold water. Wet newspapers, cardboard, or straw are recommended mulching materials, two or three inches deep.

students to observe plants. Plants' leaves will begin to wilt or turn colors if they are lacking water. **Generally, plants will need water when less than an inch of rain falls in a week. If it rains, do not water that day.** Watch the following video for additional information:

<http://iptv.pbslearningmedia.org/resource/thnkgard.sci.ess.water/think-garden-the-importance-of-water/>

4. **Thinning:** Some plants need to be thinned, which means removing some plants to allow more room for others to grow. For example, carrots will not have space or nutrients to grow to full size unless they are thinned. Refer to seed packages for details about the amount of space plants need and thinning dates. Students may be interested to see what happens if a few plants are not thinned.

- **Human Carrots Game:**

Students sit on the ground about six inches to the next nearest person. Evenly distribute 60 counters on the ground. Explain that the counters represent nutrients in the soil that plants need to survive and thrive. When you say, "Go," students will pick up as many counters as they can. After this first round, students will notice they each only got a few counters.

- Half of the students should stand up and move to the side to become observers. Repeat the game with the same number of counters. Were the carrots able to get more nutrients this time? Why? Why is it helpful to thin the carrots?
- Repeat again with some students representing weeds. How could we help our carrots if we pulled the weeds?
- Play a variation including water and sunlight. Throw slips of blue paper (rainwater) and yellow paper (sunlight) to "rain" on the group like confetti. See how many slips they collect with all the plants as compared to a few. Discuss that it's easier for plants to get the sunlight, water, and nutrients needed when thinned.

Management tip

Handing water hoses to children can be too tempting. Consider having buckets of water available so students can water plants by filling "rainmakers," recycled yogurt or orange juice jugs with their tops cut and holes poked in the bottoms with nails. Water gently falls to ground like a rain storm, reducing puddles and drowning of seedlings.

5. **Pests and disease:** Not all bugs are bad. Encourage students to examine plants closely so they get to know what a healthy plant looks like. Then, they will be able to spot changes in the plant such as yellow or brown spots, which can be signs of disease. Iowa State Extension offices can be a source of information about specific plants:

<http://www.yardandgarden.extension.iastate.edu/Hortline.htm> This video helps students understand bugs that are pests and helpers.

<http://iptv.pbslearningmedia.org/resource/thnkgard.sci.ess.pests/think-garden-garden-pests-and-helpers/>

6. **Think ahead to summer break:** If students will not be maintaining the garden during the summer, consider these ideas:
- **Garden Guardians:** Have community volunteers and parents sign up to maintain the garden for a week or two.
 - **Mulch:** Cover the ground around the plants with wet newspapers or straw to cut down on weed growth and help hold water.
 - **Plant for fall:** Plant produce that will be ready to harvest in the fall such as popcorn, pumpkins, potatoes, eggplant, etc.
 - **Weed well before any breaks:** Any tiny plants before break will be quite tall when students return.

7. **Additional lesson ideas in the garden:** Find these lessons and more at <http://www.teachers-going-green.com/teachers-going-green/clean-and-green/2nd-grade>

- Celebrating Urban Birds
- Field Trip to Your Square
- Older Than Dirt
- Who Will Pollinate Our Garden?
- Birds of a Feather
- Hide a Penny
- Sound Map

Expert advice

Be courteous to custodial staff. Encourage students to wash their hands outside. Place a rug near the door and remind students to brush off dirt and leave mud outside.

REFLECTION / GARDEN JOURNAL PROMPT:

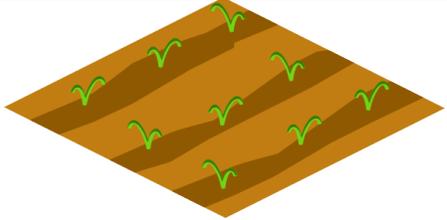
1. **Adopt-a-Plant journal prompt:** Each child will adopt a plant to observe and document weekly throughout the garden season.

- Sketch what they see while maintaining the garden.
- Observe the plants in their tests plots. Sketch and label plants that received different amounts of sunshine or water. How does sunlight and water affect a plant?
- Compare the plants in the garden to those in the school yard (or another green space). How are they similar? How are they different? How are the animals similar or different in these two habitats?

Expert advice

To help students remember which plant they “adopted” have students choose a button. Gently tie a loose string and that button around their plant. Their button can remind them which plant to observe and sketch.

My Daily Garden Scavenger Hunt

 Look for...	 Sun	 How tall is the seedling compared to you?
	 Weeds - Pull these! 3 plants in the garden	 Healthy plants 3 creatures in the garden
	 Touch...	 Will soil stick in a ball? If not, it's too dry. Water the plants!
 Taste...	 Not yet!! Taste ripe produce soon!	