

## Unit 4: The Power of Pollinators

### WEEK 3 Lesson 1

#### Science and Engineering: Quadrat Study 7

##### Observing Plants

This lesson connects to and continues the year-long Quadrat Study.

<b>Big Ideas</b>	Organisms in an ecosystem are interdependent. Living things grow and change over time.
<b>Guiding Questions</b>	What makes particular organisms interdependent? Why is it important to understand how living things grow and change over time?
<b>Content Objective</b>	I can make observations about the different kinds of living things in my quadrat and describe how they depend on each other to live and grow. (2-LS2-3 (MA), 2-LS4-1, Practice 6)
<b>Language Objective</b>	I can describe the living things I observe in speaking and writing. (L.6.2.a, W.2.2.a)
<b>Vocabulary</b>	<b>distribution:</b> the way something is shared in a group or spread over an area <b>mature:</b> fully grown <b>organism:</b> living thing <b>quadrat:</b> a small area of habitat, usually selected to collect data about the distribution of plants or animals <b>sprout:</b> young plant
<b>Materials and Preparation</b>	This lesson occurs outdoors.  Review children’s entries in Science and Engineering packets from the first quadrat study. Select a few that show different and informative observations. <ul style="list-style-type: none"><li>● hula hoops or equivalent lengths of rope or twine knotted to enclose a circle, one for each child</li><li>● Science and Engineering packets</li></ul>

	<ul style="list-style-type: none"> <li>● writing and drawing tools, in one or more containers to carry outdoors</li> <li>● hand lenses, one for each child</li> <li>● chart paper and markers</li> </ul>
<p><b>Opening</b> 9 minutes</p>	<p><i>Today we're going back out to the schoolyard to continue our quadrat study. Remember, in a <b>quadrat study</b> scientists study the <b>distribution</b> of objects or organisms in an area—or how many of something there are.</i></p> <p><i>Let's take a look at a couple of observations from our last quadrat study. Last time, we observed the rocks in our quadrat. We compared the rocks and tried to determine if the smaller rocks we observed were part of a larger rock.</i></p> <p>Show the selected examples. Use a simplified Science Circle protocol to guide the conversation, informally introducing this routine.</p> <p><i>Today, we will shift to observing <b>organisms</b>, or living things. We have been studying seeds and plants; pay close attention to any plants you see in your quadrat. What plants do you think you might find? Do you think they will be <b>mature</b>, or fully grown? Do you think they could be <b>sprouts</b>, or young plants?</i></p> <p>Distribute packets. Take the children out to the schoolyard with quadrat markers (hula hoops/ropes) and writing and drawing tools.</p> <p>Direct children to return to their same spots.</p>
<p><b>Investigation</b> 15 minutes</p>	<p>Once outside, offer reminders as needed for placing quadrat markers on the ground, observing everything within its frame, and describing and recording as many plants as possible. Emphasize identification of sprouts, seeds, and mature plants.</p> <p>As children work, circulate to support their investigation and representation. Ask the following questions.</p> <ul style="list-style-type: none"> <li>● <i>What do you notice?</i></li> <li>● <i>What plants do you find?</i></li> <li>● <i>Is this a mature plant or a sprout? What makes you think so?</i></li> <li>● <i>How does this plant get what it needs to live and grow?</i></li> <li>● <i>How do you think this plant got here?</i></li> </ul> <p>If a child's quadrat includes no plants, ask them to record that data. Ask the following questions.</p> <ul style="list-style-type: none"> <li>● <i>Why do you think there are no plants growing in this area?</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Do you think a plant could grow here?</i></li> <li>• <i>What might you change to help a plant grow here?</i></li> </ul> <p>Identify a few children to share their work with the whole group. Bring the children back indoors.</p>
<b>Discussion</b> 5 minutes	Set aside all materials except children’s packets. Ask identified children to share and describe their work. Encourage them to use precise vocabulary.
<b>Closing</b> 1 minute	<i>What did you learn about your quadrat by observing plants?</i> Encourage children to use the “Me, too” signal to make connections.
<b>Standards and Practices</b>	<p><b>L.6.2.a</b> Use words and phrases acquired through conversations, reading, and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., When other kids are happy, that makes me happy).</p> <p><b>W.2.2.a</b> With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.</p> <p><b>2-LS2-1</b> Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p> <p><b>2-LS2-2</b> Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</p>
<b>Ongoing assessment</b>	<p>As children work to record their observations, take note of their approach to the task, particular interests, and how they might be best supported with ongoing outdoor learning.</p> <p>Review children’s packets. What plants did children record? How did they describe what a plant needs to live and grow in their quadrat?</p> <p>As children continue this work, look for greater details in their drawing and writing and increasingly meaningful connections to current unit content.</p>

**Notes**