

Unit 4: The Power of Pollinators

WEEK 4 Lesson 2

Science and Engineering: Life Sciences

Ecosystems: Plant Growth and Development

Big Idea	The parts of an organism have specific functions.
Guiding Question	Why are the particular parts of an organism important?
Content Objective	I can work with a group to make a claim about the growth and development of a plant and support it with evidence. (2-LS2-3, Practice 7) I can conclude that plants develop at different rates in different ways. (Science 2-LS2-3(MA).)
Language Objective	I can discuss my interpretation of data clearly with classmates. (SL.1.2, SL.1.2.a) I can respectfully ask questions to better understand my classmates' ideas. (SL.2.2.b)
Materials and Preparation	<ul style="list-style-type: none">● chart paper, 2 pieces On each piece of chart paper, write two questions from the Plant Growth and Development Questions sheet, one question at the top and the other halfway down the page.● tape or glue stick● About Plants chart, from previous lessons Review the chart and mark compelling questions about plant growth and development. Set up a separate work space for each group, with: <ul style="list-style-type: none">● the bean plant that the group has been observing and measuring● Plant Growth and Development Questions● group members' Science and Engineering packets and graphs● writing and drawing tools● one large strip of paper (about 6 inches wide) or sentence strip
Notes	In some cases, children will observe that their plant has not been growing

	<p>taller. Still, leaves might be growing larger and new ones developing. As leaves develop and grow, the cotyledon dries up. The cotyledon, part of the embryo, was the seed’s food source; now the leaves have taken over that function. Leaf growth and development is essential for the plant’s life cycle.</p> <p>Growth of neither stem nor leaves may be a sign that growing conditions should be adjusted to offer the plant the right amount of water and light.</p>
<p>Opening 3 minutes</p>	<p><i>You have been observing, measuring, and recording the growth of your plants for a week. Today you’ll get together with your groups to talk about what you’ve been noticing, what you think about what you’ve noticed, and what you predict.</i></p> <p>Show and read through the questions on the Plant Growth and Development Questions sheet.</p> <p>Indicate the box at the bottom of the sheet.</p> <p><i>In this box are some other questions to make sure you really understand each other’s ideas. You won’t record answers to these questions.</i></p> <p>Read the prompts.</p> <p><i>As you talk in your group, refer to your drawings and graphs for evidence for your answers.</i></p> <p><i>Then, as a group, choose just one of these four questions to answer. Use evidence from your plants, graphs, and your plant observation pages to answer the question. Agree on an answer, and then work together to write it clearly on a strip of paper. You might want to include an illustration to make your answer even more clear.</i></p> <p>Send children in their groups to work.</p>
<p>Investigation 15 minutes</p>	<p>Encourage children to reference their observations in their packets, their graphs, and their plants as they discuss the questions. Each group should discuss all of the questions on the sheet and use the discussion prompts to clarify each other’s ideas.</p> <p>Guide children to choose one question and agree to a claim that answers that question. Insist that the group supports their claim with evidence from their observations.</p> <p>Once each group agrees on an answer, have one or more children write it on the paper strip. Encourage groups to include illustrations as appropriate to supporting their claim.</p>

<p>Discussion 12 minutes</p>	<p>Bring children back to the whole group with their answer strips.</p> <p>Ask one group at a time to present and hang their answers under the appropriate question on chart paper. If needed, prompt children to point out the evidence they have to support their answer. Invite children to engage in respectful argument about each other’s claims. Refer to previous experiences (plants in containers and seeds germinating in bags) and emphasize discussion around two primary ideas:</p> <ul style="list-style-type: none"> ● Conditions affect plant growth. Seeds and plants need different conditions at different points of development. For example, seeds do not need light to germinate, but plants do need light to grow and develop. ● Plants develop different parts at different times in order to continue their life cycle. For example, leaves develop in order to produce the food plants need. <p>If time permits, refer to the marked questions on the About Plants chart, and continue the discussion.</p> <p><i>Let’s think about some of the interesting questions you’ve had about how plants grow and develop.</i></p>
<p>Closing</p>	<p><i>Today we talked about how plants grow and develop differently and at different rates. Sometimes plants don’t grow taller but do develop new parts, such as leaves. They need energy to develop those parts. On the other hand, sometimes plants grow a lot taller from one day to the next.</i></p> <p><i>We also talked about the best conditions for plant growth. For example, we know that plants, unlike seeds, need a lot of light to grow. And that too much water might not be good for them; they just need the right amount.</i></p>
<p>Standards and Practices</p>	<p>SL.1.2 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.</p> <p>SL.1.2.a Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).</p> <p>SL.2.2.b Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.</p> <p>2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p>

	<p>2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</p>
<p>Ongoing assessment</p>	<p>Reflect on the class discussions.</p> <ul style="list-style-type: none"> Do children access their observations to think and present ideas logically? How do children integrate developing knowledge in their claims? What new questions are they posing? How do children understand the factors that account for plant growth and development? How do children engage in discussion in small and large groups? Do they listen to, acknowledge, and build on each other's ideas?

Notes