

**WEEK 3 Lesson 1**

**Science and Engineering: Plants Grow and Change**  
 Children explore capillary action through an experiment with celery and/or paper towels.

<b>S &amp; E Big Ideas</b>	Plants have different structures that function to help them survive. Individuals of the same kind of plant may look similar but also vary in many ways.
<b>S &amp; E Guiding Question</b>	What is the function of each plant part?
<b>Content Objective</b>	I can discuss my observations about capillary action and how it benefits a plant. (1-LS3-1)
<b>Language Objective</b>	I can have a conversation with my classmates about the parts of a plant. (SL.1.1)
<b>Vocabulary</b>	<p><b>root:</b> the part of the plant that is underground and soaks up water and nutrients from the soil</p> <p><b>stem:</b> the part of the plant that grows leaves and flowers and transports water and nutrients to other parts of the plant</p> <p><b>leaf:</b> the part of the leaf that takes in air and sunlight</p> <p><b>xylem:</b> The inside of the stem that carries water and nutrients</p> <p><b>capillary action:</b> How water and nutrients move inside a plant</p>
<b>Materials and Preparation</b>	<ul style="list-style-type: none"> <li>● <a href="#">Parts of a Plant Song</a> or <a href="#">Parts of a Plant Hip Hop Song</a></li> <li>● <a href="#">Celery Experiment Video</a></li> <li>● Water</li> <li>● hand lenses, one per pair of children or per small group</li> <li>● <a href="#">Celery Stalk Observation sheet</a>, one per child or <a href="#">Capillary Action Observation sheet</a>, one per child</li> </ul> <p>*This experiment may be completed with paper towels or celery stalks, or both, if time allows.                  **This experiment may be completed in whole group (with one</p>

	<p>demonstration), or in small groups, or in pairs. This will determine how many of the materials are needed.</p> <ul style="list-style-type: none"> <li>● food coloring: blue, red, and/or green</li> <li>● clear plastic cups, 3 per demonstration</li> <li>● for the paper towel experiment: absorbent white paper towels Note: School paper towels may not be absorbent enough for this experiment.</li> <li>● for the celery stalk experiment: celery stalks, 3 per demonstration</li> </ul>
<p><b>Opening</b> 3 minutes</p>	<p><i>We have learned about seeds and what plants need to grow. We have been observing our beans and potato clippings to see how plants grow and change over time. Today we will look at the parts of a plant. Each part of our body helps us do something. Our ears let us hear, our eyes let us see, our feet help us walk and balance, our hands help us hold things, and our brain helps us think! Just like people, plants have parts that help them live and grow. Today we are going to learn about the parts of a plant.</i></p> <p>Invite children to share their ideas about what each part of the plant does.</p> <p>Select a song to introduce the parts of a plant.</p>
<p><b>Investigation</b> 20 minutes</p>	<p>Review with children that the root system of a plant absorbs water and nutrients from the ground. This happens because of capillary action. The xylem, or straw like tubes inside of a plant’s stem moves water and nutrients to other parts of the plant.</p> <p>Have children observe the freshly cut celery stalk with the hand lenses and invite children to report what they see. Guide children to observe tiny holes at the base of the stalk. Explain that the holes are the xylem that allows the water and nutrients to travel the length of the stalk.</p> <p>Show the <a href="#">Celery Experiment Video</a>.</p> <p><u>If using paper towels:</u> Fill one cup halfway with water. Fill the other cup halfway with water, add food coloring, and mix. Place one end of the folded paper towel into the cup with the colored water and the other end into the cup with plain water. If mixing colors is desired, add a third cup with colored water and put the plain water cup in the center. The capillary action of the paper towel fibers will replicate the capillary action in a plant. This will take 30-40 minutes.</p>



If using celery stalks: Create a fresh cut on the celery stalk. Fill cups halfway with water, add food coloring (use dark-colored food coloring), and mix. Place the stalk in colored water. The stalks will need to sit overnight for the capillary action to work.



<p><b>Discussion</b> 5 minutes</p>	<p>Invite children to make observations during and after the capillary action has worked.</p> <p>Have children color the observation sheets depicting the stalk/paper towels before and after.</p>
<p><b>Closing</b> 2 minutes</p>	<p><i>How do plant parts help it survive? What is the special job each plant part plays in helping the plant live and grow?</i></p>
<p><b>Standards</b></p>	<p><b>1-LS1-1.</b> Use evidence to explain that (a) different animals use their body parts and senses in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air, and (b) plants have roots, stems, leaves, flowers, and fruits</p>

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that are used to take in water, air, and other nutrients, and produce food for the plant.

**1-LS3-1** Use information from observations (first-hand and from media) to identify similarities and differences among individual plants or animals of the same kind.

**Practice 1.** Asking questions and defining problems

**Practice 3.** Planning and carrying out investigations

**SL.1.1c.** Ask questions to clear up any confusion about the topics and texts under discussion.

## Notes