



DALLAS ARBORETUM
Education

Garden STEM at Home
How Plants Grow



WE GROW MINDS, TOO.



OBJECTIVE:

STUDENTS WILL SET UP AN EXPERIMENT TO TEST THE BASIC NEEDS OF PLANTS.

SOURCE

Project Learning Tree PreK-8 Activity Guide

BACKGROUND

Plants are systems! They need sunlight, water, air, nutrients and space to grow. In this activity, kids explore the basic needs of plants and what happens when those needs are not met.

INSTRUCTIONS

1. Collect 16 identical paper or plastic cups. Label 4 as “control”, 4 as “no light”, 4 as “no water” and 4 as “no soil”.
2. Plant four peas or lima beans in four separate containers with standard potting soil and place in a sunny window to grow. Water as needed. These will be your control plants.
3. Set-up your variable tests:
 - a. To test for light: plant four peas or lima beans in four separate containers with standard potting soil and place in a dark cupboard or closet. Water as needed.
 - b. To test for water: plant four peas or lima beans in four separate containers with standard potting soil and do not water. Place them near a window or other light source.
 - c. To test for soil: plant four peas or lima beans in four separate containers on a wet paper towel. Place in a sunny window to grow. Water as needed.
4. Measure the height of plants at regular intervals as they grow.
5. Develop a list of questions that your data can answer and discuss together. These questions may include: *Which plants grew the most? What does a plant need to grow? Is soil necessary to sprout? Is soil necessary to thrive?*
6. Variation: Pre-grow seedlings in a jar several weeks before your experiment. Place damp paper towel and 3-4 dozen peas, beans or alfalfa seeds in the jar in a sunny window. Keep damp. This variation allows for daily observation of plant growth, discussion on parts of a plant and the development of some prior knowledge on whether plants can grow in something other than soil.

ADDITIONAL RESOURCES

Download the How Plants Grow Family Guide:

https://www.plt.org/wp-content/uploads/pdf/PLT_Act2_Getting_In_Touch_with_Trees.pdf

Explore the How Plants Grow Additional Resources Guide from PLT:

<https://www.plt.org/activity-resources/prek-8-activity-2-get-in-touch-with-trees/>

The Gardener by Sarah Stewart, ISBN: 031236749X