

Title: How Does Your Garden Grow?

Topic: Seeds need soil, water, air, light, space, food, and shelter to grow.

Grade: First (1st)*

Time: Approximately 45 minutes plus 10 minutes 1x/week for 4 weeks

Objectives	<p>1.L.1 Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive.</p> <p>1.L.1.1 Recognize that plants and animals need air, water, light (plants only), space, food and shelter and that these may be found in their environment.</p> <p><i>* Can be adapted for other grade levels. Related objectives are:</i></p> <p>K.L.1.2 Compare characteristics of living and nonliving things in terms of their structure, growth, changes, movement, and basic needs.</p> <p>2.L.2.1 Identify ways in which many plants and animals closely resemble their parents in observed appearance and ways they are different.</p> <p>3.L.2.1 Remember the function of the following structures as it relates to the survival of plants in their environments: roots, stems, leaves, flowers.</p> <p>3.L.2.2 Explain how environmental conditions determine how well plants survive and grow.</p> <p>3.L.2.4 Explain how the basic properties and components of soil determine the ability of soil to support the growth and survival of many plants.</p>
Materials	<ul style="list-style-type: none">• Seeds and How They Grow booklet (separate PDF file)• Any type of seed (e.g. grass seed, black bean, lima bean, etc.)• Soil• Cups• Water/Light• Paper/pencil
Engage	<ul style="list-style-type: none">• The teacher will pull up the video from http://www.youtube.com/watch?v=EKx4ZwoJqXY to watch a time-lapse video of a bean seed growing.• As the video is playing, the teacher will ask students what they observe happening, how the bean seed is developing and growing, and what conditions are present for growth.• Sample discussion questions: What are the beans planted in? What else is in the pot? Why do you think only two of the beans are starting to grow? What do you think is growing underneath the soil? Why do you think plants need to grow tall? Why do you think plants have leaves? The teacher will record all responses on chart paper so that the students can see their responses and compare them to what they will see and learn as they grow their own plant.
Explore	<p>The first day:</p> <ul style="list-style-type: none">• The teacher should then lead the students in starting their “Seeds and How They Grow” booklet under “Day 1”. The teacher and students will discuss the basic needs that the plant will need (assuming basic needs have already been taught), and record in their booklet.• The teacher will give each group of students 4 cups, soil, water, and 4 seeds to plant. The students will plant their seeds, making sure to put the seed about 1 inch below the soil surface, and not packing it down too much. The students or teacher should label each cup for: “Will Get Water”, “Will Not Get Water”, “Will Get Sunlight” and “Will Not Get Sunlight”. The teacher should have the students give the appropriate cups water, place the appropriate cups in the sunlight, and place one in a dark location.• The teacher should then lead the students in starting their “Seeds and How They Grow”

	booklet under “Day 1”. The teacher and students will discuss the basic needs that the plant will need (assuming basic needs have already been taught), and record in their booklet.
Explain	<p>Over the next 4 weeks:</p> <ul style="list-style-type: none"> The teacher will then re-visit their cups each week on the same day, and discuss with the students: What do you observe about the changes that have happened in the “will get water” cup? Continue with the remaining 3 cups. The teacher will model drawing what she observes for one of the cups, labeling any plant parts that might be visible (roots, stem, leaves). The teacher and students will also discuss their predictions for next week: Which cup will grow the most? The least? Why? The teacher should be sure to discuss that the only plants that are growing are the ones that get all of their basic needs (will get water and will get sunlight).
Elaborate	<ul style="list-style-type: none"> The teacher will lead the class in a reading of a trade book that solidifies the basic needs of a plant and how a plant grows. Some examples of books are: <u>Ready, Set, Grow!: A Kid’s Guide to Gardening</u> by Rebecca Spohn <u>I Can Grow Plants!</u> by Rosemary Jennings <u>How a Plant Grows</u> by Bobbie Kalman <u>Plants Grow from Seeds</u> by Rachel Mann <u>How Do Plants Grow?</u> by Louise A. Spilsbury As the teacher reads the book, she should discuss the commonalities between how the plant is growing in the book and how the plant is growing in the classroom. Are the same basic needs being met? Are all the plant parts the same?
Evaluate	<ul style="list-style-type: none"> The teacher will use the Seeds and How They Grow booklet as a project assessment. The teacher should utilize the rubric provided in the resources section.

Resources

Evaluate:

Seeds and How They Grow Booklet Rubric	3	2	1
Graphics/Pictures	The pictures are all accurate and correlate with the appropriate seed/variable.	Most of the pictures are accurate and most correlate with the appropriate seed/variable.	Many of the pictures are not accurate and do not correlate with the appropriate seed/variable.
Content	All labels and information in the booklet are accurate.	99%-85% of the facts and labels in the booklet are accurate.	Less than 85% of the facts and labels in the booklet are accurate.
Participation/Focus	Consistently stays focused on the task and what needs to be done. Very self-directed. Participated in every activity.	Focuses on the task and what needs to be done most of the time. Participated in almost every activity.	Focuses on the task and what needs to be done some of the time. Other group members or the teacher must remind to keep this student on-task and participating.

Rubric adapted from: http://rubistar.4teachers.org/index.php?screen=NewRubric§ion_id=9#04

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