



Developed with Mercedes Lemke, Agriculture Education Instructor at Gettysburg High School, Gettysburg, SD

What do plants need to grow?

Volume 25 | Gr. 9-12

Time: 3 Week



PS.01.01.

Determine the influence of environmental factors on plant growth.

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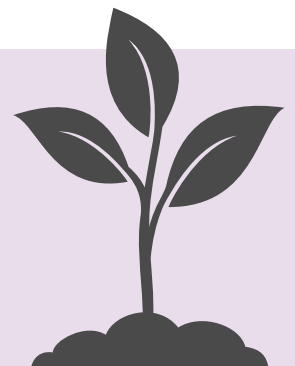
Analyze plant responses to varied light color, intensity and duration and recommend modifications to light for desired plant growth.



Objectives

Students will...

- Research key factors and determine which environment is best for plants to grow



Overview

Students will create research plans to determine which soil type and environment would be most beneficial for plants to grow. Students will have 10 samples including a control group and then 4 other groups of their choosing (2 plants for each group). Students will decide, based on their hypothesis, if they will change the soil type of the environment in which the plants are kept. With the kits and journal in this lesson plan, students can complete this project in school or at home.

Materials list

- Grow a Fruit and Vegetable Garden Kit ([SB53412](#))
OR
- Grow a Decorative Garden Kit ([SB53411](#))



Activity 1

Students will determine their hypothesis, which will be written on their lesson plan worksheet.
Example: If sunlight is needed for plants to grow then the plants in direct sunlight will grow more quickly over our three-week period.

Activity 2

Students will fill out their table on their worksheet to fit their hypothesis for each day.

Activity 3

Students will need to determine where to place each of their control and 4 other group pots. (Example: Control – Direct Sunlight; Group 1 – Partial Sunlight; Group 2 – LED Light only; Group 3 – Light for only 3 hours; Group 4 – Total Darkness).

Activity 4

Students will cut apart the egg carton and plant their plants.

Activity 5

For 21 days, students will record the progress of their plant to determine its growth (measure plant growth in inches). Students must also water each plant the same amount of water (ex. 25 ml) each day.

Activity 6

After 21 days students will complete the following questions on their worksheets:

1. Which of your groups grew the most during this experiment and why?
2. Which of your groups grew the least during this experiment and why?
3. Did the experiment prove or disprove your hypothesis. Why or why not?

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1. Write your hypothesis below using an if-then statement.

2. Complete the table on the following page.

3. Answer the hypothesis questions below:
 - a. Which of your groups grew the most during this experiment and why?

 - b. Which of your groups grew the least during this experiment and why?

 - c. Did the experiment prove or disprove your hypothesis? Why or why not?

Name: _____ Date: _____

Complete the table below as you watch your plants grow.

	Control Group (A)	Control Group (B)	Group 1 (A)	Group 1 (B)	Group 2 (A)	Group 2 (B)	Group 3 (A)	Group 3 (B)	Group 4 (A)	Group 4 (B)
Day 1										
Day 2										
Day 3										
Day 4										
Day 5										
Day 6										
Day 7										
Day 8										
Day 9										
Day 10										
Day 11										
Day 12										
Day 13										
Day 14										
Day 15										
Day 16										
Day 17										
Day 18										
Day 19										
Day 20										
Day 21										