

PLANT LAB

Ten (10) groups of plants were exposed to varying quantities of nitrogen. Plants require specific quantities of light, water and nitrogen for growth. However, there are limits as to the amount of these important variables a plant can or should have. As a matter of fact, at some quantity of light, water and nitrogen plants actually may respond negatively and begin to die.

The purpose of this lab exercise is to examine the impact of nitrogen on plant growth. Plants absorb nitrogen from the soil with the help of nitrogen fixing bacteria. Once this important element has been absorbed it is used by plant cells to carry out photosynthesis. Plant cells contain a green pigment called chlorophyll that absorbs light, the first step of photosynthesis leading to the production of the sugar glucose.

Use the data provided to construct three graphs and answer the questions provided. Remember, the independent variable goes on the x axis (horizontal) and the dependent variable on the y axis (vertical). Graph 1 is to be Nitrogen vs. chlorophyll intensity. Graph 2 is to be nitrogen vs. Height of plants. Graph 3 is to be chlorophyll intensity vs. height of plants. Each axis must be labeled correctly by name and unit (gram, nm or cm).

Work in pairs and make sure the period and both names are provided on your graphs and answer sheets. The assignment is due at the end of the period.

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Experimental Group	Nitrogen Added (grams)	Intensity of Chlorophyll (nm)	Height of Plants (cm)
1	0.0	150	12
2	1.5	185	14
3	2.5	208	18
4	3.5	280	27
5	4.5	391	34
6	5.5	294	29
7	6.5	174	13
8	7.5	130	7
9	8.5	0.0	1
10	9.5	0.0	0.0
Control	4.5	372	31

The following questions must be answered in complete sentences.

1. What effect did nitrogen have on plant growth?
2. What effect did nitrogen have on chloroplast intensity?
3. Why is there a connection between chloroplast intensity and plant growth?
4. Why did the plants start to die?
5. What was the importance of the control group in this experiment?
6. What would be the impact on plant growth if antibiotics were added to the soil where plants were growing? Explain.

190
30
220