



CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

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Project Title
How Does the Position of the Light Affect Phototropism in Plants?

Abstract

Objectives/Goals
This project investigates how light affects the time it takes for phototropism to take place in plants. My project consisted of seven cups, which were filled with 3 inches of soil and with 40 cat grass seeds in them. I had a regular schedule of watering with 2 tablespoons of water everyday. I placed a lamp on top of the cups until the seeds grew to be a 6.5 inches from the soil. After this measurement, I placed the lamp on the left side of the cups, until there was a positive phototropism of 90 degrees to the light. Afterwards, I placed the lamp to the right side, and after waiting for all the grass in the cups to be straight again, I marked how much time it took for the grass to bend to the right side. I tested each cup 4 times and the time was measured in hrs. Through this experiment, it was found that the more times the grass is exposed to the light, the more sensitive it became to any change in the light position.

Methods/Materials

Name	List	Quantity	Brand
Bag of Soil	1		Coles Premium
Packages Of Cups	2		Party America
Package of Seeds	1		Pet Grass
Tablespoon	1	~	
Tap Water	~	~	
Desk Lamp	1		Penn Plax
75 watt lightbulb	1		Smart&Final

Conclusions/Discussion
Through this experiment, I found that as the trials increased, the plants responded to change in the light's position faster than the first time. I found that the plants are more responsive when the lamp or light source was on the right side. For example, when the light source was first on the left side, it took nearly 61.3 hrs for it to be completely 90 degrees with the light, while with the second move to the right side took only 39.9 hrs. As each trial went on, the plants became more responsive to where the light source was placed and that contradicts my hypothesis because I guessed that the exact opposite would happen even though it slightly increased after a major decrease on both sides of the plants.

Summary Statement
Using seven cups filled with three inches of soil and forty cat grass seeds in them, I investigated how long it would take for the plants to respond to light on the left and right side of the plants.

Help Received
Mother took photographs.