



CALIFORNIA STATE SCIENCE FAIR 2004 PROJECT SUMMARY

Name(s) Avery G. Yu	Project Number J1629
Project Title How Does the Intensity of Light Affect the Speed of Phototropism?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to see how the intensity of light affected the speed of phototropism.</p> <p>Methods/Materials I placed 3 different sets of four plants each at different distances from the light. I placed the first set of plants 0cm away from the light, the second set of plants 30.5cm(1 foot) away from the light, and the third set of plants 91.5cm(3 feet) away from the light source. The plants were grown up to 3 inches tall before the experimentation. Also, I built a box around the plants to block out extraneous light. I covered it with newspaper so that light would not be able to get through. A hole was cut on the left and right side in order to put a desk lamp through it. I placed the light on the left side at first and then when the plants grew at a 90-degree angle toward the light, I shifted the light to the right side. Also, when light was shifted from left to right, the plants were also shifted according to their right distances from the light source, in order to receive the same light intensity. For example, the first set of plants was shifted so that it was always 0cm away from the light source, no matter where the light was placed. The second set of plants was always 31.5cm away from the light source and the third set of plants was always 91.5cm away. Then, I shifted the light to left and when the plants bended at a 90-degree angle as a sign of positive phototropism, I shifted the light to the right. There was a total of 6 exposures to light and 5 light position shifts between left to right.</p> <p>Results The plants at a distance of 91.5cm (3 feet) away from the light took the longest time to react 90 degrees toward the light. The plants that were 0cm away from the light took the fastest amount of time to bend 90-degrees. Time decreased as light was shifted repeatedly.</p> <p>Conclusions/Discussion Through this experiment, I learned that as the intensity of light decreased, the speed of phototropism increased. That means that the plants that received the lowest intensity of light took the longest time in showing effects of positive phototropism than the plants that received the highest. The plants that received the highest intensity of light took the fastest time in showing effects of phototropism. Also, as the light was repeatedly shifted from left to right, the speed of phototropism decreased and all the plants were able to adapt better to the source of light and react faster.</p>	
Summary Statement My project is about how the amount of light received by plants affect the time it takes for plants to show effects of positive phototropism.	
Help Received Parents helped build the box.	