



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Emma M. Sydir	Project Number S1924
Project Title The Effect of Light Exposure on Circumnutation Size	
Abstract Objectives/Goals Plants are all around us and are essential to our survival, providing us with oxygen, food, medicine, and so much more. Despite years of research, there is still so much that we do not understand about plants. Neither the purpose nor mechanism of circumnutation, the helical movement of plants which is mostly unrelated to stimuli, is fully understood by botanists. Greater understanding of circumnutation could provide a window into plant evolution and provide insight into the ways that plants will be affected by changing environmental conditions. Thus, I decided to study circumnutation. Specifically, I tested the effect of different amounts of light and shade on the circumnutation radii, hypothesizing that the more time a plant was shaded, the smaller its circumnutation radii would be. Methods/Materials I planted three groups of morning glories of which I shaded one group for three hours, one group for six hours, and one group not at all. I then set wireless security cameras to take pictures of the plants as they circumnutated. Using Adobe Photoshop Elements 10, I traced the movement of the plants and calculated the length of the radii of the circumnutations. I then compared the sizes of the circumnutations between the groups. Results The circumnutation size of the plants that were not shaded was about three times larger than the circumnutation size of the plants that were shaded. The plants that were shaded for three hours showed circumnutations that were about 15% greater in size than the circumnutations of the plants that were shaded for six hours. Conclusions/Discussion The results support my hypothesis that circumnutation size will decrease the more a plant is shaded. This indicates that circumnutation could potentially be related to vining plants' search for a support to grow on.	
Summary Statement This project explores the effect of varying light exposure on the circumnutation size of morning glories.	
Help Received Dad helped mount cameras	