



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Stephanie Rae P. Samson	Project Number J1634
Project Title Photoperiodism in Mung Bean Plants	
Objectives/Goals This project deals mostly with photoperiodic responses of mung bean plants when exposed to amounts of light to dark varying from 8 hours of artificial light and 16 hours dark and vice versa. I hypothesized that plants exposed the largest amount of light to be tested (the ratio 16:8) would express the most positive photoperiodic responses.	
Abstract Methods/Materials <ol style="list-style-type: none">1. Fill all 25 of your pots or cups to about 3cm from the top with Miracle Grow brand potting soil, then place 7 seeds in each of the pots about 2cm below the surface and water them every other day.2. Once the plants in each pot have reached 4cm, you are ready to begin your experiment. If all 7 or if 6 seeds sprouted, pluck out the weakest of the pot until there are 5 left.3. Clear the testing area.4. Install and plug in your fluorescent lighting.5. Set your timer to the hours of your choice. Make sure there is exactly a 16 hour period between the "on" and "off" times.6. Set your plants as directly beneath the fixture as possible.7. Label each cup. Five are to be labeled 8:16, another five 10:14, 12:12, 14:10, and 16:8, representing the amount of light to dark each is to receive in a 24-hour period.8. Move plants into light or darkness according to their labels. Have a dark area prepared.9. Water and rotate the plants every other day.10. Be sure to note any differences in the physical appearance of plants; these may include wilting and a slightly different coloration as well as new leaves and flowering.11. Make final measurements and observations at the end of your experiment in about 3-4 weeks.	
Results In the end, I had to reject my hypothesis, discovering that the plants in the 14:10 group prospered best overall. The 16:8 group had the lowest survival rate against the insects and were rather malnourished.	
Conclusions/Discussion Plants that received a 16:8 ratio of light-to-dark in 24 hours actually were unhealthy, contrary to my hypothesis. The plants that showed the most positive photoperiodic responses were those in the group that received a 14:10 ratio of light-to-dark in 24 hours. From my research and data, I can infer that plants in the 16:8 group did not prosper because of lack of respiration time; they grew slowly and were not able to heal and defend parts of the plant damaged by	
Summary Statement This project deals mostly with the photoperiodic responses of mung bean plants and what amount of light to dark in a 24-hour period would promote the healthiest growth and greatest development.	
Help Received Dad and Mom: bought me supplies; my brother: photography; my grandparents: transportation; Mrs. Susan Rizk: science-related advice; Ms. Sue Okada: interview	