



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Carina M. Cain	Project Number J2003
Project Title Life by Light	
Abstract Objectives/Goals My objective was to determine whether plants grow better in natural sunlight, or artificial light. My hypothesis was that plants would grow best in sunlight because it contains both the blue and red wavelengths needed for photosynthesis. Methods/Materials Materials Two incandescent lights, two fluorescent lights, eight lettuce plants, three boxes to keep out the excess natural sunlight, eight plant pots, potting soil, small watering can, tap water, ruler, and notebook. Methods I set up four boxes to keep stray sunlight from the plants that received artificial light and the plants that received natural sunlight also need to be in a box to keep everything the same, except the type of light. I put two small, potted plants into each box and placed one box on the windowsill and the other three boxes on the floor, away from windows. I hooked up lights to the three boxes on the floor so that the plants in one box received fluorescent lighting, the second incandescent lighting, and the third fluorescent + incandescent from 8:00 AM to 6:00 PM. Every two days, starting on day zero (the start of the experiment), I measured the height of each plant and wrote the heights in a notebook, and watered the plants. I subtracted the heights of the plants on day zero from their heights on the last day of the experiment to calculate the growth of each plant and for each type of light treatment, I averaged the growth of the two plants. Then, I compared the growth of plants for each treatment. Results After 6 days, the plants receiving the combination of the fluorescent and incandescent light grew the tallest (1.0 in) while the plants receiving natural sunlight grew the least (0.125 in). The plants receiving either fluorescent or incandescent light grew the same amount (0.5 in). Conclusions/Discussion My hypothesis was wrong because the plants under the mixture of incandescent and fluorescent grew the most, and the plants under the natural light grew the least. The reason for this, I think, is because there were quite a few cloudy days during my experiment, and the fact that the plants under natural light did not receive direct sunlight for ten hours as did the plants under the artificial light, could have affected the results of my experiment.	
Summary Statement The type of light a plant receives affects its growth.	
Help Received Father helped explain the light spectrum and photosynthesis; Mother helped with board.	