



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

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<b>Project Title</b> <b>Living Color</b>	
<b>Objectives/Goals</b> Hypothesis: White light, and additive colors all come from the primary colors red, green and blue. I will try to use the wavelengths of the primary colors to calculate the additive colors, as well as white light. I will make a machine to demonstrate my project with.	
<b>Abstract</b>	
<b>Methods/Materials</b> Materials wood, reflectors, paint, dimmers, wiring, red/green/blue lights, timer, diffuser strip, nails and screws calculator, note pad, pencil, camera Methods 1. Research was done, and materials purchased 2. Lights, dimmers, and wiring assembled into color machine 3. Tests were conducted while blending lights and photos taken 4. Container was tested by blending primary colors to create additive colors and to create white light. A diffuser strip was added for prism distinction 5. I applied wavelength numbers to the primary colors and tried to predict the additive colors by calculating averages of two primary colors that could be blended 6. I tried predicting the wavelength of white light by using a calculation of all three primary colors. 7. I tested my calculations in the machine.	
<b>Results</b> When I took the wavelengths of each of the primary colors in pairs, I was able to calculate the wavelength of the additive colors that the color machine would produce. However, when I took the wavelengths of all three primary colors and tried to calculate white light, I was unable to find a mathematical formula that worked.	
<b>Conclusions/Discussion</b> I was able to use the wavelengths of primary colors and mathematics to calculate additive colors that come from blending primary colors. With my machine I was able to blend the primary colors to make the additive colors that I calculated. I was also able to make white light in the machine. However, I was unable to use mathematics to calculate white light. In conclusion, my hypothesis was part correct in saying that white light and additive colors comes from the primary colors. It was incorrect in saying that white light could be calculated mathematically like the additive colors.	
<b>Summary Statement</b> My project is about understanding how color happens, and how white light happens.	
<b>Help Received</b> Dad helped me understand primary colors and Uncle Tom helped me build the machine	