



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jonathan R. Allison</b>	<b>Project Number</b> <b>J0501</b>
<b>Project Title</b> <b>Will the Real Colors Please Rise Up! The Separation of Crayola Markers through Chromatography</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project is to determine what are the real colors contained in Crayola colored markers. I believe there will be more than just one color contained in each marker, even though it's a primary color. <b>Methods/Materials</b> Five different filter strips, each marked with a different colored Crayola marker dot (red, blue, yellow, purple & black) were barely placed in 1/4 cup of Isopropyl Alcohol. They were measured and recorded at 10, 20 and 30 minute intervals to test what colors separated out and how quickly each color rose up. Each color was tested five times to ensure validity. <b>Results</b> On average, purple rose the fastest and highest at 10 min. 5.1 cm, 20 min. 6.3 cm, and 30 min. 7.1 cm; and yellow rose the least and took the longest at 10 min. 2.2 cm, 20 min. 2.6 cm, and 30 min. 3 cm. Black was a surprise, since I thought black was just black, but turquoise and forest green separated out quickly. Red and blue also separated out quickly. Pink separating out of blue was also a surprise. <b>Conclusions/Discussion</b> The results from my testing were because of polarity. With polarity the smaller molecule separates and rises faster and further and the bigger molecule separates slower and rises the least. I conclude that purple had the smallest molecule and yellow the largest of the colors I tested.	
<b>Summary Statement</b> My project is about the separation of colors in Crayola markers through chromatography.	
<b>Help Received</b> My mother took pictures of me doing my experimenting and helped me proofread and type some of my notebook and this form.	