CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
S0514

Project Title
How Much Food Coloring Is in Soda Pop and Kool-Aid?

Abstract

Objectives/Goals
The goal of this project was to spectrophotometrically determine how much food coloring is in soda pop and Kool-Aid.

Methods/Materials
A Cary 5E spectrophotometer was used to measure the absorbance of visible light through colored solutions. First, the wavelength of maximum absorbance was determined for red, yellow, and blue food coloring. Second, solutions with increasing concentrations of food coloring were prepared for each color. Next, the absorbances were measured to generate a calibration curve. Finally, the absorbance of different flavors of Kool-Aid and soda pop were measured and the concentration of food coloring was determined from the calibration curves.

Results
The results showed that very little food coloring is actually in soda pop and Kool-Aid. The spectra show that when you make a solution purple there is blue and red food coloring in it. This is also true when making something green or orange. To make a green color you need yellow and blue, and for orange you need yellow and red. The results also showed that there is more food coloring in soda pop than Kool-Aid.

Summary Statement
This project uses light absorbance to determine the concentration of food coloring in various samples of Kool-Aid and soda pop.

Help Received
Father gave tutorial on the spectrophotometer & concepts researched in this project, and completed this application. Used lab equipment in the research department of the Naval Base at China Lake.