Name(s)

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Project Number

J1503

Project Title

Is Everything You Read True?

Abstract

Objectives/Goals

My goal was to see if the sugar concentrations on labels of drinks are correct, and if you can build a simple instrument to verify the concentration instead of buying an expensive instrument.

Methods/Materials

I used a laser level, 2 right triangle prisms, a variety of drinks, 2 stages, glue guns, and Duplo blocks to construct my apparatus. After making my apparatus, I made a stock of sugar, and did dilutions to make a series of solutions to calibrate the apparatus. I was able to test the different solutions and build a calibration curve. Using this, I could calculate the sugar concentration of them with the formula that my calibration curve gave me. After calculating the angle I used the formula, called Snell's Law, to find the refractive index.

Results

I found out that the instrument I made worked and that the sugar concentration on the labels are correct, except for a couple of the fruit juices whose sugar concentration were a bit off. One thing the could have been better was the accuracy of my stage. It would have been a more accurate expirement if i could measure the angle to the .01. That was one of my major problems that affected my results.

Conclusions/Discussion

I concluded that you can save money and build your own instruments instead of buying expensive and complicated ones. Also that the sugar concentration on almost all of the labels are correct. What also surprised me was the amount of syrup that they put in Coke; almost 1/3 of the amount of coke was syrup that had been diluted into the liquid.

Summary Statement

My project is about testing to see if you can measure sugar concentration with a simple instrument, and if the sugar concentration on the labels of drinks are correct.

Help Received

My dad helped on spreadsheets and aparatus; Biospherical Instruments gave me some supplies that I needed.