



## Colorado Science and Engineering Fair

## 2024 Individual Project Abstract Form

**Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.**

Title of Project: Orange Juice: The Sunshine In Your Cup

Finalist's Name: Tyson Montague

School and City: Centauri Middle School, La Jara

Sponsor's Name: Andrew Shelton

Category: Chemistry (CHEM)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

The purpose of my project is to find out which orange juice is the best in terms of glucose, vitamin C, protein content, pH, and citric acid content. My hypothesis states that if I use the 5 parameters to test different types of orange juice, the fresh orange juice will be the best in terms of a good amount of vitamin C and will have the least amount of sugar, and the juice that would have the most citric acid would be Tropicana because it is the most bitter to the taste. This experimentation included a citric acid titration, a vitamin C titration, using sugar and protein test strips as well as a pH meter. After analyzing my data, I found out that my data did not fully support my hypothesis. Fresh orange juice did not have the most vitamin C. It actually had the least amount of vitamin C. The orange juice with the most vitamin C is the Kroger brand. My hypothesis about the amount of citric acid was supported by the data. Tropicana did have the most citric acid. The best overall orange juice based on all of the tests was Tropicana because of the high amount of vitamin C and citric acid and the low amount of sugar.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature: *Tyson Montague*

Date: *03/04/24*

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.