



# 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: Refraction in Action

Finalist's Name: Evelyn Lapp

School and City: Brush Middle School

Sponsor's Name: Cynthia Albo

Category: Physics & Astronomy (PHYS)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

Abstract

How does the sugar content of a liquid affect the index of refraction of a laser pointer? I hypothesized that the higher the sugar concentration of a liquid, the greater the index of refraction would be.

The laser was shown through three different liquids. One had 10 grams of sugar and 90 milliliters of water, another had 20 grams of sugar and 80 milliliters of water, and the last one had 30 grams of sugar and 70 milliliters of water. The index of refraction was measured with the use of a hollow prism and trigonometry. My hypothesis was confirmed by my results. The index of refraction was greater the more sugar was added to the water.

*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: *Evelyn Lapp*

Date: *3/6/24*

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.