



# 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: The Vanishing Palette: Comparing the Fading Rates of Different Oil-Based Paints

Finalist's Name: Sophia Bronstein

School and City: Summit Middle Charter School, Boulder

Sponsor's Name: Valerie Keeney

Category: Chemistry (CHEM)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

Unfortunately for many artists, most paints do not tend to last due to them fading under ultraviolet light. To solve this issue, the addition of various binders were added to increase the resistance of ultraviolet light in paint. Four different plant-based oil binders were exposed to ultraviolet light and had their illuminance measured. The trendline for the oil's illuminance was calculated, and the linseed oil had the smallest slope at 0.0372. Poppyseed oil had the largest slope at 0.771, soybean oil had the second-largest slope at 0.429, and cottonseed oil had the second-smallest slope at 0.341. The best oil out of the four was shown to be linseed oil since it provides the least amount of fading throughout the week; poppy seed oil would not be recommended in paints since it has the most fading. Cottonseed and soybean oil had similar amounts of fading closer to poppyseed oil and should not be included in ultraviolet-resistant paint.

*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:

*Sophia Bronstein*

Date:

*2/27/30*

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.