



Colorado Science and Engineering Fair

2025 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: Effects of Soap on a Skin's pH Utilizing a Synthetic Skin Model

Finalist's Name: Maylin Carballo De La Cruz

School and City: Yuma High School, Yuma

Sponsor's Name: Amy Melby

Category: Biomedical & Health Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

Being aware of the effects certain soaps have on the body is essential because certain soaps may result in allergic reactions, dry the skin out, or even alter the skin's pH. Cosmetic chemists put a lot of effort into formulating safe and effective products, such as soap, for people to use on skin. The purpose of this project was to demonstrate the effects of soap on a skin's pH utilizing a synthetic skin model. It was hypothesized that all the tested soaps would have similar pH levels, but different amounts of penetration due to each soap containing its unique properties.

A skin replica made of plain gelatin, water, and glycerin was made. Red cabbage indicator powder was added so pH and penetration could be measured. Five different soaps (one liquid and four solid bars) were tested. Each soap was tested five different times. For the testing, 2 ml of a soap solution was placed in a weighing tray. A square skin replica was added and allowed to be exposed to the soap for 24 hours. The majority of the replicas' changed in pH and showed penetration. The hypothesis was accepted. All the soaps and synthetic skin replicas had similar levels of pH and different amounts of penetration.

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:

Date:

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.**