## Colorado Science and Engineering Fair

## 2023 <br> Individual Project <br> 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: Gel Electrophoresis
Finalist's Name: Skyelyn Lefever
School and City: Peetz Jr/Sr High School Peetz, CO
Sponsor's Name: Chandra Nelson
Category:Biomedical \& Health Sciences Division: Junior (6th - 8th grades)
Abstract (250 words or less):
The purpose of this project was to see how many bands of DNA I could separate from blue, yellow, and red dyes by putting them in an electrophoresis chamber. I hypothesized that the blue dye would have the most bands of DNA visible, but I was incorrect as the yellow dye had more bands than the other two colors.

This experiment involved an electrical process in which an electrical charge separated bands of DNA with different colors of food dye. First, I built the chamber to hold the gel and to be the base for the entire experiment. Secondly, I made the gel that stores the dyes and allows the electrical charge to run through it. Lastly, I tested the experiment to see if you really could separate DNA bands with an at home gel electrophoresis chamber.

The data I collected did not support my hypothesis because the yellow dye had 2 more DNA bands visible than the other 2 colors. The blue and red dye still showed DNA bands, but the yellow dye did separate more than the other 2 colors. The average amount of bands that were separated in total was 3.1.

These findings led me to believe that it doesn't matter how much color or how pigmented a color is, it matters about the mass of DNA it contains.
The yellow dye had a lighter mass of DNA than the red and blue so that is why it resulted to have 2 more visible bands.

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 your Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.

