



## Colorado Science and Engineering Fair

## 2024 Team 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: Who Got Away With It?

Team Leader's Name: Isabella Melster

Team Member 1: Austin Sheppard

Team Member 2: Tobias Patzke

School and City: Liberty Point International

Sponsor's Name: Lacilee Dickson

Category: Biomedical & Health Sciences (BMED)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

Iron is essential in animal life, humans are no different. The majority of iron in one's body can be found in protein in red blood cells. These blood cells are called hemoglobins and the Iron is in the form of protein found within each blood cell. The Kastle-Meyer experiment is a forensic test used to examine traces of blood left behind at crime scenes. During a crime scene investigation, the problem lies within the development of different types of blood (human and animal) as they react to the Kastle-Meyer test.

The team examined elk, human and simulated blood. All blood samples are dry for this test with the combination of phenolphthalein solution, hydrogen peroxide, and ethyl alcohol, which are the Kastle-Meyer catalysis for the reaction to take place.

When the catalysis was applied on all three blood samples, no change was evident. To see the results the team placed the samples under a blacklight to further investigate the reaction. During this point, a change was detected. This change in reaction was due to the iron in hemoglobin, which is fluorescent under UV light. Even though elk and human blood contains Iron, the test indicated a significant color change; human blood was dark red, elk blood was pink, and simulated blood had no color. This experiment shows that different types of blood have varying reactions when the experiment is conducted.

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

Team Leader's Signature: Isabella Melster

Date: March 1, 2024

Team Member 1's Signature: Austin S.

Date: March 1, 2024

Team Member 2's Signature: Tobias Patzke

Date: March 1, 2024

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.