



## 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 Corrosion of Steel

Finalist's Name: Karissa Freund

School and City: Stratton Middle School, Stratton

Sponsor's Name: Dannette McConnel

Category: Chemistry (CHEM)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

My purpose is to see how long it will take a screw to rust in liquids also to see if the liquids would do something else besides rust the screw.

My hypothesis is I believe that the coke will make the screw rust the fastest because it is the most acidic. The higher the acid level is the faster it will make the screw rust.

My procedure is first gather all of my materials, second weigh each screw three times, third label the cup with the screw's weight and put the screw in it, fourth label the cup with the liquid, fifth make 1 cup of saltwater, sixth put a  $\frac{1}{2}$  cup of the liquid in each cup, seventh record what every screw looks like for about two weeks, eighth weigh each screw again.

The results I got were the apple cider vinegar rusted it the most, then the lemon juice, then coke. The tide free & gentle detergent, vegetable oil, saltwater, tied.

My hypothesis was wrong because the coke did not make the screw rust the most, the apple cider vinegar made the screw rust the most instead. The coke didn't make the screw rust very much because it cleans the metal but if left too long it can cause damage. The vinegar made it rust because it speeds the process up since it contains a dilute form of acetic acid that ionizes it making it easier to rust.

*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.