



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: Neutralizing Acid From Acid Mine Drainage in Silverton, Colorado

Finalist's Name: Ava Boblitt

School and City: Bayfield Middle School

Sponsor's Name: Kris Mcsweeny

Category: Chemistry

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

The Gold King Mine produces acid mine drainage which flows into Cement Creek. This is a huge issue for the people living in Silverton, Colorado, as well as the people in the Animas River watershed. This water system affects millions of people and living things because the Animas River flows into the San Juan River. Then the San Juan River flows into the Colorado River.

There are multiple ways to neutralize acids, but finding ways that don't negatively affect the environment is extremely important. Using natural substances to neutralize acid mine drainage is important to the health of both the river and the environment around it. Finding ways to neutralize acid mine drainage efficiently is crucial to our water systems and environment.

I conducted an experiment looking at different substances and their effect on acidic water to neutralize water. I collected pH data on Cement Creek water before, during, and after the addition of each substance. The results showed that acidic water reacting with acids like lemon juice and Coca-Cola caused the water to be more acidic. When the acidic water reacts with bases like baking soda, limestone, and lime fertilizer it became less acidic. Distilled water and marble did not cause a large change in pH.

Although, this research suggests that putting baking soda in the water would have the greatest effect on neutralizing acidic water. Limestone would be the most natural way to help neutralize the water and not have a negative effect on the environment.

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.**