



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: Hold the Heat

Finalist's Name: Neave Henschel

School and City: High Plains Undivided High School (Seibert, CO)

Sponsor's Name: Lynn Clark

Category: Energy (ERGY)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

What type of material makes the best insulation? The four types of insulation used were a wool sock, a black trash bag, newspaper, and aluminum foil, they were all of the same quantity. The measurements taken were of the water temperature at the start of 15 minutes and at the end of 15 minutes to find the difference in temperature that the insulation had on the water temperature. The independent variable is the different types of insulation and the temperature is the dependent variable. There were three tests done.

The results for the experiment were as follows for test 1 the aluminum foil bottle decreased by 10.2°F, the trash bag bottle by 10.4°F, the newspaper bottle by 10.5°F, and the sock bottle by 13.9°F. The material that insulated the best for this test was aluminum foil. For test 2 the newspaper bottle decreased by 11.8°F, the aluminum foil bottle by 12.1°F, the trash bag bottle by 14.7°F, and the sock bottle by 25.3°F. The material that insulated the best for this test was newspaper. For test 3 the aluminum foil bottle decreased by 9.8°F, the newspaper bottle by 11.6°F, the trash bag bottle by 13.4°F and the sock bottle by 15.1°F. These changes were smaller than the control which decreased by 26°F. The material that held the heat best for this experiment was aluminum foil. This result confirms my hypothesis that aluminum foil would be the best insulator. The wool sock was the worst insulator in all three tests, which is surprising because it is what people use to keep their feet warm.

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: *Neave Henschel*

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.