



Colorado Science and Engineering Fair

2025 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: Biochar : An Organic Approach to Urban Heat Management

Team Leader's Name: Destiny Cornelius

Team Member 1: Ky Harkness

Team Member 2:

School and City: Plainview Junior-Senior High School, Sheridan Lake

Sponsor's Name: Brenda Fickenschier

Category: Environmental Engineering

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

Heat islands are regions that experience elevated temperatures due to the replacement of natural landscapes with structures, asphalt, and other materials that trap and hold heat. This experiment tested the effects that biochar had when it was mixed with cement and asphalt in the mock cities. The purpose of this experiment was to test if biochar would reduce the temperature in cement and asphalt in the mock city compared to the city where cement and asphalt were not constructed with biochar. To investigate this, a mock city was constructed with biochar mixed into the concrete and asphalt structure and covered with a heat lamp to imitate the sun. The city's asphalt and cement temperatures were measured and compared to the city that did not have any biochar in its structure. This science experiment contributes to Environmental Engineering because the use of biochar has been utilized as a renewable biomass resource to develop sustainable and eco-friendly pavements.

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: _____

Date: _____

Team Member 1's Signature: _____

Date: _____

Team Member 2'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.**