



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: How Carbon Dioxide and Global Warming Affects Plants

Finalist's Name: Mikaela Ludden

School and City: Challenge School, Denver

Sponsor's Name: Michael Ludden

Category: Plant Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

In my project, I investigated how plants react to additional carbon dioxide added to their environment. I related this question to how the carbon dioxide from global warming could be affecting plants and how I could use this information to help my garden plants finish growing before the first frost. To add this additional carbon dioxide, I grew 6 plants in the control system and 6 plants in the experimental system, in which I added carbon dioxide using vinegar and baking soda in an enclosed environment. I measured the amount of growth each of the plants had every day and compared the control to the experimental group. My results did support my hypothesis, but to get a more accurate conclusion, I would need to do more testing over a longer time. The experimental group showed around 31% more growth than the control group, with the control group having an average growth of 0.42 centimeters every day and the experimental group having an average growth of around 1.38 centimeters per day. This could be a pro of the increase of carbon dioxide that is associated with climate change, but to conclude this, I would need to do more testing with other components of global warming. I could also try using this technique in my garden to help my plants grow.

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.**