



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: Nitrates vs Plants

Finalist's Name: Emma Smith

School and City: Mancos Middle School

Sponsor's Name: Carter Smith

Category: Chemistry (CHEM)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

How does the height of an underwater aquarium affect the level of nitrates in a 10 gallon tank. Nitrates are necessary for plants survival but too many nitrates can kill a plant as well as not enough. I thought that 4 inches was going to do the best because it's not so large that it absorbs the nitrates before they can regenerate. I got 5 ten gallon tanks then put a 1.5 inch layer of sand in each tank. I put my plants of 2 inches 3 inches 4 inches and 6 inches in each tank then filled the tanks with water. Everyday for 2 weeks I tested the levels of nitrates in each tank then found the average per tank. 4 inches did end up doing the best and 2 inches did the worst. I accepted my hypothesis because like I said 4 inches did the best.

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:

2-27-24

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.