# 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: Do Various Acid pH Levels Impact the Breakdown of Glucose

Finalist's Name: Travis Wise

School and City: Liberty School Joes Colorado

Sponsor's Name: Ms. Linda Fogale

Category: Biomedical Sciences (BMED)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

The purpose was to do various pHs of acids to impact the breakdown of glucose. The hypothesis was that when in an acidic environment, it would speed up respiration because acids produce a lot of H+ which produce ATP. That is necessary for the last step of respiration in the electron transport chain.
This was tested with 4 pHs: a pH 7, 5, 3, and 1. Oxygen consumption was measured with respirometers, which were made by sticking a washer to the bottom of a flat bottomed vial. Then a cotton ball was set in the respirometer soaked in KOH, after that protective cotton would be put on top. Then they were submerged in a water tray at a constant temperature. Then the respirometers had 3 samples of germinating peas, one sample of beads, or dry peas. Respiration was measured every 5 minutes 4 times.
The data collected shows that the pH 7 had the least amount of respiration because it was the control, the pH 1 had the third most respiration because it broke down the tissues before they could go through respiration, the pH 5 had the second most respiration, and the pH 3 had the quickest respiration.
So in conclusion, the lower the pH the slower respiration happens, and numbers between 7-5 have a quicker respiration, and a high pH like 1 has a slower pH because it breaks down the tissue before it can go through respiration.

*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: Travis Wise Date: 3/1/24

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 o 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.