



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: Light it up and launch it

Finalist's Name: Vivian Bozek

School and City: St Joseph Catholic School, Fort Collins

Sponsor's Name: Marianne Aiken

Category: Physics & Astronomy

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

This study's research question is, "How much of an effect does ambient temperature have on the initial launch velocity and acceleration of a hobbyist model rocket?" This research question is important because orbital launches are reaching an all-time high in the United States. However, all of the launches occur in warm state and none in Colorado due to the cold temperatures. By researching the impact of ambient temperature on velocity and acceleration, we might be able to design shuttles that can be safely launched in Colorado. To determine the best conditions for a rocket launch, I will launch rockets on three different days, a 0-degree day, and 30-degree day, and a 60-degree day. Each day I will collect data in three trials. For each trial, I will measure the acceleration and velocity of the rocket with a sensor. This experiment found that the ambient temperature affects the launch speeds of a model rocket. The data supported hypothesis number 1, as ambient temperature increased so did the velocity. The second hypothesis, acceleration, was inclusive. An data outlier was detected, making it more difficult to draw conclusions from the data.

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.**