



## National Junior Science & Humanities Symposium Statement of Outside Assistance

(Student finalists presenting their research paper at the National symposium must complete this form and submit with the final research Paper.)

Name: Ryan Westcott

Regional Symposium: Oregon

Title of Paper: Development of a Fully Reusable and Autonomously Landing Suborbital Launch Vehicle

- 1) Please explain your role in the development of the project idea.

I have been passionate about space and space exploration my whole life. I developed the idea for this project independently with no outside help and used only my internal imagination and passion.

- 2) What steps led you to formulate your research question? --or--What steps led you to develop the design for your engineering project?

The design for this engineering project was developed through an iterative design process. I worked on four major design iterations. At every step, I would use my own experience and inspiration from what's happening in the aerospace industry to inform my design changes.

- 3) Where did you conduct the major part of your work? (i.e. home, school, or other institutional setting – university lab, medical center, etc.)

The majority of this research was conducted in my basement at home. The rest was conducted at school.

- 4) Describe the assistance that you received throughout the project.

My friend took pictures and videos of some of my trials (because I couldn't run the trial AND use a camera). He did NOT edit or process the media in any way.

My science teacher once gave me a few tips on how to improve my paper. These were just oral tips and he did not help in the actual writing of the paper. He just provided feedback.

- 5) If you worked in an institutional setting, describe your role on the team.

N/A

- 6) What role did each person play in the research investigation?

There are no other members.

- 7) Describe what parts of the research you did on your own and what parts where you received help. (i.e. literature search, hypothesis, experimental design, use of special equipment, gathering data, evaluation of data, statistical analysis, conclusions, and preparation of written report (abstract and/or paper).

- While conducting trials, my friend helped transport equipment and run a camera to film the trial.
- My biology teacher gave me oral suggestions on how I could improve my paper, but he did not edit or change wording at all.

- 8) If this research is a continuation of an investigation that was previously submitted to a regional JSHS, describe how you have expanded your investigation.

This is my first year submitting this research to JSHS. Since the Oregon regional symposium a couple months ago, I have expanded my investigation in the following ways:

- 1) Improved the code and functionality of my simulation algorithm
- 2) Designed new hardware for the rocket's flight computer.
- 3) Gathered data on the performance of Design #4.

**Comments by teacher and/or supervising mentor on the students' individual contributions to the research investigation or engineering/computer science project**

Ryan conducted his research independently without inappropriate outside help. RL.

**Statement by the teacher or supervising mentor acknowledging that the student conducted the research in accordance with proper procedures and protocols for the conduct of animal research or human research.** Projects which were conducted without proper supervision will be disqualified from both regional and National competition. Further guidelines may be found at <http://www.ishs.org>

DID NOT USE HUMANS OR ANIMALS IN THE PROCESS OF  
conducting his rocketry project. RL.

Please have the supervising teacher and/or supervising scientist sign below. If you did the work without a teacher or supervising scientist, you will need a signature from your parent and a brief description of their role in the research.

4-1-20	Ryan Westcott	Oregon Episcopal School
Date	Signature of Student (Required)	High School
4-1-20	RLD	Oregon Episcopal School
Date	Signature of Teacher Robert L. Orr	High School
N/A		
Date	Name of Supervising Scientist	Title of Supervising Scientist
N/A		
Institution of Supervising Scientist		
N/A		
Signature of Supervising Scientist		