

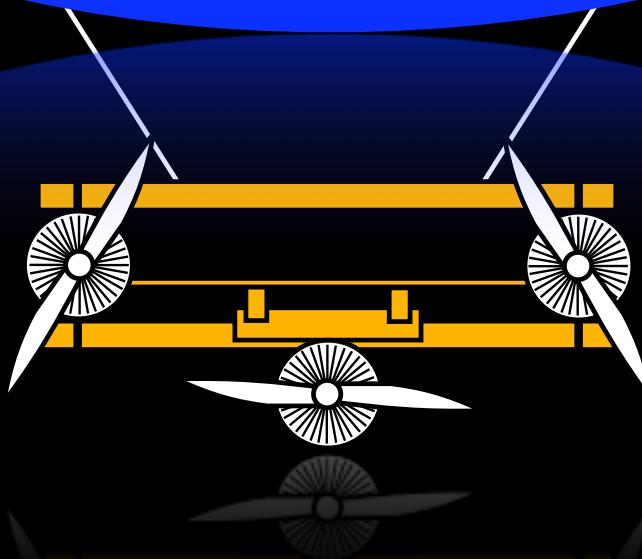
Starting a Lighter-than-Air Vehicle Competition at a Community College

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Nevada NASA
Space Grant
Consortium

What?

*Students design / build / fly
Lighter-than-Air Vehicles in timed trials.*



*First place
team wins full
scholarships!*

Project Goal #1

Increase the number of students participating in extracurricular type STEM projects.

Regardless of Major

Regardless of Skill

Project Goal #2

Recruit & Retain Students

Marketing!



TMCC LtAV

Why?

Students gain ...

- * STEM Content Knowledge
- * Project Management Skills
- * Real Teamwork Skills
- * Critical Thinking / Meta-Thinking Skills
- * Fabrication & Tool Use Skills
- * Comfort Addressing Open-Ended Problems
- * Understanding Limitations of Data



How?

- * Keep student cost low.

*"Mylar" and He provided.
Vehicle "guts" loaned out to teams.*



TMCC LtAV

How?

* Keep fabrication simple.

"But I'm not really science-y."



- *Do you like to have fun?*
- *Want to win a scholarship?*
- *Can you glue two sticks together?*

How?

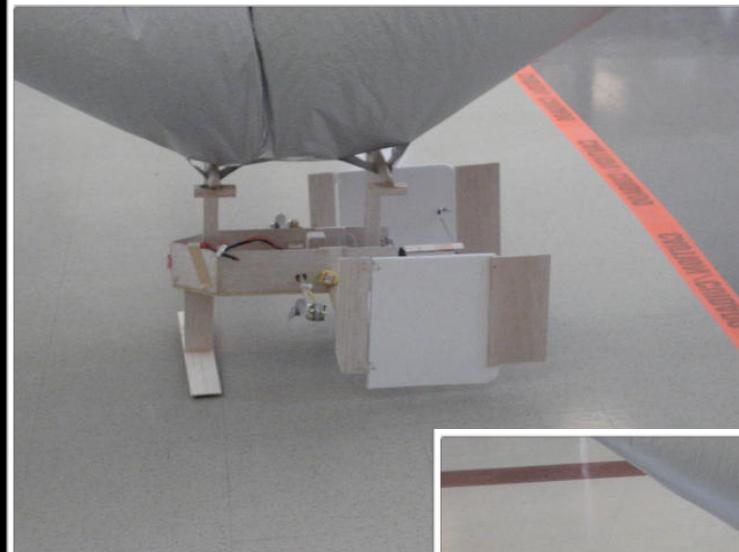
- * Aide in design / build phases.

Twice weekly open-lab & online forum.

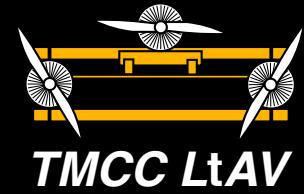
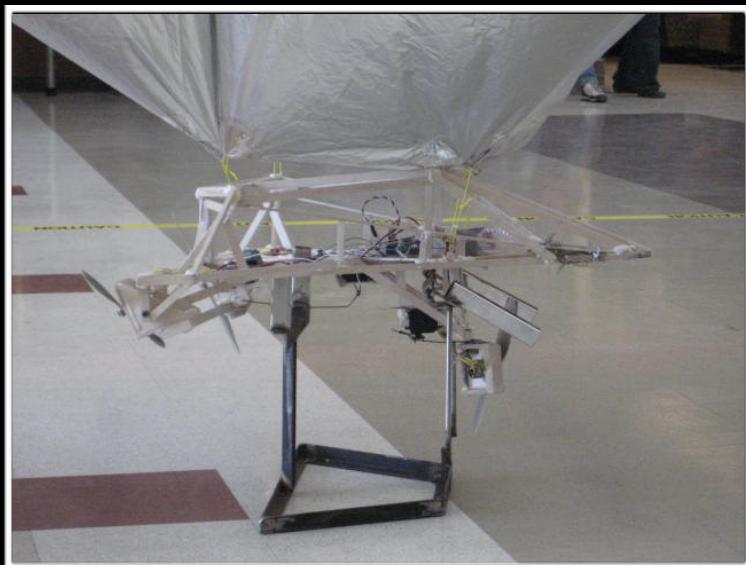


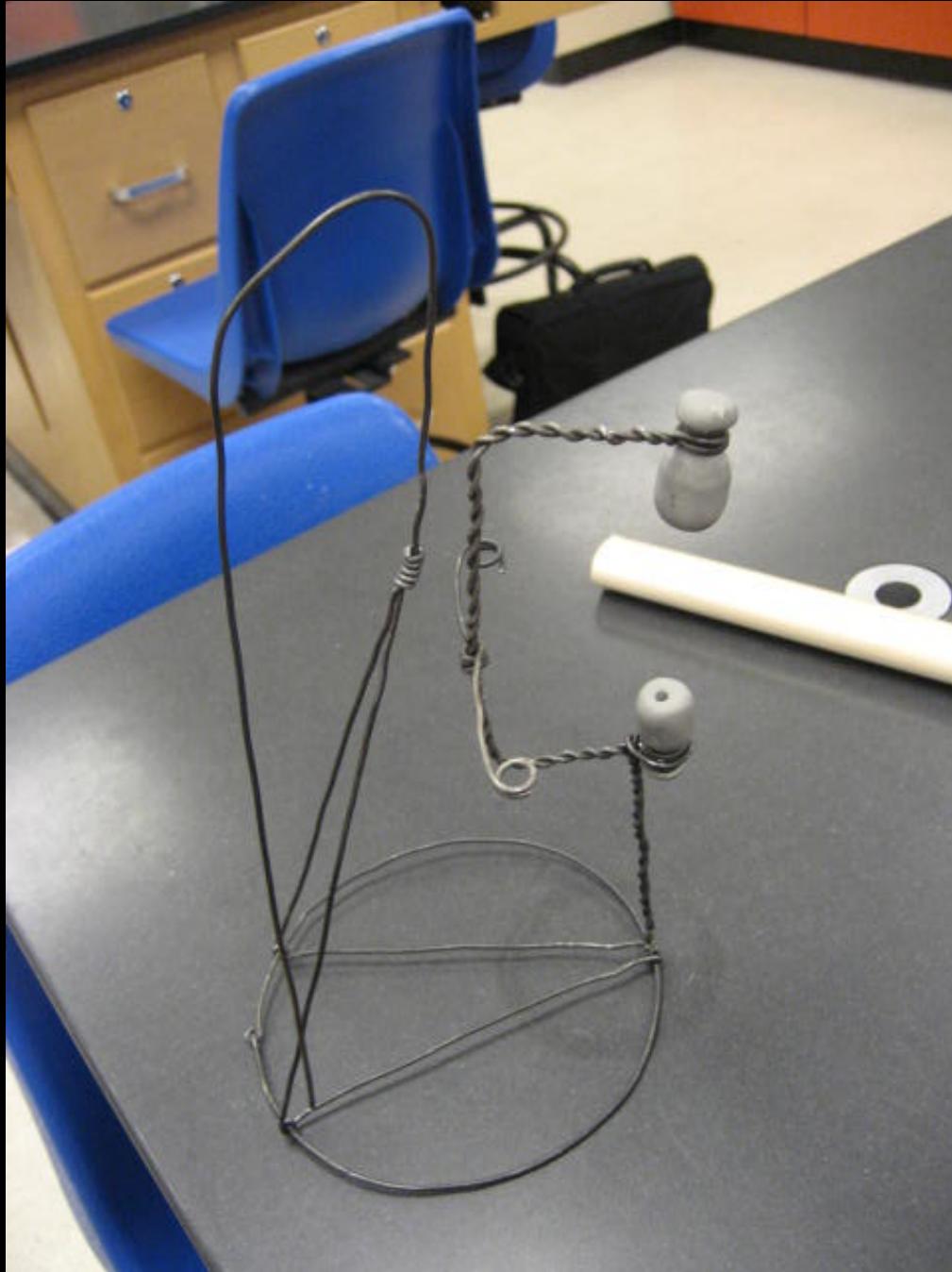
TMCC LtAV

What's Left?



Lots!!





What's Left?

*Given:
Student creativity
has no limits.*

*Question:
How direct should
our mentoring be?*

How?

- * Run event in high-traffic campus venue.

Competition held in student center.



Results

- * 5 Teams and 19 Students

*Including students from Nursing,
Humanities, and TMCC High School.*

*There are very few things
in my life I have enjoyed
more than this. ... At
times it was pure joy.*

*By far one of the most
rewarding and enjoyable
experiences I have had
thus far.*

Loved it!



2010 Winning Team

- Joe Rinaldi
- Ana Johnson
- Brian Best

with TMCC President
Maria Sheehan

Featured in ...

- local news
- annual report to regents



The Launch

Nevada NASA Space Grant Consortium & Nevada EPSCoR

EPSCoR Spring 2010

Fastest Wins

It's a there-and-back course, the trials are timed and fastest wins. The drivers are students and the vehicles are helium balloons which they have designed and built for the Lighter than Air Vehicle Competition at Truckee Meadows Community College. Organized by Physics and Astronomy Professor, Daniel Loranz and sponsored by the Nevada NASA Space Grant Consortium, the competition is open to all TMCC students. Loranz says he hopes to see teams from social sciences and humanities competing, as well as engineers.

Made of aluminized nylon with airtight seams sealed using a regular iron, the balloons can be of any shape and size and are radio controlled. As explained by Loranz, "There is minimal cost for the students, as we're supplying all the controls, which will be used again next year."

NVSGC funding has enabled us to buy these basics for six balloons, which means we can have six teams competing. The students will buy the fabric for their own balloons once they have worked out a design." Loranz adds, "We're



A prototype lighter than air vehicle built by Professor Dan Loranz and one of his student assistants. The balloon envelope is made of aluminized nylon with the seams heat-sealed and is about 2.5 meters long, 2 meters tall and 1.5 meters wide. The structure underneath is about 1 meter long and includes three motors, as well as controls for pitch and yaw.

- Two issues of NV Space Grant / EPSCoR newsletter



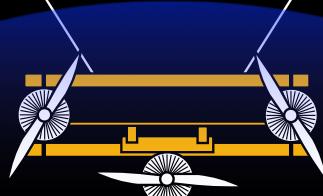
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*www.tmcc.edu/
physicalsci/ita/*

*Thanks for
listening.*

The screenshot shows the TMCC website with the following visible content:

- Top Navigation:** Current Students, Future Students, College Resources, Business Solutions, Find Information, Student Login, TMCC.
- TMCC Logo:** The TMCC logo is prominently displayed at the top left.
- In this Section:** Career Opportunities, Course Descriptions, Documents and Forms, Faculty and Staff, Contact Us, Physical Sciences Home.
- See Also:** Curriculum-Based Undergraduate Research (C-BUR), Chemistry Lab Videocast, Civil Engineering Practitioner Program, Environmental Sciences, Lighter than Air Vehicle Competition.
- Looking For:** A-Z Site Index, Academic Departments and Programs, Apply Online!, Calendar of Events, Class Schedule, College Catalog, Documents and Forms, Frequently Asked Questions, Library, MyTMCC, Scholarship Information.
- Physical Sciences:** A thumbnail image of two students working on laptops.
- Academic Departments:** A green sidebar listing: Academic Departments, Calendar of Events, Directions and Maps, Canceled Classes, Online College Tour.
- Print Page, E-mail Page:** Buttons for printing or emailing the page.
- TMCC Lighter than Air Vehicle Competition:** A section featuring a large white airship-like vehicle. It includes a thumbnail image of a group of people standing next to it, a video player for the "Lighter Than Air Competition Videocast", and links to "Watch Videocast" and "Download to iPod".
- TMCC News:** Headlines include: TMCC and Artown Present Photographic Exhibit, Students Win at SkillsUSA Competition, Business Studies Orientation, Register Now for Classes, More TMCC News... .
- Spotlight On:** Headlines include: Fall 2010 Class Schedule, Order Textbooks Online, Visit stay-safe.tmcc.edu for emergency and personal safety information.



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