

Central Washington University
Ellensburg, Washington
Society of Physics Students

Using Water Rockets to Launch Interest in Physics

Written by

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A handwritten signature in cursive script that reads "Ryan Corbin".

Advisor

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Amount Requested

\$300.00

Submitted on

November 30, 2012

Abstract:

The Central Washington University chapter of the Society of Physics Students is interested in creating a new informal education program for local schools. The event would be targeted at students in grades 6-12, focusing on the design and construction of rockets made from soda bottles, water, and other common items.

The Central Washington University (CWU) chapter of the Society of Physics Students engages in a variety of outreach activities in an effort to promote interest in the sciences. Recently the group volunteered in the “Yakama Nation Blastoff Festival”, a statewide collaboration between the Washington NASA Space Grant Consortium, the University of Washington, the Pacific Science Center, and CWU. The event reached several hundred middle school and high school students in the Yakima area. The CWU SPS group was involved with creating water fueled rockets with students. Five CWU students and two professors participated, using materials from the University of Washington.

The CWU SPS would like to perform this outreach event in the future with our own materials. To achieve this we will need to purchase a variety of items, including launch pads, air pumps, and one way air valves with fittings. Our chapter plans to obtain five complete sets for rocket launchers to establish multiple stations at events.

These rockets were constructed out of everyday objects, including duct tape and soda bottles, with paper and cardboard fins and noses. The aluminum launch pads served as the base for the launch, with water acting as the fuel in a pressurized system. Students created the rockets themselves after being presented with the materials required for construction and learning what conditions are necessary for flight.

As an outreach event, the focus of these rockets is to inspire students to pursue and interest in the sciences, particularly physics. Students are encouraged to consider the construction of their rocket scientifically. Variables such as the rocket fins, weight, stability, and shape are investigated. Through creating, scientific planning and project management, students learn the process behind physics and engineering in a fun and safe environment.

With the tools to perform rocket launches, the CWU SPS chapter plans to host an event in the spring of 2013 for students from grades 6-12, where students will create their own customized rockets and gain an appreciation for physics and engineering.

Budget:

2 Launch pads; \$119.00 each + 25\$ shipping and handling	\$263.00
2 Large bike pumps; \$54.99 each	\$109.98
2 One way air valves + pipes; \$10.00 each	\$20.00
Rocket materials (Soda bottles, cardboard, tape, etc.)	\$20.00

	Total: \$412.98

Requested funds from the Marsh White Award:	\$300.00
Remaining amount to be covered by CWU:	\$112.98
Additional three systems:	\$619.47

Justification:

Each year CWU hosts about five programs for area middle and high school students, each having up to 50 participants. We are looking at purchasing five systems, with one system for every ten students (who would typically work in pairs). All expenses beyond what is being requested from the Marsh White Award will be covered by the CWU Physics Department, Student Association, and the Center for Excellence in Science and Mathematics Education.