

# #26

**COMPLETE**

**Collector:** Live Link (Web Link)  
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Page 1: Supplies, Equipment, Furniture, and Other Request Form

**Q1 Contact Person:**

Name	<b>Scott Stambach</b>
Email Address	<b>Scott.Stambach@gcccd.edu</b>

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**Q2 Department:**

Engineering and Physical Science

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**Q3 Title of Request:**

Lab Budget for Augmentation for Project-Based Physics

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**Q4 Location of Request:**

H-Building (Physics Lab)

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**Q5 Type of Request:**

**Supplies**

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**Q6 Description of Request:** Please provide a description of the supplies, equipment, furniture or other request. When making your request, please be as specific as possible and include information such as make, model, manufacturer, color, quantity, etc.

Please see attached supply lists:

- 1) Rocket Project Supply List, and
  - 2) Cigar Box Guitar Project Supply List.
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**Q7 Estimated Cost:**

\$2541.00/year

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**Q8** Please attach quote, if available

**Project Based Learning Supply List.pdf (130.1KB)**

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**Q9** Total Cost of Ownership: Can this request be maintained with existing funding sources? If not, please explain your plan to maintain this request. Example: potential yearly service agreements, warranties, and replacement costs.

Currently, there is enough existing finding and supplies for one more semester of these two projects. In the future, we will continue and maintain funding through replacement costs. As far as managing and maintaining the supplies and equipment, the instructors and lab tech can do this independently. Consequently, there will be no cost of ownership beyond the original cost of the supplies and subsequent replacement costs.

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**Q10** Justification of Request: Please select the applicable criteria and provide the details how the criteria relate to your request.

**Program expansion,**

**Impact on student success and access,**

**Innovation,**

Provided details::

Innovation: This request is part of an ongoing effort to make physics education at Cuyamaca more active, real world, and engaging. By partaking in project-based learning, students are getting hands-on, authentic, and active learning experiences that relate to their future careers in science and engineering. Moreover, PBL promotes student buy-in and a sense of real-world relevance. Impact on student success and access: By creating experiences that are active, relatable, and involve multiple intelligence modalities, we are hoping to optimize success and access for all students. PBL as a pedagogical technique yields better outcomes for all students, but particularly students from populations who typically perform lower in the STEM fields.

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**Q11** Program Goal: Please identify the program goal(s) this request would help your program achieve and provide a brief explanation of how it would do so.

Goal: Expand Project-Based Learning with Rockets and Guitars

The supplies outlined in this request form the foundation of two ongoing Project-Based Learning experiences (PBL): Custom model rocketry and electric cigar box guitars and amplifiers. Research has shown that PBL increases student success and access to content, increases growth mindset, teaches 21st century soft skills like collaboration, communication, and planning, and instills a sense of self-efficacy in students through the creation of a functional product that gets shared in an exhibition setting. Specifically, the rocketry project yields a high-powered model rocket that will be launched at an exhibition on Fiesta Island, while the electric cigar box guitars will culminate in an exhibition and musical performances. There is also a hope that PBL projects in physics can be a door for community outreach and provide inspiration to other divisions in the college to experiment with PBL methods.

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