

K-12 Grant Proposal Cover Sheet

Name of Project:

Our High School's Robotics Club—

Expanding access to an engineering experience for students in grades 6-12

Name of persons submitting the project, title, address, phone number, and e-mail address:

Names and contact information has been removed but this is a good list of what you might want to include:

*Primary Contact:

Name:

Title:

Address:

Phone Number:

Email Address:

Student Contact:

Name:

Title:

Address:

Phone Number:

Email Address:

**Financial Contact:

Name:

Title:

Address:

Phone Number:

Email Address:

Requested Amount of Grant: \$3,000 (*adjust amount to fit your situation*)

The \$3,000 would be used to purchase enough equipment for up to four robotics teams.

Breakdown of Costs:

VEX Robotics Dual Control Starter Bundle	Qty: 4 @ \$499.99 =	\$2000
VEX Booster Kit	Qty: 2 @ \$179.99 =	\$360
	Budget for replacement parts as needed =	\$500
	Shipping & other miscellaneous expenses =	<u>\$140</u>
	TOTAL =	\$3000

Other Sources:

- About \$300 of the Robotics Club’s annual cost is funded through Our High School’s mathematics department. This can cover entry fees for tournament competitions.
- Another local area High School’s Robotics Program has allowed us to share equipment and tools, valued at approximately \$2500, during our first 3 years of operation.
- In our first year in robotics, we needed to fund expenses related to traveling to Dallas after we qualified for the world championship tournament there. We sought and received donations from individuals, from local engineering firms and from the local Society of Women Engineers chapter. If we should qualify again for an out-of-state tournament, we would seek funding in this manner again.

Proposal Abstract:
We seek funding to continue and expand our robotics club, and extend its reach to junior high girls. Club members form teams that design, build and program a small robot to compete in tournaments. In the process, students learn about fundamental concepts of engineering as they apply math, science, communication, and teamwork skills.

Signature of Project Leader:

Name Date

Goals, Strategies, Timeline, Implementation Design

What, when, how, etc.

- Grant money would be used to purchase equipment for Our High School's robotics club. Our High School is an all-girls comprehensive high school in Our City that attracts and serves an economically and culturally diverse student body from all across the metro area. We started a robotics club in 2006-2007, using equipment shared with another school. Our team of seven girls won a regional tournament, qualifying for the World Championship in Atlanta GA in April 2007. In 2007-2008 the club had twelve girls, so we fielded two teams, both of which advanced to final rounds of the regional competition. This year we have thirteen students, grades 9 through 12, on two teams.
- We would like to have our own equipment, which would cut down on travel to the other school and allow us to involve more students here if we can expand beyond two teams. Also, if we obtain our own materials, this frees up that other equipment for new teams to be brought into the program, providing an "ease-in, try-it-out without a large cash outlay" option for local schools considering whether to begin a robotics program.
- Our students have built up enough expertise over the past few years that I would like to offer a week long summer camp experience for 6th, 7th, and 8th grade girls, starting in summer of 2009. During this week, students would explore the basics of robotics, and form teams to build robots for a mini competition. Our school traditionally offers summer camps in sports and fine arts; this grant would allow us to also offer a camp focused on the "STEM" areas—science, technology, engineering, & mathematics.
- For more specific information about the robotics program in which we participate, please refer to the CREATE foundation website:
<http://www.create-found.org>.

Support Needs

Resources, people, budget

- Grant funds would purchase equipment for four teams, with some money for repair and replacement as needed. As noted previously, budget is \$3000.
- Our High School would supply storage and work area for the robotics club.
- Our High School would pay for tournament registration fees and related expenses.
- A Our High School teacher serves as robotics club sponsor. She/he will recruit additional adult volunteers to serve as coaches as needed.
- Our High School would supply a location for the summer camp, as well as copying and mailing of promotional materials to junior high girls throughout the city of Our.
- Our High School students will volunteer to serve as mentors and role models at the summer camp. Robotics club sponsor will recruit other adult volunteers to help with the camp as well.
- Collegiate engineering students would be encouraged to help with the summer camp, and/or be guest speakers at robotics club meetings or volunteers at local tournaments.

Specific Outcomes/Success Criteria

What impact will this project have on your science, technology and math program? Include number of student/staff impacted by this project.

- I have found the robotics club to be a wonderful way to involve students of varying academic abilities in an activity that introduces them to the world of engineering, while giving them a chance to discover and apply their talents in a fun extra-curricular activity that helps them feel part of a team effort. I think it is important to expand this opportunity, especially to other girls, who traditionally have been less likely to consider STEM fields as a career option. Participation in robotics competitions provides an avenue for developing an awareness of and excitement about the fields of engineering and computer programming.
- With our own equipment and ability to work on site, I anticipate 20 to 30 high school girls per year participating in our robotics club. In extending our reach through the summer camp, I would anticipate working with about 20 middle school girls each year. Some of these girls will eventually attend Our High School, and ideally want to be part of our robotics club. Other girls can be a catalyst for their chosen high schools to begin robotics teams, if they have not already, and to make them a more comfortable, welcoming choice for girls.

Evaluation and Analysis

How will you know when you have reached your outcomes? Will you track student impact over time?

- Currently, several of our senior club members are planning to major in engineering in college. I anticipate as our robotics club expands that more of our students will consider engineering and related fields as a viable and desirable career choice. This is one way we can track student impact over time—by looking at how many of our graduates choose STEM majors.
- Another way we will know when we have reached an important outcome is when the number of girls participating in robotics competitions in the Our City area grows to roughly equal the number of boys. Currently, the ratio of males to females at these events weighs heavily towards the males.
- If interest in and participation in our summer camp program grows, we will know we have been effective at encouraging middle school girls to explore STEM activities.
- If participation in our robotics club continues to expand, and students as they gain more experience are able to delve into creating more effective designs and challenging themselves with more intricate programming possibilities, then we will know we are making an impact in helping students apply their intellectual talents, beyond what they can experience in the classroom.