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Sierra College wins National Science Foundation grant Hands-on catapult project will be used to teach applied math

ROCKLIN: Sierra College has been awarded a \$150,000 grant from the National Science Foundation (NSF - nsf.gov) to expand its Tech-Explorer program, which enhances learning through hands-on project-based laboratory experiences. The grant funds will be used to develop and test the impact of integrating mathematics curriculum into the building of a catapult.

The Sierra Tech-Explorer program began in 2007 and was developed by the Sierra College Center for Applied Competitive Technologies (CACT) and Sierra STEM (Science, Technology, Engineering and Math) Collaborative to bring applied academics to middle and high school classes. In three hours of class time, students use hand and power tools such as mills, lathes and drills to produce parts and assemble catapults. Students are motivated to learn mathematics related to the catapult because they made the parts, and assembled them into a functioning catapult. Also, by incorporating “just in time” mathematics coupled with a hands-on experience, students’ become familiar with what a manufacturing or repair technician might do on the job.

The program came to the attention of the National Science Foundation through their highly competitive grant application process. The NSF supports excellence in science and engineering education and has a goal to advance the frontiers of knowledge and cultivate a world-class science and engineering workforce. The grant will enable Sierra College to enhance its efforts in two significant ways;

- Further development, integration, and testing of mathematics lessons into the Tech-Explorer (Tech-Explorer.com) catapult building project. Two instructional modules will be created that are connected to California education content standards. Student learning and retention will then be evaluated.
- Sierra will host an in-service summer institute for teachers to gain knowledge of how to teach project-based learning. This institute will be open to all instructors throughout the region from middle school, high school and community college.

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According to Sandra Scott, Director of Grant Development and Career Technical Education at Sierra College, “Traditionally, teachers deliver academic concepts with little or no hands-on application. Our training will focus on how to integrate project-based learning with academic lessons that captures students’ attention and interest.”

Through this project, Sierra College will attract students to STEM education and prepare them to pursue technical careers. Sierra College offers Engineering, Mechatronics, Energy Technology, Engineering Support Technology and other similar programs to prepare students for highly-paid, in-demand, local careers.

For more information about the Sierra College NSF grant and STEM Collaborative, go to www.sierraschoolworks.com or contact Sandra Scott, Sierra College at (916)781-6244.

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