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Supercomputing Challenge Draws Record Number of Students

N.M. Educational Program Makes Big Gains in 22nd Year

Socorro – A record 432 New Mexico middle and high schoolers are participating in this year's Supercomputing Challenge for students interested in learning to address real-world problems with computer modeling.

The record-breaking participation at the Oct. 15-16 kickoff conference at New Mexico Tech was due in part to eight schools fielding Challenge teams for the first time. The 40 schools in the Challenge this year span the entire state from Chaparral and Zuni to Chama and Melrose, and 71 teachers are supporting their students through the school-year program.

"Clearly there's a hunger among students, parents and teachers alike for programs that combine use of technology with project-oriented teams focused on relevant problems," said Eric Renz-Whitmore, New Mexico Technology Council executive director and a facilitator at the event. "They're eager to tackle this year's theme of water impacts in New Mexico."

Students and their teachers gave up their weekend to gather for the kickoff at the New Mexico Institute of Mining & Technology (NM Tech). They participated in refreshers and classes on math, computer skills, experimental design, and problem solving to help kick start their projects. Classroom teaching, mentoring and facilitation were provided by more than 80 volunteers from the Los Alamos and Sandia national laboratories, students from New Mexico's universities and colleges, Challenge alumni and teacher sponsors, and numerous small businesses that are cosponsoring this year's many events.

NM EPSCoR (the New Mexico jurisdiction of NSF's Experimental Program to Stimulate Competitive Research) provided each track (math level) at the kickoff with a knowledgeable cadre member (coach) during the kickoff. Scientists from EPSCoR, Drs. Martinez and Steele, from New Mexico Highlands University and New Mexico State University, worked with students during the kickoff, and the cadre of experts from NM Tech and the University

of New Mexico will continue working with teams throughout the year. These mentors are central players in helping this next generation of New Mexico's problem solvers as they take on the Challenge.

Over the course of the school year, Challenge participants will learn how to research, model, analyze, communicate and solve real-world problems with the help of their science mentors and team sponsors. In addition, students develop useful career skills such as teamwork, oral, written and visual communication, problem solving, and project management. The culminating event is an Expo/Awards Day in April when the teams will compete for awards, prizes and scholarships.

This is the Challenge's 22nd year—a remarkable accomplishment for its directors, sponsors, and teachers statewide given that technology education programs come and go and funding has been reduced.

“Successful integration of computer science in middle and high schools is possible through giving students the opportunity to create and study computational models in order to understand the larger world,” said Irene Lee, Project GUTS' program director and Challenge board president. Project GUTS (Growing Up Thinking Scientifically) is an after-school science, technology, engineering and math (STEM) program for middle school students based at the Santa Fe Institute.

High-performance computers are standard equipment in film rendering, game development and rapidly growing technology in the field of engineering design. Participation in the Supercomputing Challenge provides an excellent introduction to all of these disciplines while enabling students to benefit from project-based learning.

Two projects from past Challenge participants illustrate the caliber of research and problem solving accomplished by students. Melrose High School conducted a two-year study on an agent-based fire model involving community fire fighters and research. A mid-school student from Los Alamos created a model of the galaxy that resolves theoretical predictions of Doppler shifts with observational data.

"Who knew computer modeling could be so much fun?" said one past participant from Annunciation Catholic School. "I hope to be part of this amazing experience next year as well."

Santa Fe Community College will host a one-day mini-kickoff on Nov. 5 for registered Santa Fe area students who were unable to attend the Socorro

kickoff. The Challenge website is http://supercomputingchallenge.org and it can be followed on Facebook at www.facebook.com/groups/30158730945/.

About the N.M. Supercomputing Challenge

Founded in 1990, the New Mexico Supercomputing Challenge is a nonprofit educational organization that sponsors an annual computational science competition for middle and high school students in New Mexico.

Over these 22 years, the Supercomputing Challenge has engaged more than 8,000 New Mexico students in computational science projects that prepare them for future endeavors in many science and high-technology fields, and past participants have succeeded in private industry and national laboratories. Major funding for the Supercomputing Challenge comes from national laboratories, local and national businesses, and individual donors.

To learn more about the sponsors, view past student projects, and read about the awards, prizes and scholarships, please visit the Supercomputing Challenge website at http:supercomputingchallenge.org. Information about Project Guts is at http://www.projectguts.org, and about NM EPSCoR at http://nmepscor.org . See our statewide participation at http://supercomputingchallenge.org/map.shtml for an effective visualization of this year's wingspan.