

Feeding the Education Pipeline

BY STEVE KARSJEN

Ames Laboratory education programs reach across state boundaries and beyond.

THE MISSION OF THE DEPARTMENT OF ENERGY'S Office of Workforce Development is to "provide a continuum of opportunities for the nation's students and teachers of science, technology, engineering and mathematics," or STEM. For the Ames Laboratory and other DOE labs that translates simply into opening doors to educational experiences, either through internships or outreach events, to high-achieving students, with the goal of educating a well-trained, scientifically literate future workforce.

For the Ames Laboratory, what began in 1991 as an Iowa-focused outreach effort with the High School Science Bowl, has grown into an ambitious education program that now includes six education programs and outreach events that each year impact approximately 350 students and teachers in 26 states and in some cases, reach around the world.

"Our students' success indicates we are staying true to the DOE's education mission," says Steve Karsjen, who directs the Lab's education programs. "As a result of working with our scientist/mentors, our students and teachers are committing themselves to rewarding careers in the DOE, academia, industry and the classroom."

The Lab's current programs include the Science Undergraduate Laboratory Internship (SULI), Academies Creating Teacher Scientists (ACTS), Pre-Service Teacher (PST), Faculty and Student Teams (FaST), as well as the High School and Middle School Science Bowls.

"The quality of life on this planet depends more and more on science and technology, and one of the greatest needs for the future is a scientifically trained workforce," says Ames Laboratory Director Alex King. "Our education programs help to meet that need by exposing young people to the excitement of a lab that is working on some of the great problems of the day. They also bring a lot of youthful energy and ideas into our research programs, keeping us all a bit more invigorated."

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"Engaging in research on a university campus that works in conjunction with a professional laboratory provided me more opportunities to explore scientific fields other than the one I was actively participating in with my research."

Trishelle Copeland-Johnson
Apopka, Fla.



"The PST program has been a really good way to see what science is really like as opposed to what it appears to be in the classroom."

Patrick Rodenborn
Fort Dodge, Iowa



Ames Laboratory FaST team from Prairie View A&M University, Prairie View, Texas



Science Undergraduate Laboratory Internship (SULI) program

Albion College
Arizona State University
Augustana College
Brigham Young University
Buena Vista University
Carleton College
Carnegie Mellon University
Cedar Crest College
Central College
Clemson University

College of the Ozarks
Colorado School of Mines
Cornell University
Grinnell College
Hampshire College
Iowa State University
Liberty University
Loras College
Louisiana State University
Manchester College

Michigan Technological University
Missouri Academy of Math, Science and Computing
Missouri University of Science and Technology
Moraine Valley Community College
North Dakota State University
Northern Michigan University
Northwestern University
Norwich University

Olin College
Penn State University
Seminole Community College
Simpson College
South Dakota State University
Swarthmore College
Texas A & M University
The Ohio State University
Truman State University
University of California – Berkeley
University of Cincinnati

University of Florida
University of Iowa
University of Kansas
University of Northern Iowa
University of South Florida
University of Tennessee
University of Texas at Austin
University of Wisconsin – Madison
Upper Iowa University
Washington University
Western Illinois University
Westminster College

High School Science Bowl academic competition.



"The ACTS program at Ames Lab is a fabulous one-of-a-kind professional development program for middle school science teachers. Not only did I become much more confident in the content areas of science that I teach, but I had the opportunity to collaborate and work side by side with scientists who were working to solve problems. This experience has helped me teach science in a more authentic way. I now try, as much as possible, to emulate in my classroom what scientists do in research labs. The ACTS program has been the best professional development opportunity that I have ever had."

Sharon Andrews
Sioux Falls, S.D.



"I enjoyed meeting other SULI students who have the same goals as me and who are working to obtain their degrees in similar fields as me."
Marlie Quintero
Baton Rouge, La.



Middle School Science Bowl car racers.

Faculty and Student Teams (FaST) program

Prairie View A&M University

Pre-Service Teacher (PST) program

Iowa State University

High and Middle School Science Bowls

Since 1991, these programs have reached out to attract students from more than 3,000 schools across Iowa.

Academies Creating Teacher Scientists (ACTS) program

- Ames Middle School*
- Baxter Community School*
- Bondurant-Farrar Community Schools*
- Central Middle School, Muscatine*
- Challenge Center, Sioux Falls, S.D.
- Eisenhower Middle School, Topeka, Kan.
- Harlan Community School District*
- Laporte Public Schools, Laporte, Minn.
- Maxfield Elementary School, St. Paul, Minn.

- Mulberry Elementary School, Muscatine*
- North Polk Jr. Sr. High School*
- Oliver Hazard Perry, Cleveland, Ohio
- South Hamilton Community School District*
- South Tama County Middle School*
- Southeast Junior High, Iowa City*
- Wells International School, Bangkok, Thailand

** Iowa schools*