

TECHreach



TRDA's Endeavour Academy Trains Florida Teachers with \$1 Million Math Science Partnership Grant

When the Heartland Educational Consortium (HEC) decided to pursue a 2005 Math Science Partnership (MSP) grant, the group turned to the TRDA's Endeavour

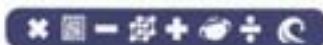
Academy for program design and proposal development. The result was a \$1 million grant from the Florida Department of Education for teacher professional training for 200 third through eighth grade educators in DeSoto, Hardee, Highlands, and Okeechobee Counties.

The MSP grant allows participating teachers from rural Central Florida school districts to use advanced college-level facilities in their area as well as increase their content knowledge of math, science and reading from university and industry experts.

In preparation for the training, The Endeavour Academy drew together key mathematics and science providers including the NASA-Kennedy Space Center Educator Resource Center, the University of South Florida, the University of Central Florida, Florida Ag in the Classroom, Space Ag in the Classroom, and ZERO-G Corporation.

Some of the summer training includes classes in micro-gravity, small scale chemistry, forensic science, precision agriculture, hands-on math, and graphing calculators.

The Endeavour Academy



"This is a tremendous opportunity for our teachers to work side-by-side with experts in high tech fields and advanced laboratory settings," said Dr. Frank Gibbs, HEC Executive Director.

The workshops will be followed by classroom visits during the school year to evaluate the implementation of training content and equipment as well as the impact on student test scores.



JARRETT BAKER

TRDA workshop instructor Kelly Zimmer (right) discusses the function of the TI-73 calculator with teacher Melanie Stinnett during the Heartland Educational Consortium Math Science Partnership program in June.

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The Technological Research and Development Authority (TRDA), established by the Florida Legislature in 1987, delivers successful and cost-effective transfer of cutting-edge technologies to schools and small businesses throughout the State of Florida.

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TRDA RECOGNIZES TEACHER/ STUDENT MATH AND SCIENCE EXCELLENCE



TRDA Vice-Chair Dr. Pamela Luckett speaks with 2005 Florida Sunshine State Scholars winner Eric Stansifer after he was selected the state's top performing high school senior in math and science.

The Technological Research and Development Authority (TRDA) provided \$6,500 in scholarship funds to the Sunshine State Scholars Program, which recently recognized six regional student scholars and 12 of their teachers at a banquet in Tallahassee. The scholars program, created in 1998, invites each school district in Florida to select a single graduating senior to represent the district in a regional competition requiring a broad knowledge of mathematics, statistics, physics, chemistry, and biology. The TRDA and the Technological Research and Development Foundation have supported the scholars program since 2001, awarding nearly \$20,000 in scholarships.

Students recognized one mathematics and one science teacher from each region as being influential in developing their interest and talent in mathematics or science. Eric Stansifer, representing West Shore Junior/Senior High School in

Melbourne, won the prestigious statewide title and a \$1,000 award. Stansifer selected math teacher, John Johnson and science teacher, Sherie Jenkins to recognize as his influential teachers. The teachers each received \$250 awards.

"The Sunshine State Scholars Program represents an opportunity to recognize those teachers who help students excel in the mathematics and science standards of the Florida curriculum framework," says TRDA Executive Director Frank Kinney. "The program is important to our future and how we continue to improve our methods of helping students reach their full potential."

The Sunshine State Scholars Program is an annual statewide mathematics and science competition for Florida's high school seniors. The program is designed to recognize teachers, students and schools that have achieved excellence in mathematics and science by building on skills described in the Sunshine State Standards.

SATOP PROVIDES TWO 'CRYSTAL CLEAR' SOLUTIONS

Sarasota-based Creative Crystal, a small business that imports rhinestones and garment trimmings from Europe, recently experienced two distinct technical challenges. After several attempts to overcome these challenges internally, Creative Crystal President Lucia Reid turned to the Space Alliance Technology Outreach Program (SATOP) for help.

"When I contacted SATOP, I was looking for definitive answers," said Reid.

The first challenge was a search for an adhesive that would bond to nonporous surfaces, such as vinyl, plastic or glass. After testing numerous adhesives, Reid could not find one that fulfilled the quality standard she desired.

The second challenge came in the form of a machine malfunction. The company's gem- and stud-setting machine would repeatedly overheat. Reid contacted the manufacturer and the



local distributor, but neither was able to follow through on the machine's warranty. Consequently, she sought assistance from several professional engineering firms, none of which provided an adequate answer.

"This is a high-cost machine, and it went through four motors in an awfully short time," said Reid. "All I was left with were conflicting answers."

Reid contacted SATOP and spoke with Senior Program Engineer Christophe Gilfriche. For assistance with the adhesive, Gilfriche partnered Creative Crystal with Andy Blum, an industrial engineer with United Space Alliance, a SATOP Alliance Partner.

"SATOP's assistance has allowed Creative Crystal to increase production. I believe that it is one of the best programs the state of Florida has to offer." - Lucia Reid, President, Creative Crystal

Blum promptly pursued a washable adhesive that would not discolor and would adhere surfaces such as vinyl, plastic, ceramic and glass. Blum contacted multiple adhesive companies, requested free product samples, and conducted a battery of tests to find a product that would hold up under the specified conditions. After retesting the products that appeared to qualify, Blum was able to recommend the best adhesive for Creative Crystal.

"I simply pursued the best possible solution for Creative Crystal," said Blum. "I was able to use my contacts in the adhesives field, which a small business would not have access to."

To determine the cause of the machine malfunction, Gilfriche partnered Creative Crystal with Carl Hallberg, senior design engineer with ASRC Aerospace Corporation at the Kennedy Space Center. Hallberg has worked at KSC since 1965.

After reviewing all documentation on the machine, he ascertained that the root of the problem had to do with the machine's vacuum pump, which failed often. The vacuum component picks up the jewels and transfers them onto cloth.

Hallberg found three factors that contributed to the malfunction. Firstly, the vacuum pump had been running with the improper type of oil. Secondly, the machine ran on 60 Hz., rather than the 50 Hz. intended by the European manufacturer. These two factors caused the machine to quickly overheat. Lastly, the vacuum pump ran continuously, even when not in use. To combat this, Hallberg recommended that the vacuum relief valve, which should work as a regulator, be set just below the atmospheric pressure point at which a normal vacuum operates. This would allow the pump to idle when not in use.

"The use of improper oil, the strain of running faster than originally intended, and the unforgiving system design caused the pump, and consequently the motor, to fail prematurely," said Hallberg.

Reid could not be more pleased with the results. "SATOP's assistance has allowed Creative Crystal to increase production. I believe that it is one of the best programs the state of Florida has to offer," she said. "It is nice to know that if we do hit another roadblock, we have SATOP to turn to."

Hallberg and Blum couldn't agree more. "SATOP is an outstanding service. I enjoy the challenge of helping small businesses with diverse projects," said Hallberg.

Adds Blum, "SATOP is a great program that allows our company to become involved with smaller businesses and lend our expertise and higher levels of experience."

Carrie P. Meek Center for Business Makes Strategic Partnership to Enhance Micro-Enterprise Activity

The Carrie P. Meek business incubator opened in Homestead to help reinvigorate the area's entrepreneurial economy and provide business assistance to underserved populations in South Miami-Dade County. Now a new partnership between several community organizations will help bring business enrichment opportunities to those target sectors. Micro-Business USA, Florida Atlantic University and the Small Business Development Corporation have teamed with the TRDA-run Meek Center to promote a concept called micro-entrepreneurship.

A micro-entrepreneur is typically one who is low-income, lacks adequate access to capital or other resources essential for business success, or is economically

disadvantaged. Through this partnership Micro-Business USA will augment the incubator's business skills training programs and improve access to financial services. These micro-enterprises or part-time, "kitchen table" enterprises generate an additional \$7,000 - \$10,000 a year to supplement family incomes. "For families living at or near the poverty line, that extra income means better nutrition, health care, child care, housing, education, and a car that runs without constant repairs," says Hilda Hall, incubator manager.

Micro-Business USA provides training in skills sets and loan applications offered through three levels to promote self-employment for individuals with limited access to resources. Micro-Business USA

is also working with the Meek Center to increase awareness of the incubator's services and make their resources available to the wider entrepreneurial community in South Florida.

Training and Service Levels:

- Level One: Combines entry level business skills training with loans from \$500 to \$1,000
- Level Two: Provides advanced business skill training. Loans range from \$2,000 to \$7,500
- Level Three: Provides loans up to \$35,000 for businesses with a proven track record of profitability

Micro-Enterprise classes are held every Thursday from 6:30 p.m. to 8:00 p.m. For more information please contact Micro-Business USA at (877) 722-4505.



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