

## THE CLAY COUNTY LINE

Saturday, October 23, 2004

### Orange Park academy student reach for skies on NASA grant

By *Mary Maraghy* Clay County Line Staff Writer

Science students at Orange Park Christian Academy were awarded a second \$18,700 NASA grant for their space shuttle-bound research project on bone health in space.

They remain the only Florida high school students to receive a grant from the Florida Space Grant Consortium, which is funded by NASA, and supports Florida-based space research and education.

"They are a bunch of go-getters, very sharp and highly motivated. We love them to pieces," said John Brandenburg, a physicist at the Florida Space institute at Kennedy Space Center, who has met with the students several times.

The academy on Kingsley Avenue, with approximately 300 students, is affiliated with Orange Park Assembly of God. Because church schools aren't eligible for many government grants, six science students in 2001 created their own non-profit corporation called Tekna-Theos Inc. The word is Greek for children of God.

"It has moved on to become such a large-scale project," said Claire Piatt, one of the original six, who graduated in 2002 but still serves on the Tekna-Theos board of directors. "This is really, really exciting."

As part of the grant project, 17 Tekna-Theos students will be tutored in cell biology via e-mail by NASA specialists. "It's really a cool project," said ninth-grader Deborah Eccles, who is among the 17 to be tutored. "I didn't know it would reach this height."

Eugene Williams, who also graduated in 2002, and Adam Graham, Class of 2003, also still serve on the Tekna-Theos board.

Under the direction of science teacher Kevin Simmons, a former biochemist, the students are trying to help NASA scientists send astronauts to Mars. Because there is no resistance in weightless space, the astronauts can't exercise properly, which causes their bones to weaken and muscles to atrophy.

"Bone mass loss is a serious problem for astronauts," said Brandenburg, the physicist. "We haven't learned how to manufacture gravity in space yet."

He said he's hoping the students' research will help astronauts and also lead to more effective treatments for bone mass loss on earth called osteoporosis.

"Our goal is to help NASA solve this problem so they can fly to Mars," Simmons said.

Aided by NASA engineers, the students have built a bioreactor, an experimental device designed to be put on a future space shuttle to test the effects of various drugs on bone cells taken from baby rats. Brandenburg said the research is also applicable to osteoporosis, which is making national news. Recently, the U.S. Surgeon General, in his first report on bone health, warned that half of all older Americans will have osteoporosis — or be at high risk of getting it — by 2020.

The project was designed to expose students to the world of research, cell biology, engineering, marketing and writing grant proposals.

The students' next project will be a study of plant growth on Mars. And locally they are planning a

community Space Day program on Feb. 1 and a space camp next summer for underprivileged children in Clay County. Students credit Simmons for the mammoth project.

"He challenges you," said Harry Vaswani, an 11th-grader. "He'll push you to do all that you can do." "It's amazing how he took some students at a small private school like this and came up with an international company that could help millions of people in the long run," said ninth-grader Jillian Jackson.

Meanwhile, Tekna-Theos has applied for a \$1.5 million grant from NASA's Office of Biological and Physical Research. Also, Tekna-Theos recently received a \$50,000 bequest from a church member who passed away. Simmons said he's been surprised at how well the students have handled this challenging project which serves as an enrichment program and an introduction to space and potential careers.

"I'm actually amazed. Sometimes I get the most out of the kids who don't have the highest GPAs but they show more of an intense interest in what we're doing," he said. "It's just like coaching, if you give me a student with a desire and an interest, there's really no limit to how high they can go with it."