

Talented high schoolers tackle biochemistry dream

By Beth Reese Cravey, County Line Staff Writer

Kevin Simmons always has nurtured an interest in the space program, from his days in the Army, obtaining degrees in chemistry and biochemistry, through jobs at a cancer research center and in industry.

He long has dreamed of merging his interest in space travel with his education by designing an experiment that would measure the effects of zero-gravity, or weightlessness, on cells that make bones

Now he is a high school science teacher. But Simmons hasn't abandoned his dream, just transferred it to his students through a newly formed Bio-Tech Club.

Six of his best students at Orange Park Christian Academy have taken his challenge to design, test and build a bioreactor to tackle his bone-mass experiment both on the ground and, if they get their way, on a future NASA space shuttle.

"I gave the kids a running start," he said. "I intentionally set the bar really high. Even if they only get halfway, look at what they've attempted."

The project will expose the students "to all these different things," from cell biology to marketing, from engineering to meeting with potential corporate backers, from in-depth research to grant applications, he said. That exposure will help prepare them for the rigors of college and the business world and open them up to potential careers in science and engineering, Simmons said.

The students are excited, if occasionally overwhelmed by the task ahead, which they will work on outside of their normal school responsibilities.

"It blew my mind, when he proposed it to me," senior Eugene Williams said. "Once we got into it, learned about it, it was very interesting. What it takes to put something into space, the complexity that goes into executing a project of this magnitude."

Simmons has told the students how potential bone loss and muscle atrophy are the primary physical deterrents to long-term space travel. Maybe, just maybe, their work — which will use rat cells — could help find a solution, Williams said.

"That could impact the whole human race," he said. The planning, designing, testing and building come first. But the students said they are ready and committed to fulfilling their individual and collective tasks.

"Double check everything, to make sure you got it right," said junior Adam Graham.

The building of the bioreactor, dependent on donations for parts and supplies, hasn't yet gotten under way. But each student has been assigned to work on one of three tasks: engineering, cell biology and marketing. So far, they have learned the ins and outs of scientific research, how to write resumes and how to act in business meetings. They have preliminary design plans and parts lists. They have met with officials of several corporations in search of grants and to establish corporate relationships that will help when they are ready to submit their project to NASA for shuttle consideration.

Simmons has formed a non-profit foundation, independent of the school, paving the way for tax-deductible financial donations from individuals and corporations wary of directly backing a Christian school project. The foundation's name — Tekna Theos — uses words from the Greek New Testament that, combined, mean "Children of God." He put the seniors in the group on the board of directors so they can continue to be involved after graduation. "I'm going to let all of them run with it," he said.

In addition to Williams and Graham, other students working on the project are Claire Piatt, Jon Osteen, Brett Thomas and Kermina Vaswani.

Orange Park Christian Academy teacher Kevin Simmons (back, left) and six of his best students are designing a project on bone mass that they hope to have accepted by NASA as a space shuttle project. Students are; Adam Graham (front, from left) Claire Piatt, Kermina Vaswani, Brett Thomas, Jon Osteen (back, center) and Eugene Williams.