

## **New Graphing Calculators Give C-S Math Department Classroom Teaching Tool Ahead Of Other Kalamazoo County School Districts**

*\$5000 In Donations From C-S Music Boosters, Kalamazoo Community Foundation Pays For 30 Calculators, Overhead Projector; Document Camera Purchased With Successful Grant*

**By Bruce Rolfe**

Climax-Scotts Jr./Sr. High School math department students are now enjoying a new valuable classroom teaching tool before most other students in Kalamazoo County, thanks to two generous donations.

Two grants paid for 30 Computer Algebra System (CAS) graphing calculators and a new overhead projector for the Jr./Sr. High school's three math classrooms. Another grant was obtained for a document camera.

High School Math instructor Doug Robinson believes the C-S School District is the first district in Kalamazoo County to have the new graphing calculators, which have not even been on the market a year, making the local school district unique to the surrounding area while giving C-S math instructors a new innovative teaching tool.

The Kalamazoo Community Foundation granted the school \$3500 to supply a classroom with 20 of the calculators and an overhead projector. Earlier this summer, Samsung granted the math department a document camera for one of the math classrooms and the Climax-Scotts Music Boosters supplied \$1500 for an additional 10 graphing calculators.

Robinson, C-S Jr./Sr. High School math teacher Scott Leep and Jr. High math instructor Kristen Eldred feel this is an incredible new classroom teaching tool, giving math instructors an opportunity to reach the next generation using technology that can help students visualize mathematics in a way that was not possible even 15 years ago.

"One of the keys is, when we eventually use the calculators, not just for the students to have a calculator they can use, but we can teach lessons through these calculators. They can actually do things, manipulate things. They can see us do it when we have in this case an overhead projector. We can show them different concepts by using these because there's some things that are interactive," said Robinson, who said the Kalamazoo Area Math and Science Center doesn't even have the new calculators yet.

Leep and Robinson feel because C-S is the first school district in the county to have the new technology available, C-S students are "incredibly fortunate", but the math department staff is also excited to bring a new way of teaching into their classrooms.

Robinson, Leep and Eldred attended seminars at Western Michigan University the last two summers, learning some newer teaching concepts using the calculators C-S is now fortunate to have.

"It's fun. We like to look at new ways to reach kids and this is a great way to reach kids," said Leep, an English minor who wrote the successful grant to Samsung to obtain the document camera, just one of 50 successful grants nationwide Samsung awarded.

The cutting edge math department upgrades not only puts C-S students ahead of the game compared to other county school districts, but is a major consideration as teaching mathematics changes in the next few years with the new common core state standards for mathematics. Technology is a big part of teaching the new set of standards, making the technology improvements C-S enjoys very important as the district strives to meet new common core state standards in mathematics.

"With the new common core state standards coming out, there's a whole lot of hands-on types of things that you want to be able to do, so we wanted to have this for our kids so they could look at geometry and algebra in a whole different setting. And any high level mathematics they can look at in a completely different setting," said Leep. "With the CAS version of these things, it's just an amazing tool that they can dynamically do things. They can see things grow and change."

"And they can discover. We don't have to always show them, they can discover it themselves. When they (students) discover it, they remember it better," adds Robinson, a 30-year veteran teacher at C-S Jr./Sr. High School who said he has already started using the new calculators in his statistics-probability class, noting the students love the upgraded calculators, especially the color aspect the new calculators feature.

The new calculators not only offer color coded graphics that can be displayed on a screen with the overhead projector, but the teacher and students can manipulate graphics and charts much more easily compared to the district's older calculators that Robinson said are 20 years old.

Leep said a big advantage with the new calculators is they have the capability for programs within the calculator to talk to each other wirelessly.

“ “Now, I can open up a calculator page and actually calculate function values that I’ve punched into a graph. Then I can go to a dynamics notes page and actually force the graph to do one specific thing. And then I can go to a spread sheet and I can actually tabulate data that is all from that graph and they’re all talking to each other,” explained Leep.

Future upgrades would allow the district’s math instructors to gauge student understanding in an instantaneous fashion using programs designed for the calculator.

Robinson said because the new calculators are capable of having other powerful components added in the future, the C-S School District is at the tip of the ice berg when considering its potential. He said eventually, a software package can be added that allows the teacher to interact with the students wirelessly, offering instruction and ideas on the calculators. Students can give teachers feedback whether they understand the concept being taught or if they would like further instruction without other students having knowledge who is interacting with the teacher.

The C-S math instructors feel the new calculators and any future improvements, will offer new ways to reach students, enhancing their learning experience while increasing their college preparedness.

Currently the district needs a projector for two more math classrooms as well as document cameras for these classrooms.

As C-S students enter a new generation of learning, the district hopes the recent upgrades puts students in a position to engage and begin to understand mathematics in a deeper way than they were able to before.

Robinson said the calculators will be helpful in all high school mathematics courses, but will be especially valuable in advanced classes like trig and calculus

The \$140 calculators are advanced and chuck full of capabilities. Robinson said tables, charts and other data relating to math courses taught at C-S can be incorporated.

“The main thing, is it puts us into a whole new mode of teaching. It’s going to give us more tools to be able to present new material, have kids discover new math,” said Robinson.

“One of the things it’s going to help is the kid that may be a reluctant learner. This may charge them up a little bit. Say, wow, math can be kind of exciting and fun. Hopefully those kids that struggle a little bit, not only will this tool help them, they’ll be more excited, say wow, that’s kind of neat. Kids are excited about it,” adds Robinson.

It was through conversations with Oemeeka Liggins, of the Kalamazoo Community Foundation, C-S Jr./Sr. High School Principal Kim Kirshman discovered the possibility of grant funding for the calculators and overhead projector and informed her math department about the opportunity.

Kirshman and Leep stress Liggins was very helpful walking the district through the grant writing process, something relatively new for C-S.

The Jr./Sr. High School principal echoed her math instructors feelings that her students are very fortunate to have this new technology available.

“I think it’s an outstanding opportunity for our students to experience the newest mathematics technology on the market. Their experience with this technology will provide our students an opportunity to understand some of the tools that they may see at the college level or in the work place,” said Kirshman. “They’re going to be able to hit the ground running, which I think is a huge asset.”

Kirshman, Robinson and Leep were also very grateful to the C-S Music Boosters for reaching out to supplement the funding of the instructional tools which are not necessarily connected to music instruments.

“I think it speaks to the culture that exists in Climax-Scotts. In this community, we take care of one another,” the Jr./Sr. High School Principal said. “Everybody seems to step up whenever there is a need. I think that makes this community very unique.”

“Sometimes in a smaller district like ours, we need to be more creative at finding resources to support what we want to do for students. But I think it speaks to the dedication of our staff and our community that they’re willing to make those things happen for kids,” continued Kirshman.