

Do the math: STEM program pays off for students and businesses

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Soon Macon County's middle and intermediate school students will get the chance to become robotics experts, an endeavor that may steer them toward future jobs in the science, math and technology sector.

The Macon County Board of Education allocated \$5,000 to join an alliance with Swain and Jackson counties, and the Eastern Band of Cherokee Indians. The district will take the money from state Career and Technical Education allotments.

Sam McCormick, of MUST-Innov8, Inc., gave a presentation to the school board detailing their services, which the other two counties and the EBCI have embraced. MUST-Innov8 is a Winston-Salem based consulting firm that brings together technology industry CEOs, educators and students to steer young people toward Science, Technology, Engineering and Mathematics (STEM) courses and ultimately, jobs in STEM fields. The firm has established robotics programs at schools in several counties in Eastern North Carolina. Each school has at least two teams, who compete or "scrimmage" against each other, McCormick said. The teams compete against other schools in their district, ultimately working their way to regional and state competitions.

While the district's part in the program is only \$5,000, the other money, about \$104,000, will be sought from local and regional industry leaders. After the first year, the program's goal is to become self-sustaining through



Young robotics team members prepare their robot in a competition held in Yadkin County last year.

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STEM: Program embraced

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fundraising and continued support from industry leaders. The cost to continue each year usually runs about \$24,000, McCormick said.

Phil Drake, has committed Drake Enterprises to match every corporate donation made not just in Macon County, but in the other three school districts as well. He will fund half of what is raised for the program.

Drake said he has several motives for his contribution, the first, being that his grandchildren will attend Mountain View Intermediate and Macon Middle School and he wants not only his grandchildren, but all of Macon's intermediate and middle school students, to get a great education in math and science.

"Among the 66 industrial nations in the world, the U.S. is 23rd in math and 31st in science. That is unacceptable," Drake said. "Now I may not be able to change the country, but I can help change that in Macon County."

All of North Carolina's children should have top-notch math and science programs in their schools, Drake contends.

"The N.C. School of Science and Mathematics should be unnecessary," he said. "It shouldn't be necessary to have to go there to get a good education in math and science."

MUST-Inov8 was born from the firm's research and talking to more than 100 CEOs from industry, higher education and K-12 education, asking if a "world-class" K-12 STEM education across the state would be valuable.

"The answer was a resounding 'yes,'" McCormick said.

CEOs are looking for workers who are problem solvers, leaders and innovators, McCormick told the school board. STEM subjects give students those tools.

"Eighty percent of all jobs being created today require some knowledge of STEM and how it's used to solve problems," McCormick said.

"Sixty-five percent of all jobs in the technology sector require a certificate or a two-year technical degree. Twenty percent require a four-year or more degree."

The problem is that by

the end of middle school, 50 percent of students have gotten a bad taste in their mouth from STEM subjects, McCormick explained, many not seeing the usefulness of such subjects.

"STEM subjects have a bad reputation of being hard or unpleasant," he said. "To change these outcomes we have to answer the question they raise by engaging them in something fun that requires STEM knowledge to succeed."

The program does not seek gifted students only. McCormick explained that the more diverse the teams, the better the outcomes. Teachers serve as coaches, and industry leaders are chosen as mentors to student team members.

"You cast a broad net," he said.

MUST-Innov8 uses the philosophy of Dean Kamen, a serial inventor who came up with a LEGO robotics program that is fun and gets kids to learn even when they don't realize they are learning something.

Kamen's FIRST robotics program now has more than 250,000 K-12 kids annually in 54 countries competing.

"Once you get kids involved with problem solving, it's an itch that only STEM subjects can scratch," McCormick said of the programs effectiveness.

Promoting STEM subjects and showing kids that math and science can be fun is crucial, especially at the middle grades, before students move on to high school and future careers, Drake said.

"If they don't get interested early, they're not going to take those classes," he said.

"We need scientists, engineers and mathematicians," Drake added. "I love having people with math or science degrees working for me, but they are hard to find."

The prospect of recruiting all children — not just ones deemed gifted, appeals to Drake, who said he feels all children have the capacity to excel in the classroom.

"The difference between top performing students and bottom performing students is not intelligence, but the opportunities they have and how interested they are," he said.

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