

## STEM PROGRAM - SUCCESS STORY



## New program helps students apply Science, Technology, Engineering and Math in a real world context

Science, Technology, Engineering and Math are closely, even inextricably, linked in many fields. Engineering strives to design and manufacture useful devices and materials through the real world application of scientific principles. STEM cannot just be taught in isolation. It has to be the product of collaboration between math teachers, science teachers and technology teachers. At North Clayton Middle School, in Clayton County, GA, they have a new Science, Technology, Engineering and Math program that does just that.

We spoke with Technology Teacher, Leavernard Jones about his innovative program: "We used to have a modular technology lab where students worked at different workstations. They worked in pairs and their job was to come in, be assigned a work station and go to that station and that's where they conducted all of their assignments. We had fifteen different work stations and so they were all assigned a particular technology, one of the fifteen. There were two persons per technology. They would learn everything there was about that particular topic. Once it was done (this could take anywhere from 10 to 15 days) we would rotate, to a different technology.

So in the course of a nine week period they would probably learn three of those technologies. It could be difficult to manage, at any time you could have anywhere from 25 to 30 pupils, paired together. They were all learning fifteen different topics and you had to make yourself knowledgeable in those fifteen different things from beginning to end, so it was quite trying at times."

### The new STEM lab is very different

The new STEM lab is very different, although to a certain extent it physically looks the same, the major difference is that everyone is doing the same thing. That was what really captured me about the LJ Create program. The students are able to follow the same computer-delivered "e content" curriculum.



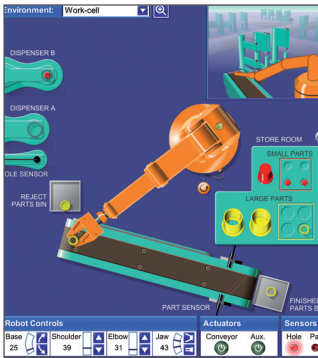
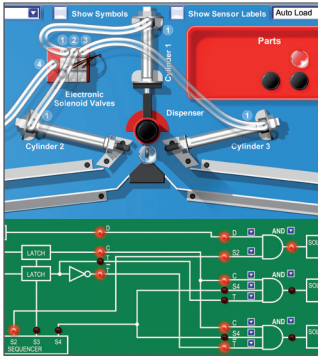
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Leavernard Jones,  
Technology Teacher

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## Collaborative Learning

“The integrated engineering systems simulators help, they allow the students to collaborate with each other, to show each other some of the things they have learned. The students really enjoy using these and the associated Math concept as well. The structure of the new curriculum has helped. The PowerPoint presentations open up the lesson and give you an opportunity to interact with the students.

I like scoring the students using the SRS student assessment system because they are interactive, they are able to sit in the classroom and you can see how well they are grasping the topics and retaining the information once they start doing the activities.”

## Lessons are more organised

“One of the benefits of making the transition is that the lessons are more organised. I have a lot more control over the equipment and I am able to teach the lesson effectively. The students can have hands on experience. Once they see the teacher demonstration, they can go back to their work stations and work independently.

Students are continually assessed through test questions and the simulators are a good way to test how well they have grasped the concept in a virtual program. One good thing that I have found is that when students make mistakes, the system tells them why, or congratulates them when they are right. It lets me know that they are learning and paying attention.”

## Working with the Math and Science departments

“When they first installed the lab I went to the administration and let them know that this lab had been put in place and that I thought it was a really good idea that the County was promoting collaboration with other programs within the school such as Science and Math.

I wanted to get some feedback from the Heads of Math and Science Departments to see how they thought the program reinforced what they were teaching to our students and how this program could benefit the students overall, as far as them learning the concepts in the technology lab. Our collaboration keeps us focused on which point in the semester we need to be introducing a particular concept.

Students are able to come here and take what they have learned in their Math and Science classes and apply that in the STEM Lab. For example, they may learn something about Basic Electricity in their Science class. They can reinforce their knowledge in the technology lab by using one of our simulators. They can then apply this to a real-world situation using the hands-on hardware.”

## The benefits to teachers and students

“The benefits to a teacher are that this helps to reinforce what they are teaching. It also gives them the technology ‘edge’ too. They are able to learn the technology here and they are able to use that in their classrooms as well. The information that is provided allows me to be able to learn what I need to know and I can prepare myself before I present to the students.

One of the benefits of the program for the students is that it encourages them do more critical thinking and problem solving, they really have to think about their answers. Students can go through the computer-presented material and not be intimidated or afraid because they don’t know the answer. I can monitor what they do and see the mistakes that they make and I can go back and ask them questions and even allow the students to do the assignment again.”