New Technology Space Inspires Creativity

Middle School students imagine, invent, and collaborate in the ThinkTank.

Imagine creating sculptures that move with the help of a microcontroller, generating a robot that can kick a soccer goal, making a video game controller out of glasses of water, or designing jewelry that incorporates LEDs. Sound like fantasy? Not for Cannon School students who use the newly constructed, state-of-the-art ThinkTank, a place which literally puts cutting-edge technology into their hands—as well as their minds.

The newly built facility integrates science, technology, engineering, and math with media arts and academics, empowering students to become creative problem-solvers who can practice critical-thinking skills across a range of disciplines. The lab is equipped with circuitry, 3-D printers, sensors, a green screen, iPads, iMacs, and Chromebooks. This gives students an outlet to explore project-based learning in areas such as computer graphics and simulation, robotics, multimedia, and coding.

Mr. Leigh Northrup, Middle School Dean of Innovation and Technology, said the idea for the space originated with the understanding that there was a need to create a place that would allow students to nurture collaboration skills, readying them for the twenty-first century workplace. “We wanted to produce an environment where kids know how to work together,” said Mr. Northrup.

Also important is teaching students to work with their hands, “Thirty years ago, we had classes like Industrial Arts and Home Ec. When we ushered in the digital age, we got rid of classes like that because we no longer saw their worth,” Mr. Northrup said. “But the opposite is true—we’ve learned that kids need to work with their hands in conjunction with skills like coding and graphic design.”

Middle School teachers have brought classes into the space often, integrating curriculum to make it a more hands-on experience. For example, sixth-grade science students in classes with Mrs. Wendy Benz and Mr. Donnie Hayes were introduced to the 3-D printers early this year when they designed and created letters of the alphabet by converting measurements and entering them into the Tinkercad online software program. Students sent their designs to the printer and in a matter of minutes had created their own three-dimensional models. Mr. Jeremy Mattsson’s fifth graders also took advantage of the space when they were studying atomic structure. Pairs began by using software to design atomic models which included a certain number of holes relative to the atom. After sending their designs to the 3-D printers, they used straws to combine the three-dimensional printed atoms to form molecules such as carbon dioxide and water.
But classes use the space for more than just the 3-D printers. Mrs. Benz and Mr. Hayes recently taught their students soldering techniques to create robot pins with LED lights for eyes. The activity illustrated different melting points and how heat added to a substance can change its state. It also helped prepare students for an upcoming Rube Goldberg machine project in which they will use soldering tools to create circuits which work with Arduinos, which are digital devices and interactive objects that can sense and control the physical world.

Mr. Northrup hopes that at some point, students will be able to use the space independently during study hall or lunch. "Kids learn best when they can figure things out by themselves. If a student is able to create, invent, and learn in a space that is conducive to imagination and collaboration—that's what lights them on fire."