



3D Design & Printing Workshop at CCC

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Kids Teach Kids 3D Computer Assisted Design at CCC (pictures by Hannah Ellingson)

The Clarkston Community Center and visionfactory® taught classes in Geometry and 3D Design and Printing last week to the 8- to 13-year-old participants in CCC's Art Camp. The workshop was led by Lehn Ellingson, 17, CEO of visionfactory®, and his team of GURUs (Guides to Using Really Useful stuff), high school students from The Paideia School, Tucker High School, and Clarkston High School. The purpose of the workshop was to tie mathematical concepts to the production of objects using 3D printers. Most of the objects created by the kids were geometric

designs from nature and their surroundings but the project also included creating a scaled down design for a greenhouse, which CCC plans to build later this year.

"The workshop was a great experience for our team", Lehn explained. "We definitely have a greater appreciation for what the teachers and counselors do at CCC. It is a lot of hard work but incredibly rewarding." During the week of activities, the participating children, who came from Bhutan, Myanmar, Ethiopia, Somalia, Syria, and Afghanistan, helped measure the space for the greenhouse and produce a scaled down version on paper. The 3D



printed design for the greenhouse was then built to the same scale and oriented on the paper grid to maximize exposure to the sun but also provide necessary connections to water and electricity.



"It is always engaging for the children when they can actually see their work being created right in front of them", CCC Art Camp Director Andrea Waterstone explained. "The technology is incredible and our kids at Art Camp are learning at such a rapid pace." It was clear during the workshop that, even though English is a second language for most of them, the concepts of applied math and 3D design were readily grasped and used by even the youngest Art Camp participants.



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And of course, there is always time for a little fun! While the 3D printers were hard at work, everyone chose their favorite 3D printed object to touch, hold, and get a few laughs from the rest of the Art Camp participants. Visionfactory® asked some of the professionals from Atlanta-based 3DPrintingTech to demonstrate some of the unique ways 3D printers are being used around the world. Today, 3D printers are being used in Sub-Saharan Africa to produce prosthetic limbs. In South Asia, they are being used to create replacement parts for agricultural machinery and turbines for small hydro-electric projects.



The need to give our children access to technology like 3D Computer Assisted Design (CAD) within the STEM programs at schools in the Atlanta Metro has never been greater. "There is an urgent need for all children in America but we also know



that there is a real digital divide in communities that have low-income residents and schools that are considered failing," says McKenzie Wren, CCC Director. "This program helped bridge that divide for both our American-born youth as well as our refugee youth." Primary education in Europe, Japan, and Korea already includes training on how to use these valuable tools. But the US is in short supply of teachers trained to use the technology. And even though the computer

processing power to run these applications has been dramatically reduced over the last couple of years, our schools still do not have enough computers to give every child the opportunity to explore. The 3D Design and Printing Workshop at CCC successfully provided just that type of exposure.

To complete the week of Geometry and 3D Design, the children at the camp were asked to submit designs for a 3D sculpture or Mandala, a spiritual and ritual symbol in Hinduism and Buddhism representing the Universe. The basic form of most mandalas is a set of repeating geometric patterns containing a circular design at the center. Of several dozen that were submitted, four designs have been selected for digital conversion and 3D printing. The final forms will incorporate the design but could do so in some surprising ways. Bineyam Tumbo, Clarkston High School student and visionfactory® GURUs, explained, "You can display Mandalas by using light or as a three-dimensional container, or even on





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a musical instrument as ornamentation. The fun part of our job will be to see the kids' faces when they see their designs in the final printouts."



Trying to teach mathematics and technology to 8- to 13-year olds can be challenging, but this workshop seems to have been a success. Some teenagers may be enjoying their summer break sleeping in, but this group had an experience they will remember and share for years to come. "We did not know what to expect when we agreed to conduct the workshop", Chris Bunting, GURU and Tucker High School student, explained, "but now we cannot wait to do it again."

The Clarkston Community Center, a 501(c)3, serves one of America's most diverse communities. Formed in 1994, the CCC mission is to provide art, education, recreation and community building to Clarkston and Greater DeKalb County residents, both long-time Americans and newly arriving refugees. CCC programs are about improving the quality of life of those they serve, from youth to seniors and everyone in between. CCC programs offer opportunities to learn, to gain skills, to discover new interests, to meet neighbors, to enjoy the visual and performing arts and to participate in any of a broad spectrum of programs, activities and events.

visionfactory® is for young entrepreneurs because it is run by young entrepreneurs and inventors who have created businesses and developed a valued set of contacts with educators, professionals, and industry experts. visionfactory® GURUs (Guides to Using Really Useful stuff) provide tutoring and mentoring that combines STEM programs, Financial Awareness, Business Model Innovation, and Intellectual Property principles in 3D Computer Assisted Design (CAD), Robotics, and Music as a Business workshops for 8- to 17-year-old students. Visionfactory has a particular focus on creating businesses and products that can impact the Developing World. Visit us at www.visionfactory.biz.