

Taking Printing to the Third Dimension

Three dimensional (3-D) printing is a process of making incredibly accurate physical objects of virtually any shape, from a computer-created digital model. University School purchased its first 3-D printer in June of 2013, and since then, Upper School students have utilized the printer in computer art courses, interactive and web design courses, and AP computer science courses. Students have designed and produced phone cases, bobble-heads, and action figures with moveable parts. One student even attempted to create a prosthetic leg. "Students use engineering and artistic principles as they create their objects on AutoCAD (computer aided design) type programs," said Matt Munro, Upper School faculty member. These programs have specialized software that allow students to create architectural, mechanical, civil, and aeronautical drawings, and other natural shapes.

Once the objects are designed on the computer, students send their digital designs to Mr. Munro, who prepares the images for the 3-D printer by extracting individual layers out of the design. At that point, the image is transferred to the 3-D printer and the printing process begins, which can take anywhere from 30 minutes to 13 hours. The objects are made of a specially engineered, colored filament that is laid, layer upon layer, in different shapes. The technology replicates the computer-engineered drawing with remarkable accuracy. Future projects include a working carousel, Ferris wheel, and clothing. Junior Dylan Weiss says, "The 3-D printer is a great addition to the computer art classroom. It has expanded our horizons in terms of what we can produce. Instead of being limited to 2-dimensional designs, we are now able create 3-dimensional works of art."

