

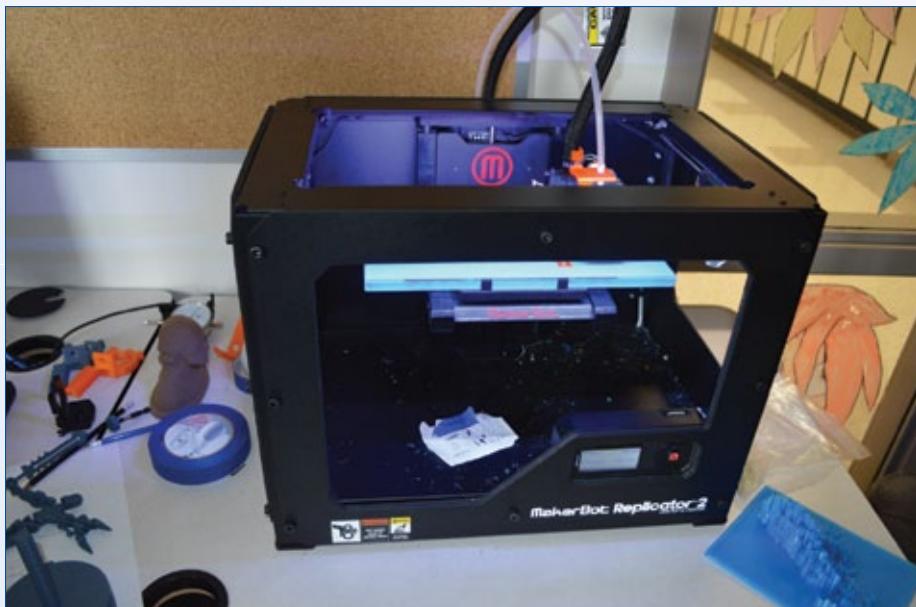
# Printing the Future (3D Printing)

Staff and students at Cape Breton Highlands Academy have been able to experiment with and experience an innovative new technology while meeting curricular outcomes in new ways thanks to support from the Program Development Assistance Fund (PDAF) sponsored project *Printing the Future (3D Printing)*.

"Through the purchase of a 3D printer, we are giving students access to a technology with so much potential—tapping into their curiosity and driving their innovation," says Bruce Miller, a science and humanities teacher at CBHA and project coordinator. 3D printers create three-dimensional objects that are designed on a computer.

Miller, whose teaching assignment this year has included English, global geography, oceanography, science and social studies says the primary goal is to enhance technology education, but through this project students are meeting outcomes not only in technology, but in sciences, math, art, English, entrepreneurship and community based learning classes. "Having the 3D printer also encourages community connections, as students can design and print objects for fundraisers, campaigns, sporting events and for community members as requested," adds Miller.

A local entrepreneur has had a few small parts printed out for his business, and in exchange has ordered new plastic for CBHA's 3D printer. Miller was able to get his \$2,600 MakerBot Replicator 2 through a PDAF grant, and with it came four rolls of special plastic. The plastic costs \$50 a kilogram, but the rolls do go a long way.



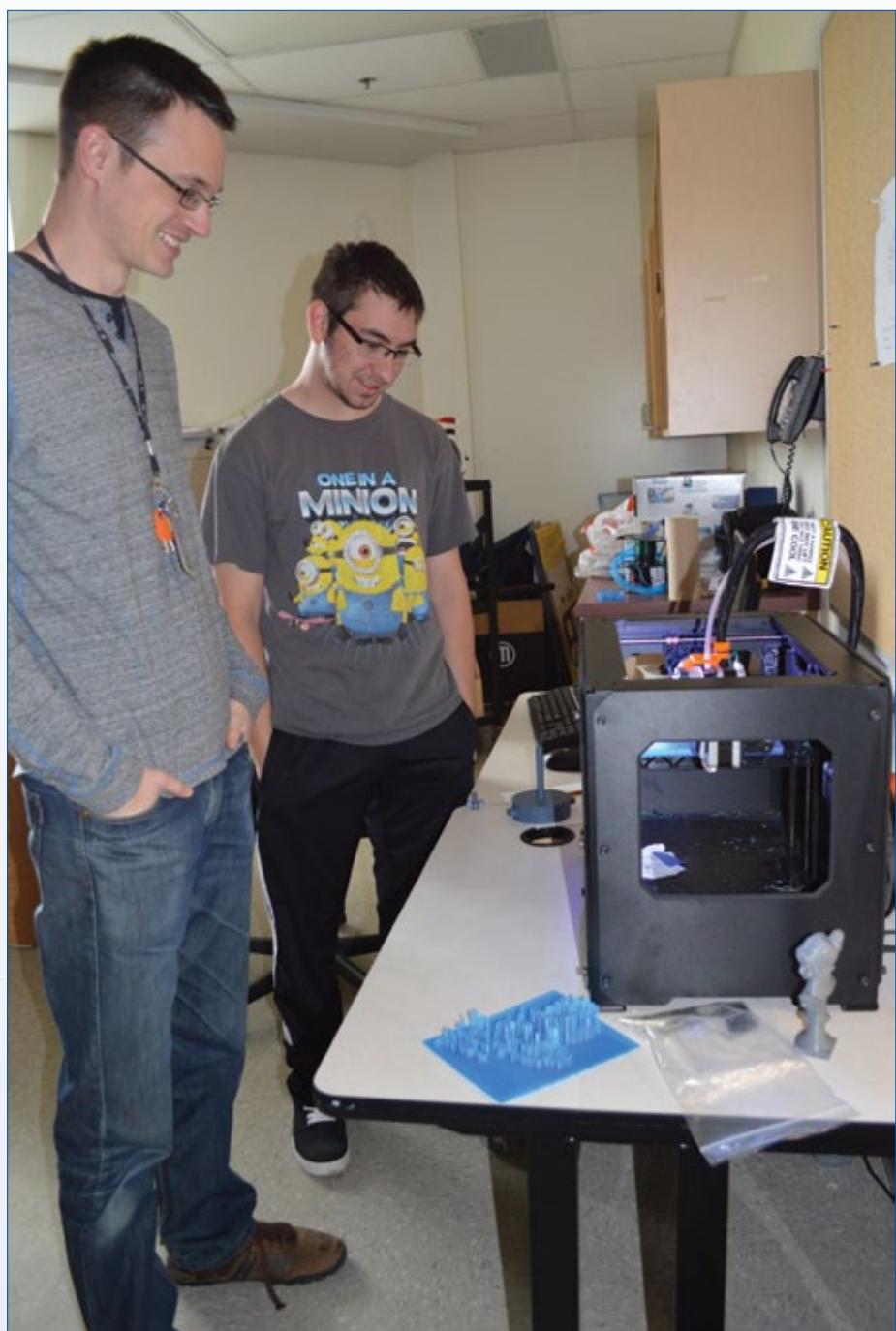
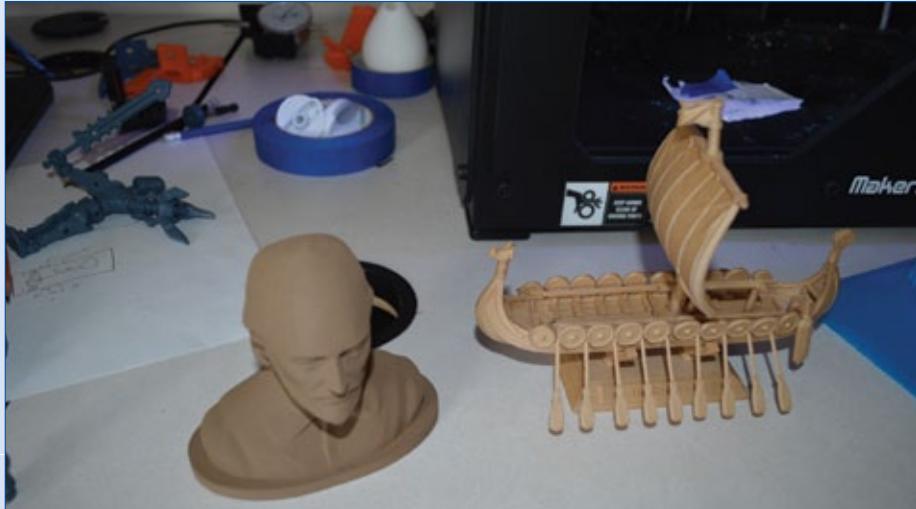
**Above is the MakerBot Replicator 2 3D printer purchased through a PDAF grant.**

The school has been using the printer since September of 2013, and Miller says having the printer has enabled his colleagues to produce practical objects that can be used in the classroom and through other activities at the school. "We printed out a skeleton for phys ed class, a grade nine student made a strand of DNA, a Grade 11 student created a 3D anatomically-correct heart for her science fair project, a Grade 10 art class designed snowmen as a Christmas project, and I printed a scan of a trilobite fossil for my Grade 7 science class."

The list goes on. He was even able to print some connectors for the school's model chemistry set that went missing and create a school mascot Husky cookie cutter, as well as replacing a broken knob off a toaster oven. "The printer can also fix itself," he continues. "You can print a new piece for the printer if it gets broken or lost."

Other teachers on the project team include Miller's colleagues Andrew Clarey, a science, physics and chemistry teacher; James Parsons, math and science teacher; Neil MacDonald, tech ed teacher and community based learning coordinator; Carolyn Ann MacDonald, visual arts and English teacher; and Stacia Evans, entrepreneurship and tech ed teacher.

**Shown below and to the right are a couple of objects printed from CBHA's 3D printer.**



**Printing the Future (3D Printing) project coordinator Bruce Miller is shown with student Justin Maynard.**

This school year, Miller wanted to involve a co-operative education student in the use of the 3D printer. "I wanted a student to introduce the 3D printing concept to more students and teachers and help them use it for their school projects," he says.

Grade 12 student Justin Maynard has spent the last semester doing just that. Next fall he will be attending NSCC in Truro to take Game Development and his experience with *Printing the Future (3D Printing)* has helped prepare him for his future education.

*The PDAF program encourages innovative program development in Nova Scotia's public schools. Co-sponsored by the NSTU and the Department of Education and Early Childhood Development with an annual sum of \$200,000, it provides financial support for projects directly related to the Public School Program. Application deadlines coming up are June 1 and August 1 by 4:00 p.m.*

*For more information visit the Professional Development section of the NSTU website at [www.nstu.ca](http://www.nstu.ca) or contact NSTU executive staff officer, Gérard Cormier at 1-800-565-6788 or 902-477-5621 or [g.cormier@staff.nstu.ca](mailto:g.cormier@staff.nstu.ca) or [pd@nstu.ca](mailto:pd@nstu.ca).*

