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'High-tech woodshop'

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Kai'ea Kaua clicks a button on her laptop computer and the machine goes to work.

With laser precision, it cuts a thin slab of wood into over six separate pieces that will snap perfectly together to make one of her popular small boxes.

For a personal touch, it also etches a bird of paradise plant to the top exactly as she designed it.



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The process may seem easy. But the real work occurs on the laptop, where she uses a computer-aided design program at Connections Public Charter School to turn her creativity into a seemingly flawless finished product.

It's shop class for the computer age, and part of what the school calls its "makery" program.

The program started about four years ago, and allows students to make anything from a cup coaster to even musical instruments all with the help of a computer and their own design skills.

It also includes a 3-D printing machine, which students use to make objects out of plastic, including their own smart phone cases.

"This is basically high-tech wood shop," said Connections teacher Bill Thorpe.

In this computer-driven world, the skills students learn there may be what they need to succeed, said Greg Henkel, a program specialist at the school who teaches at the makery.

"What we're doing here is the new manufacturing," he said.

"You can be the engineer, the designer and the artist and the manufacturer."

For students who can't get enough of the class, they can also practice their design skills after hours.

This week, Connections is starting its first after-school program, which will include the makery as well as a yet-to-be-built recording studio.

Connections Principal John Thatcher said the program will host up to 25 of his students at first, but his goal is to open it up to students from other schools.

"We're trying to encourage kids to be entrepreneurs," he said. "This is like an incubator."

Eventually, he sees the school in the Kress building in downtown Hilo acting as a community center after school hours.

To help reach that goal, the state recently provided the school's nonprofit, Friends of Connections, with \$1.5 million.

About a third of that money will be used to fix the roof and make minor structural repairs to the aging building, Thatcher said.

The rest will be used to create the recording studio as well as enclose some of the machines in

the makery for safety.

Connections is also partnering with the High Tech Youth Network in New Zealand to help develop computer-related curriculum for the afterschool program, said Kris Kua, site director for Connections.

“They are leading the way for some of the students to get certified with specific Adope-type programs,” he said.

“We’re going to look at following their lead with that.”

In addition, Connections is teaming up with Neil Scott of the College of Education at the University of Hawaii at Manoa.

Scott plans to open his own makery, with 3-D printing machines, over the next few months in downtown Hilo where students can make products to sell.

He refers to 3-D printing, which applies thin layers of plastic or other material to make an object, as “21st century manufacturing.”

“It will make a better tool to start with, better molds, better patterns,” Scott said, adding it won’t likely replace all forms of production.

But by learning how to use the technology, and even applying a business model around it, students will be giving themselves a leg-up, Scott believes.

“This is a means for you to get a better job,” he said.

“The 21st century jobs aren’t obvious,” Scott added. “They are not going to jump out to people.”

Kaua, who goes by the nickname “Yumi,” said she likes drawing and design but wasn’t interested in 3-D printing or CAD technology at first.

That changed after she realized how it can be an outlet for her creativity, and she has even returned to the makery after graduating last school year.

“It provides different opportunities,” she said, adding if she needs a CD stand, she can design and essentially print one, in pieces anyway.

Kaua said she is not sure if she will apply the skills to a career, but she hopes to get a job with Scott so she can continue designing and making new products, including her boxes, to sell.

“I was making a whole bunch before the end of school and I actually sold out of them,” she said.

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