

WITH PLENTY OF supplies on hand, (from left) Daniel and Eric Gardner, Jacob Mueller and Callum Toal prepared to build their cardboard boat for the Maritime Heritage Festival's inaugural cardboard boat regatta on Aug. 20. The teenagers posed with a model of the first design of the boat, which has since been tweaked and altered.

Photo by Sam Arendt



Regatta floats ambitions of aspiring engineers

■ *Maritime festival cardboard boat races inspire team of students who, with help from mentors eager to foster interest in engineering, are building their very own watercraft*

By KRISTYN HALBIG ZIEHM

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What do you get when you combine four past and present Port Washington High School students with a penchant for engineering, a couple of local businessmen-turned-mentors and a room full of cardboard, tape and paint?

An entry in Maritime Heritage Festival's inaugural cardboard boat regatta, which will be held Saturday, Aug. 20, on Port's lakefront.

The teens — brothers Eric and Daniel Gardner, Jacob Mueller and Callum Toal — would love to win the race, but their goal is a little more basic.

"We want to be successful, not sink," Jacob said. "Maybe win. But our main goal is to have fun."

They seem to be succeeding as they put their skills to the test while beginning to build their boat in earnest on Monday.

The project is the brainchild of Don Voigt, a systems engineer, president of Engineered Equipment Integration LLC and a co-owner of Port Harbor Center. He is also working with the local Science, Technology, Engineering and Math (STEM) program.

"We're looking for ways to make math fun," Voigt said. "That's the toughest part for engineering students, the math. But if you bring life to it when they're young and just learning, maybe they'll stick with it."

When he heard about the cardboard boat regatta, Voigt said, he was inspired. He contacted Alec Belling, a Thomas Jefferson Middle School technology and engineering teacher, who put the word out among his students.

The four teens came together for the project about two weeks ago, meeting

with Voigt and Bill Prince, a marine architect and president of Bill Prince Yacht Design, to learn as much as they can about boat design.

They were also shepherded through the process professional engineers use as they work — everything from concept to design to model making and, finally, production.

They learned about such mundane tasks as setting meeting agendas and using engineering notebooks to log and manage their ideas, and set timetables and task lists.

"I wanted to show them how this works in the real world," Voigt said. "I told them, I'm here to help but I'm not building this thing. It's your project."

The youths also learned about more practical matters for this competition, for example experimenting with ways to make cardboard strong enough to support them, and looked for ways to waterproof it.

The teens picked Prince's brain about boat design, learning, among other things, about the principles of displacement and weight distribution.

"Basically, it was an Intro to Aluminum or Wood Boat Making 101," Prince said. "We're simply substituting cardboard as the material."

Although the boys, who consulted with Prince on their final design, discovered that the fastest vessel would be a single-person kayak, they decided to build a four-man boat so they could all take part in the race.

"If someone was sitting on the sideline, it wouldn't be as much fun," Daniel said. "And if we go down, we go down together."

While on vacation last week, Eric

and Daniel came up with a design and put together a model out of file folders and scraps of cardboard, testing it on the Mississippi River.

The model was surprisingly similar to the design that Jacob and Prince had come up with while they were gone, the boys discovered on their return.

"This is version 1.0," Eric said. "I think we're on version 3 or 4 now."

A small section was built on Monday to undergo testing so the boys know it will withstand its time in the water, Prince said.

A few days before the regatta, the vessel will be tested so they teens have time to tweak the design as needed.

Designing the boat, said Callum, was only half the fun.

"The other half will be building it," he said.

Jacob added, "It could be more difficult than we think."

They will soon find out.

Prince was optimistic, saying the boys "seem to be motivated and eager to combine a practical experience with creativity. If they execute the design flawlessly and paddle like crazy, they have a good shot."

Voigt said the boys seem to have achieved their goal.

"It's more involved than I thought it would be," he said, "but it's quite a fun thing. I think they're having fun and learning, too."

No matter what, the teens have learned a lot about boat building and engineering, and they've garnered an appreciation for the profession.

"I don't know if I'll be a professional boat builder," Daniel said. "We'll see how it turns out. But it was a lot of fun."