

MAHWAH HIGH SCHOOL STUDENT DESIGNS AND BUILDS BOAT

Ambitious project created in woodshop and furniture design class



Lukas Hart, a junior at Mahwah High School, stands with the boat he is building for a project in his advanced woodshop and furniture design class.



Lukas Hart (front) poses with the boat he is constructing with Integrated Design & Engineering Technology teacher Daniel Catizone and Supervisor of Science (grades 6-12) and Supervisor of Integrated Design and Engineering (grades 9-12) Dennis Jarvis.



Mahwah High School student Lukas Hart with teacher Daniel Catizone inspecting the boat, which will be coated with fiberglass so it will float down the Hudson River, Hart's goal once completing the project.

After growing up in a boating family, Mahwah High School junior Lukas Hart was inspired to take on a challenging project in his advanced woodshop and furniture design class this year: Lukas designed and is currently building a boat.

“My entire family loves boats,” he said. “Everyone has a boat and I have grown up around boats my whole life.”

His goal: to build an 11-foot, 450-pound boat that will float and will be able to accommodate him and Izzi, his Airedale Terrier-Poodle, and future boating buddy. The boat takes up a huge space in the woodshop classroom where other students are busy building tables and chairs that double as step stools.

Lukas, 17, researched the boat project last summer before starting his junior year. (He already built a stylish table last year for a project.) Then he began gathering materials and secured a \$400 sponsor: TotalBoat, a Rhode Island Boat Company owned by Jamestown Distributors. He has also sought advice from many experts, which he is trying to incorporate into the project.

Perhaps one of the most challenging parts of building an 11-foot boat is making the wood malleable. Lukas used a process called steam bending, where he put Ash wood into a steam chamber and heated water with propane to send steam into a tube. This helps create the malleable wood needed for the boat design, which he clamps in place. “The process failed four times before I got it right,” he said. “The wood had to curve a certain amount. It was really an incredibly challenging project.”

In addition, Lukas had to drive two-and-a-half hours to Connecticut for hard-to-find marine-grade plywood.

“The whole purpose of this project was to challenge myself,” he said. “I have learned the importance of never stopping after a failure. There have been failures with every single step along the way.”

Lukas said he could relate to the quote by Thomas Edison: “I have not failed. I have just found 10,000 ways that don't work.”

His goal is to take his boat down the Hudson River when it is complete. “I don't think it's ready for the ocean,” he said, adding that the construction is really a 2-year project.

Lukas drew up a plan for the boat, which his teacher, Daniel Catizone, reviewed and approved.

“This is probably the most ambitious project anyone has ever attempted since I have been here,” said Catizone, who has been the school’s teacher of technology and woodworking for five years.

He is unsure what he would have said “if any other student came up to me and said, ‘I want to build an 11-foot boat this year.’”

“But because it was Lukas who has done extremely complex work and I knew his capability, it was an easy ‘yes,’” Catizone said.

Lukas has faced many obstacles with his project, Catizone noted. “It would have been really easy to give up, but Lukas has been very consistent with this build. I have no doubt that he will be successful.”

Dennis Jarvis, Mahwah’s Supervisor of Science for grades 6-12 and Supervisor of Integrated Design and Engineering for grades 9-12, said he has not seen any student take on such a challenge in his eight years with the district. He also praised Lukas’s teacher. “Dan Catizone has done a fantastic job of expanding the program,” he said.

Lukas plans to finish applying fiberglass to the boat and then take it home for the summer and work on it in his garage. “I work on it diligently every day and even come in after school,” he said. He hopes to try it out in a lake, any lake with a boat ramp, perhaps Ringwood or Lakeland.

Right now, the boat has some gaps and will sink, he said. “I need to fill in the gaps and apply the fiberglass outside, apply mesh to the laydown and pour epoxy.”

His goal is to get it out in the water in June, he said. His aunt from Virginia will bring a trailer to New Jersey for the boat and Lukas is working to find a sponsor for the boat’s 15-horsepower motor. He plans to call the boat something related to the Mahwah Thunderbird.

Lukas embarked on his boat project as part of his involvement with Mahwah High School’s Career Pathways elective program which provides opportunities for students to design an educational program aligned with their possible post-secondary college and career interests. The school offers eight Career Pathways designed that are comprised of sequenced elective course concentrations: Business Administration, Government and Social Sciences, Performing and Communication Arts, Biotechnology Research and Health Sciences, Engineering and Technology, Information and Computer Science Technology, Visual and Integrated Design and Technical, Career, and Community. Lukas is a member of the Engineering and Technology (STEAM) Career Pathway, which focuses on utilizing engineering design and prepares students for various careers in mechanical engineering, civil engineers, electrical engineering, robotics, technicians, and other technology-related fields.

After he finishes high school, Lukas said he hopes to study naval or regular architecture and learn to design ships, possibly at the University of Notre Dame. His mother and grandfather both attended Notre Dame and he would like to follow them, he said.

When he is not building his boat, Lukas is the goalkeeper on the high school varsity soccer team and plays the goalkeeper for a club team. He also plays the trombone and baritone in the high school symphonic band and marching band. “Junior year is the hardest year academically so playing sports and working on the boat are my outlet, like a mental health thing for me,” he said.

Lukas also encourages “young people to follow their passion,” he said. “If you are able to follow your passion to the highest degree in life, then you will be successful.”

Information about the Mahwah High School Career Pathways Elective Program and our Career Pathway Transcript Endorsements is located on our website under the Academics tab @ Career Pathways Program <https://hs.mahwah.k12.nj.us/departments/guidance-school-counseling-services/career-pathways>