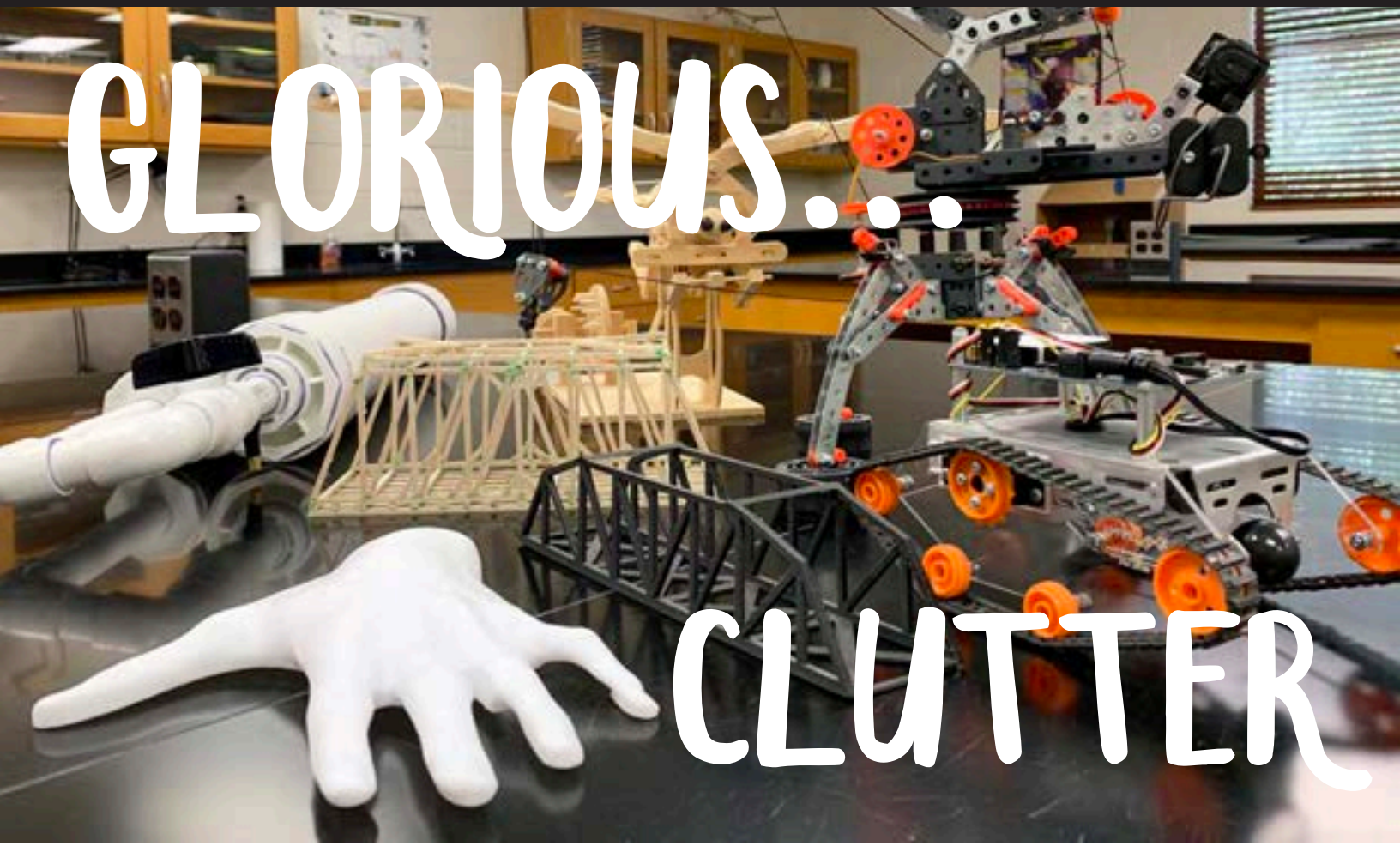
GLORIOUS... CLUTTER



Walk through the classroom door and you're greeted by clutter – glorious clutter. In one corner is a collection of air pressure-fueled PVC devices that launch t-shirts or potatoes. In another, students have designed and constructed bridges from matchsticks and popsicle sticks that they're strength testing with iron weights. The computer screens are filled with virtual engineering projects that have produced 3D-printed lightsabers, robots, and items of all shapes and sizes.

The computer science and engineering space in the Upper School is the definition of what Amanda Ripley, contributing writer for Time and Atlantic magazines and author of a global look at education entitled, The Smartest Kids in the World, suggests as a cue to identifying world-class education: "Some of the worst classrooms are quiet, tidy places that look, to adults, reassuringly calm. Remember that rigorous learning actually looks rigorous."

Beginning in the Middle School innovations classes and continuing through the high school curriculum in Advanced Placement Computer Science, students at Saint Stephen's can explore their passions in robotics, engineering, coding and more. They also examine the impact of computers on society, their social implications, and issues of security. Intro to Computer Science focuses on the programming language Python. The AP-level class prepares students for the Java AP exam.

On the engineering side, students get a taste of design from conception to building and testing, while also learning the importance of proper budgeting, production timelines, and the entire process it takes to deliver a product for a customer.

"The students realize they can go from an idea to something that works in their hands. That's where the real magic happens," teacher David Payne said. "But maybe more important, if something doesn't work, they have to figure out why. It's all about solving problems."

The result of the student work ranges from fanciful to practical. One student created a 3D-designed and powered robotic hand with proper joints to emulate the disembodied "Thing" character from the Addams Family comedy film and television series. Students have collaborated to create math manipulative toys for their Lower School counterparts and safety lock devices for classroom doors throughout campus. This year's team designed a sensor and data acquisition system that constantly measures and records the pH and dissolved oxygen levels in a coral reef tank located in a Middle School science classroom.

Students who had no prior exposure to or plans to study computer science or engineering at the university level have been influenced to do so because of their experiences in the program.

"I grew up in a small town in Alabama and have lived and worked all over the world because of my background in engineering. That's something I wouldn't have done if I had picked some other field," Payne said. "This program gives our students an introduction to what working as an engineer or computer programmer can be."