



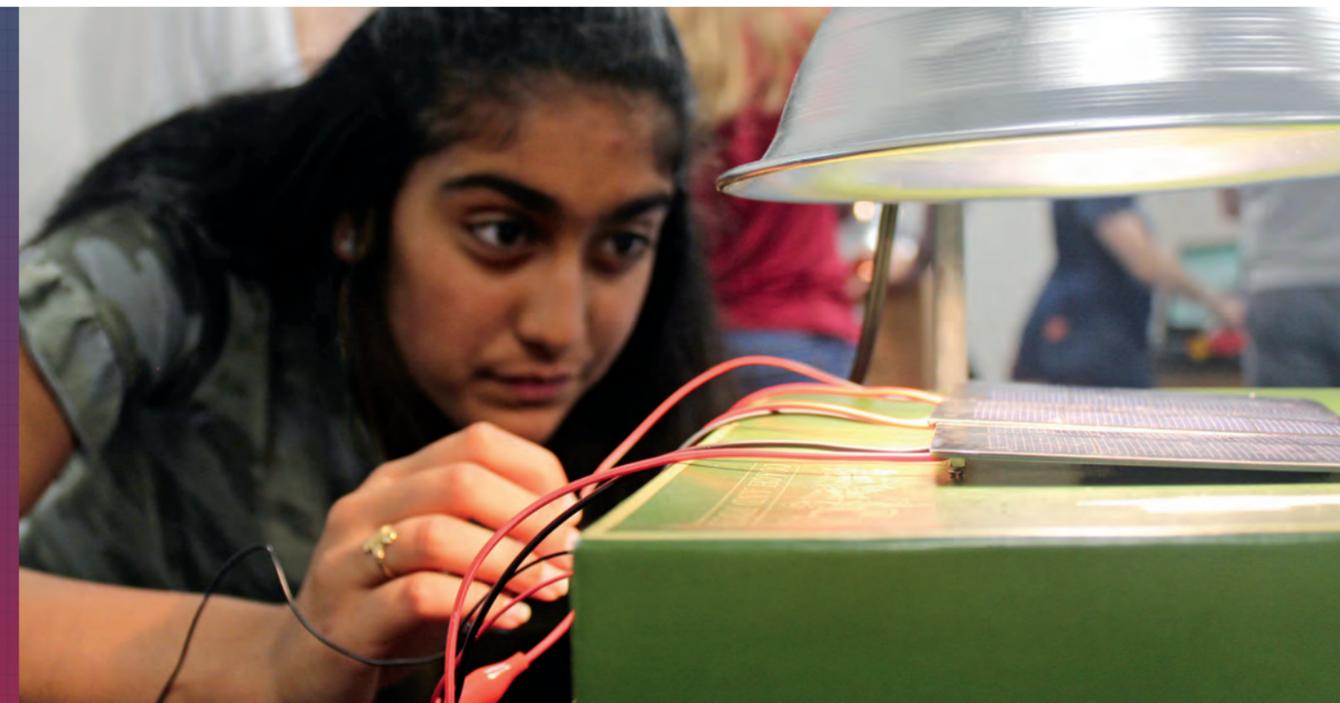
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by Karen Lewis Taylor

where
CREATIVITY
meets **TECHNOLOGY**

+ RESOURCES

The Keim Center for Innovation and Research Opens Up the STEM+ Classroom to Create New Possibilities



(above) DIYA SHARMA '22 adjusts solar panels as part of a project in Middle School Engineering II; (facing page, at top), the Library Technology Center (LTC) before its April 2018 closing for extensive renovations; (at bottom) the same space after demolition in June, with interior walls removed for robotics and technology labs; (at center) the architect's vision for the space, which includes glass partitions and open collaboration space

IMAGINE A LEARNING CENTER where creativity meets technology and resources, making it possible to take an idea from conception to production, all in the same space.

IMAGINE A BUILDING PROGRAM so flexible it can be configured (and reconfigured) to meet the changing needs of students and curricula for years to come.

IMAGINE A WELCOMING SOCIAL SPACE where inspiration flourishes, innovation is encouraged and collaboration occurs naturally.

NOW IMAGINE THAT A TRANSFORMATIONAL GIFT COMES ALONG — in the midst of a major five-year campaign, no less — and makes all of that possible, and you've just imagined the Keim Center for Innovation and Research, currently taking shape in the shell of the school's Library and Technology Center.

A TRANSFORMATIONAL SPACE

Made possible by a generous gift from the Keim family, the Keim Center will foster inquiry, research and entrepreneurial exploration, further enhancing the distinctive programming that has made Ravenscroft one of the area's preeminent independent schools.

Renovations are underway this summer, with the goal of opening the Keim Center in Fall 2018. Facilities will include modern classrooms, robotics and technology labs, library resources, and collaboration and community areas for both Middle and Upper School students.

"It's a flexible space, so we can be agile about adding new classes and addressing how the next 10 years will shape technology, media and more."

— JASON RAMSDEN, RAVENSCROFT'S CHIEF INFORMATION OFFICER



(above) Another angle of the Keim Center's main collaboration space; (opposite page, at top) Melissa Spainhour's sixth-grade science students marvel at an experiment; (at bottom) Upper School Robotics Club members cheer as student-designed robots compete

"The Keim Center provides the Upper School with a first-class, age-appropriate space to continue pushing our students to new heights."

— NELSON NUNALEE, UPPER SCHOOL SCIENCE AND ENGINEERING TEACHER

the exception of two classrooms that are being built in the former Parents' Association Room, there are no walls or dividers. Some areas will be glassed in, but the idea is to allow students to see what their classmates are doing, to inspire and encourage their collaboration," Ramsden said. "We've even created a shared, open workspace for all nine members of the Library and Technology Department, breaking down the typical divisions in our work and modeling for everyone on campus the kind of collaborative environment we want this space to be."

SPARKING INNOVATION

Such a space is in high demand, as STEM (science, technology, engineering and math) curricular programming grows and evolves to meet the interests of Ravenscroft students and the ever-changing technology landscape.

"Previously, we did not have properly vented or soundproofed spaces to allow our students to work in these hands-on ways," said Head of Upper School Peter Bogue. "The Keim Center provides, among other things, the tools, technology and collaborative space to pursue electives like robotics and computer-aided design."

The renovation capitalizes on the momentum created by the growth of STEM courses and project-based learning in the Lower and Middle Schools, both of which have dedicated MakerSpaces that are very popular with students. They will now have a cutting-edge facility in the Upper School to use and expand those skill sets.

"The Keim Center provides the Upper School with a first-class, age-appropriate space to continue pushing our students to new heights," said Nelson Nunalee, Upper School science and engineering teacher. "Imagine how well-prepared and attractive our graduates will be when they understand how to work effectively as part of a team, strategize how to successfully move a project forward and have the resilience to embrace and learn from failure — while simultaneously being proficient with skills such as CAD, coding, basic power-tool operation and engineering design."

"I am excited about the opportunities this space will present for faculty to engage in cross-disciplinary work as well," Bogue said. "The impact this space will have on the future of education in the Upper School is limitless."

CREATING OPPORTUNITIES

The updated facilities provide something else Upper School students have been asking for: a comfortable place to relax and enjoy a snack when they're not in class.

"When I approached student government leaders this past year about what it would take for them to walk up to the LTC, their unanimous answer was a coffee or smoothie lounge," Bogue said. "The new space will include a café that will serve these items and more. Its proximity to the Middle School is an added bonus, because now those students won't have to walk to the Dining Hall during their brief break to grab a snack."

"It's a flexible space, so we can be agile about adding new classes and addressing how the next 10 years will shape technology, media and more," Jason Ramsden, Ravenscroft's chief information officer, said. "For me, the flexibility to adapt to the educational environment is the most important piece."

In other words, this isn't your old-school library and computer lab.

"From the entry door on, with

As Susan Perry, assistant head of school for student affairs, explained, providing a welcoming social hub for students is just as important to their success as these academic programs.

"This is an inherently interdisciplinary space, accessible to all, which builds community," she said. "It creates opportunities for students, faculty and staff to connect in a STEM-rich learning environment, where the rewards of persistence, unhurried approaches to problem solving and reaching across difference sustains and fuels the joy of learning. What a gift to the growth and development of a young person!"

"There's so much to be gained when we move beyond traditionally designed classrooms," Sarah Loyola, director of educational technology, added. "The Keim Center will allow teachers and students to find inspira-



tion in unexpected places through experiential learning."

"It's not just about STEM," Ramsden concluded. "The entire building is focused on encouraging innovation."

Get the latest on the Keim Center renovations — including behind-the-scenes photos and videos, testimonials from campus leaders and updates on our progress — on our blog, www.ravenscroft.org/four-community/keim-center.

"WHERE STUDENTS CAN DREAM": Expanded course offerings in the Keim Center



THE OPENING OF THE KEIM CENTER enriches Upper School course offerings in STEM+ and entrepreneurship, providing the kinds of real-world, project-based learning that authentically engages students and aligns with Ravenscroft's strategic vision.

These expanded courses will be offered starting in Fall 2018:

> **ROBOTICS:** While an Upper School robotics club has offered interested students the opportunity to build, program and compete with robots, this new course provides a more in-depth and structured curriculum to explore the field in a team-centered approach. Units include mechanical design, electrical design and programming, all leading up to building, testing and revising robots for a competition in which teams race against the clock (and one another) to complete a series of tasks.

> **COMPUTER-AIDED DESIGN (CAD):** This course provides students with the software (such as SketchUp and Fusion 360) and the tools (such as 3-D printers,

laser cutters or CNC routers) to create and manufacture 3-D objects — a blending of the technical and the creative that puts the "plus" in STEM+. As students move from one project to the next, they build their skill sets and learn to transition from the independent work of design to the more collaborative work of manufacturing.

In addition, two new courses further the Keim Center's mission to spur innovation:

> **GENIUS LAB:** Ravens interested in technology trends, design, hardware and network architecture learn about technology integration in an authentic setting, working under the guidance of Ravenscroft's IT team to run a help desk for their fellow students. They will explore trends in educational software and hardware, design, digital citizenship, customer service and prototyping and then create screen-casting tutorials. Students also have time to work on an individual project on some aspect of technology they choose.

> **INNOVATIONS:** Modeled on Google's Genius Hour, Innovations is a project-based class devoted to design thinking, experiential learning and the development of an entrepreneurial mind-set. Students design a project of interest to them (which does not have to be STEM-focused), connect with outside mentors, and develop and present a plan on how to implement their ideas in the real world. This course allows students to take the lead, collaborate with experts in the field, and fail as part of the process.

"I want this to be a space where students can dream," said Sarah Loyola, director of educational technology, who helped design the new courses. "How many young people, or even adults, have the time and space — and resources — to explore avenues so completely of interest to them?" *R*