

## Innovation Labs Spark Ingenuity, Exploration and Discovery



NSU University School continues to foster curiosity, tinkering, and interactive learning in the Innovation labs in the Lower, Middle and Upper Schools. The uniquely constructed labs provide students with state-of-the-art technology and tools in a personalized learning environment designed to motivate and inspire them to imagine, create, construct, experiment, formatively learn, collaborate, and take risks in order to turn dreams and ideas into possibilities. Students engage in an integrated program designed to equip them with the skill sets needed to take on challenges and opportunities that we can't yet imagine. The innovation lab's mission complements NSU University School's core curriculum to prepare students with essential skills to thrive in the global

marketplace. A visiting alum from the class of 2015 noted that USchool students will have an advantage with the labs as most colleges now have 3D printers, Scanners, and other advanced technology to support innovation.

Empowered by the idea to “tinker”, Lower School students investigate and work together as they explore machines, hand tools, circuit boards and programming tools to create, design and innovate. Debra Jacoby, Innovation Specialist, pointed out that “students use the fabrication area to learn measurement, patterns, design and mechanical engineering as they create electronic textiles (e-textiles).” The e-textiles project enables students to embed digital components and electronics in fabrics and textiles. This “smart clothing” lets students create garments that can provide interactive reaction using such items as sensing signals and LEDs.

STEM (science, technology, engineering and mathematics) education is an integral part of NSU University School. Middle School students can participate in a variety of innovation challenges throughout the year. One challenge is “Wearable Tech” where students have the opportunity to use electronic prototyping to create a jacket that will be able to charge their cellphones. All Middle School students participated in the “Space Container” challenge. The challenge was to create a container to be used by astronauts in the international space station. Middle School student Julian, planned, 3D designed, and printed a spherical container that could be used to hold hazardous chemicals.

In the Upper School, students are introduced to a variety of resources to promote collaborative learning in a forward-thinking, creative environment to meet a challenge, solve a problem, or pursue an idea. Weekly “challenges” develop student’s team-building, critical thinking and design skills in a timed, competitive atmosphere. Lunchtime activities allow students to engage with new technologies - such as dissecting a skull in virtual reality or designing a game controller from conductive objects – in a casual setting. After school workshops and opportunities for independent exploration allow students to investigate further and apply those concepts to more complex projects in the Innovation Lab. Students and teachers also utilize the labs to transform curricular projects, such as adding green screen effects to a video presentation or using an open-source electronics board to read sensors, analyze data and turn motors. Dante, an Upper School Junior, used the 3D printer to design and print components for a project in his creative writing class. He explained that working in the lab encourages him to think more creatively because the tools, materials and technology needed to complete innovative projects are all conveniently located in one place.



At NSU University School, the innovation labs are unique in that all students are provided with opportunities to tackle real-world challenges, create multimedia projects and generate new ideas in spaces that are designed exclusively for them. The Innovation Labs provide an environment that fosters a growth mindset which encourages students to take risks, accept failure as a level of success, and believe that they can learn to do anything.