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Despite Covid-19 pandemic and other challenges, South Lakes High School STEAM Team creatively moves ahead

Even before the school year officially started, members of South Lakes High School’s STEAM Team had their new Lake Thoreau public art sculptural installation underway. Enthusiastically supported by Public Art Reston, the Reston Association (RA) and benefactor James Pan, a resident of Reston’s Lake Thoreau community, and vigorously guided by art teacher and working artist Marco Rando, the student team is busy working on its seventh site-specific installation, a visually striking kinetic sculpture that conceals and enlivens Lake Thoreau’s drably, utilitarian spillway. Construction is scheduled for completion on Dec. 30.

Titled *Part and Parcel*, the ideas that inspired this year’s public art installation relate to the many crises now facing the world, primarily the current Covid-19 pandemic, divisive politics, and climate change. STEAM Team members particularly singled out the need to bring awareness to “the ignorance that companies display that has allowed hazardous materials to pollute our oceans and air” and the need for “better systems of disposing unused products and materials.”

Reflecting the belief that “by repurposing materials, we challenge ourselves to create art out of things that would otherwise become waste,” the installation is composed of at least 85 percent repurposed materials. For example, its main elements are constructed of PVC tubing donated from the Comstock Companies. The Team also plans on asking other companies to donate excess materials.

A Team email further elaborates: “Just as the pipes come together as a greater whole, our communities and frontline workers are coming together to fight COVID-19. *Part and Parcel* represents the intersection of disparate communities. ... Art serves as a great cultural connector because it is universal and accessible, and the project will become more than a sculpture. It will be a unifying force — a point of connection from which viewers can draw much-needed inspiration, hope, or courage.”

STEAM Team projects at Lake Thoreau were initiated about a decade ago after Pan, who also suggested the involvement of South Lakes students, reached out to Public Art Reston and RA and proposed the lake’s spillway as a possible public art site. “James Pan has been the quintessential patron, funding and encouraging community financial support,” says Rando.

A truly collaborative effort, since its inception, Reston community support, as well as that of the South Lakes High School community, has grown exponentially for the team’s annual temporary installations that activate the spillway through public art. All the team’s diverse community partners, according to Rando, are incredibly supportive, “confident in student abilities, always eager and welcoming to receive student concepts ... with open minded, thoughtful responses. They help build on the community’s anticipation.”



STEAM Team members go through the same process professional artists must follow when they are selected by Public Art Reston to realize a public artwork in the community. They present design concepts to Public Art Reston's Public Art Committee and to RA's Design Review Board.

Comparing the STEAM Team to a "think tank," Rando describes its overall approach as "a system of problem solving known as "Design Thinking." Problem solving, he says, "is in every aspect of the club's operations." In addition to considering aesthetic aspects and philosophical underpinnings, Rando notes that there has been a major growth in team members' practical understanding of each installation's engineering elements and hardware components as well as what tools are available to accomplish project goals on a feasible minimal budget. It is an approach that reflects the definition of the acronym STEAM – problem solving using a combination of Science-Technology-Engineering-Art-Mathematics.

The Team, Rando emphasizes, has an "open door policy," which allows student members to come and go as schedules permit. "Each year," he explains, "new students join seasoned members to embark on the journey to discover a new concept. ... Some might be with the program for all four years of high school, while others may join well after a concept is underway."

In a typical school year, STEAM Team alumni also return to enthusiastically help with the final construction phase. Since the first installation in 2014, program graduates repeatedly have cited the value of the real-world experience gained.

Members of the *Part and Parcel* team include: 12th grader Sayed Samadi; 11th graders Anissa Benjelloun, Nina Cralle, Harvest Heartwell, Melissa Herr, Megan Le, Riley Lender, Manny Martinez, Nava Mehrpour, Maxine Prudhomme, David Raw, Mariam Sheick, Brooke Snyder, and Gwyneth Wagner; and 10th grader Ann Ehrlich. Among seniors from last year who contributed were Hannah Blackmore and Liz Milausnic.

One of his major personal satisfactions, says Rando – who, though an experienced working artist and educator, describes himself as the team's "oldest student" – is learning from his students while working on installations. For example, he points to team member Ann Ehrlich, who has "a passion for engineering." Ehrlich, he relates, "introduced me to TinkerCad while producing the 3D computer models. The program is fun and effective for making multiple variations of a concept. I found the additive and subtractive process of the program is much the same approach as when playing with physical materials. I plan to introduce this program to my art classes, a no brainer for the school's new virtual platform."

In addition to computer-generated technology, actual scaled maquettes, he says, also are used to understand fabricating processes as well as the play of gravity upon the structures.

Another major satisfaction, according to Rando, is watching the students concurrently grow and learn during the process. "Each year," he explains, "there are times when the concepts possess challenges causing the team to reflect on whether they will succeed. At this point, I let the students know it's OK not to succeed, to accept failure in knowing you give it your best, and if the project never comes to working resolution, it doesn't mean it was all for naught. A learning journey was still experienced. But failure has never been an option to the students of STEAM, throwing in the towel is not in their vernacular."

STEAM Team member Maxine Prudhomme says that she participates "because it allows me to explore my own creativity while collaborating with my peers and engaging our community creatively ... and spur community discussions about public art and other topics that are important to me as a student, artist, and Restonian. That is incredibly fulfilling for me."



She adds, “Through STEAM, I have learned many concrete skills—like woodworking and 3D design—as well as more abstract ones, like creative collaboration and problem-solving. Because of this, I am a more enriched and well-rounded individual, and I am more prepared to succeed in any field I might pursue.”

Fellow STEAM Teamer Ann Ehrlich participates “to gain real-world experience on projects that are accurate reflections of how to generate creative ideas, follow a design process, and work alongside new people to create something that’s greatly valued by the community.”

In addition, she says, “STEAM Team has helped me observe and practice many lifelong skills, including how to generate creative ideas, communicate effectively, form schedules with other club members, overcome barriers that arise within projects and stay committed to a project during difficult periods of time.” Also, participation has allowed her “to apply skills that I have developed working with 3D digital design software to real-world projects that will improve the community. I will value these life-long skills and the experience of working on such a major project with so many creative people.”

For STEAM Teamer Gwyneth Wagner, who joined as a freshman, participation is “by far the most fun and unique extracurricular that I do.” She also enjoys being a member of a tight knit community of “caring, accepting” people ... “who are not only interested in art, but interested in going beyond their learning in school to challenge themselves ... and who I may not have [previously] known.”

Rather than “frustrations,” all three consider the many problem-solving challenges to be pluses.

For Ehrlich, although dealing with the setbacks related to pandemic safety was frustrating, “one of the most rewarding aspects of STEAM Team has been overcoming the challenges we’ve faced during the construction process. We struggled to get walls of PVC piping to stand and took many different approaches. We eventually settled on one fabrication method and raised our project off the ground, which was incredibly satisfying.”

Likewise, although Wagner admits it can be frustrating when things do not go as planned, she found these setbacks are challenges that can, with new deliberation, be satisfyingly overcome. “For example,” she relates, “recently we had to completely rethink our project that we thought was going to work.”

For Prudhomme, the “expected issues with collaborative sculpture creation—conflicting creative visions, engineering difficulties—are not usually frustrations for us.” Instead, she explains, when “choosing certain students’ ideas over others, we synthesize all our ideas into one cohesive concept. Instead of getting frustrated over engineering issues, we approach them like creative challenges. ... Instead of letting [the pandemic] stop us, we incorporated the story of our mid-pandemic community into our project.”

Agreeing with his students, “problem solving,” Rando concludes, “is a constant challenge no matter the stage of the project, but the fun of it all is learning collaboratively.”