

SUSTAINABILITY HERO

August 2020



Julie Crawford

STEM Coordinator/Enrichment Programs/Math
Mount Arlington School (Morris County)

For 18 years, Julie Crawford has worked at the Mount Arlington School in the [Mount Arlington School District](#) teaching science and math. She also serves as the Science, Technology, Engineering and Math (STEM) and enrichment programs coordinator. Energetic and forward thinking, Julie is a stand-out educator and accomplished sustainability hero. She provides her students with interdisciplinary design challenges that weave together science, technology, engineering and math with creativity to assure that what they are learning in school is meaningful and transferable to life outside of school. Julie said, "Everyone has a gift that needs to be celebrated. Ultimately, my job is to help kids develop their talents while encouraging them to respect each other and the environment along the way. If you provide students the tools to think critically, they will take it from there. I see children accomplish amazing things every year."

Julie inspires young people to think about the world, their relationship to it and their ability to influence it in an entirely new way. She added, "My goal as an educator is to share how math and science are used by engineers and scientists by modeling with hands-on community-based projects." Julie has been instrumental in securing significant grant funding to make these projects a reality and due to her mentoring, students have participated and placed at the county, state, national and international levels in programs such as Science Olympiad, Alpha Kappa Alpha's Partnership in Math & Science Competition, Junior Solar Sprint Cars, Viola's Biodiversity Challenge, Future City, Model United Nations, First Lego League and more. The First Lego League teams recently designed solutions for hazardous algal blooms. Each year, her students meet with the mayor and town council to receive honors for their sustainability accomplishments. This year, due to the COVID-19 shut down, the meeting was held virtually with great success; view their impressive presentation [here](#).

Julie is recognized nationally for her innovative teaching. In 2013, she was one of 20 teachers selected nationwide to attend the first STEM Policy Institute in Washington DC where she met with key policy makers including the President's Council and Advisors on Science and Technology. In 2012, she was selected as one of 30 teachers worldwide to attend the Massachusetts Institute of Technology (MIT)'s Science and Engineering Teacher Program; she returned in 2013 as one of two teachers to present at this program. In 2011, she was selected as one of 40 teachers nationwide to attend the [Honeywell Green Boot Camp](#) which focused on energy and environmental sustainability. She has also completed the National Science Foundation's [Global Learning and Observation to Benefit the Environment \(GLOBE\)](#) and Revitalizing Science through Remote Sensing Technology (RST2). She attended robotics training at the [National Robotics Engineering Center](#) and has participated in [Rob and Melani Walton Sustainability Teachers' Academy program](#). In 2017, Julie received the [TransOptions Outstanding Educator Award](#). She recently participated in the [New Jersey Department of Environmental Protection Climate Change Curriculum video](#).



Sustainable Jersey for Schools Certification: The Mount Arlington District and School Green Teams were established and formally appointed in 2016 by the Board of Education and the Mount Arlington Educational Association. There are over two dozen representatives from the Board of Education, the Parent Teacher Organization, teachers, the town council, the Mount Arlington Educational Association, community and district. Thanks to Julie's leadership, Mount Arlington School achieved Sustainable Jersey for Schools certification in 2016 and 2019. To read the completed certification actions, review the [Mount Arlington Public Elementary School 2019 Sustainable Jersey for Schools Certification Report](#). Julie is also a member of the Mount Arlington Borough green team; the municipality achieved Sustainable Jersey certification in 2015, 2016 and 2019. Julie said she was mentored by Sustainable Jersey Board Member and [2015 Sustainability Hero](#), Mount Arlington Borough Mayor Arthur R. Ondish.

Funding Sustainability Projects: Over the course of her career, Julie has secured over \$200,000 in grant funding. Recent grants and technical assistance include an [Environmental Defense Fund \(EDF\) Climate Corps](#) Fellow funded by New Jersey Natural Gas for building audits and carbon foot printing; a \$10,000 Sustainable Jersey for Schools grant funded by the New Jersey Education Association for a sustainability and STEAM education program; a \$4,000 Sustainable Jersey for Schools Wellness Grant funded by the New Jersey Department of Health; \$4,750 [Alliance to Save Energy PowerSave Schools](#) grants; and a \$2,000 Sustainable Jersey for Schools grant funded by the PSEG Foundation for a student-designed rain garden. Other grants include BASF funding for the SOARS program (Students Observing the Atmosphere through Remote Sensing), the ROSS program (Robotics Offering Seniors Solutions) and a National Science Foundation high-tech weather satellite program. Julie has also secured grants for the District of East Orange and the Morris School District.

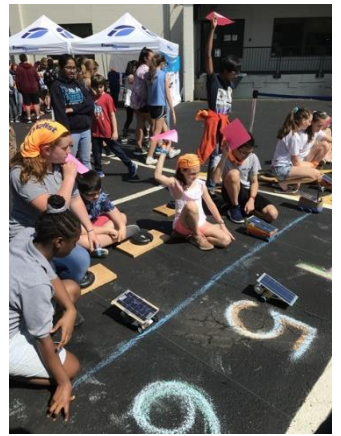


Mount Arlington School Presents Green Projects to NJ First Lady: For four years, Mount Arlington School has participated in the [Alliance to Save Energy PowerSave Schools program](#). This student-led energy conservation program engages students to conduct a building-wide energy audit and develop solutions to help the district save money by implementing energy saving protocols. Even for a small district, like the two-school Mount Arlington Public Schools, efficiency savings from the program add up. The students' energy audits and compliance monitoring have led to a savings of \$11,000 annually in utility costs as well as other beneficial services at no cost to the District including LED lighting and new HVAC systems. Julie explained, "The student experience is the most valuable part of this program because it lets the kids discover that they too can be agents of change." Students extended the program to conduct an audit at the K-2 building and borough municipal building. In 2019, the Mount Arlington School PowerSave Team had an opportunity to share the school's programs with New Jersey First Lady Tammy Murphy. Students also [presented numerous iSTEAM projects](#).



Integrated Science, Technology, Engineering, Arts & Math (iSTEAM): Julie is proud of the District's innovative [iSTEAM units](#). Mount Arlington School received 50 points towards its Sustainable Jersey for Schools certification for meeting the [iSTEAM Collaborative Units of Study](#) action. The units apply the pillars of project-based learning: sustained inquiry, authenticity, student voice and choice, reflection, critique and revision and public project. The iSTEAM units include: 1) Alternative Energies/Wind Turbine, 2) Model United Nations (UN), 3) [Wellness and Longevity Goals](#), 4) Solar Vehicle Design and 5) Airport Management. For the Alternative Energies/Wind Turbine Project, students conduct background research on wind power technology and design blades to collect voltage data to graph using spreadsheets. Students extend their research

to other forms of renewable energy by identifying three forms of alternative energy they believe the government should fund using taxpayers' monies and write formal letters to members of Congress. Students research green technologies and create digital records addressing: how the technology works, where the technology is practical and identification of the pros and cons. The Airport Management unit and an urban planning project focus on stormwater management and geotechnical design.



For the Solar Vehicle Design program, student teams design a vehicle powered by a solar panel and participate in the [Junior Solar Sprints](#) hosted by [TransOptions](#), at no cost to students, teachers or schools. The students apply the engineering design process including background research on solar energy and physics and use applied physics and math applications to analyze their vehicle which must carry a payload, and have a back-up battery pack in the event the sun is not available. Julie's students received a letter of commendation from the New Jersey Department of Transportation Commissioner.

For the Model UN program, students research global issues from the perspective of another country and write position papers and formal resolutions to defend in debate with dozens of schools around the region. The event is sponsored by [Drew University](#) and the [New Jersey Consortium of Gifted and Talented Programs](#). After reviewing how the UN functions and exploring [UN Sustainable Development Goals](#), students research topics such as global climate change, world energy issues, pandemic management and more. Julie noted, "This program allows students an opportunity to discover diplomacy in action. They can readily review records from the UN and integrate scientific research to learn about on-going innovations in each of the topics. With this ownership of learning, students take pride in [posting their resolutions on-line](#) which serves as a resource to help future students. Our Grade 8 students return each year to mentor the Grade 7 students."

Mount Arlington Rain and Community Gardens: The [Arthur R. Ondish Memorial Rain Garden](#),

a collaborative effort of the Borough Green Team and the student green team, is used to help others learn how a rain garden can help protect the lake community. "In 2016, the garden was certified as a demonstration rain garden by Rutgers University. Students learn the importance of maintaining their demonstration rain garden and are using this resource as a learning tool for STEM applications," Julie shared. In 2019, Mount Arlington Borough celebrated the opening of a new community garden. With support from a \$20,000 Sustainable Jersey grant funded by the PSEG Foundation, the Borough redeveloped underused tennis courts to create a community garden. The school maintains four plots at the garden. Students participate in a [Carton2Garden](#) project-based learning unit on agricultural and gardening practices. The school is recognized by the New Jersey Department of Agriculture [FarmsToSchool](#) program.



More About Julie: Born in Des Moines, Iowa, Julie moved to New Jersey at age five. Her father worked at the famed Bell Labs and her parents were active in the church community of Morristown. Julie, the oldest of five children, was taught early on to lead by example in a spirit of service and social responsibility--to help others through active participation. Julie returned to Iowa to attend Grinnell College and also spent summers coordinating the animal shows at the Iowa State Fair. "I progressed from the sheep show, to the cattle show and then did the horse show for three years. It was a fun experience," said Julie. Prior to entering the teaching profession, Julie worked in environmental consulting on projects ranging from landfill management to hazardous cleanups. As an avid bicyclist, Julie participates in charity rides and received the Golden Spikes award from the Multiple Sclerosis Society for her fundraising efforts. Julie volunteers at the kitchen for Homeless Solutions and Habitat for Humanity. In 2016, she participated in the [Diocese of Newark Episcopal Going Local Pilgrimage](#) across North Jersey to discover and reflect upon the needs as a region and in 2018 she received the Diocese World of Women Honoree Award. Julie loves to garden and participates in [GrowARow](#) which focuses on Food Security.

