# **Summer Learning Initiative Narrative 2024**

## **GENERAL INFORMATION**

Name of person completing this report: Dr. Jesse Jordan Email of person completing this report: jessejordanmd@gmail.com Title of person completing this report: CEO and Instructor Name of backbone agency and community served: Global Science & Envirotech, Inc. 501c3 Science & Technology, Educational Organization Name of Education Coordinator: Catherine Liebherr, Co-Coordinator Education Coordinator's phone number: (401) 965-1134 Education Coordinator's e-mail address: cvliebherr90@gmail.com

## **PROGRAM INFORMATION**

Global Science Envirotech (GSET) teamed up again with several partners throughout the state, including: Ocean State Kidz Club, Hugh B. Bain Middle School, Prepare RI (SkillsRI), a new partner, Professors from University of Rhode Island College of Engineering, including the President of the Board, Dr. Christopher Hunter, Ph.D., to help guide our engineering efforts, and Dr. Jesse Jordan, heading our electronics, and life sciences. Many others, including 11th and 12th graders contribute to "Hands-On" activities in our STEM based program on their minimum of three years of training provided by GSET and partners over the last five years.

Our STEAM + C uses Environmental Sciences, Technology, Engineering, Additive (3D Printing), and Mathematics to build upon projects and ideas to explore and find ways to fight climate change, and explore land, inner and outer space.

We integrate learning with hands-on activities and important skills, such as reading, writing, and critical thinking, in order to help our youth gain better understanding and skills that will help them get ahead as they navigate their career path. These skills and/or lessons also include Social-Emotional Critical Thinking Processes that challenge ALL the camp participants to communicate effectively with each other. Over the course of 6+ weeks, students in 2024:

- 1. Work in small groups on hands-on projects while learning & practicing relevant skills and subjects that will help them complete these projects.
- 2. **"Talent Pipeline"** is our Community Service Program that provides tutoring to middle and high school youth fifteen hours per week for seven weeks. This Community Service Program is provided by the high school Tutoring Team Leaders (to help). High school youth continue this program into the school year, year-round!
- 3. Work with Next Generation Science Standards, basic and advanced electronics, additive manufacturing, computer-aided design (CAD), video production, and laboratory science.
- 4. Design, test, and monitor basic electronics and ROVs and develop prototypes for a fully enclosed Aeroponic Unit for Low Earth Plant Growth (still on-going), and Electrolysis Alternative Energy Units.
- 5. Learn about health, safety, and exploration.
- 6. Go on field trips and conduct field studies.
- 7. Meet and learn from enrichment providers on educational topics.
- 8. Explore job & career workforce development using STEAM+C and secondary education.

High school students with experience and past exposure to STEAM + C materials may be offered the option of training to become research

assistants.



### SLI 2020 SLI 2021-22 SLI 2022-23

Where will our programs operate when these activities take place?:

- Global Science & Envirotech, Inc: 1370 Cranston Street, Suite 1, Cranston RI, 02920
- Bain+2 at Hugh B. Bain Middle School: 135 Gansett Ave, Cranston, RI 02910- 2024
- University of Rhode Island under the support of Dr. Christopher Hunter, College of Engineering for a day, August 16th 2024. We are working to extend that time to a week in summer 2025.

We integrate learning with hands-on activities and important skills, such as reading, writing, and critical thinking, in order to help our youth gain better understanding of STEM and increased "Hands-On" skills that will help them get ahead as they navigate their future career path.

STEAM+C, our modified Green STEAM platform based on STEM, uses Environmental Biological, Chemical, Physical Sciences, Technology, Engineering, Additive (3D Printing), and Mathematics using computers to build upon projects and ideas that the institution has been exploring since 2014. We are searching for and have initiated a "Talent Pipeline" to encourage youth from various ethnicities to find ways to fight climate change, and explore land(Terrestrial sites), inner and outer space! But most of all, find their social-emotional balance. Over the course of the 2024 SLI Explorer Center camp 6+ weeks of learning and skill development, students: 1. Work in small groups on hands-on projects while learning & practicing relevant skills and subjects that will help them complete these projects: ACTIVITY 1

100% of the participants understood this process and contributed based on their skill set from Bain +2, our yearlong consulting pathway for middle and high school youth After School. Many of the youth that had more than two camps completed since 2020, were Research Assistants, instructed, and stayed to continue to work on projects until the end of August 2024. Still others (four) are tutoring science, literacy, and mathematics in the After School Program at 1370 Cranston Street from 2:30 PM to 6:00 PM as of the time of this report. They will be prepared to instruct participants during next summer's camp.

2. Working with Next Generation Science Standards, basic and advanced electronics, additive manufacturing, computer-aided design (CAD), video production, and laboratory science:

#### ACTIVITY 2

Using our bank of NGS based learning and skills materials are used to perform STEAM+C applied projects, we presented and the participants initiated projects in:

a. Over two Basic and Advance Electronic circuit projects to promote our Remote Operated Vehicle (ROV) were conducted for seven weeks and are still ongoing into September 2024. Some high school students going off to college and three middle school youth were retained for the remainder of 2024 to continue in our After School Training process and those over 14 years of age, with parent's permission, will receive a stipend (if funds are available) for their work. This allows us to continue and replace some of our Research Assistants heading off to college or a career (a job) or both! If we have the funds, we provide stipends and W-9, part-time employment for those youth that have served as Mentors/Tutors in the Explorer Center after school as Community Service during the school year, they receive the stipend at Camp! Over 30 youth worked in this area integrated with biology, chemistry, physical sciences, environmental sciences, electronics, algebra, geometry, and many other subjects. A group of youths suggested STEM Podcasting and we had Mrs. Karakis, Cranston School teacher, become one of the camp's instructors for that purpose and the youth took it from there, loading up videos on GSET, Inc. YouTube Channel. Thus starting the after school and camp display of what we will try and fund at <a href="https://www.youtube.com/@CommentsOnScience">https://www.youtube.com/@CommentsOnScience</a>

b. Designed, tested, and monitored basic electronics and ROV development for six weeks, will continue with the after-school team into the remainder of 2024. We received funds from the RI Life Sciences Hub to continue the Mobile Aeroponic Unit research and development. We are very proud of the Environmental-STEAM+C youth team initiated during SLI 2024. We will continue this project along with others into 2025 to modify the health, safety, and exploration of the STEM fields we have developed since 2014. We also are competing for additional funding to develop the Aeroponic unit on a professional basis to Automate, modify the Quantum signatures to allow for the Aeroponic Mobile Unit to supply possible employment for our "Talent Pipeline" college team to participate and prepare for the 2025 SLI camp and the experimental process

that has been established in 2024!

Please provide a brief narrative report on the program, specifically focusing on the year 2024, including program successes and challenges.

The 14 participants worked to develop the Aeroponic Prototype:





The Gray Aeroponic Control Unit

The partial transparent section is for additional mechanisms and the lower section is for semi-liquid organic fertilizer Dr. Jordan has been working on it since 2010. We now have two recipes because the students were persistent.

a. Went on field trips and conducted field studies- <u>rachael.bvtc@gmail.com</u> Students went on a field trip to Central Falls on the Blackstone River, BLACKSTONE RIVER COUNCILS Educational Program.



#### Field Trip #1 Environmental Sciences

b. Using our STEAM+C platform allowed us to demonstration one of our projects with open discussion about Advance Electronics interface with Environmental Plant Science at the University of Rhode Island: Mr. Andy Wu, newly graduated 12th grader from Cranston High School East, Four Year Scholarship Recipient, Northeastern University, Boston 2024 was our first Research Assistant to graduate with honors A camper of ours since 2017-2018, he has encouraged over forty middle and high schoolers as one of our Research Assistants (2021, 9th grader to present) that his path was achieved through teamwork, self- sufficiency, uplifting his fellow student and advocating hard work among peers. Part of our commitment to Community Service since 2014.
SEE PHOTOS ON GSET PHOTOS of Ceremony at URI: SLI2024 Explorer CenterCeremonyatMulticulturalCenter <a href="https://drive.google.com/file/d/16xnlKpW8nXrzdCof6AdITMUPHw-SOzSX/view?usp=drive\_link">https://drive.google.com/file/d/16xnlKpW8nXrzdCof6AdITMUPHw-SOzSX/view?usp=drive\_link</a>



Mr. Andy Wu preparing and giving a lesson in Advance Electronics at the University of Rhode Island, on 08/16/2024. He will be back! We had over 40 people in attendance (August 2024).

3. Meet and learn from enrichment providers on educational topics such as Dr. Christopher Hunter, Professor of Civil and Environmental Engineering, and President of the Board with Dr. Jesse Jordan, CEO and Instructor, Global Science & Envirotech, Inc.





4. Explore job & career workforce development using STEAM+C and secondary education access with the Explorer Center, 1370 Cranston Street, Cranston, RI, 02920.

## Our primary challenge is keeping good staff and having the funds to keep them.

*High school students with experience and past exposure to STEAM + C materials may be offered the option of training to become research assistants, trained by the two scientists above during camp.* 

Summer Learning Initiative (SLI) - United Way of Rhode Island Collaboration, 2024

WHO CAN PARTICIPATE?: Students entering 6th grade, up to currently in 12th grade

Student mentors (11th and 12th graders in Math, Sciences, and Pre-Engineering), staff, and research assistants must attend orientation/training prior to the sessions: (July 1 - July 3, 2024). This orientation is for the application of the STEAM+C platform in Google Classroom. We will be offering a Nvidia-AI, if we are funded, to explore our CAD-Biomolecular interface for Plant Nutritional Improvements and Hardiness Research.. Until that is worked out, we use Gemini for AI. We may use both in the future!

Our success outweighs any difficulty we were exposed to these last five years. We were able to help develop a "Talent Pipeline" of participants who became supporters of our STEM STEAM+C Curriculum based on Next Generation and Core Standards promoting and strengthening STEM in the 02920 and 02910 area code areas we serve, after-school. <u>Based on the last five years, we have served, on average 60 youth over the long term per year, and over four (400) hundred youth since 2020, the year of the Pandemic!</u> We were successful in providing breakfast and lunches for seven weeks during the 2024 summer camp with our Catering partner Fu Ming Restaurant! Years prior, we had Fu Ming, the Cranston School Department, and the YMCA.

We have encouraged 10 students to pursue careers and or jobs in STEM, as we know these fields are not easy. all but one is doing well. That is why starting four years ago, we made available four of our long-term Research Assistants to help with year-round tutoring and mentoring primarily tutoring in Algebra, Geometry, Earth, Biology, Chemistry, and Physics. As of this report, we tutor or mentor about ten students.

With the shutdown of the 21st Century Community Learning Center at Hugh B. Bain Middle School, we expect a decrease in direct student engagements from Hugh B. Bain Middle School. We will renew our efforts to recruit middle and high school students to participate with SLI during the school year, with or without Bain Middle School help. We will continue to increase based on our partnership with the middle and high schools in the Cranston (Public and Private) area by offering services at 1370 Cranston Street. But cost is a limiting variable that may cause our operation to develop some functional difficulties.

We have had inquiries from other communities in Rhode Island to send their children to the Explorer Center during the school year and have been asked about SLI Explorer Center Camp 2025.

## **PROGRAM QUALITY IMPROVEMENT**

Please describe any changes you would like to make to your program in the future as a result of program successes and challenges discussed in the previous section.

Due to the difficulty of maintaining a stable relationship with the YMCA and the difficulties at Hugh B. Bain, we will maintain a year-round relationship with them through joint activities and suggest fundraising activities in STEM After School in the coming year, 2025 to increase communication. We will also become more involved with alternative schools and programs in Cranston, looking into foster homes, and other residential programs.

We are also searching for a new full-time Coordinator to work with Ms. Catherine Liebherr who will be raised to Head Teacher prior to the summer of 2025.

With an increase in funds, we will offer a more robust Communication Section to improve our Podcast and load it up on GSET, Inc. YouTube Channel, and Vimeo! The Cranston School Department has had difficulty supporting the after-school program and closed down the Bain+2 Program. Due to this dilemma, we will start recruiting more students and keeping as many as possible engaged with the Explorer Center until the Explorer Center Camp for 2025.

## **EMERGING NEEDS**

Please list and describe any emerging needs that you have seen among your participant base or in your service area.

Most of our participants were extremely happy with the breakfast and lunch we provided which was different from what they received year-round in school. The owner of the catering service we used is a nutrition expert and provided a healthy alternative to the "box" lunches the students usually receive. Due to the closing down of Hugh B. Bain "CampXL" students were fed a balanced, hot meal for lunch and alternating hot/cold meals for breakfast based on USDA guidelines, CDC protocols to avoid COVID and other infectious diseases, and Public Health lessons on Nutrition from Dr. Jordan.

Dr. Jordan and a few Board Members donated funds to purchase additional food, materials, and supplies. We will need an additional \$7000 to maintain Instruction of teachers that come from the Cranston School Department because they expect \$30.00 to \$50.00 an hour for services.

Global Science & Envirotech, Inc. has spent ten years developing the STEAM+C to advance, enhance, increase, and promote 6th graders through 12th grade youth that have expressed their aspiration to become a teacher, instructor, healthcare practitioner, scientist, or other STEM-related jobs and careers that represent our vision of a "Talent Pipeline" integrated with behavioral change. Behavioral change molds a platform for community health through service to a population that is diverse with diverse problems, issues, and limited resources. We modified our educational presentations and Scope of Work based on TTM.

TTM also manages our Learning and Skills Pathway through: 21st Century Skills we instruct 6th through 12th graders to be:

- Critical Thinking with STEAM+C
- Creativity with Hands-On Projects
- Collaboration using Teams and Community Projects
- Communication among themselves, their families, and the community

Social & Emotional Learning

- Self-Aware
- Self-Sufficient
- Self-Determine and Responsible
- Relationally Skillful
- Social Aware & Empathic

Positive Behavior & School Engagement

- Attendance in school and at the Explorer Center After School
- Self-Regulation of Emotional States
- Avoidance of Suspensions, and or Expulsions

Academic, "Hands-On, & Attitude Skills

- Homework Follow-up
- Participation in Instructional and "Hands-On" Skill Development
- Future Planning & Expectations

Please describe what evaluation tools you used, the data results (growth in scores, state standards addressed, etc.) and the challenges using this metric.

We used the SAYO-Y and targeted SAYO-T. The results of the SAYO-Y showed an interesting mix of results (some of the youth found the questioning intrusive and may not have completed the survey).

We have continued the SAYO-T from summer into December 2024, to retrieve longer-term results.

## Stories





This is the story of a very shy, but ambitious young man in 11th grade who is becoming a 12th grader that wants to be a mathematician! He was encouraged to extend his cultural footprint into different cultures that he may have had limited exposure to before. Because of his willingness to extend himself, his social-emotional growth was astounding! He also helped Global Science & Envirotech, Inc. to begin its "Go STEM" podcast on YouTube!

https://studio.youtube.com/channel/UCcWIRGIp13NruJtjGUhmRGA/videos/upload?filter=%5B%5D&sort=%7B%22columnType%22%3A%22date %22%2C%22sortOrder%22%3A%22DESCENDING%22%7D

He will be tutoring after-school youth in Algebra, Geometry, and Trig during the winter and spring of 2025!

Our second story is a seven-year journey of two male, and two female (our emergency instructors) participants who have matured into highly competitive people who have recently graduated and will attend or are attending college in the fall in Civil/Mechanical, Electrical Engineering, Biotechnology, and BioChemical Sciences. They never gave up on their dreams and are now seeking their path. All four helped instruct the youth in the camp as community service, they were paid a stipend for filling in to maintain the activities of the camp.

All attended Cranston Schools, one even graduated number four in his class! All families are of modest means, I met them in 6th grade. All are doing well! GSET, Inc. is applying for grants to include them as Instructors for all activities for summer 2025!