



## The Citizen Science Lab at the Martin Luther King Jr. Reading and Cultural Center



## SELF-EVALUATION

Founded in 2015, **The Citizen Science Lab (TCSL)** is a 501(c)3 nonprofit organization that has become a city leader in providing interactive STEM programming for the residents of Pittsburgh. Originally located in the Hill District neighborhood and South Hills region, TCSL provides an accessible space to connect young people with opportunities to increase STEM knowledge, academic achievement, and self confidence. TCSL incorporates state-of-the-art laboratories that provide hands-on exposure to life science, biomedical, robotics, and biotechnology education for students, teachers, biomedical startups, and adult citizens of the Pittsburgh region. Our programming has a focus on increasing urban students' interest in STEM but is available to all of the citizens of Pittsburgh and the nation.

**The Citizen Science Lab (TCSL) plans to expand operations to accommodate growth and provide youth with full access to premier hands-on STEM programs by relocating to the Martin Luther King Jr. Reading and Cultural Center at 636 Herron Avenue in the Hill District.** TCSL is committed to improving STEM opportunities in underrepresented communities by providing hands-on enrichment activities for academic success and youth development. TCSL plans to officially open its new, state-of-the-art laboratory by the summer

of 2025. Located in the center of the revitalization zone, TCSL's new facilities at the MLK Cultural Center will provide a more accessible space to connect young people with opportunities to increase STEM knowledge, academic achievement, and self-confidence. In addition, the new location will have the technical capacity to serve as a "Digital Learning Hub" for on-line learning when area students are unable to access the internet at home or in school. TCSL will work closely with an architecture firm to renovate this historical space into an environment that is optimal for a hybrid of in-person and cyber programming to accommodate any unforeseeable future shutdowns as a result of incidents such as the recent COVID-19 pandemic.

### **Community Goals**

Through participation in our programs, students learn the common research techniques used in biology, technology, and computer science fields. Students are expected to be honest with their research, cooperate with one another, practice good sportsmanship, be respectful of their peers, and celebrate everyone's efforts. These skills extend beyond the laboratory, and that knowledge is a requirement for a successful career in the sciences. Expected outcomes of TCSL programming include, but are not limited to, increased participant interest in biological, engineering or computer-based research, proficiency in common laboratory techniques, and the pursuit of a science or engineering career or major upon graduation. One of the most vital components of our program is that our students, many of whom are disproportionately underrepresented in STEM fields, are able to envision themselves in a STEM career.

Our move to the Martin Luther King Jr. Reading and Cultural Center will allow us to not only continue our current level of programming, but will also provide the chance to expand our educational offerings to more children and schools. The benefits of the proposed space are numerous. One, the space is larger, which will allow TCSL more flexibility when creating programming. We will be able to have dedicated space for multiple programs and/or schools,

therefore, eliminating our current restriction of only having one activity occurring in our space at a time. We also have plans to incorporate food science into our outreach activities, including the creation of a greenhouse to provide organic food to the community. Two, the new location would be a dedicated space in the building exclusive to TCSL. The youth in the program would have their own space not only for program activities but would also have access to quiet spaces for homework/studying, in addition to a safe place for socializing. More importantly, the new space allows us to serve as a “Digital Learning Hub” in order to support the efforts of the Pittsburgh Public Schools in times of school closings. Three, the Herron Avenue location is accessible via public transportation. Previously, in inclement weather, students had to walk to our location from the nearest bus stop. The new building is directly on a bus route.

This move benefits not only the students, but also the economic prosperity of the community as well. We envision The Citizen Science Lab at the Martin Luther King Jr. Reading and Cultural Center as becoming a vibrant, visible anchor of the revitalization occurring in the Hill District. Having a state-of-the-art STEM laboratory in the community sends a message that our city is not only investing in the youth of the area, but also in the neighborhood itself.

### **Project Market Viability**

TCSL’s core mission of increasing STEM programming to underserved communities, isn’t solely based on academic objectives. *The Survey of Earned Doctorates* report indicates that approximately 5% of PhD’s in the sciences are awarded to African Americans. TCSL strongly believes that the disparity between students and their choice in STEM careers is due to a lack of exposure, which correlates directly with a lack of interest in the sciences. Active and hands-on learning is an extremely effective way of fostering interest in STEM. Again, we believe that representation is vital to stimulating an interest in STEM for students of color and young women. Thus, as detailed earlier, our staff is reflective of the students we work with.

We also believe active learning develops a sense of community among students. A sense of community decreases feelings of seclusion and separation, which is a vital difference between the experiences of students of color and their peers. It is well documented that students of color often experience feelings of isolation as a result of underrepresentation in predominantly white spaces. TCSL creates a community of students, educators, volunteers, and funders who directly contradict the stereotypes of who excels in STEM fields.

In addition, as detailed above, many schools in various areas of Pittsburgh and beyond do not have the resources to expose students to the hands-on aspect of laboratory experimentation, which eliminates the opportunity to develop a community in the classroom. Our programs demonstrate that attitudes of students toward the life sciences become significantly more positive when students participate in active and hands-on experimentation such as Polymerase Chain reaction, electrophoresis, DNA transformations, robotics, engineering competitions, and other essential science based skills. Beyond increasing interest in basic STEM fields, there is a pressing need for preparation leading to careers in the biological sciences and biotechnology. Within the Greater Pittsburgh region, much of the out-of-class emphasis focuses on engineering and math with fewer opportunities for hands-on activities in the life sciences, particularly biotechnology. Consequently, at TCSL, we continue to expand education and outreach in biomedicine and biotechnology to further complement these industries and stimulate the development of an educated and prepared workforce.

As stated above, our new space would also be a digital learning hub for Hill District residents, continuing one of the Martin Luther King Jr. Reading and Cultural Center's original promises of "responding to the informational needs of the community."

**It would be our honor to continue the legacy of Dr. King and Martin Luther King Jr. Reading and Cultural Center's work of improving opportunities for Hill District families.**

## **Urban Design Best Practices**

As one of the few black-led STEM organizations in Pittsburgh, The Citizen Science Lab (TCSL) is committed to ensuring diversity and inclusion within all aspects of our operations. Our proposed expansion to the Martin Luther King Jr. Reading Room on Herron Avenue is no exception. TCSL has a long history of providing access for underserved populations and, if entrusted with this historic site, our plan is to honor the rich legacy of Dr. King's goal of achieving racial equality. To that end, our selection of contractors for this project was based on their stated vision of ensuring that minority and women owned companies and consultants were able to be a part of our design and construction process. Thus, our two primary contractors for this project—the design firm, GBBN Architects, and our general contractor, A. Martini & Co.—have detailed their plans to try to obtain the URA's minority and women outreach goals and the City of Pittsburgh's goal of 30% Minority and 15% Women Business Enterprise participation rate.

In addition, the new TCSL space at The Martin Luther King Jr. Reading and Cultural Center will be reflective of the best in urban design best practices. We are committed to creating a viable, dynamic space that is not only reflective of the community we serve, but also inspires generations of future scientists, engineers, inventors, doctors, and mathematicians. Our proposed design will continue to honor the rich cultural history of the MLK Reading and Cultural Center while positively highlighting the natural and structural design of the space. In addition, TCSL and GBBN is committed to using high quality supplies, construction practices, and renewable energy and materials in the design execution of our proposed space.

