NC STATE UNIVERSITY The Science House

Annual Report

July 1, 2020 – June 30, 2021

2021 marked The Science House's **30th year** of serving teachers and students across North Carolina. Despite the challenges of the COVID pandemic, The Science House had another incredible year reaching our state. Our programs served over 87,000 students, over 3,200 teachers and administrators, and over 700 parents and other adult learners. In addition to our staff, 92 undergraduate or graduate NCSU students volunteered in our programs, and we worked with over 400 volunteers from other partner organizations.

- The Science House received two new NSF projects beginning in FY 2021-2022. The first is a three-year $1,345,466 **NSF ITEST** grant entitled "Connecting Students with Autism to Geographic Information Science & Technology (GIST) Careers." The second is a four-year $2,608,810 **NSF DRK12** grant entitled "Supporting Implementation of Modeling Instruction in Rural Schools (SIMIRS)."

- The Science House responded to the lack of virtual K-12 STEM educational resources for K-12 students, parents, and teachers during the COVID-19 pandemic. It developed a weekly virtual learning program called **The Science House Express** which continued through the Summer of 2020.

- In 2020, **the NC Science Olympiad** became the largest Science Olympiad program in the nation. While the overall National Science Olympiad numbers have seen a 3% drop, NCSO saw 6% growth in middle school and an 11% increase in teams at the high school level.

- The **NC Science Olympiad** distributed 2,100 Lenovo VR Headsets to almost every county in NC. The VR headsets were a $1 million donation from global technology company Lenovo originally to be given out at the 2020 National Science Olympiad Tournament, which was canceled due to COVID-19. Each county received approximately 20 headsets to be used in various settings for virtual reality field trips and other educational experiences that would benefit from an immersive element.

- When the COVID-19 pandemic hit, **the NC Science Olympiad** pivoted its **elementary tournaments** into online programming to support remote learning for students at home. The Bite Size SO program provided a monthly interactive deep dive into Division A (elementary) Science Olympiad events.

- The **NC Science Olympiad** transformed its middle and high school tournaments to suit a virtual world. Instead of hosting 30+ tournaments across the state, NCSO staff consolidated tournaments by region to provide three large tournaments. Events were converted into online formats so that students could compete from the safety of their homes or schools. As an example, longtime event leader and volunteer John Toebes created a custom and secure website for students to test their Codebuster skills in real time. Likewise, the State Tournament was also adapted to a virtual format along with its Award Ceremony.

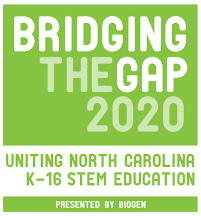
- **Imhotep Academy** was featured in an article "Wolfware Outreach Brings Science Home" as the first minors' program to pilot remote learning platforms with students in a project-based, hands-on approach and provided recommendations for future pre-college program's future use.

- **Imhotep Academies** delivered 60+ hours of integrated STEM programming to 101 middle school students representing 14 rural and urban North Carolina counties and school districts. Through remote delivery, students discovered the wonder of gaming, genetics, sustainability, urban planning, computational science, epidemiology, and forensic chemistry using an immersive and inquiry-based approach. Program exposure included online inquiry-based, STEM challenges, digital technology skills and artifacts, oral presentations, and digital skills.

- **Kyran Anderson Academy** recruited 43 students from Carven, Durham, Moore, and Wake Counties to experience authentic supplemental STEM programming. Three interactive 3D crime scenes staged around a bank robbery will be piloted this summer with rising third, fourth, fifth, and sixth-grade students to ascertain the best practices for engaging students in online STEM learning environments.

- The **FIRST Tech Challenge Robotics Program at The Science House** now consists of two teams, FTC#7083 TundraBots, and FTC#18190 TaigaBots. The TundraBots team comprises veteran FTC students with at least one year of experience, and TaigaBots is open to both experienced and rookie students. Both teams had great success by qualifying for the NC FTC State Championship tournament, winning multiple awards, and finishing the season. Both teams ranked among the top ten teams in North Carolina. More importantly, of the four senior students, three chose to pursue STEM-related undergraduate or associate programs after graduating.

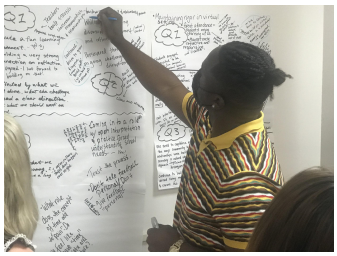
- The Science House continued the fourth year of a partnership with the North Carolina Association for Biomedical Research (NCABR) to host the virtual **Bridging the Gap Conference** in October 2020 at our Raleigh office. Bridging the Gap is a statewide conference that unites K-12 education, higher education, industry, government, and other STEM groups to work toward the common goal of strengthening K-16 STEM education in North Carolina. Over 200 educators from all across



NC attended this virtual conference.

- The Science House's year-long program for high school students with disabilities, **Catalyst**, served 24 students in its 5th year of operation and received the **2021 STEM Program of Excellence Award from the International Technology and Engineering Educators Association**.

- The Science House developed an online professional development opportunity called ***Digital Development: Tackling Hybrid STEM Education*** to respond to remote learning during the pandemic. Over 100 teachers took advantage of this opportunity. In addition, the session led to several conference presentations, including one in August of 2020 as part of the REAL Conference (Remote Education & Learning) hosted by the North Carolina Business Committee for Education operated out of the Governor's Office.



- The Science House worked with faculty from the College of Education to develop a ***STEM Clubs Made Easy book proposal***. The content of this book includes 12 total activities as well as everything someone needs to plan and carry out STEM clubs at their schools.

- The Science House's **Mountain Satellite Office** and **Northwest Satellite Office** continued to provide professional development, student programs, and equipment loan services throughout their service areas, reaching 2,198 teachers and administrators and over 71,353 students.

- The **Mountain Satellite Office** continued its collaboration with the NC Center for the Advancement of Teaching (NCCAT), creating two new weeklong workshops and leading three others developed previously (Genetics and Your Environment, Building Your Own STEM Curriculum Using PBL, Using Literacy to Enhance STEM, and Ecosystems and the Environment).

> "*I came to the workshop tired, burned out, and contemplating a career change. I came with the intention of returning with lessons to help me finish out the year with my fifth graders so that I could move on to something else, but I am leaving with so much more. I learned and remembered so much. I had lost sight of how much fun teaching can and should be. This workshop has refueled my passion to continue to love, inspire and educate children in all*

walks of life despite the stress of living and teaching through a pandemic. I will be forever grateful for this experience, the friends and professional connections I have made and professional knowledge that I have acquired."
-NCCAT Participant

- The **Northwest Satellite Office** partnered with STEM West in the *Filling the Gap (FTG) Train-the-Trainer Teacher Professional Development* program. This program informs teachers and students of local STEM careers and uses project-based Learning (PBL) so students can apply STEM content knowledge to help businesses solve problems. Over the past six years, this Golden Leaf grant-funded program trained 91 middle and high school teachers and administrators. Overall, we partnered with 53 local STEM businesses and industries to engage students in real-world PBLs.