

## Unbound Innovations XR Summer Camp

Unbound Innovations XR Summer Camp launched on July 5th, 2022. The camp featured a program centered around Augmented and Virtual Reality applications. Augmented reality is when digital objects are layered over the real world and virtual reality is a fully immersive interactive space. This was a STEAM camp, where students were exposed to elements of science, math, computing, along with art and music. The camp was a partnership between the Greenwich Alliance for Education and Gaspare Lipari, Western Middle School teacher and 3-year VR Unbound Innovations Reaching Out Grant recipient.

The camp enrolled over 30 students for weekly sessions over a five-week period, from July 5 through August 5. Several campers attended every week of camp. Donations by two Greenwich Alliance patrons provided the funds to cover 13 weeks of scholarships, some specifically for girls. Discounted rates were also offered for students on a free/reduced lunch plan.

The preparations for the camp were quite extensive. Gaspare first had to design the themes for each week, making sure there was educational and engagement value in each week as well as access to the proper resources needed to deliver the desired content. In addition to developing an in-depth instructional plan, Gaspare ensured there were ample opportunities for collaboration and teamwork. Gaspare stated the work he had done over the last 3 years to grow the AR/VR program at Western Middle School (with the support of the Alliance grants) informed much of the decision-making around the content design and had an impact on making the camp a success.

Each week students were encouraged to incorporate imagination and ingenuity into their work. Students made observations and discoveries rather than given a concrete task to complete. The units were heavy on Project Based Learning as well as exploratory learning. There were always options/choices students could make on whatever activity they were undertaking. Each camp session was 3 hours long with the time was broken up into tutorials, mini-lessons, and show-hows, and each day ended with an optional fun game or activity.

Students had a strong gravitation to shared experiences - students were fully immersed in Virtual Reality but still preferred to work together and help each other get through challenges while inside or outside of that space. They were constantly teaching each other how to do something or get through an obstacle or figure out how to use tools.

Students in camp represented both public and private schools, with campers from all 3 Greenwich middle schools, GHS, many of the GPS elementary schools and even a student from Belgium. Ages ranged from rising 6th graders to High School sophomores. It was a diverse group of students, most of whom had never met before but quickly made fast friends, and the speed with which they collaborated and worked together was surprising. Was it the technology, the semi-anonymity of being in a virtual world, or the engaging content? Whatever it was, Gaspare would like to replicate it in his classroom.

### Themes for the Weeks:

The content of Unbound Innovations XR Camp varied each week.

During "Art and Music" week students composed music using a variety of instruments in concert and recording their work. Students learned how to play piano with a Virtual Reality application,

performed on a stage with a VR air guitar, and played drums. There were masterpieces of art created in 3D with layers and features that fully displayed the creativity and talent of these young students. They created with graffiti, paint, and clay.

During “Game-Design” week, students programmed games using software that made their creations fully immersive Virtual Reality experiences and could also be played in Augmented Reality. They made escape rooms, mazes with secret passages and hidden doorways, parkour courses, and more.

During “World-Building” week, students produced cities, worlds, and empires using Virtual Reality software that also required them to perform tasks of city management, civil engineering, accounting management, and more real-life and supernatural skills.

During “Robotics and Coding” week, students manipulated robots through a variety of environments in XR (mixed reality). The students worked with actual robots on mats that could also be seen in AR and VR. Students were able to conduct physics and environmental science experiments while navigating through obstacles by coding their robots using Scratch and Python coding. Campers worked collaboratively to achieve goals and overcome challenges and competed with other groups during the week.

The last week was “Sports Olympics” where students played VR golf, played tennis, archery, raced with sailboats, practiced soccer skills, played ping pong, boxed against Rocky Balboa, raced in cars, and more.

Students really enjoyed the camp and left with “I’ll see you next summer!” It was a rewarding experience which Gaspare believes gave many of these students a taste of the future.