

Know Your Local Utility Services

Chemistry Lab

By: Arkana Anwar

Providing utilities and resources for an entire city takes lots of efficient architecture, innovation, and community consideration. So how do water treatment plants carry the burden of providing clean water for thousands of people? On August 2nd, The Clemence Youth Foundation got the amazing opportunity to explore a water treatment plant, engage in a friendly competition to test their knowledge, perform hands-on lab experiments, and finally celebrate a day of enrichment with bowling.



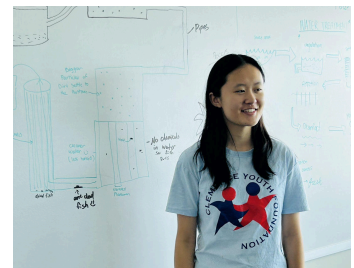
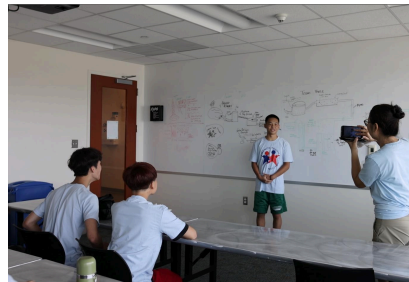
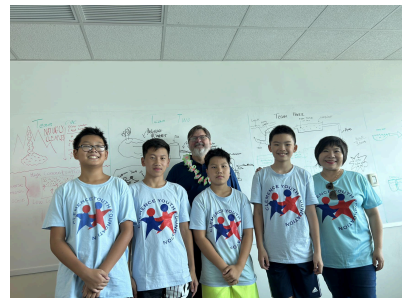
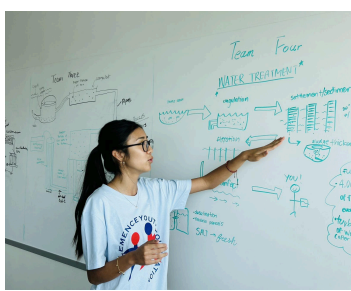
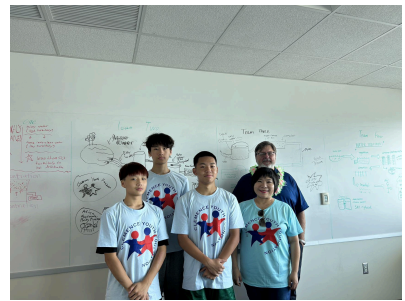
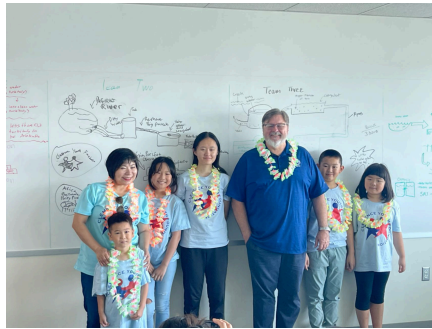
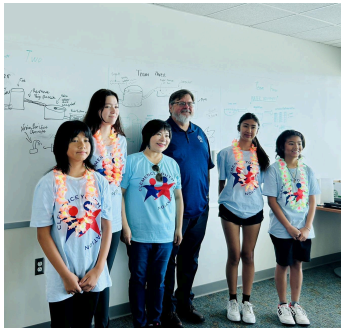
Upon arrival at the water treatment plant, the foundation was briefly introduced to what water treatment is in the first place and how it's vital for communities. Then we headed to the control room which is where people will oversee technologies as well as run data software to make sure the plant is running efficiently. After the control room, we entered the lab, a fascinating part of the tour for many members. The lab is where the actual water is tested for proper standards. Our guide explained how water should have good turbidity, and clarity of water, to be safe for communities to use. Many foundation

members had burning questions as to how salt water can be treated to be fresh water, and even how feces can be removed to make clean water– a very amusing question for our guide!

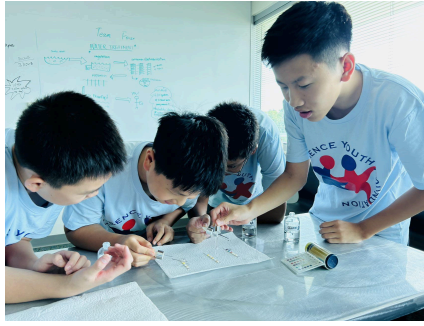


The next part of our tour was walking onto the plant and taking up close glances at all the equipment to get a better grasp of the water treatment process. First, we walked over to the sludge thickener, a basin where all the sediments and other unwanted particles were dumped throughout the treatment process. Next, the foundation started looking at the beginning of the treatment process right after dirty water was sourced from a creek. The first step of the actual treatment process begins at coagulation; our guide walked us over to the railings where we could look underneath to a cavity in the ground where pumps add coagulate chemicals to the raw water. We had to be careful walking along the metal platforms of the plant because the sunken areas in the grounds were very deep. Following coagulation, we then saw the flocculation process. Our guide explained how dirty water has floc– string-like particles that float in water. So to remove the floc, the dirty water will move up plates made out of tubes with little holes, and the water will collect in the holes. The result is that clear water moves on, while the floc remains on the plates. We then briefly touched on how water gets

filtered and disinfected before finally walking off the site and out of the heat to start our competition.



Learning about the process on-site was very exciting, but now it was time to get serious and test our knowledge. The foundation members were grouped into four teams and were assigned to draw a diagram that one representative from each team would present. The teams had to work together, use their creativity, and most importantly apply their knowledge of water treatment to produce the best result for our judge who is an expert on water treatment, our guide! All four teams presented amazing work, but after a difficult deliberation, the winner was team four— Arkana, Adelaide, Jett, Arshahi, and Jennifer! The competition was tough, but our guide went through each presentation and gave feedback for us to better understand the process once more.



The final activity at the treatment plant was hands-on lab experiments. Students got to learn how to read a pH scale and then test different liquids for their pH. It was very interesting to see the color of the scale change from white to purple, orange, and even green when we dropped vinegar and base liquids on it. The foundation then enjoyed pizza and cookies for lunch before heading to the last stop of the day, bowling at Main Event!



In the afternoon the foundation got to play arcade games, bowl, and sip on refreshing slushies—a wonderful way to celebrate their experience at the water treatment plant.



We'd like to give a big thank you to Jingjing Clemence, all the parents who helped out, the Sugarland Water Treatment Center, and most importantly the Clemence Youth Foundation for organizing this amazing event. It's very important to understand and appreciate how utility services are the foundation of healthy communities; we are all very grateful for a great day of learning, collaboration, and fun.