Inspired by Qualcomm® Thinkabit Lab™

CHULA VISTA, CA

School District Profile

Chula Vista Elementary School District
Location: Chula Vista, CA
Number of schools: 45
Grades: Primarily K-6, including approximately 150 6th grade classes
Student population: More than 29,700, including more than 4,000 6th grade students (2015-2016 school year)
· 68% Hispanic
· 13% White
· 11% Filipino
· 4% African American
· 3% Asian/Pacific Islander
· 1% Other
· 51% Free/Reduced Price Lunch recipients
· 35% English learners

> "We're doing this so we can bring STEAM (STEM + arts) learning opportunities to kids at scale in the Chula Vista Elementary School District, so our city library can become a 21st century, relevant place for kids to learn and because we're trying to get kids ready for college and career.
>
> Matthew Tessier
> Assistant Superintendent, Chula Vista Elementary School District

> "The 21st century public library is very strong in the makerspace concept. We're not necessarily here to preserve knowledge only, but to let people create knowledge for themselves.
>
> Betty Waznis
> Director, Chula Vista Public Library

> "We don't want our students to just become consumers of technology. We want them to be in the forefront, creating.
>
> Michael Bruder, Engineering Teacher, Innovation Station

Transforming a library into a 21st century STEM and career environment for students and the community

During school hours, Innovation Station, located in the basement of the Chula Vista Public Library's Civic Center branch in Chula Vista, California, hosts career discovery and hands-on engineering activities that are helping prepare sixth grade students across the Chula Vista Elementary School District (CVESD) to become college- and career-ready. After school, this lively, colorful, Inspired by Qualcomm® Thinkabit Lab™ space hosts tinkering and coding activities that extend science, technology, engineering and math (STEM) learning opportunities to all members of the community.

Launched in August 2016, Innovation Station fosters students' creative, critical thinking and collaborative work skills, which companies like Qualcomm need students to have when they enter the workforce and which our society needs for building the future products and filling the future careers that cannot be foreseen today. Innovation Station is also transforming the library into a relevant, 21st century learning space where knowledge is not just preserved, but also created.

Challenge

» By 2020, 1.4 million computer science-related jobs will be available and only 400,000 computer science graduates will have the skills to apply for those jobs, according to projections from the Bureau of Labor Statistics. To fill the demand, more people who are traditionally underrepresented in the computer science and engineering fields must be brought into the equation.

2013 Engineering Occupations[1]
(a) Women 14.8% (b) Latinos 6.57% (c) African Americans 3.64%

Participants

» CVESD's mission is "to nurture every child's imagination, intellect and sense of inquiry. Working collaboratively, we tap a collective intelligence rich with the spirit and creativity necessary for students to become difference makers." Located near the U.S.-Mexico border, CVESD serves a high-needs student population that doesn't normally have access to STEM learning opportunities.

» Qualcomm opened Thinkabit Lab at its San Diego headquarters campus in 2014, providing students and teachers from schools around the county with day-long, hands-on engineering and career exploration activities led by Qualcomm employees with STEM and teaching backgrounds. Visitors are engaged from the moment they walk in and leave feeling inspired, motivated and confident that they have the skills to become engineers. Given the growing number of schools requesting visits and desiring to reach many more students and teachers, Qualcomm launched an expansion initiative in 2015 to enable schools and other organizations to provide their own Inspired by Thinkabit Lab experiences.

» Feaster Charter School, a K-8 charter school within the CVESD, signed on as a pilot site for an Inspired by Thinkabit Lab. After a year and a half of implementation, district officials saw remarkable gains: a 2 percent increase in student attendance; and approximately 50 percent of students meeting or exceeding English language arts achievement on the CAASPP (California Assessment of Student Performance and Progress) exam, which is similar to the achievement rate in some of the district's more affluent areas. Also, after observing the autonomy and responsibility that students demonstrated in the engineering lab, teachers throughout the school began incorporating more design-based and student-led experiences in their classrooms. Feaster's success prompted CVESD officials to explore implementing a similar pedagogy across the district.

» From previous conversations with Chula Vista Public Library leaders, CVESD officials knew that the library's Civic Center branch had a generous amount of vacant basement space that was ripe for reimagining and repurposing as a 21st century learning environment.

Solution

- CVESD, the City of Chula Vista and Qualcomm teamed up to transform the library's basement into Innovation Station, a lively, colorful, makerspace environment and a place for intergenerational learning. The massive makeover was supported by a state library grant, Friends of the Chula Vista Library, the City of Chula Vista, CVESD, and intellectual and in-kind support from Qualcomm. CVESD provided funds for a dedicated engineering teacher.

- As part of its commitment to Innovation Station, Qualcomm supported CVESD and the library throughout the build-out process, from space design to content development. This included painting the walls in Thinkabit Lab-branded colors and placing Qualcomm logos and graphics on the walls. Similar to the Thinkabit Lab, Innovation Station also features kid-friendly furnishings, such as table tops that students can write on and colorful bean bag seating. Qualcomm further supported the program with training for the Innovation Station instructor.

- CVESD hired a dedicated engineering teacher with exceptional classroom management skills and whose passion for STEM education is so strong that he had already been integrating Thinkabit Lab content into his own class and was teaching coding classes after school. CVESD also funded the teacher's professional development, sending him to Qualcomm where he spent a couple of weeks observing the Thinkabit Lab instructors at work, co-teaching and practicing implementation.

Implementation

- Leadership, teachers and librarians at CVESD and the library have access to a free, online portal created by Qualcomm to extend the Thinkabit Lab experience to schools, libraries, educators and students, regardless of their location. The system contains a wide variety of resources, such as Thinkabit Lab-branded materials; recommended equipment, tools and supplies; videos and lesson plans.

- CVESD uses Innovation Station during school hours to provide day-long, hands-on, STEM and career exploration experiences to 6th grade students and teachers across the CVESD. In the World of Work area, students explore their own unique talents and connect their strengths, interests and values to potential careers at tech companies like Qualcomm, at local businesses such as the U.S. Olympic Training Center and Living Coast Discovery Center, and within what the San Diego Workforce Partnership has identified as San Diego's "priority sectors". In the lab space, students think critically, work collaboratively and dabble in computer science, engineering, and arts and crafts to create exciting robotic projects.

- After school and on weekends, the Chula Vista Public Library shares Innovation Station with the community. The library offers two, drop-in, signature maker programs that were developed by staff who are professional librarians and have a very strong interest in science. The Wednesday afternoon maker program engages children in fun STEM activities such as popcorn science, a Ferris wheel challenge and Lego team competition. The Thursday Tech Club offers exciting coding activities that get kids buzzing. Both programs appeal to multi-generational families and transcend language barriers, reflecting the diverse make-up of the community. The library also hosts co-sponsored programs, such as the Microsoft Minecraft Build Challenge, in Innovation Station.

- Innovation Station aligns with the call in Governor Brown's 2017-2018 state budget for better integration of libraries into California's workforce strategy.

Impact

- Innovation Station enables STEM integration on a large scale. It is exposing all of the school district's more than 4,000 6th grade students to engineering, fostering their interest in STEM activities and careers, and helping them acquire skills that can have life-changing impact.

- Nine months after opening, all 6th grade students in the District have visited Innovation Station, and teachers at those schools are talking with Innovation Station's instructor about how to embed a similar program in their classrooms.

- Associating with Qualcomm and having Innovation Station has raised the library's profile, enhanced its reputation as a leader in the 21st century library movement and generated increased interest from other businesses in collaborating with the City of Chula Vista on workforce investment initiatives. Innovation Station also hosts a growing number of officials and teachers from other school districts as well as government, library and community leaders who want to see Innovation Station in action and explore how they might work with the library to do more or adopt the concept.

- Innovation Station is expanding STEM learning opportunities to the community and introducing the library to more community members, including immigrants who might not be familiar with the concept of a public library. Since moving its after school programs from an upper-level space in the library to the Innovation Station, more than 1,000 people have participated in these programs.

- The California State Librarian hails Innovation Station as a model for other libraries in California and has set aside additional funding to help create more Inspired by Thinkabit Lab spaces.

- Innovation Station has created demand for more Inspired by Qualcomm Thinkabit Lab spaces throughout California and the rest of the country.

At Qualcomm, we are focused on building the wireless world of the future, and we want to show students that they can be a part of building that future. Qualcomm Thinkabit Lab is a combination engineering lab, makerspace and classroom for students from all cultural and socioeconomic backgrounds. Qualcomm created the lab to provide students with a unique, hands-on STEM experience and to raise awareness of careers they may not know exist. Through Thinkabit Lab, we expose students to STEM concepts and careers that are essential to tomorrow's workforce, not only at Qualcomm, but in every aspect of building the wireless, Internet of Things (IoT) and 5G ecosystems.

[1]National Science Foundation, 2013