

## CHULA VISTA, CA



### School Profile

#### Mae L. Feaster Charter School

**Location:** Chula Vista, CA

**School district:** Chula Vista Elementary School District

**Grades:** K-8

**Student population:** 1,200 (2015-2016)

- 90.2% Latino
- 3% White
- 2% African American
- 70.5% eligible for free lunch (based on income)
- 57% English learners

“...every week students are in the lab, practicing skills, developing knowledge. (The engineering lab) helps to transform students' learning experiences.

Francisco Velasco  
Executive Director, Feaster Charter School

“ We were second to last [in average daily attendance three years ago], and [now we are] at 97.4 percent, which is huge—kids are coming to school—we have incentives: Programs! Kids don't want to stay home... we play games with kids but they are learning math, science. Our rooms look awesome, we work very hard [to] promote an environment that smells great, looks great and is inviting that helps student learning.

Sarah Motsinger  
Principal, Feaster Charter School

“ Every Thursday I go to [a local community college] and I know how to hook up things because of engineering—I know more than the other kids.

Student  
Feaster Charter School

## Furthering engineering education and transforming learning experiences at Feaster Charter School.

Inside Mae L. Feaster Charter School's Inspired by Qualcomm® Thinkabit Lab™ in Chula Vista, California, third grade students are learning about torsion, tension, compression and shear while upper grade students are learning to code and building robotic crafts. They're all learning the value of innovating, collaborating and developing critical skills, which are helping them become college- and career-ready.

The fruit of a collaboration that combines Feaster's education expertise and an existing lab space with the engineering expertise of the Thinkabit Lab experience, Feaster's lab provides fun, hands-on engineering activities to a high-needs student population that doesn't normally have access to these types of experiences. The lab is making a notable difference: students' interest and confidence in science, technology, engineering and math (STEM) has increased, and they're acquiring skills that can have life-changing impact.

### Challenge

- » The U.S. Department of Labor estimates that more than half of the 1.4 million new computing jobs anticipated by 2018 could go unfilled because candidates will not possess sufficient education and qualifications. 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<sup>1</sup>

- Women 14.8%
- Latinos 6.57%
- African Americans 3.64%

- » Feaster is a K-8 charter school with a student population that is primarily comprised of Hispanic youth from low-income communities. The school prepares its students to become 21st century learners in a multicultural society by infusing visual and performing arts, social studies and STEM subjects into its curriculum. The integration of these subjects challenges students to communicate and think critically, creatively and collaboratively, while also fostering leadership and reasoning skills and increasing self-esteem at a young age.
- » Feaster identifies as a school with a design-centered approach. Through largely student-led, project-based experiences, students are given design projects to work on and collaborate with their peers to interpret the task and explore the materials as they progress. This process challenges students to learn how to manage and resolve group conflicts and collectively troubleshoot projects.
- » In 2013, Qualcomm was in the early planning stages for Thinkabit Lab, and Feaster was beginning to create its own engineering lab. The two teams met to share their expertise and insights and embarked on what has become a long-term collaboration. When Qualcomm opened Thinkabit Lab in 2014, Feaster students and teachers were among the first to visit and experience the lab's fun, hands-on engineering activities, led by Qualcomm employees with STEM and teaching backgrounds, and the careers available in those areas, via the Qualcomm® World of Work (QWOW™). The visitors were engaged from the moment they walked in and left feeling inspired, motivated and confident that they had the skills to become engineers. Feaster was inspired to provide all of its students with a similar experience so they could begin to develop students' engineering skills at an early age.
- » By 2015, Feaster was using its own engineering lab and dedicated engineering instructor—an individual with experience in engineering, teaching and project-based learning—to provide hands-on engineering activities to all of its K-8 students on a 12-week rotation, while also still sending 6-8th grade students to the Thinkabit Lab. The students who went to Thinkabit Lab came back inspired and began participating in Feaster's Maker Mondays afterschool program and robotics team, and they used their knowledge to advance their thinking on school projects.

# FEASTER

## CHARTER SCHOOL

Inspired by Qualcomm® Thinkabit Lab™

- » Although Feaster's lab was well-received by students, Feaster asked Qualcomm for help in further developing the space.

### Solution

- » Given the growing number of schools requesting field trips to Thinkabit Lab and desiring to reach many more students and teachers, Qualcomm launched an expansion initiative in 2015 to enable schools to provide their own Inspired by Thinkabit Lab experiences.
- » Feaster and Qualcomm agreed that Feaster's interdisciplinary approach to education, emphasis on design, staff support of STEM and commitment to establishing an engineering lab made the school an attractive site for testing the concept of Thinkabit Lab expansion.
- » As part of its commitment to the expansion, Qualcomm helped revitalize Feaster's existing engineering lab. Instructors from Thinkabit Lab supported Feaster's leadership team and engineering instructor through the build-out process and teacher training process, from space design to teacher feedback on curriculum decisions, helping to enhance 7th and 8th grade projects, and providing materials for teachers to use in the classroom. Their support also included painting the walls in Thinkabit Lab-branded colors; placing Qualcomm logos and graphics on the walls; and purchasing materials and equipment, such as microcontrollers (Arduinos), servo motors, 3D printers and art supplies. Similar to the Thinkabit Lab at Qualcomm headquarters, Feaster equipped their space with glass-top desks that students can write on and arranged the desks so students can work in teams.
- » Feaster's leadership team and educators have access to a free, online portal created by Qualcomm to extend the Thinkabit Lab experience to schools, 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.

### Impact

- » At Feaster's lab, students engage in hands-on engineering and real-world experiences that contribute to an increased understanding of engineering practices and a greater interest and confidence in STEM. Students talk more about pursuing STEM careers and about being excited to go to engineering class where they are learning about engineering in a fun way by building things and being creative.
- » School leadership appreciates Qualcomm's monetary support, but say the real value for students is the career exploration and access to real-life experiences students receive when visiting Thinkabit Lab at Qualcomm headquarters. The collaboration between Feaster and Qualcomm also provides Feaster students with special opportunities to attend Qualcomm-hosted science fairs and other beneficial events where the students can interact with engineers. Through these valuable experiences, students are able to see themselves as potential engineers or scientists.
- » Having an engineering lab and engineering instructor and observing the autonomy and responsibility that students demonstrate in the engineering lab, encourages Feaster's teachers to incorporate more design-based and student-led experiences in their classrooms. It has also led to more STEM programs being offered after school.
- » School officials and teachers report that the collaboration with Qualcomm has generated much recognition for and pride in the school. Teachers say Feaster received grants and awards for excellence due, in part, to the school's work with Qualcomm. While Feaster already valued innovative and student-led instruction and design-centered experiences, having Qualcomm's support validated Feaster's approach to teaching and learning.

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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.

<sup>1</sup>National Science Foundation, 2013