

STEM @ CSUSM

Education & Outreach

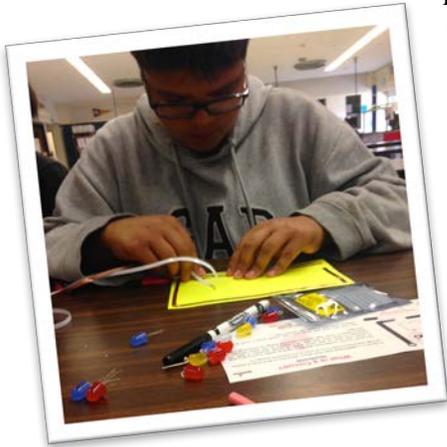


“Making” STEM Relevant

Anyone who has carved a piece of wood, knitted a scarf, or built a cardboard fort understands the pleasure and pride that come from creating something. Unfortunately, today’s children have fewer opportunities to get their hands dirty. The CSUSM STEM Center addresses this trend with an outreach program emphasizing hands-on, do-it-yourself activities.

Funded by the National Science Foundation, the CSUSM STEM Center’s Mobile Making program started in fall 2014 with the goal of broadening STEM participation through access to afterschool STEM learning experiences. A research-based design supports Making in different social, cultural, and socioeconomic settings.

Making is best described as a design-based, participant-driven endeavor that is founded on a philosophy of learning-by-doing. Makers use new technologies and basic tools to do authentic and personally meaningful work. Making emphasizes fun and self-fulfillment, and fosters interdisciplinary connections and relevancy.



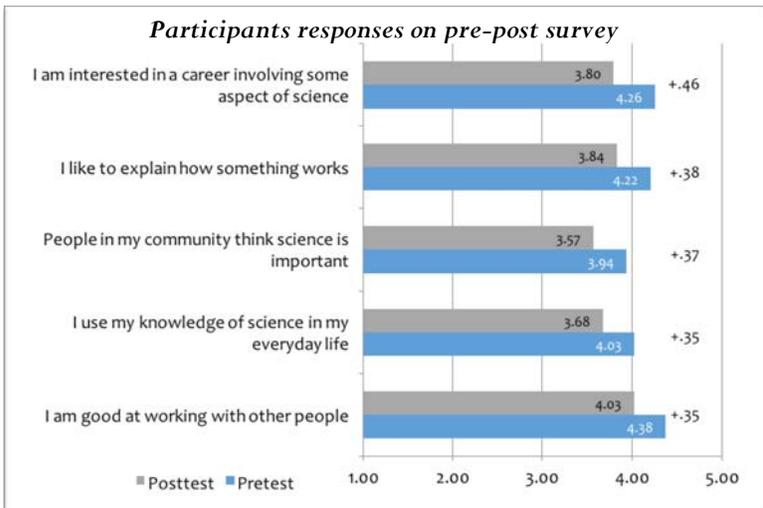
Mobile Making is a weekly afterschool program at middle school sites. STEM Ambassadors – CSUSM math and science majors – engage students in design-based, DIY activities such as building interactive robots with everyday items, making solar-powered vehicles from recycled materials, and creating electronic textiles with microcontrollers and conductive thread. Students are able to keep many of their projects, which allows them to share their excitement for STEM with their parents and siblings.

Year Two Evaluation Results

- Observers found that students were on task and engaged in their projects 89% of each observed time period, and were interested in their work 82.5% of the time
- >75% students indicated that, “Having opportunities for my parents to see the maker projects I’ve completed” was very or critically important
- > 60% of students agreed or strongly agreed that they are more aware of careers in technology, and >70% are more interested in a career in science or technology



Participants responses on pre-post survey



Project evaluation shows that participants’ interest, self-efficacy, and perceived relevance of Making increased. Participants are applying their scientific knowledge to their everyday lives and recognizing the importance of science in their communities. Participants described increased perseverance and problem solving, and expressed pride at being able to wire circuits or create simple code. As one student gleefully remarked at the end of the school year, “I had no idea I could do this!”.