

## 2022 STEM Discovery Day Blog by Neha Rao

My name is Neha Rao and I am currently a high school senior at Irvington high school. Irvington has a year-long project called QUEST where students focus on a social issue. I had chosen to focus on the lack of women in STEM since I also am pursuing a career in that field. From my research, I have found multiple research with statistics that clearly depict how severe the gap between men and women is, despite recent improvements. The gender disparity persists due to various factors, including internal conflict and external views.

In Laura McCullough's academic journal article, "Women's Leadership in Science, Technology, Engineering & Mathematics: Barriers to Participation," she explains that "the latest research on gender differences in the sciences suggests that covert discrimination, implicit biases,... are some of the current issues hindering women's participation in STEM."

My policy paper - "How do STEM barriers affect the prospect of girls joining STEM pathways, and how might that change if young girls were exposed to more encouragement towards women participation with the help of the government or community?" (Feb. 1, 2022) - explored how communities can work together to encourage girls to pursue a passion for STEM.

Gender-based inequity was a problem I had witnessed and experienced firsthand, and I wanted to make a difference for young girls interested in STEM. I volunteered at the American Association of University Women (AAUW) Fremont Branch's annual Mother-Daughter STEM Discovery Day on Saturday March 26, 2022. This community project was started in 1991 by member Miriam Keller who wanted to encourage girls in third through sixth grades to take an interest in science, technology, engineering, and mathematics. I got a chance to observe the girls, who all seemed like they were having a great time and wanted to participate in similar events in the future. Since younger children are less exposed to stereotypes, events such as these, at this age, can make a big difference in their future and their views.

Discovery Day was organized in rotating stations; the groups participated in various interactive, fun and educational STEM-based activities ranging from innovative roller coaster building, impressive lava lamp creation, and engrossing Scratch coding. Moreover, the young and energetic girls bonded with their mothers, by working through these different activities together. The organizers from AAUW were all friendly and enthusiastic. It is because of them that this event went as smoothly as it did, despite the hurdles created by the pandemic.



At the rollercoaster station, the participants were split into five groups of 5-7 people. The girls and their mothers in each group collaborated to create the rollercoaster's railing using split pool noodles for their marble to travel through. Using a limited supply of materials and set requirements, they each competed against each other for the most points, accumulated by the marble passing through each foam noodle and loop. This fun experience also was accompanied by an explanation and understanding of kinetic and potential energy. Kinetic energy being the energy in motion while the potential energy is the energy stored, to be released. The winning team in the first workshop explained that testing their creation multiple times was key to their success.

Another riveting and hands-on experiment was the volcano-in-a-bottle (lava lamp) station. This innovative approach to teaching chemistry, and giving the girls a memorable experience, only needed common household materials. The descriptive lesson about the density and polarity differences between oil and water to create separation was straightforward to digest, especially when accompanied by an interactive activity. In the experiment, they added oil to a bottle of water and were able to view the separation; the addition of food coloring droplets to the mix led to the impressive finishing of the lava lamps. Their observations, alongside the information provided by students from Irvington High, brought them a healthy curiosity about stem and their surroundings. With their lava lamps in hand, the girls ran off excitedly to show their mothers.

With this new understanding of density and polarity, the stem-passionate high schoolers went a step further to connect it with current issues such as the Coronavirus. The AAUW volunteers explained the importance of washing hands for at least 20 seconds and the differences between washing hands and using hand sanitizers. Comprehension of such crucial information will help keep them safer, especially during the pandemic.

The third station was in a classroom filled with computers at each desk, where the girls used the engaging programming language, Scratch. They built a website from their code while their moms sat beside them, watching them learn and have fun. This workshop helped to introduce the girls to AAUW's mission of advancing gender equity for women and girls through advocacy, education, and research, and the world of computers and coding, a field that lacks women. According to an academic journal,



many women choose to not follow STEM practices due to a lack of confidence and female role models. Role models have the ability to give females someone to look up to that is similar to them and give them the assurance that they can pursue and have successful STEM achievements. Since this lesson was taught by a woman, it gave the girls a role model to look up to as well as confidence in the subject.

At the end of the event, everyone came into the large assembly gym to connect and reflect with one another.

Randy Fewel, AAUW Fremont Branch's Foundation for Local Scholarships President, talked about similar programs and events, as well as scholarships for girls following STEM careers. An interview with Kathy Garfinkle, President of AAUW Fremont Branch, revealed that she had first gotten involved with these girls in STEM events to "encourage girls to pursue STEM and let them know that they can do it!" Thirty years prior, she attended a similar event with her daughter and as the current president, she came with her granddaughter, Uzrial Latorre Garfinkle, to this event. Three generations of her family have bonded through participating in these events which motivated her to continue her work.



**The American Association of University Women**  
Fremont-Newark-Union City Branch &  
**New Haven Unified School District**  
present

**MOTHER DAUGHTER STEM DISCOVERY DAY**

A morning of hands-on fun activities in **STEM** (**Science, Technology, Engineering and Math**) for 3rd, 4th, 5th Grade girls and their mothers

**Saturday, Feb 26th, 2022**

**8:30 am to 12:45 pm**

Cesar Chavez Middle School  
2801 Hop Ranch Rd  
Union City, CA

- Attend three, 45 minutes, hands-on STEM activities
- Dress warmly and comfortably
- Beverages, snacks and door prizes
- Adult participant can be any female caregiver (mother, aunt, grandmother, etc.)



Exposure to various career paths is important for young girls to explore their interests and understand the world around them. Hence, facilitating this process and creating more events like AAUW's Discovery Day is a necessary steppingstone to guide girls to their future and build their confidence. One such student, Abhigya Pandey, who participated in this event alongside her mom, showed interest in attending similar events in the future. She was the most excited when making her lava lamp and learning about

the chemistry behind the lava lamps. Furthermore, mothers and their daughters have an educational space to bond together. This kind of supportive, nurturing, community feeling is the key to getting more girls to tap into their STEM potentials and pave meaningful career paths. Through this experience, the girls definitely learned a lot and broadened their horizons for a possible future in STEM.