Issue No. XIX // October 2022

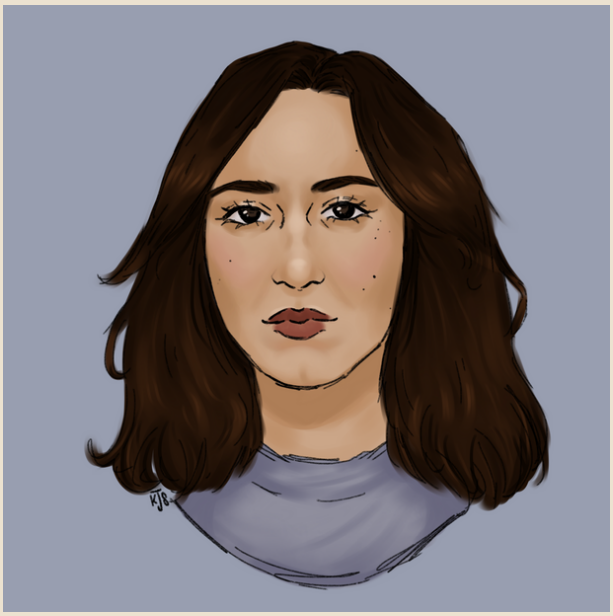
The 28 Percent

Women make up only 28% of the STEM Workforce. This Newsletter aims to change that.

Art By Ruby Chew

The 8 in the 28.

By Daniella Novo



September 15 through October 15 is Hispanic and Latinx Heritage Month with the goal of celebrating the 62 million hispanic and latinx people living in the United States, but of those 62 million, how many are women that are in STEM? Latinas make up about 8% of the STEM workforce compared to the majority 67% of white people in STEM. During the 30 days of Hispanic and Latinx Heritage Month, talking about the accomplishments of Hispanic and Latinx people is important, yet highlighting the major accomplishments by the minor population of Latinas in STEM is crucial.

Sabrina Gonzalez Pasterski, a cuban-raised physicist from Chicago has been named the "next Albert Einstein" by Harvard University at the age of 24. Pasterski is known to have a record that has impressed her fellow physicists with her practice in the study of black holes and space time, more specifically, helping to explain gravity in the context of quantum mechanics. Her works are so astonishing that they have been quoted by people like Stephan Hawking and Andrew Strominger.

Diana Sierra, Columbian co-founder of Be Girl, a company that designs affordable, and high quality, menstrual materials to girls and women in need all over the globe. Sierra, who got her inspiration to found her company from seeing girls all over the world quit school, and other activities, because they had no access to affordable and good quality products for menstruation. Through her company, Be Girl, Sierra hopes to give girls all over the world a better chance at an education and raise their self-esteem.

Latina Girls Code, founded by Mexican-American Stephanie Castillo, is a program that is based in Chicago with the main focus to get Latina girls into technology. With Castillo's help, the program has been able to fill in the gaps between the absence of Latina girls in the STEM workforce. When Castillo is not working with young girls on expanding their education and interest in coding and building their confidence, Castillo is working with young women, many undocumented, as an immigration adviser to help further their education and find employment.

Women all over the world have been affected by Sabrina Gonzalez Pasterski, Diana Sierra, and Stephani Castillo, and honoring and celebrating, not only these women, but all 8% of Latinas in STEM between the days of September 15 and October 15, is nowhere near enough. Recognising the accomplishments that can range from the study of gravity in quantum mechanics, by Pasterski, the distribution of human necessities, by Sierra, and to the many programs, like Castillos, aiming to introduce Latinas to technology. Not only will the increase of the 28% of women in STEM help women all around the world, it will also increase the smaller, 8% of Latinas in STEM that need the confidence and give representation to those who need it the most.

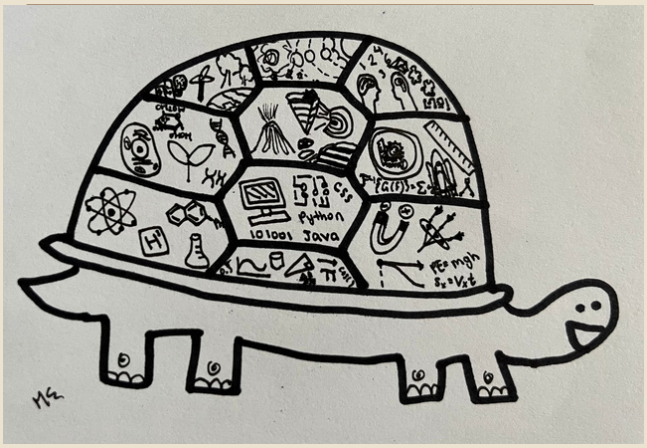
App Academy Teacher Reflects on Equity and Curriculum in PHS's Computer Science Pathway

By Morgan Gaskell

This is only Ms. Deborah Orret's third year teaching APP Academy at Pasadena High School, and she has already made a huge impact on the learning environment and on the students. The ways Orret fuses fun and learning in the classroom makes for a stellar learning environment where students feel engaged and heard.

Orret majored in cognitive science at UCLA, with a focus in Computer Science. Right after graduating in 2020, she took a job at PHS as the newest addition to the APP Academy team. She also took on the role as one of two curriculum developers for the pathway. Orret has been a popular teacher since day one, where she gave enthusiastic lectures and assigned fun projects over Cisco WebEx during the 2020-21 school year.

Orret's passion for helping and connecting with students is reflected in the number of clubs she advises. First and foremost, she helped create the 28% Newsletter after one of her students voiced her concerns about being the black sheep in a class of all boys who were well versed in computer science. The 28% is a monthly newsletter written by girls at PHS who have a passion for getting other women interested in STEM. The newsletter features scholarship opportunities, interviews, and biographies on influential women in STEM. Orret's reason for collaborating with her students to create the 28% is inspiring.



Art By Morgan Gaskell

She says in an interview conducted by the author that she too has felt like a minority in the sciences, for instance in her college classes. She shares how she wanted to find a way to create active change in the classroom, to create a space for girls to take up space and be heard.
Additionally, Orret is the advisor for the Design Lab and Gaming Lab, two afterschool clubs that she created during the 2020-21 school year that focus on animation, 3D modeling, video game design, and robotics. Last year, Orret was also the advisor for the Fashion Club and Baking Club. It seemed every day, Orret's classroom is bustling with curious students.

In the classroom, Orret notices the apparent gender gap in students interested in computer science and programming. She shares over the interview how it is apparent that girls are the minority in APP Academy, with perhaps only 20% of freshman classes being made up of girls. It has been estimated that women only make up 28% of the STEM workforce (the namesake of the 28% newsletter). Within this percentage, women are most underrepresented in technology and engineering. PHS's APP Academy is no expectation to this statistic.

Orret works very hard to ensure the curriculum she designs is as meaningful and intentional as possible so as to be more inclusive to a wider audience. Her techniques are very much rooted in equity and she communicates with students to hear their feedback on her teaching. She believes that curriculum shouldn't be a stagnant thing, but a flexible, ever-changing process of teaching students in ways that work for them. Orret strives to create a curriculum and classroom that is inclusive of all minority groups. She hopes doing so will get everyone thinking that computer science is something they can do.

Art by Alissa Santana

The 28% at PHS: Mrs. Beck

By Paulina Mcconnell

It's safe to say that almost all students are terrified by the word calculus. Most advanced math courses, especially those prefixed with the daunting "AP", seem to invoke a quarry of emotions like stress, fear, or wonder for most - this is a level of math that a lot of students don't even wish to tackle in college.

Fortunately for all of us at PHS, our AB and BC Calculus teacher is set on changing the stigma around her subject. "A lot of people think of it as a list of rules, or procedures, that you have to have a really good memory to understand," muses Mrs. Beck, here on her 7th year teaching at Pasadena High. Also one of the Math 3 teachers this year, she has various other courses under her belt.

Mrs. Beck received her Bachelor's degree from UC Irvine, with a major in math and a minor in education. She also achieved her Master's degree at Cal Poly Pomona.

"Math was always my favorite subject," she explains. "Going as far back as I can remember, even as a little kid, I loved patterns and numbers. I loved making all the connections." After having discovered an interest in calculus and physics in high school, she decided to pursue a degree in mechanical engineering.

The classes were interesting enough, but as Mrs. Beck tells me, she felt that there was a disconnect somewhere. So, in search of a new path, she took a year off. "I actually interned with the church that I was going to at the time, and I was doing curriculum for the kids church - and, well, I really liked it."

The next year, she went back to school, figuring that she could combine this new passion in education with her love for math. Right in time, she found a program at UC Irvine that offered a hundred dollars to anyone looking to pursue math education... and the rest was history.

Nationally, 53.0% of math teachers of all levels are female. However, as you examine these numbers regarding higher math courses, you'll notice a pattern: the more advanced the math becomes, the less women are teaching it. Accordingly, only 37.4% of calculus teachers are female, compared to the earlier number regarding lower-level math.
Given these statistics, I was curious to ask Mrs. Beck what her experience was as a member of this female minority.

"I feel like, in math at the college level, it's a bit more of an even playing ground in terms of the male-female ratio," she said. However, she explains, this is not the case with other STEM courses - such as the high-level physics classes that Mrs. Beck took as an undergraduate. "That was... different," she laughs.

"I remember going to one of my physics lab courses and it was totally at least 80% male. I remember being like, 'okay, well, you gotta work with somebody'... so I kinda just picked a table and sat down," she recalls, cringing. "It was totally different than working with a group of girls, only because [the boys] all just wanted to do things on their own."

Mrs. Beck ended up finding the only other two girls in the class and forming a study group with them for the rest of the course. She specifically cites the support system that she loved when working with other girls: "It was like night and day."

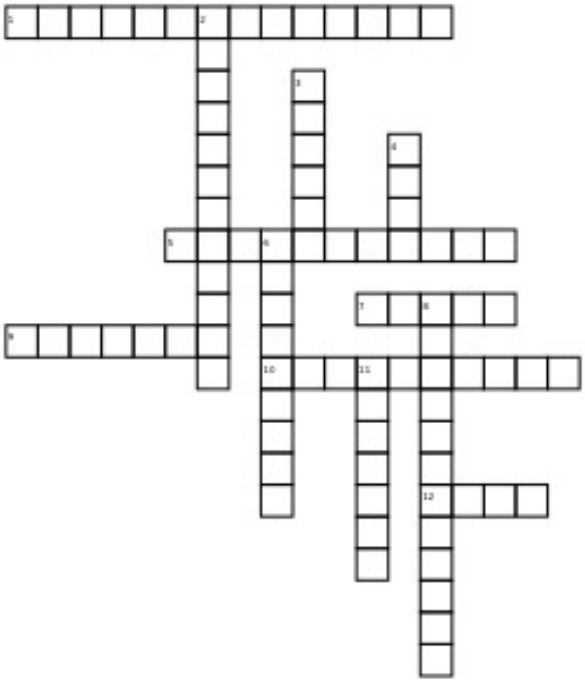
In these college years, Mrs. Beck's hobbies included sewing, thrifting, and crafting. Now, she finds joy in the challenge of getting more buy-in from students who aren't initially interested in calculus. "I always love when students are into the math," she says. "My favorite thing is when a person who doesn't even plan on pursuing math has a better appreciation for it after the class."

It's no wonder that Mrs. Beck's door is always open. "She goes out of her way to help her students," said Jasper Barrera, a junior taking her Calculus AB class. "I remember staying after school one day and just asking her question after question... I was terrified, but she didn't hesitate to help me out!"

If you haven't already, you can definitely look forward to taking these higher math classes with Mrs. Beck - she makes calculus a little less scary for all of us.

THIS MONTH'S CROSSWORD

By Emma Hungerford



Down:

2. What bats use to navigate.
3. These are also associated with witches because women would use them to clean the floors, which was not a common practice at the time.
4. October birthstone.
6. A Jewish holiday in October
8. October is _____ Awareness Month.
11. Where jack o'lanterns originate from.

Across:

1. The week of October 9 is officially _____ week.
5. The author of Frankenstein.
7. The zodiac sign for people born between early September and late October.
9. The zodiac sign for people born between late October through late November.
10. In October is _____ People's Day.
12. _____ are associated with witches because smart women would use them to keep rodents out of the house.

Check your answer in next month's newsletter!

Art By Cecelia Bichette

08

PCC CHEMISTRY SCIENCE SATURDAY

October 8, 9am - 12pm
Free hands-on workshops

18 -20

ADOBE MAX CREATIVITY CONFERENCE

October 18-20
Free virtual sessions with women in STEAM

25

STUDENTS THINK STEAM EXPOSITION

October 25, 10am - 2pm
STEAM career fair at LA Trade Tech College

Credits & Contacts

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- Gianna Gullon
- Madeleine Lees
- Morgan Gaskell
- Emma Hungerford
- Chloe Vuong
- Ruby Chew
- Marley Thach
- Olivia Lopez
- Daniella Novo

Ms Orret, Advisor
& everyone else on the WIS newsletter team

Check out our website:

https://msorret.wixsite.com/onlineclassroom/women-in-stem-newsletter

HAVE QUESTIONS? WANT TO GET INVOLVED? WANT TO BE FEATURED IN A FUTURE NEWSLETTER?

Email Ms. Orret!

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