

Volume XIV // February 2022
celebrating black history month!

The 28 Percent

**Women make up only 28% of the STEM workforce.
This newsletter aims to change that.**



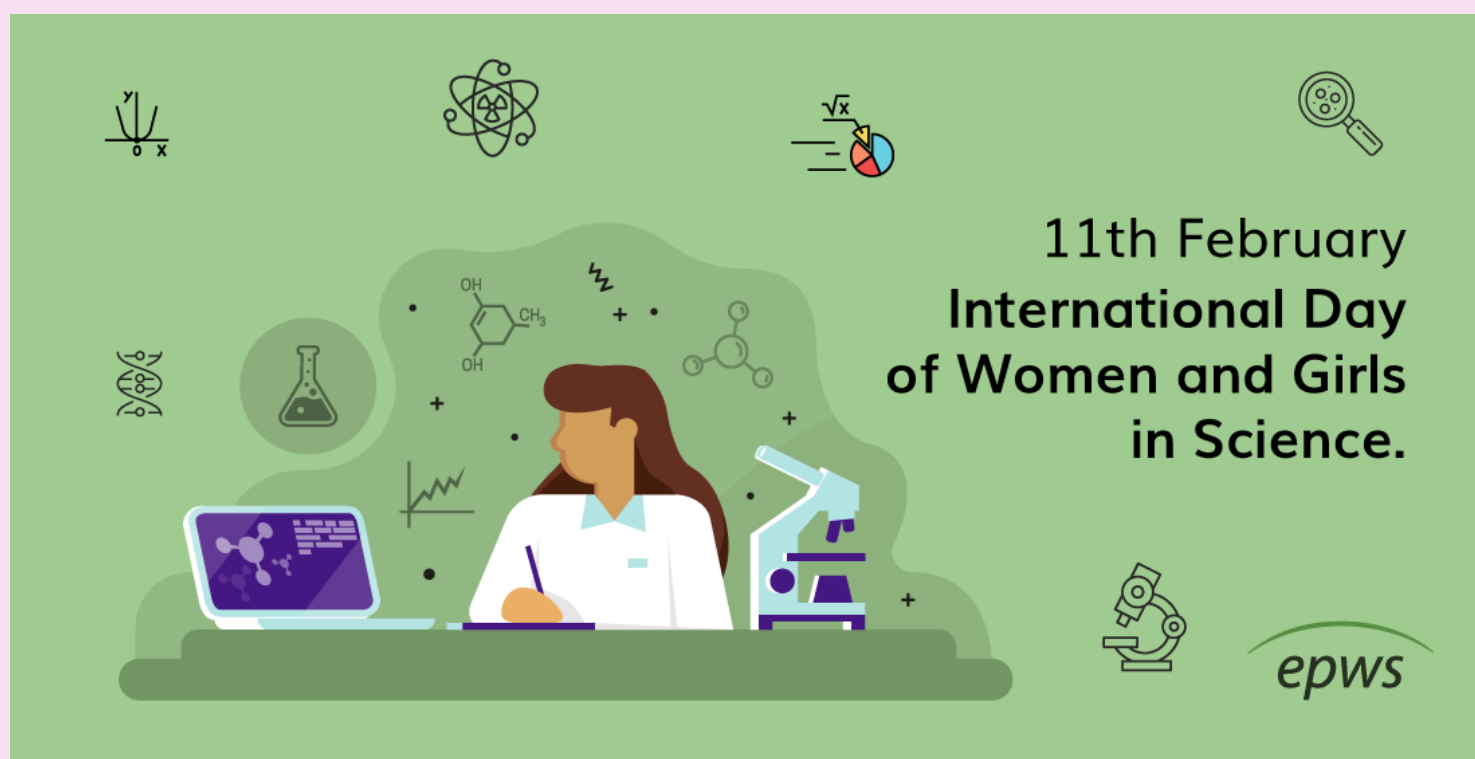
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International Day of Women and Girls in Science



Science and gender equality are both vital for the achievement of the internationally agreed development goals, including the 2030 Agenda for Sustainable Development. Over the past decades, the global community has made a lot of effort in inspiring and engaging women and girls in science. Yet women and girls continue to be excluded from participating fully in science.

In order to achieve full and equal access to and participation in science for women and girls, and further achieve gender equality and the empowerment of women and girls, the United Nations General Assembly declared 11 February as the International Day of Women and Girls in Science in 2015.

The 7th International Day of Women and Girls in Science Assembly will focus on the following topic: "Equity, Diversity, and Inclusion: Water Unites Us". #February11 is celebrated globally in different ways, big and small. Your action will add to the collective voices on Equality in Science.

learn more at:

<https://www.un.org/en/observances/women-and-girls-in-science-day/assembly>

An Interview with PHS Chemistry Teacher

Ms. Stowers

By Tracey Willard

Introducing Ms. Stowers, one of PHS's Chemistry teachers. As you enter Ms. Stowers' classroom; you see a periodic chart on the wall with the elements spelling out the phrase "Think For Yourself".

Share with us a little of your background?

I grew up in Pasadena. I went to college for my undergraduate degree in Anthropology at Amherst College in Massachusetts, but my heart is in California, so I came back for graduate school. I have a Master's in teaching and learning from USC. This is my first year teaching Chemistry at Pasadena High School. I was a substitute teacher and now I am enjoying putting what I have learned into practice in my own classroom.

Was there anyone that inspired you to go into the sciences/chemistry? What inspired you to go into chemistry? Was there anything about you as a child that could have been clues you would go into the field of chemistry? Did you have any relatives or significant persons which come to mind that supported your choice to go into chemistry? If so, who were they and what would they say to you?

My father recently retired from a long career as an aeronautics engineer at JPL. I grew up hearing about space and how it was possible to redefine the limits of what is possible when you know the rules and how to work within and around them. I love learning how things work and why. When I studied anthropology, I learned about how social structures influence people's behaviors and beliefs. As a science learner, I can explore how natural laws influence the things I see and experience everyday. Sometimes, I am surprised that I explore, talk about, and think about chemistry everyday. As a child, I was more into animals than substances. However, I really enjoy solving problems by thinking about ways to take things apart and put them together in a new order that does something different. My family is very supportive of my passion for teaching chemistry and the steps I have taken to pursue becoming a chemistry teacher. They say that as long as I am striving to be a more effective, relevant, qualified professional and as long as I seek opportunities to keep learning about best practices in teaching and trends and discoveries in chemistry and science, then I am making them proud.

Explain the abilities you need to work in chemistry.

To work in chemistry, you need to be able to see the big picture at the same time as seeing the tiniest bonds and interactions. Chemistry is the study of matter and how it interacts with other matter and with energy. Matter is everything we can see, touch, taste, and smell. (Not hear because sound waves are not matter). Also, you need to be able to use the scientific method and ask questions, make predictions, experiment, make accurate observations, collect good notes and data, and clearly communicate your findings.

What are the choices available to someone with an interest and background in chemistry? What is a profession(s) in STEM that include chemistry?

A background in chemistry can prepare you for the medical field, pharmaceuticals, manufacturing, research and development, education, engineering, food science, petroleum and so much more. Chemistry is often called the central science because chemical processes overlap with theories and phenomena in other sciences- like digestion in biology, or calculating how mass can affect force in physics. Many professions in STEM include chemistry. A pharmacist, a chemical engineer, a food scientist, or a veterinary technician are some STEM jobs that involve chemistry that I would be interested in if I were not a teacher.

04// A Cool Woman (continued)

Do you have any background knowledge on the earlier African American women chemists when the Civil Rights Acts was passed in the 1960's and even earlier. The passage of the Civil Rights Acts in the 60's; do you know of greater career opportunities that emerge for these women and how they were filled by them?

One African American woman chemist who was working in chemistry around the time of the passage of the Civil Rights Act that I really admire is Dr. Marie Maynard Daly. She was the first African American woman in America to earn a Ph.D. in chemistry. She was able to graduate with her doctorate from Columbia University in 1947. She was able to have the opportunity to further her education because of labor shortages during WWII. Throughout her career, she was a working scientist and a professor at Howard University. She was interested in proteins and their role in the human body. Because of her, other pioneers and the Civil Rights Act, many career opportunities in STEM exist for women like me today.

Are there any significant contributions you are aware of that women and African-American women have made in the field of chemistry?

Women and particularly African American women have made many significant contributions to the field of chemistry. Marie Curie helped discover radiation. Alice Ball, an African American woman, developed the first successful treatment for leprosy. Dr. Angie Turner King helped develop best practices for laboratory work. There are so many wonderful examples of strong women who have made our lives more convenient, healthier, and longer.

"It is often said that chemistry lacks "big questions" like physics and biology. But this is not entirely true. The origin of life is a quintessentially chemical problem, and it's as big as fundamental questions can get.(taken from article, "Five questions that (should) keep chemists awake at night", Scientific American, 11/2013) Do you have a "big question" as a chemist?

This quote is very accurate. One big question that I think about is, how can we make sustainability and environmental ethics front and center when developing new products and finding better ways to live in this modern, technologically advanced world? I am really interested in environmental impacts and I encourage my students to think about their impacts beyond their front doors.

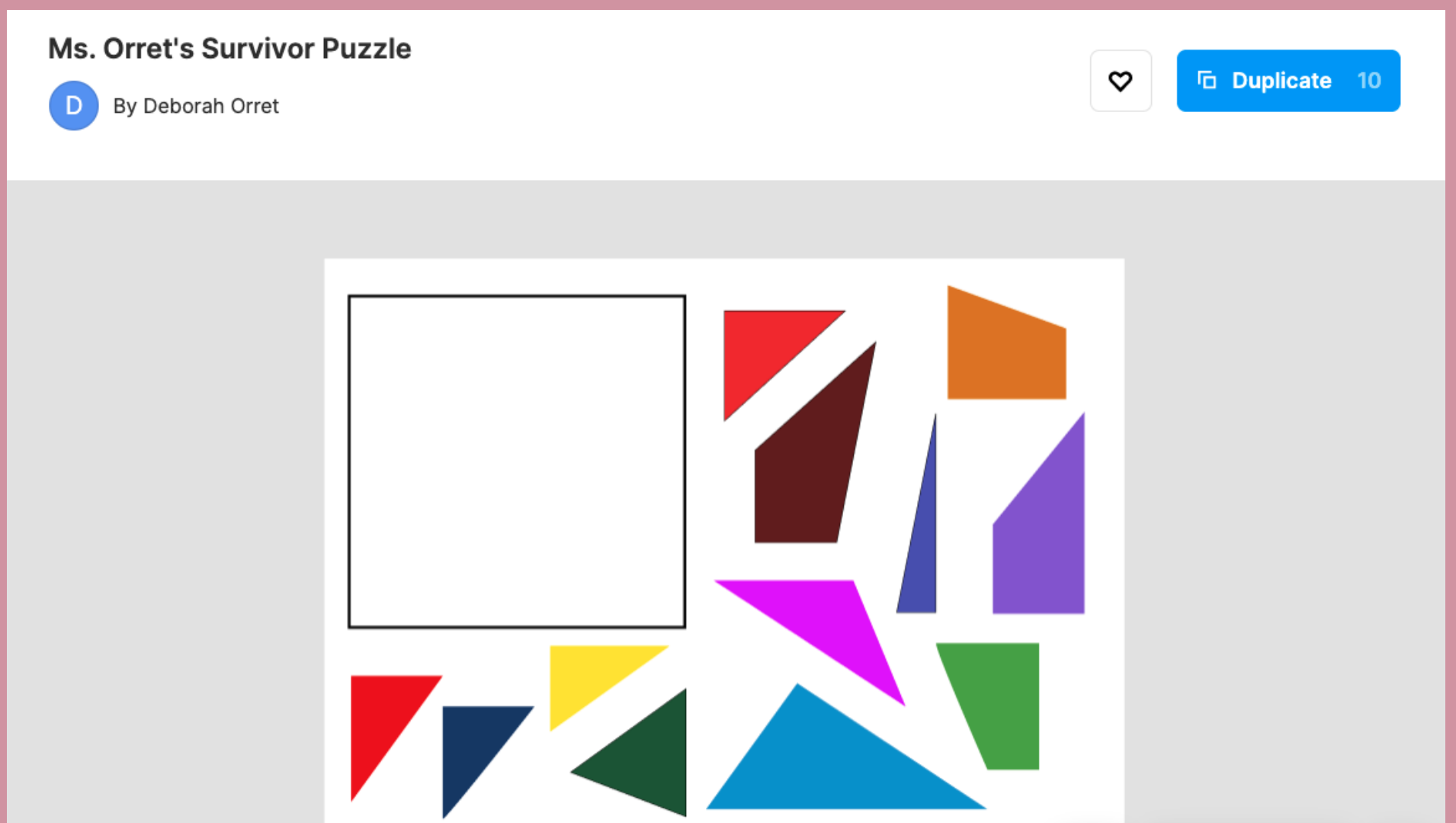
Did you ever learn about Nylon Hylton with the Magnetic Resonance Imaging (MRI); chemical engineering? How Madame CJ Walker? Any other historical African-American inventors/chemists who come to mind?

I have heard of Nola Hylton, the professor of radiology at UCSF, who is responsible for the use of MRIs to detect breast cancer and evaluate how well patients are responding to treatment. She is helping women live longer, healthier lives every day. I also am a fan of Madame CJ Walker, who developed hair care treatments and was the first female self-made millionaire. She was a home-trained chemist who acquired knowledge to make the lives of women better. She reminds us that self-care and pride are necessary for everyone and that chemistry is so important to that. I know I love all my hair, face, skin, and health products.

Thank you for being a part of 28% Newsletter's February's issue. How does it feel?

I am honored to be a part of the 28% Newsletter's February's issue. These questions were interesting and challenging. They really made me think about how the chemistry I do in my classroom has a place in the lives of my students and in the world. I am grateful to everyone who reads this. I hope people are inspired to learn more about the many African American women who contribute to chemistry and STEM, and that people are inspired to get in their kitchens and cook something delicious and think about how we are all chemists!

Try to solve Ms. Orret's Survivor Puzzle! Duplicate the project and try to fit all the shapes into the square!



Try it here!

<https://www.figma.com/community/file/1068244040941413432>

If you would like to submit a logic puzzle for future newsletters, send it to orret.deborah@pusd.us!

*the girls that made this newsletter
possible*

Emma Hungerford, 10th Grade
Violet Chandler, 10th Grade
Madeleine Lees, 10th Grade
Jaidyn Carrol, 10th Grade
Morgan Gaskell, 10th Grade
Celeste Acosta, 10th Grade
Alissa Santana, 10th Grade
Ruby Chew, 10th Grade
Cecelia Bichete, 10th Grade
Mallika Sheshadri, 9th Grade
Gianna Gullon, 9th Grade
Maxine Scott, 9th Grade
Tracey Willard
Ms. Orret, Advisor

*have a question? want to get
involved? want to be featured on
the newsletter?*

Email Ms. Orret!

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