A Science Experiment: Lab Kits

Yes, kids, you can try this at home

By Sherry Posnick-Goodwin

STUDENTS CAN’T VISIT their school’s science lab during the pandemic, but the lab has come to them, thanks to science kits created by inventive biotechnology teachers for students learning at home.

In San Mateo County — biotech capital of the world, with groundbreaking companies that include Pfizer, Genentech and Gilead — nine high school biotech teachers formed a partnership with Skyline College in San Bruno, creating a dual-enrollment program allowing high school students to receive college credit for cutting-edge classes in an industry that created COVID-19 vaccines that will save millions of lives and get society up and running again. Biotech engineers also get credit for DNA advances that predict who is at risk for certain diseases, gene therapy to treat illnesses, evidence to solve crimes and find long-lost relatives, and cloning.

When the pandemic hit, San Mateo County schools went online and the partnership ramped up. The educators didn’t want to go from hands-on instruction to just lecturing. They were afraid boredom might set in, despite the fascinating subject matter. So they collaborated on curriculum via Zoom over the summer. And thanks to Skyline, which donated money and supplies, they were able to create science kits to send home with students, who are still doing distance learning.

Collaboration with college

“Skyline College was awesome,” says Daniel Rivera, a biotech teacher at El Camino High School and a South San Francisco Classroom Teachers Association (SSFCTA) member. “They bought the materials for us, and schools used these supplies to put kits together. We wanted to make sure that whatever students do at home is still meeting standards for the class — as well as CTE [career technical education] standards. The experiments are challenging enough to cover important concepts, but can be done safely.”

For example, a basic skill is learning how to mix solutions of various mass/volume concentrations and percentages. But since chemicals typically used in labs could not be sent home with students, students used existing plant cutting (and then figure out how certain variables could change or influence the results, charting their findings.

Kits included notebooks, clear plastic cups, batteries, eye protection, funnels, petting soil, spatulas, ultra fine Sharpies, transfer pipettes, glucose tubes, diabetic glucose test strips, glue sticks, washi tape, small scales, and various powders that are not combustible.

“Building a pipeline to the biotech industry

Nine teachers and approximately 1,000 students in San Mateo County participate in this project, says Rivera, who teaches a two-year elective program. Students often make videos of themselves doing projects, explaining the process, such as extracting DNA from wheat germ out of a tube.

“It would have been boring without these labs,” says Raiselle Kyaw, a senior in Rivera’s program. “They were fun to do and helped us understand concepts like flow charts and analyzing data. I definitely plan to work in the field of science or biotech.”

“You can’t replace the values of labs or teachers in a classroom setting. But using our lab kits and items students can buy at the supermarket for at home experiments is the next best thing.”

—Rocky Ng, South San Francisco Classroom Teachers Association

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—Leslie Burndon, Sequoia District Teachers Association

Books for Our Times

Teachers write books about COVID-19 to support students

By Sherry Posnick-Goodwin

IN 2020, when truth proved stranger than fiction, two CTA members wrote books designed to help students cope with the strange new world, which includes sheltering in place, social distancing, mask wearing and online learning. These books can be used as a resource to help students cope with today’s challenges — or serve as “memory books” in the future, so students can recall how they bravely lived and learned during unprecedented times.

Mask or No Mask, One Thing Is True… I Am Your Teacher and I’m Here for You!

By Kristin Studt

Westside Union Teachers Association member Kristin Studt, a first grade teacher at Gregg Anderson Academy in Palmdale, wanted to let her students know how much she cared about them. After the 2019-20 school year ended, she wrote a book that is beautifully illustrated by Noé Garcia, whose children attend the school.

“I wanted to let my students know that we are going through strange times, and I will do my best to be their teacher and help them learn and be there for them,” says Studt, a 20-year teaching veteran.

The book depicts the heartbreak of saying goodbye last March (“I saw your sweet faces, held back a tear, because I felt in my heart things would be different for the rest of this year”) and then shows the amazing resilience that followed (“We all heard the news, quickly shifted gears, and figured out how to do distance learning for the rest of the year”). Playground closures, drive-by birthday parties and working from home are also highlighted.

Studt and her book have been featured on KTLA television news. Holding back tears, she read the book to her new students this fall, and they loved it. The digital book is available at storiesbystudt.com.

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—Kristin Studt

Other CTA members in the program: Cherie Cohen, SSFCTA; Jimmy Ikeda, Mary Rustia and Katherine Ward, San Mateo Union High School District Teachers Association; and Jaime Abdilla and Tyler Kochel, SDTA.

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a biotechnology company in South San Francisco dedicated to developing medicines for people with serious and life-threatening diseases.

“It took a while to get the projects worked out, but we’ve seen some really good results,” says Leslie Burndon, a bio-tech teacher at Carlmont High School in Belmont and a Sequoia District Teachers Association (SDTA) member. “It was impressive seeing the kids working at home. They may not have been able to do fancy stuff we normally do with DNA and electrophoresis (the movement of charged particles in a fluid or gel under the influence of an electric field) or extracting enzymes, but students got the rough idea and understood the processes that are involved from these at-home experiments.”

“We want to build a pipeline to the biotech industry,” says Rocky Ng, a biotech teacher at South San Francisco High School and SSFCTA member. “So, it was really important for them to have lab skills and be engaged while in distance learning. You can’t replace the values of labs or teachers in a classroom setting. But using our lab kits and items students can buy at the supermarket for at-home experiments is the next best thing.”

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