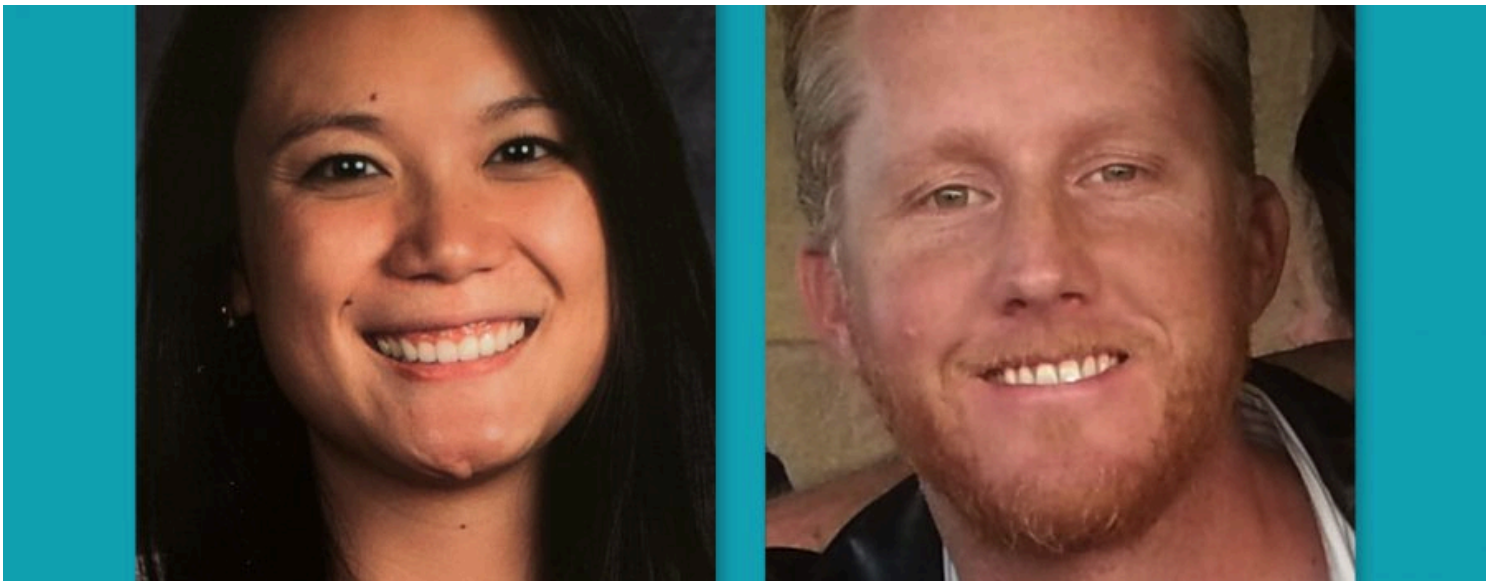


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SALLY RIDE SCIENCE

Junior Academy instructors bring virtual inspiration to homebound students



(<https://sallyridescience.ucsd.edu/wp-content/uploads/2020/08/Yen-Stine-4.jpg>)

August 4, 2020 (<https://sallyridescience.ucsd.edu/junior-academy-instructors-bring-virtual-inspiration-to-homebound-students/>) by Sally Ride Science (<https://sallyridescience.ucsd.edu/author/mking/>) · Posted in " News Releases (<https://sallyridescience.ucsd.edu/category/news-releases/>) " · Tags " Online classes (<https://sallyridescience.ucsd.edu/tag/online-classes/>), STEAM (<https://sallyridescience.ucsd.edu/tag/steam/>), STEM (<https://sallyridescience.ucsd.edu/tag/stem/>), STEM Camp (<https://sallyridescience.ucsd.edu/tag/stem-camp/>) " ·

By Margaret King

[Sally Ride Science Junior Academy](https://sallyridescience.ucsd.edu/junior-academy/) (<https://sallyridescience.ucsd.edu/junior-academy/>) is known for lively and often messy hands-on STEAM workshops. When the coronavirus pandemic forced the academy to move online this summer, instructors faced the challenge of finding creative ways to deliver involving lessons to remote learners.

The resulting classes kept young learners engaged and left parents impressed. “The feedback was very positive from the students and the parents,” says Christine Morales, Junior Academy program supervisor. “They enjoyed this program tremendously and are looking forward to next year.”

The Junior Academy began as an in-person summer camp in 2016 after Sally Ride Science, cofounded by America’s first woman in space, became part of UC San Diego under the direction of [UC San Diego Extension](https://extension.ucsd.edu/courses-and-programs/pre-college) (<https://extension.ucsd.edu/courses-and-programs/pre-college>). This year’s online Junior Academy, from June 29 to July 24, offered STEAM (science, technology, engineering, arts and math) classes for grades 4-12. Classes combined live Zoom sessions with individual online work.

Morales explained the thinking that guided instructors as they shifted to online classes. “When we were discussing as a team what we wanted the online student experience to look and feel like, we knew it was important to build a sense of community,” she says. “Instructors were encouraged to start slowly to gauge how everyone was doing during this difficult time. Our instructors did exactly what we were looking for.”

Here’s a look at the strategies two Junior Academy instructors used to connect with students and spark creativity in a remote learning environment.

Falling in love with ocean science

[Nicole Yen](https://extension.ucsd.edu/about-extension/nicole-yen) (<https://extension.ucsd.edu/about-extension/nicole-yen>) taught two Junior Academy classes, *Invisible Life of the Oceans*, for high schoolers, and *Ocean Science and Marine Biodiversity*, for high school and middle school students. Adapting the classes for remote learning posed several challenges, Yen says.

Though she didn’t meet students face to face, she took steps to establish a personal connection. “We had them take a quiz in the beginning of the class to tell us what kind of learner they are,” she explains. “I had them create an introduction bio. So I know their background, I know their favorite marine organisms, I know what type of learner they are.”



Nicole Yen

Yen, who earned her master's degree in marine biology from [Scripps Institution of Oceanography](https://scripps.ucsd.edu/) (<https://scripps.ucsd.edu/>), notes that ocean science depends heavily on in-person work. "With marine science there's so much lab work and hands-on experiences," she says. "With an online course, that interactive lab activity is taken out."

In live Zoom meetings, Yen found activities to stand in for actual lab experience. "I showed them some of my deep-sea collection from when I was in graduate school," she says. "I have hatchetfish, dragonfish and a vampire squid. Even though students can't touch it, showing them things in real time gets them a lot more excited."

To keep a connection when students were working on their own, she used an online platform called deck.toys (<https://deck.toys/>). It allows teachers to create lessons in the form of games that give users direct feedback on their progress. "It feels like I'm still communicating with the students even when I'm not there with them on Zoom," she says.

Yen also wanted to encourage students, including some in other states and as far away as Nigeria, to interact with each other. "In person you get collaboration, you get to build friendships," she says. "In an online class, I realized that you have to create activities that require students to collaborate."

In Zoom sessions, she sometimes put students in small breakout groups to encourage conversation. She also used the platform [Creately](https://creately.com/) (<https://creately.com/>), which allows students to collaborate on flowcharts and diagrams.

Another way that Yen got students involved was by appealing to their desire to protect our planet. "A lot of them really care about the issues," she says. In *Ocean Science and Marine Biodiversity*, students explored the ways human activities affect the oceans, including the impact of climate change.

"The purpose of the course is really to allow students to fall in love with the oceans, fall in love with marine organisms and then tie it back to, 'What can I do to help? How can I reduce my carbon footprint?'"

A virtual world tour

For instructor [Trevor Stine](https://extension.ucsd.edu/about-extension/trevor-stine) (<https://extension.ucsd.edu/about-extension/trevor-stine>), adapting to a remote learning environment was simpler, since his class, *Virtual Exploration and Design for a Sustainable World*, was all about using online tools. He taught two sections – one for middle school students and one for high schoolers.

Students in *Invisible Life of the Oceans* created scientific illustrations. This one is by Annie Mitten.

Students started by learning to use Google Maps and Google Earth for virtual exploration. "Using Google Maps, I would zoom into different areas of the world, and we would look at the natural features," Stine says. "We would discuss how some of the first ancient civilizations were able to come about in relation to those natural features."

Trevor Stine

The class also looked at the problems of modern civilizations, including pollution and natural disasters. "We also used street view to examine the architecture in certain cities," Stine adds. "Toward the end of each day, I would show students designs I had done and introduce them to sustainable building elements."

For the final assignment, each student designed a sustainable home for an average family in a place anywhere in the world. Students chose a wide range of locations, from the Philippines to Yemen and from Vancouver to Vienna. They used census data to find out about life in those places.

"Then they used their knowledge to figure out what type of materials they wanted to build their houses with," Stine says. He introduced free software that students could use to make floorplans and 3D renderings of their designs.

Throughout the class, Stine says, the ability to share his screen during live Zoom sessions was invaluable: "Students watched me navigate through the map, and they asked questions, and I was able to give them direction as I was navigating myself."

Stine is accustomed to teaching adult learners at San Diego's [NewSchool of Architecture & Design](https://newschoolarch.edu/)

(<https://newschoolarch.edu/>), so he didn't know what to expect from his Junior Academy students. "I was surprised," he says. "When I teach adults online, I usually have to call on them by name. With the junior high and high school students, there was no problem getting them to participate. They were interrupting each other to answer questions. They were much more self-engaged."

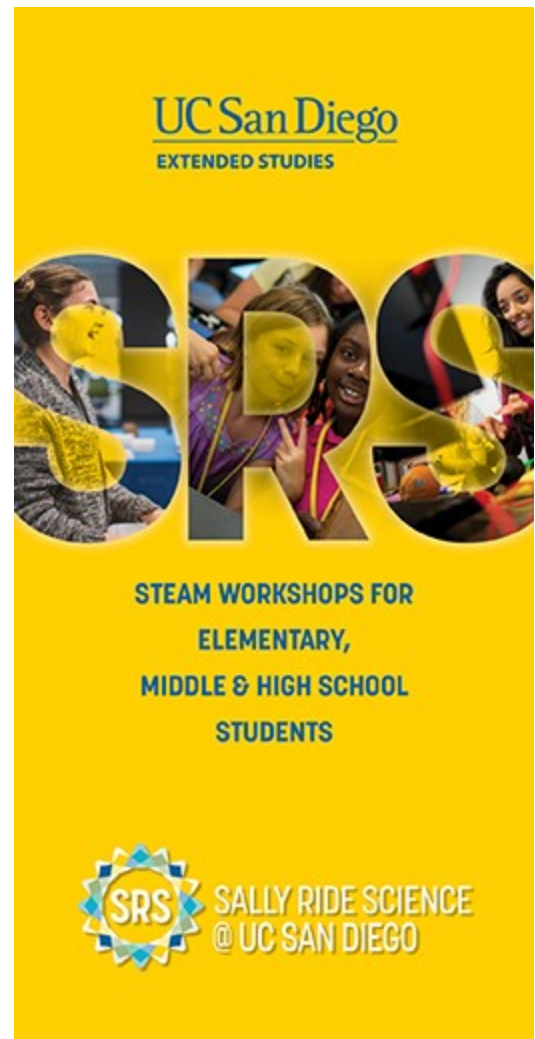
Kira Lichtenfeld designed this sustainable home for an average family in Vancouver, Canada.

Many students signed up for the class because they were interested in sustainable design, Stine says. But they responded eagerly to the lessons on geographic exploration. "I saw that they were all fully engaged when I was exploring using Google Maps – it was really enthralling to the students as opposed to just having slides," he says. "It helped them put the puzzle together in a tighter way."

➔ Junior Academy Supervisor Christine Morales on how to engage remote learners with innovative online classes (<https://sallyridescience.ucsd.edu/sally-ride-science-junior-academy-supervisor-talks-about-engaging-remote-learners-with-innovative-online-steam-classes/>)

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