Case Study
La Entrada Students Participate in Hands-On STEM in the Classroom and via Distance Learning with STEMscopes

Menlo Park, California
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THE CHALLENGES

La Entrada Middle School is one of two schools in the Las Lomitas Elementary School District in Menlo Park, Calif. Located near Stanford University, between the major metropolitan areas of San Francisco and San Jose, La Entrada was designated a National Blue Ribbon School in 2014, and in 2017, a California Gold Ribbon School.

In 2019, La Entrada educators set out to find new science materials aligned with the California Next Generation Science Standards (CA NGSS).

“We’re a small school in a small district. We have a strong science department and I had great lessons, but the science textbook I was using was at least 10 years old,” says Joanne Tinkham, a sixth grade science teacher at La Entrada. “We wanted to get NGSS materials for our whole school, so all of our teachers piloted different products. STEMscopes was one of the programs I piloted. Unlike our science textbook, STEMscopes offers paper-free teaching. The STEMscopes content is tighter and better organized, and it gives my students so much more. Another thing that’s exceptional about STEMscopes is the support. The STEMscopes personnel are amazing.”
La Entrada Middle School began using STEMscopes CA NGSS 3D schoolwide in grades 4-8 during the 2019-20 school year. In 2020, it made STEMscopes Streaming and STEMscopes Coding available to teachers as well.

Implementing a phenomena-based, three dimensional curriculum

STEMscopes CA NGSS 3D is built on the CA NGSS and aligned to the California Science Framework. It is centered on phenomena-based instruction to drive student inquiry and a passion for STEM, while helping students prepare for the California Science Test (CAST). The curriculum, which was adopted by the California State Board of Education in 2018, is also available in Spanish for grades K-12.

“STEMscopes provides an intelligent approach to the NGSS and follows the standards with fidelity. It makes my job easier. If anyone asks about a particular standard, I can pinpoint it in STEMscopes.”

STEMscopes CA NGSS 3D supports student and teacher success through a combination of comprehensive digital STEM curriculum, supplemental print materials, and ready-made exploration kits with embedded professional development. It provides everything teachers need to address the Disciplinary Core Ideas, Crosscutting Concepts, and Science and Engineering Practices that form each standard of the CA NGSS. It includes customizable, coherent, storyline-driven bundles that immerse students in phenomena while linking the three dimensions across lesson modules.

“The NGSS tell us about things like inquiry-based learning, storylines, and Claim-Evidence-Reasoning — and STEMscopes makes it possible to do all of those things. It takes a load off of my mind as a teacher, because I know it works,” says Tinkham. “The first time I taught with a STEMscopes storyline, I could see students’ eyes light up. That’s a beautiful thing.”

Supporting teachers

In addition to student learning modules, the STEMscopes curriculum includes embedded support for teachers — such as lesson plans, professional development videos, on-demand webinars, and how-to guides — to help them continuously improve their teaching.

“I used the teacher materials a lot when we were getting started with STEMscopes. It’s great to know that support is there for you,” says Tinkham. “Having the ready-made kits is helpful, too. It’s a luxury to not have to go to the store, and it’s easier to set up labs.”
Implementing the 5E+IA lesson model

Each unit, or “scope,” in STEMscopes CA NGSS 3D is developed around the 5E (Engage, Explore, Explain, Elaborate, Evaluate) model of instruction, with additional phases for Intervention and Acceleration. This helps create deeper learning experiences that engage students within all areas of the CA NGSS.

“I had previously used the 5E model, but STEMscopes helps me use it with fidelity, and my students are really pleased with the lessons,” says Tinkham. “They’re really keyed into the flow of the lessons, which helps them take control of their learning. They know what to expect, so it’s easier to get ‘in the zone.’ I love starting with the phenomena and progressing through the storylines. It’s fun for students and it pays off in their learning.”

Conducting distance learning in STEM

When schools closed in March 2020 due to the COVID-19 pandemic, La Entrada Middle School moved to distance learning. During the 2020-21 school year, it employed a hybrid learning model.

“Science is still conducted via distance learning,” Tinkham says. “STEMscopes CA NGSS 3D has been fantastic. It made the transition to distance learning so much easier. It adds confidence to my teaching, especially in light of having to teach remotely. Student comprehension and buy-in are so good, thanks to the variety and high quality of the lessons.”

With the STEMscopes distance learning hub, teachers can access lessons and guidance for using the curriculum in both synchronous and asynchronous learning, as well as distance learning tools to keep the learning going. Using STEMscopes Virtual Learning Videos, for example, teachers can engage students in hands-on learning in the classroom or at home. With embedded teacher talk, questioning, and instructional modeling, students can follow along and participate in activities from anywhere.

“The Virtual Learning Videos are great. The slide decks that are provided for teachers are very helpful. The Math Connections, Tuva datasets and graphing tools, and PhET simulations are amazing. They’ve been great tools to challenge and engage students during distance learning,” she says.

Making real-world connections with media resources

La Entrada teachers also have the option of using STEMscopes Streaming to further engage students with scientific phenomena and connect them to the real world. STEMscopes Streaming features a comprehensive digital library of media resources from BBC Learning. From immersive 360-degree videos to current scientific news, it includes thousands of videos organized by topic and subcategory. To ignite inquiry, the content comes with discussion questions, writing prompts, and hands-on extension activities.
“Although my students have been learning science remotely for almost a year now, they are completely engaged and their comprehension is good, too. STEMscopes has been excellent for us.”

“STEMscopes Streaming helps me teach and connect science to the real world,” says Tinkham. “I love the BBC videos, the discussion questions, the phenomenon-based storylines — they help students understand why science is important.”

Making it easy to code from anywhere

Tinkham also enjoys using STEMscopes Coding with her sixth graders. With STEMscopes Coding, K-12 teachers can bring coding into every classroom — with no prior coding experience required. Powered by Bitsbox, STEMscopes Coding teaches students how to design and build apps that can be shared on any device. They can code on the website while their apps live in the cloud, so they can code at school, at home, or anywhere else they feel inspired.

“I want students to have a creative outlet and build skills they can use in the future,” Tinkham says. “We used another coding program previously, but it didn’t allow students to save their work. With STEMscopes Coding, they can save their work all year.”

Unlike other coding programs that simulate the process with block-based learning, STEMscopes Coding allows students to type their JavaScript code for a hands-on, personalized experience. They can create their own games, simulations, and storytelling apps with graphics, animation, interactivity, and sound.

STEMscopes Coding also provides embedded support to help educators teach coding with confidence.

“I don’t have a great depth of knowledge in coding” Tinkham reveals. “So STEMscopes Coding is a gamechanger. It’s intuitive and simple to use, and students can save and share their material so easily. My students love STEMscopes Coding. They’re really into their projects. To them, it feels like a game, but it’s so much more than that because of the collaboration and creativity it promotes.”

Engaging STEM learners

“STEMscopes is so multifaceted. It’s visually appealing. Students can turn on the text-to-speech function if they want something read aloud, or get vocabulary support if they need it. All of these things really help my students,” says Tinkham. “With the STEMscopes Intervention and Acceleration resources, I can make the curriculum easier or more challenging in a manageable way. There are so many opportunities; there’s something for everyone.

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