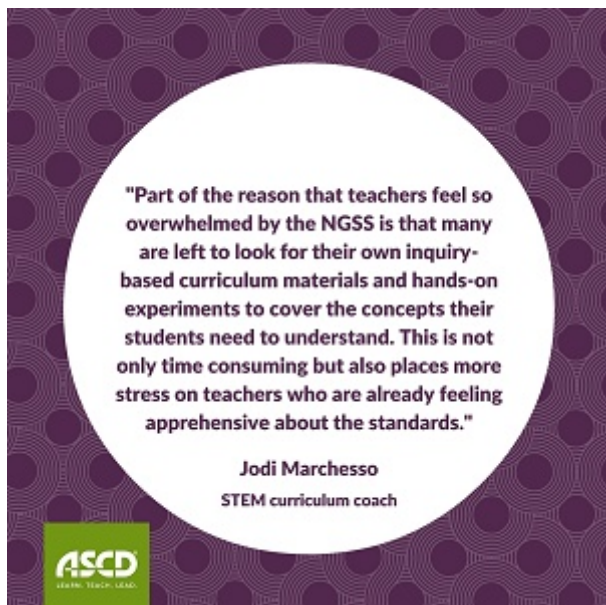


» Transitioning to the Next Generation Science Standards

By Jodi Marchesso



The Next Generation Science Standards (NGSS) for California represent an important step forward in preparing students for college and careers, but the implementation of these standards can be challenging for teachers—especially those who were not STEM majors.

The [NGSS for California](#) are different than the [1998 California Science Standards](#). The NGSS emphasize the importance of having a deep understanding of science concepts and engaging in scientific thinking, as well as the integration of skills and practices across the content areas. This requires a big change in instruction. Indeed, according to the [National Science Teachers Association](#) (NSTA), implementing the NGSS requires experienced teachers to make a significant shift in the content and manner in which they have been teaching and beginning teachers to make a shift from how they were taught at the university level.

To complicate matters, many California districts haven't yet implemented curricular materials aligned to the new standards. Case in point: in [Pasadena Unified School District](#), one of the biggest obstacles we faced in moving to the NGSS was that all of our instructional materials were aligned to the old 1998 standards.

Another issue is that many teachers are intimidated by teaching science. At the elementary school level in particular, many teachers are not science majors and do not have experience in science or scientific practices.

This is why school district officials have a critical role to play in leading—and easing—the transition to the new student performance expectations.

Part of the reason that teachers feel so overwhelmed by the NGSS is that many are left to look for their own inquiry-based curriculum materials and hands-on experiments to cover the concepts their students need to understand. This is not only time consuming but also places more stress on teachers who are already feeling

apprehensive about the standards.

When we were looking for a STEM solution for our K–8 schools, we found that many resources claimed to be NGSS-aligned, but they relied heavily on reading and writing about science rather than *doing* science. We knew we needed a resource that would make the NGSS engaging and exciting for students as well as teachers and support teachers in making the transition.

After careful evaluation, we chose a solution called [STEMscopes™ California](#) and began using it in fall 2015 in all of our K–8 schools. Developed by Accelerate Learning and Rice University, STEMscopes is built from the ground up to address the NGSS. It includes teacher and student digital resources, supplemental print materials, and hands-on exploration kits. It also offers a Spanish version for grades K–5, meaning we no longer have to translate our STEM resources into Spanish, which was very time consuming.

Of course, implementing the NGSS requires more than the right tools. It requires a clear vision.

One of the reasons we chose STEMscopes is that it aligns with our district’s mission to drive inquiry-based learning, and it follows all the best practices we want to see in our science classrooms. In addition, it can be used in traditional, blended, and 1:1 classrooms, which gives teachers more flexibility in their instruction.

By taking the guesswork out of teaching the NGSS, we’re helping both teachers and students feel more confident and more excited about STEM. We’re also helping teachers better support students in building their own knowledge and understanding of STEM, which deepens their learning.

Here’s what one teacher told me this year: “Initially, I was a little nervous because it was our first year implementing the NGSS and my first year teaching 6th grade science. When I began, we used a different curriculum. It lacked content related to what the NGSS required, which meant I had to acquire a lot of curriculum from other resources. When the district provided STEMscopes, it helped turn things around for me. I no longer had to look elsewhere for inquiry-based curriculum and hands-on experiments to cover the concepts my students needed to understand. Now I love teaching science. I’m still learning, but I feel much more confident this year.”

This is critical because a STEM education is important to help students solve real-world problems, understand how things work, and make math and science relevant. We look forward to continuing to blaze new trails in STEM education to support our teachers and prepare our students for the rigors of today and the opportunities of tomorrow.

Jodi Marchesso is the STEM curriculum coach in the Pasadena Unified School District.