New Research Finds Potential for Science Learning in California Middle Schools Goes Untapped

California’s middle schools have the potential to provide students with high quality science education, but significant challenges limit opportunities for science learning, leaving that potential unfulfilled, according to new research released today by the Center for the Future of Teaching and Learning at Wested.

Sacramento, CA, March 23, 2012 --(PR.com)-- California's middle schools have the potential to provide students with high quality science education, but significant challenges limit opportunities for science learning, leaving that potential unfulfilled, according to new research released today in Sacramento.

The research shows that middle schools offer dedicated time for science, access to facilities and a teaching force that is fairly well prepared for teaching the subject. But students often lack access to science instruction in earlier grades and arrive at middle school underprepared and uninterested. Systemic support for science has eroded and overcrowded classrooms, insufficient time for instruction and inadequate materials limit access to high quality learning opportunities.

And while many teachers are well prepared for teaching science, nearly one-quarter of middle school teachers do not have a background or credential in science. Teachers also need opportunities to continually deepen their knowledge and improve their teaching skills, while keeping up with ever changing developments in the field.

“California's middle schools offer critical strengths for teaching science,” says Holly Jacobson, Director of the Center for the Future of Teaching and Learning at WestEd. “But too often their efforts are undermined by difficult challenges that are limiting opportunities for science learning for students.”

These findings and others are explored in Untapped Potential: The Status of Middle School Science Education in California. This new report examines the results of a statewide study of science education conducted in 2010 and 2011 among teachers, principals and school district leaders in California, as well as analysis of secondary data in selected school districts. The study was commissioned by the Center for the Future of Teaching and Learning at WestEd and conducted by the Lawrence Hall of Science at the University of California, Berkeley, and SRI International as part of their Strengthening Science Education in California Initiative. The report follows earlier research on science education in California's elementary schools published in November 2011.

“Our research finds that students in California's middle schools are unprepared for and uninterested in science learning,” says Ardice Hartry, a researcher at the Lawrence Hall of Science at the University of California, Berkeley. “And unfortunately, middle school students are unlikely to have access to high quality learning opportunities that engage them in the exploration and practice of science.” The analysis suggests that just 14 percent of middle school teachers provide a pattern of classroom practices that support regular engagement of students in the practices of science.
The research shows that nearly 40 percent of teachers view students' lack of interest as a major or moderate challenge to science instruction, and nearly half (47%) of principals report students' lack of preparation as a major or moderate challenge. The problem of inadequate preparation appears worse in schools serving low-income students. Thirty percent of principals in schools in the lowest income quartile said lack of student preparation was a major problem, while just 6 percent of principals in the highest income quartile reported preparation as a major problem.

The report also details challenges to teaching science at the middle school level. In addition to the inadequate preparation of students in elementary schools, class size, funding and lack of access to needed materials are cited as barriers to science instruction. And while many middle school teachers have had access to professional development for teaching science, more than half of teachers say more is needed.

“If science learning is going to be a priority, it is imperative that California act to strengthen science education in elementary schools so that students will be prepared for and interested in the pursuit of science in middle school and beyond,” concludes Jacobson. "We should also build upon the existing strengths of our middle schools and address the challenges they face in ways that promote high quality learning opportunities in science.”

To further efforts to strengthen science education in California the report's authors offer specific recommendations. Highlights of these include:

- Prepare for the Next Generation Science Standards now under development.
- Focus on elementary science
- Ensure that teachers have the professional development and other support needed to provide students with a comprehensive, experiential science program.
- Examine the state requirements for middle school science teachers to ensure that the path leading to the credential adequately prepares the credential holder to teach to the rigors of middle school science
- Provide opportunities for vertical professional learning communities
- Examine the master schedule of middle schools to ensure that sufficient time is devoted to science classes and is scheduled to accommodate lab work and experiential learning

Untapped Potential: The Status of Middle School Science Education in California is published as part of the work of Strengthening Science Education in California, a research, policy and communications initiative funded by the S.D. Bechtel, Jr. Foundation to improve the quality of science education. The report and summary materials can be found on the web at www.cftl.org/science. The research can also be found on the Lawrence Hall of Science website at www.lawrencehallofscience.org.
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