
## On Not Becoming a Scientist



By Jeffrey Mervis
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Children are capable of understanding more science than many educators give them credit for. But those same teachers may not know enough to help their students learn what they need to know to compete in a global economy. That message comes from a new assessment of U.S. science education in elementary and middle schools from the National Academies' National Research Council (NRC).

The report, *Taking Science to School: Learning and Teaching Science in Grades K-8*, says that U.S. students are continuing to fall behind their international counterparts despite 15 years of reform efforts. Part of the reason, according to the expert panel, is an overstuffed curricula taught by teachers who don't thoroughly understand the subject matter. Students are also stymied by "repeated, shallow coverage" that fails to give them a conceptual understanding of what it means to do science.

"With all the pressures facing teachers, that's just not on their radar," says panelist Daniel Levin, a former middle and high school science teacher in Montgomery County, Maryland, who is now pursuing his doctorate in science education. "Sure, there's an emphasis on teaching the components of the scientific method so that students can spit it back on a test. But they miss the bigger idea that science is a way of making an argument, of convincing someone based on the evidence."

The report notes that the debate between direct instruction and hands-on, inquiry-based learning has created a false dichotomy. It says both approaches should be used to help students become proficient in science and to understand scientific inquiry. The panel also laments the achievement gap between majority students and non-Asian minority and disadvantaged students, although it says that it was not able to come up with a solution during its 2-year study. Next spring, NRC plans to issue an easy-to-read version of its report for practitioners and the general public.

"This is an important report," says Gerry Wheeler, executive director of the National Science Teachers Association, "because it hits on two key points: the need to pare down the number of requirements in the current standards, and the need to offer better professional development to improve teacher content knowledge. We will be pushing it."