

**Oral Testimony  
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**Before the  
House Committee on Appropriations Subcommittee on Commerce, Justice and Science  
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Chairman Mollohan, Ranking Member Wolf, and distinguished members of the Subcommittee, my name is Harold Pratt and today I am presenting testimony on behalf of the National Science Teachers Association (NSTA). I have been actively involved in science education for 53 years as a classroom teacher, as a district science supervisor, and as a curriculum developer.

Thank you for this opportunity to provide testimony about the state of science education in the United States. I would also like to thank this committee and the Congress for the increased funding for science and science education in the stimulus bill and the recent omnibus bill for FY2009.

It is important that Congress continues to fund the AMERICA COMPETES Act, especially funding for the Education and Human Resources Directorate at the National Science Foundation, so we can address many of the challenges we face in science education.

Much of the science education research conducted over the past few years, largely with NSF funding, has been promising. NSF-sponsored research on student learning conducted by the National Research Council tells us young children are capable of learning far more complex and abstract ideas than we had previously realized.

This research, and other NSF research, has the potential to revolutionize the way science is taught and learned. Unfortunately, very little of this research finds its way into the majority of classrooms where it can have an impact on science learning. We have to do a much better job of disseminating and actively implementing the research findings into our classrooms so it can be used to increase student achievement.

A second challenge is the quantity and quality of the science provided at the elementary level. Many people don't realize that increasing the number of science and math graduates relies a great deal on the science we provide to our youngest learners. Unfortunately, many elementary schools have reduced the amount of science education their students are receiving or have eliminated it altogether because of pressure to show achievement in other subjects. Many elementary teachers are also ill prepared to teach science at this level.

A third challenge is the lack of professional development provided to science educators. All teachers of science must have access to long-term and coherent professional

development so they know the science they are teaching, can plan effective instruction, and understand how students learn science. Unfortunately many districts have been forced to cut back on providing funding for science teacher training. We hope that Congress can encourage school administrators and the federal agencies to invest more in teacher professional development.

Science teacher education is also a concern. Last year the National Science Board called for a review of teacher education programs and how well prospective teachers are grounded in the academic content in the subjects they will teach.

Improving science standards and assessments is another key issue at the state level, and we look forward to the President's agenda in this area. Research from the Trends in International Math and Science Study (TIMSS) and the NRC tell us that current state science standards contain far too many topics for teachers to teach and for students to learn.

No discussion of quality science education would be complete without mentioning the high school laboratory experience. Unfortunately the news in this area is not good. In 2005 the NRC found that most students had a poor experience in the science laboratory. Teachers were not prepared to run labs, state exams did not effectively measure lab skills, and the quality of lab equipment was widely diverse. Funding for the America Competes Act, including full funding for the Partnerships for Access to Laboratory Science provision, will help to address this problem.

Finally, as many of you have probably heard from your constituents, many school districts are finding it hard to recruit and retain science teachers. Many schools have to compete with business and industry for high school science teachers. Research tells us that the teacher shortage in science education may be due in part to early exits because of conditions of schooling, such as lack of administrative support and student motivation.

Mr. Chairman although many of these key challenges need to be addressed at the local and state level, at the federal level we would like to see additional resources to the NSF so the agency can continue and expand upon its research and development efforts in science and math education.

And as pointed out in recent reports, Federal STEM programs at the federal agencies, including the agencies under the jurisdiction of this committee and the Department of Education, Department of Energy, and the DoD need to be better coordinated in a systemic manner that first truly identifies the needs of teachers, schools, and districts so that federal dollars can be used to best address these needs. Like the science content standards in many states, many of these federal programs are a mile wide and an inch deep. A collaborative effort to streamline and coordinate federal STEM programs can best be done by the Office of Science and Technology Policy and will go a long way to address many of the challenges I have presented here today.

I thank you for this chance to testify here today and look forward to answering any questions you may have.