

# BUCKS COUNTY Courier Times

## Science education crisis makes funding cuts unthinkable

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In the White House ceremony commemorating the 40th anniversary of the first moon landing, President Obama praised the Apollo 11 astronauts as heroes who inspired an entire generation of scientists and engineers that ended up really sparking the innovation, the drive, the entrepreneurship, the creativity back here on Earth.

On the very same day, the Pennsylvania Senate approved a 2009-10 budget plan that drastically reduces basic education funding and would stop current school reform dead in its tracks. Science programs would also be a budget-cutting casualty. The debate over cutbacks in basic education funding proposed by Gov. Rendell has led to a budget impasse.

While lawmakers in Harrisburg marked up the governor's budget with red ink, the president lauded the space program for stirring curiosity and providing extraordinary practical applications. Obama expressed the desire that math and science are cool again and that U.S. college graduation rates surpass any country on Earth, particularly in math and science.

Speaking as a scientist, taxpayer and parent, I believe we need greater public awareness about the U.S. science education crisis and the looming predicament of science illiteracy; education funding cuts will intensify the problems. Dr. James Bower, a neuroscientist and leading education advocate, points out it is well known that good science and teaching cannot be sustained when schools are faced with budget constraints; they cannot supply the materials and teacher training required for quality hands-on science instruction.

Poor U.S. student performance in science assessment tests makes the case for granting immunity to education programs when trimming budgets. The evidence for this is provided by latest results of two leading international assessments of student achievement in science. The Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA) both showed that, among industrialized nations, U.S. students are mediocre performers. Despite recent improvements, performance has remained flat for over a decade.

The science scores from the 2007-2008 Pennsylvania System of School Assessment (PSSA) showed a decline in grade level performance going from 80 percent of fourth graders down to 36 percent by 11th grade. PSSA results closely reflected U.S. science achievement scores with less than half of Pennsylvania high school students performing at grade level.

Academic mediocrity cannot sustain the innovations which powered the U.S. to be first on lunar soil. A dwindling, less competitive science and technology workforce slows economic growth. In recent testimony to the Pennsylvania House of Representatives on the impact of science, technology, engineering and math (STEM) education on business and industry, Eric Nelson, executive vice president of the Philadelphia Workforce Investment Board, noted significant gaps in the projected need by industry for individuals with STEM competencies and the pipeline of persons who will actually attain the much needed STEM competencies.

In addressing STEM education deficiencies, schools throughout the U.S. are instituting science education reform programs presenting science as a fun and relevant subject that is accessible to all students and not reserved for high academic performers or those interested in science careers.

These programs are key components of education reform in underserved communities, increasing minority representation in the sciences and emphasizing basic science knowledge applicable to everyday life. Poor science literacy is a societal concern. People with poor science comprehension encounter difficulties making informed decisions about issues affecting their health and economic well being.

The challenge to improve science literacy has rallied the formation of partnerships between teachers, school administrators, community businesses, philanthropists, and scientists with the goal of enriching education by providing real life, hands on opportunities, donating materials and equipment, securing grant funding and mentoring students and teachers. Education budget cuts endanger established partnerships and the formation of new alliances.

All of us, citizens and elected representatives alike, must act as caretakers of our education system in order to prevent the current crisis in U.S. science education from turning into a full-blown tragedy.