Congress of the United States

Washington, DC 20515

July 31, 2008

"Back to School" Recess Toolkit: The Status of STEM Education

Dear Colleague:

As co-chairs of the Science, Technology, Engineering, and Mathematics (STEM) Education Caucus, we wanted to share the attached information on STEM education that you can use in town halls and meetings over the August recess.

Keeping our economy strong relies, in large part, on the future workers and their educational training. Basic literacy in science, technology, engineering and math are necessary for all of our students no matter what type of job they pursue. As you know, some other countries have successfully made this a national priority. We hope that the attached information may be helpful in talking with your constituents about our economy and its link to STEM education.

Preparing our young people with the skills they need to compete in an increasingly competitive global economy has become an issue of great concern and focus both in Washington and throughout the nation. The STEM Education Caucus was formed to be a resource to staff and Members of Congress on STEM education issues and to work together to strengthen our math and science and technical education system at every level -- from K-12 to graduate education. We currently have over 125 Members. If you are not already a Member of the Caucus, we invite you to join us!

If you are interested in joining the Caucus or if you would like more information, please contact Julia Jester (5-3831) with Rep. Ehlers or Wendy Adams (5-2161) with Rep. Mark Udall.

Sincerely,

Vernon J. Ehlers
Member of Congress
Co-Chair, STEM ED Caucus

Mark Udall
Member of Congress
Co-Chair, STEM ED Caucus

A Snapshot of U.S. STEM Education: Where are we?

Public perception of STEM education:

- When asked who today's youth look to as role models, half of U.S. adults list off athletes and entertainers such as Britney Spears or Paris Hilton. But when asked about science role models for kids today, 44 percent are stumped. (Chicago Museum of Science and Industry, May 2008)

- Although they may not be able to name a scientist, U.S. adults do recognize the importance of science, as 87 percent agree they personally benefit from science every day. But only one in four (26 percent) feel they have a good understanding of science. (Chicago Museum of Science and Industry, May 2008)

K-12 Teacher Preparation:

- According to the National Science Foundation, in 2003, more than half of public high school mathematics and science teachers had a college major or certification in their subject field. In middle schools this is much less common.

- About one-third of public secondary schools with vacancies in mathematics or physical sciences reported great difficulty in finding teachers to fill openings (NSF Science and Engineering Indicators 2008).

K-12 Achievement:

- According to the National Assessment of Educational Progress, fourth and eighth grade mathematics scores improved across many groups from 1990 to 2005, but these improvements were not matched in science. Since 1996, the first year the current national science assessment was given, average science scores increased for 4th graders, held steady for 8th graders, and declined for 12th graders.

STEM Advanced Degrees:

- In 2005, students on temporary visas earned more than a third (36%) of all science and engineering (S&E) doctorates awarded in the United States. Temporary residents earned half or more of all U.S. doctorates in engineering, mathematics, computer sciences, physics, and economics in 2005. The number of doctorate recipients with S&E postdoctoral appointments at U.S. universities more than doubled in the past two decades. (NSF Science and Engineering Indicators 2008).

Women and Minorities:

- According to the U.S. Census, 39 percent of the population under the age of 18 is a racial or ethnic minority. Yet, less than 10 percent of the science and engineering jobs are held by minorities. Women constitute over half of the post-secondary students in the nation, but represent a little more than one quarter of our science and engineering workforce. (NSF Science and Engineering Indicators 2008).

Anticipated demand for the STEM workforce:

- The Bureau of Labor and Statistics (2005) projects that health care practitioners and technicians will add 1.4 new jobs (19.8% growth rate) and computer and mathematical occupations will grow by almost 25 percent between 2006 and 2016. Furthermore, many of the 30 fastest growing occupations are science and technology-related, with a growth rate of 27% compared to the 10% average for all occupations.

For more state-specific data, please consider these resources:

http://www.usinnovation.org/state/state_rd.asp
http://www.ccsso.org/projects/Science%5Fand%5FMathematics%5FEducation%5FIndicators/