Gathering Storm or Gathering Cobwebs? What is the Federal Response to The Science Education Crisis?

NSTA Government Agencies Panel Discussion on its role in STEM education

March 19, 2010
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

U.S. Department of Energy

Bill Valdez
Director,
Workforce Development for Teachers and Scientists
Workforce Development for Teachers and Scientists Program

- **Undergraduate Programs:**
  - Science Undergraduate Laboratory Internships (SULI)
  - Community College Institute of Science and Technology (CCI)
  - Pre-Service Teacher (PST)

- **Graduate Programs:**
  - Office of Science Graduate Fellowship
  - Graduate Student Awards for the Lindau Meeting of Nobel Laureates

- **K-12 Programs:**
  - DOE National Science Bowl®
  - Real World Design Challenge(RWDC)

- **Teacher Programs:**
  - Albert Einstein Distinguished Educator Fellowship Program
  - DOE Academies Creating Teacher Scientists (DOE ACTS)

- **Additional Programs:**
  - Faculty and Student Teams (FaST) Program
  - Energy Research Laboratory Equipment Program
  - Science & Energy Research Challenge - SERCh
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

U.S. Department of Energy

Workforce Development for Teachers and Scientists Program

NSTA Government Agencies Panel: A Discussion of Their Role in STEM Education

Bruce A. Fuchs, Ph.D., Director
Office of Science Education
National Institutes of Health, DHHS
bruce.fuchs@nih.gov
http://science.education.nih.gov
“...make no mistake: Our future is on the line. The nation that out-educates us today is going to out-compete us tomorrow. To continue to cede our leadership in education is to cede our position in the world....my administration has set a clear goal: to move from the middle to the top of the pack in science and math education over the next decade.”
NSTA Government Agencies Panel: A Discussion of Their Role in STEM Education

Programme for International Student Assessment

- PISA 2003 Math
- PISA 2006 Science
- PISA 2003 Problem Solving
NSTA Government Agencies Panel: A Discussion of Their Role in STEM Education

Department of Defense

Robert McGahern
National Defense Education Program
Director, K-12 Programs
LabTV (www.labtvonline.org)

- Four-minute webisodes link MS/HS science concepts to real world challenges and introduce diverse DoD role models
- Collaboration with Museum of Science Boston to make LabTV an easily accessible multi-purpose teaching tool
- Selected Titles: Chill Out (physics), Printing New Skin (biology), Just Add Water (chemistry)
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

National Defense Education Program
www.ndep.us

DoD STEM Education Opportunities
• Pre-college (STARBASE, ISEF, JSHS, SEAP, K-12 PEP)
• Scholarships (ASSURE, IASP, SMART)
• Fellowships (NDSEG, PECASE, NSSEFF)

NDEP Classroom Partnerships
• DoD STEM professionals support teachers
• Joint professional development
• National STEM tools (LabTV, MATHCOUNTS, MOS)
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

National Aeronautics and Space Administration

Joyce L. Winterton, Ph.D.
Associate Administrator for Education

http://www.nasa.gov
NSTA Government Agencies Panel: A Discussion of Their Role in STEM Education

STEM Teacher Development (K-12):
- Endeavor Science Teacher Certificate
- Education Technology Services
- Summer of Innovation

STEM Student Opportunities:
- NASA Explorer Schools
- Flight Projects
- INSPIRE Internship
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

NASA Education Resources:
– http://www.nasa.gov/education
– http://www.nasa.gov/education/express
– www.nasa.gov/education/robotics
National Science Foundation

Cora Marrett
Acting Deputy Director
Office of the Director
STEM Education: Budget Highlights for Fiscal Year 2011

Administration Priorities
• Climate Change Education
• Advanced Technological Education
• RE-ENERGYSE
• Graduate Research Fellowships Program

Other Emphases
• Expansion of Evaluation Capacity
• Cyberlearning Transforming Education
• Comprehensive Broadening of Participation
• Teacher Education

Highlights of the Portfolio
• Interagency collaboration
• Investment in research on STEM education
• Integration across sectors, levels and fields
• Link to critical issues
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

Directorate for Education & Human Resources

NSTA Government Agencies Panel: A Discussion of Their Role in STEM Education

NOAA National Oceanic and Atmospheric Administration

Louisa Koch
Director of Education
Louisa.Koch@NOAA.GOV
www.education.noaa.gov
“Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely (>90% probability) due to the observed increase in anthropogenic greenhouse gas concentrations.”

—IPCC Fourth Assessment Report, 2007

“Most of the observed warming over the last 50 years is likely to have been due to the increase in greenhouse gas concentrations.”

—IPCC Third Assessment Report, 2001

“The balance of evidence suggests that there is a discernable human influence on global climate.”

—IPCC Second Assessment Report, 1995

“The size of this warming is broadly consistent with prediction of climate models, but it is also of the same magnitude as natural climate variability.”

—IPCC First Assessment Report, 1990
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

NOAA Education Resources

• Grant opportunities
• Lesson Plans and Curricula
• Teacher Professional Development
• Multimedia, Games, and Interactives
• Experiential Learning
• Innovative Education Technology

NOAA Climate Services

Ocean Literacy
The Essential Principles of Ocean Science
NSTA Government Agencies Panel:
A Discussion of Their Role in STEM Education

U.S. Department of Education

Michael Lach
Special Assistant for Science, Technology, Engineering, and Mathematics Education
Reforming America’s Education System

- Early Learning
- K - 12
- Higher Education

- Effective Teachers and Leaders
- Standards & Assessments
- Turning Around Struggling Schools
- Data Systems
1. Increase Capacity of Teachers, Leaders, and Schools
   Develop and deploy tools and supports to increase the capacity of teachers, principals, LEAs, and SEAs.

2. Inspire, Focus, and Motivate Around STEM
   Motivate, inspire, support, and excite students and adults to focus on STEM disciplines.

3. Enhance Partnerships, Build Networks
   Build capability to link SEAs and LEAs more tightly with STEM-focused businesses and IHEs.
ARRA Funding Built on Four Reforms

Title I

IDEA

SLDS
TIF
Ed Tech
i3
SIG
Race to the Top
SFSF

Standards & Assessments
Effective Teachers & Leaders
Data Systems
Struggling Schools
U.S. Food and Drug Administration

Donald L. Zink, Ph.D.
Senior Science Advisor
Center for Food Safety and Applied Nutrition (CFSAN)
Food Safety Education
*from farm to table*

SUPPLEMENTARY CURRICULUM
Teachers Guides (middle level, high school)
Food Safety A to Z Reference Guide
Dr. X and the Quest for Food Safety
started in 1999
linked to National Science Education Standards
> 50,000 kits distributed
> 8,000 teachers individually trained
> 3 million students reached
NSTA Government Agencies Panel: A Discussion of Their Role in STEM Education

Food Safety and Nutrition Education

Teacher training, symposia, webinars, free curriculum, online classroom materials, student internships & more

TEACHERS ARE CRITICAL!

www.fda.gov  www.teachfoodscience.com