



STEM Smart: Lessons Learned From Successful Schools

March 22, 2013 | University of Maryland, Baltimore



AGENDA

-
- 8:00–8:30 am** **Registration (*continental breakfast served*)** **CAMPUS CENTER: 2nd FLOOR**
- 8:30–9:30** **Welcome and Opening Remarks** **CAMPUS CENTER: BALLROOM A/B**
- **Cora Marrett**, Deputy Director, National Science Foundation
 - **William Kirwan**, Chancellor, University System of Maryland
 - **Bruce Jarrell**, Chief Academic and Research Officer, and Senior Vice President, University of Maryland, Baltimore; Dean, University of Maryland Graduate School
 - **Joan Ferrini-Mundy**, Assistant Director, National Science Foundation
- 9:30–10:00** **What Everyone Should Know About Successful K–12 STEM Education—Plenary Presentation** **CAMPUS CENTER: BALLROOM A/B**
- **Martin Storksdieck**, Director, Board on Science Education, National Research Council, National Academy of Sciences
- 10:00–10:15** **Break**
- 10:15–11:15** **Elements of Successful STEM Education—Breakout Sessions**
- Effective Instruction:** *The Successful K–12 STEM Education* report notes that “effective instruction capitalizes on students’ early interest and experiences, identifies and builds on what they know, and provides them with experiences to engage them in the practices of science and sustain their interest.” This session highlights programs in which teachers use what they know about students’ understanding to actively engage students in science, mathematics, and engineering practices. As stated in the report, “in this way, students successively deepen their understanding both of core ideas in the STEM fields and of concepts that are shared across areas of science, mathematics, and engineering.”
- **Biology Levers Out of Mathematics (BLOOM):** *Christian Schunn, University of Pittsburgh* **LIBRARY BUILDING: RM 505**
 - **The FabLab Classroom: Learning Middle School Science Through Engineering Design and Manufacturing:** *Glen Bull, Eric Bredder, Peter Malcolm, and Nigel Standish, University of Virginia* **CAMPUS CENTER: RM 415**
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- **The GLOBE California Academy Program: Strengthening College and Career Readiness in STEM by Leveraging School Structure and Student Aspirations:** *Svetlana Darche, WestEd* **NURSING BUILDING: RM 150**
- **Improving STEM Education Through the Redesign of the Advanced Placement Science Courses:** *Serena Magrogan, College Board; Andrew Elby, University of Maryland at College Park; Audra Ward, Marist School* **CAMPUS CENTER: RM 349**
- **Loudoun County Public Schools Academy of Science:** *George Wolfe and Duke Writer, Loudoun Academy of Science; Odette Scovel, Loudoun County Public Schools* **CAMPUS CENTER: RM 351**
- **Urban Advantage: Formal-Informal Collaborations to Improve Science Learning and Teaching:** *Jim Short, American Museum of Natural History; Kathleen Tinworth, ExposeYourMuseum* **LIBRARY BUILDING: RM LL02**

11:15–11:30

Break

11:30 am–12:30 pm

Elements of Successful STEM Education—Breakout Sessions

Equal Access to Quality STEM Experiences: The report discusses findings that draw a direct line between a nation’s competitiveness and K–12 STEM education to support the next generation of scientists and innovators. Thus, a goal for K–12 STEM education is a focus on the flow of students into STEM courses, majors, and careers. An important dimension of this goal is to increase the participation of groups that are underrepresented while ensuring equal access to quality STEM learning experiences for all students. Therefore, this session will highlight practices that lead to opportunities for all students to become engaged in strong STEM learning.

- **Broadening Advanced Technological Education Connections (BATEC):** *Deborah Boisvert, University of Massachusetts, Boston* **LIBRARY BUILDING: RM LL02**
- **Cultivating Mathematical Habits of Mind in All Students:** *E. Paul Goldenberg and Mary Fries, Education Development Center, Inc.* **CAMPUS CENTER: RM 351**
- **The Impact of Different Early-College/Dual-Enrollment Programs on Minority Student Persistence in Science Disciplines:** *Nancy Shapiro and David May, University System of Maryland* **NURSING BUILDING: RM 150**
- **Separating Facts from Fads: How K–12 Educators’ Choices Impact Students’ College Performance and Persistence in STEM:** *Philip Sadler, Harvard Smithsonian Center for Astrophysics* **CAMPUS CENTER: RM 349**
- **Studio STEM: Engaging Middle School Students in Networked Science and Engineering Projects:** *Michael Evans and Brett Jones, Virginia Tech; Carol Brandt, Temple University* **CAMPUS CENTER: RM 415**

12:30–12:45

Break

12:45–2:15

Networking (*lunch served*) and Plenary Presentation:

How Do We Make ALL Children Smart in STEM? **CAMPUS CENTER: BALLROOM A/B**

- **Presenter: Alan Leshner**, Chief Executive Officer, American Association for the Advancement of Science; Executive Publisher, *Science*
- **Respondents: Heather Gonzalez**, Specialist in Science and Technology Policy, Congressional Research Service, Library of Congress; **Lillian Lowery**, State Superintendent of Schools, Maryland Department of Education; and **James Pellegrino**, Professor and co-Director of Learning Sciences Research Institute, University of Illinois at Chicago

2:15–2:30

Break

2:30–3:30

Elements of Successful STEM Education—Breakout Sessions

Supportive Infrastructure for STEM Learning: *The Successful K–12 STEM Education* report highlights that “research suggests that although teacher qualifications matter, the school context matters just as much [including]. . . multiple factors that strengthen and sustain those learning communities (e.g., school and district leaders, parents, and community).” This session highlights programs that have proven strategies to develop the essential infrastructure required to support teachers and students.

- **The National Survey of Science and Mathematics Education:** *Eric Banilower*, Horizon Research, Inc. **CAMPUS CENTER: RM 415**
- **Next Generation Science Standards and Building Capacity for State Science Education:** *Matt Krehbiel*, Kansas State Department of Education **CAMPUS CENTER: RM 351**
- **Pathways to Calculus: A Research-Based Model for Transforming Precalculus-Level Mathematics Teaching and Learning:** *Marilyn Carlson*, Arizona State University **NURSING BUILDING: RM 150**
- **Successful STEM Education and Education for Life and Work: Some Critical Connections and Implications:** *James Pellegrino*, University of Illinois at Chicago **CAMPUS CENTER: RM 349**
- **Using Research Findings on Interest Generation to Help Us Provide Equal Access to Quality STEM Experiences:** *Adam Maltese*, Indiana University **LIBRARY BUILDING: RM LL02**

3:30–3:45

Break

3:45–4:30

Synthesis and Discussion **CAMPUS CENTER: BALLROOM A/B**



Join the conversation at #nsfstem