"New Roles for Scientists in Science Education"

Working Group Description: (resource folder - http://tinyurl.com/itsp-scied)
Come join the conversation about the role scientists play in improving K-12 science education. You will participate in your choice of different themed discussion groups highlighting "keys to successes" about mentor scientists, scientist and teacher curriculum collaboration, logistics of partnerships, and science fair. Bring your experiences, suggestions, challenges, and questions to share.

Discussion Facilitators:

Community Resources for Science (CRS) (www.crscience.org)

- Teresa Barnett - Executive Director of CRS (teresa@crscience.org)
- Elise Zolczynski - Program Manager of CRS (admin@crscience.org)

Program goal: To help teachers give elementary and middle school students more opportunities to "do science" – to ask questions, test ideas, get their hands on real science activities. Together, we need to inspire and prepare the next generation of thinkers, makers, problem solvers, and leaders!

Santa Cruz-Watsonville Inquiry-Based Learning in Environmental Science (SCWIBLES)
(http://scwibles.ucsc.edu/)

- Pajaro Valley Unified School District:
  - Rob Hoffman - Science Curriculum & NGSS Coach (robert_hoffman@pvusd.net)
- University of California Santa Cruz:
  - Kristin de Nesnera - Grad Student (kdenesne@ucsc.edu)
  - Max Tarjan - Grad Student (ltarjan@ucsc.edu)

Larger Vision: Communication and Diversity for a Sustainable Future
The SCWIBLES program aims to improve the communication and teaching skills of UCSC environmental studies graduate students, the educational environment of Watsonville High School, and the career opportunities of Watsonville High's students. These aims are informed by a larger vision of environmental problem-solving in the sciences.

Citizen-Scientists for the Future: Communication for Change
Participants in the SCWIBLES program understand that effective communication among environmental stakeholders is essential. All aspects of our program are guided by three central principles:

A. environmental scientists should be able to represent scientific process, knowledge, and uncertainty effectively to non-scientists;
B. non-scientists (e.g., businesspeople, policymakers, landowners, workers, voters) should be able to discern what kinds of scientific knowledge they need, and to critically evaluate scientific claims and counterclaims; and
C. mutual respect, following from mutual understanding and effective communication, leads to the co-production of useful scientific knowledge.

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Our program design, including the collaborative, inquiry-based learning we do, promotes the fundamental conditions for such effective communication among our participants, in our institutions, and in our region.

Please review the following discussion group titles and prompts. You will have the opportunity to choose which discussion group you will participate in.

- **Scientist Mentoring**
  - Pros of Cons of one-on-one vs small group mentoring?
  - What are the expectations/roles for the scientist mentors; what are they bringing to the table?
  - What are the benefits for grad students/scientists in working with students?
  - What kind of training or preparation (if any) do scientist mentors receive prior to working with students? If so, was the training helpful?
  - Summarize what is discussed to answer: What are the keys to successful science mentoring?

- **Scientist & Teacher Collaboration for Curriculum Development**
  - How is your scientist-teacher collaboration structured and supported?
  - How might scientists contribute and enhance classroom curriculum?
  - In what ways would teachers benefit from such a collaboration? How would scientists benefit?
  - What challenges might there be in this kind of collaboration?
  - How would a scientist-teacher collaboration help align curriculum with NGSS?
  - Summarize: What would be the keys to a successful curriculum development collaboration?

- **Partnership Logistics**
  - How are your partnerships structured?
  - What were your specific goals in starting your partnerships?
  - How was your partnership funded? Is your funding for start-up or long-term?
  - What difficulties have you had in regard to time mentors have working with students? What is causing these difficulties? Solutions?
  - Pros and cons of mentoring during classtime or after school? Time commitment for mentors and teachers?
  - Do you have any challenges with district requirements for volunteers? Solutions?
  - Summarize what is discussed to answer: What are the keys to successful partnership logistics?

- **Creating an Authentic Science Fair Experience**
  - How can scientists and teachers collaborate in making science fair more of an authentic process?
  - How can students be guided in developing original and testable questions within their means?
  - What successes have you had in assessing (i.e. rubric) science fair?
  - What support is needed for a student to experience inquiry throughout the project? For teachers? Parents?
  - How much class time could/should be dedicated to science fair? Or should it be for homework?
  - How can science fair investigation contribute to the skill development students need to acquire through NGSS?
  - Summarize what is discussed to answer: What are the keys to success for an authentic science fair experience?

<u>Closing Discussion</u>

- Share-out - keys to success from each group
- How have/can partnerships support science education & science fair?
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