Science & Engineering Education

“Science and engineering education are an essential part of the education of today’s students for tomorrow’s world.”

Karen Wieda
Office of Science & Engineering Education

http://science-ed.pnl.gov
An If-Then Proposition

**IF**
our nation’s future is inextricably linked to developments in science & technology

**THEN**

*Education* in science, technology, engineering and mathematics (STEM), of today’s students for tomorrow’s world is essential because of the …

1. Demands of our changing economy and workplace
2. Need for an educated citizenry in a democratic society
3. Impacts on national security
4. Personal and societal value of the knowledge, skills and habits of mind developed through these disciplines
Our Vision

STEM education is an essential part of the education of today’s students for tomorrow’s world.
Championing STEM Education

1. **Training.** Lab-based workforce and diversity programs for students
   - High school interns
   - Undergraduates interns
   - Graduate and post-graduate interns

2. **Enhancing.** Lab-based professional development programs for teachers/faculty
   - 1 pre-college, multiple cohorts
   - 1 post-secondary (undergrad faculty)

3. **Impacting.** State/local science education reform projects
   - K-8
   - 9-12

4. **Conducting.** More than a dozen outreach & special project efforts
   - STEM High School
   - Students
   - Teachers & education leaders
   - Parents & community
How should we use the financial, human and technical resources of DOE, PNNL and Battelle to help improve science, technology, engineering and mathematics (STEM) education?
Three Parts...One Effort
Championing Science and Engineering Education from Cradle to Career

Workforce Development Programs for Students
- Research appointments for high school, community college, undergraduate and graduate students
- Work-based learning programs for high school students, including under-represented students
- Shadowing and other enrichment programs for high school students

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Professional Development for Teachers and Faculty
- Lab-based workshops/ institutes for teachers
- Research appointments for faculty/teachers
- Research appointments for faculty and student research teams

Education Reform and Outreach

Science Education Reform and Outreach
- Catalyzing science education reform through leadership at the local, state, and national level
- Conducting outreach efforts that enhance science and engineering education in our community
Workforce and Diversity
Professional Development for Teachers and Faculty

Pacific Northwest National Laboratory
U.S. Department of Energy
Science Education Reform & Outreach
STEM Education: Prepare All of Washington’s K-12 Students for a “Flat World”
The Tri-Cities STEM School Concept

A small, highly personalized high school that will attract a broad spectrum of students who will be immersed in STEM learning experiences.

Learning that parallels how scientists/engineers/mathematicians conduct inquiries, solve problems and expand knowledge.

Partnerships that connect academic learning to the world beyond the classroom.

Preparing students to succeed in post-secondary education, careers, & citizenship.
# Roles for Scientists in Education

## BSCS Recommended Roles

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<thead>
<tr>
<th>BSCS Recommended Roles</th>
<th>PNNL</th>
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</thead>
<tbody>
<tr>
<td>K-12 Students</td>
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<tr>
<td>K-12 Teachers</td>
<td>✔</td>
</tr>
<tr>
<td>Schools of Education</td>
<td>✔</td>
</tr>
<tr>
<td>Systemic Change</td>
<td>✔</td>
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<td>Educational Materials Development</td>
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So Why Get Involved?

- Misconceptions
- Real World
- Outside the Box
- Next generation of scientists, mathematicians, engineers
- Advocates
- “Pay it Forward”
Questions?

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