

## ***In the OPASsphere – June 24, 2009***

***A service of the Oregon Pre-Engineering & Applied Sciences Initiative (OPAS) funded by ETIC***

*To subscribe or get more info, please contact Jo Oshiro - [jo\\_oshiro@ous.edu](mailto:jo_oshiro@ous.edu) or 503.821.1139*

*Submissions must be short and use embedded links rather than attached documents!*

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### ***In this issue:***

***Events: SuperQuest***

***Web: ODE Briefs; ASPIRE;***

***Presentations: Sneider; Kirkwood; Oshiro***

***Policy: Feds STEM Act***

***Field Reports: Oregon First-Year Engineers***

***Data: Engineering Image***

***PLTW: PLTW & SkillsUSA***

***Classroom Resources: Annenberg PD; YouTube EDU***

***Fun Stuff: Engineering Vacations; NSF Science Nation***

### ***Events – Announcements***

- TechStart Education Foundation's **SuperQuest Technology Teacher Training** Registration -- <http://www.techstart.org/superquest> .

### ***Weblinks***

- **ODE Primers and Program Briefs** -- <http://www.ode.state.or.us/search/page/?id=534> == Jo's favorites, of course, are Career and Technical Education (CTE) and Talented and Gifted (TAG) students, but there's info here on how ODE is addressing Alternative Education, At-Risk Students, Applied Academics and much more ... And speaking of CTE, **ODE's CTE Special Partnerships and Initiatives** -- <http://www.ode.state.or.us/search/page/?id=1626> -- including Math-in-CTE. *Thanks to Tom Thompson.*
- **Aspire: Society of Women Engineers K-12 Outreach** -- The Society of Women Engineers (SWE) is a not-for-profit educational and service organization that empowers females of all ages to succeed and advance in the field of engineering and be recognized for their life-changing contributions as engineers and leaders. The Aspire website <http://aspire.swe.org/> was developed by SWE to help engineering thrive and remain diverse, by sharing education, awareness, and excitement about engineering with links to teaching resources and scholarships and awards.

### ***Presentations***

- **Cary Sneider** does it again! Here, "**It's Not Rocket Science**" explains the relationships between science, engineering, and technology in a great presentation to Louisiana science teachers; slides 1-14 and the last slide would make a great presentation to a more general group - [http://opas.ous.edu/Committees/Resources/Publications/Sneider\\_It's\\_Not\\_Rocket\\_Science.pdf](http://opas.ous.edu/Committees/Resources/Publications/Sneider_It's_Not_Rocket_Science.pdf) - keywords: standards, curricula, STEM. Contact Cary (via Jo if need be) for permission to use this material, or see the presentation he has already put into the public domain -- [http://opas.ous.edu/Committees/Resources/Publications/Sneider\\_Why\\_Engineering\\_021808.ppt](http://opas.ous.edu/Committees/Resources/Publications/Sneider_Why_Engineering_021808.ppt) or [http://opas.ous.edu/Committees/Resources/Publications/Sneider\\_Why\\_Engineering\\_021808.pdf](http://opas.ous.edu/Committees/Resources/Publications/Sneider_Why_Engineering_021808.pdf) . (The first is in PowerPoint, the second is a pdf file and include references and permission to reuse with appropriate citations, and are formatted generically).

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- **Don Kirkwood shows students why CS is a good career prospect with 2009 data --**  
[http://opas.ous.edu/Committees/Resources/Staff\\_papers/Kirkwood\\_College-Careers\\_2009.pdf](http://opas.ous.edu/Committees/Resources/Staff_papers/Kirkwood_College-Careers_2009.pdf)
- **Jo's Why sTEem????** borrows heavily from Cary Sneider, MIT, Henry Petroski, and aligns with the IES Practice Guide "Encouraging Girls in Math and Science --"  
[http://opas.ous.edu/Committees/Resources/Staff\\_papers/Oshiro\\_Why\\_sTEem\\_042209.pdf](http://opas.ous.edu/Committees/Resources/Staff_papers/Oshiro_Why_sTEem_042209.pdf)

### ***Policy***

- **Enhancing STEM Act 2009**, 111<sup>th</sup> Congress, summary by Representative Mike Honda (D, California) --  
<http://honda.house.gov/legislation/2009/stem/#background> – Trying to coordinate STEM education efforts and resources across the federal apparatus. *Thanks to Diana LaBoy-Rush.*

### ***Field Reports***

- The OPAS Initiative put together a project to survey incoming OUS engineering and computer science students at OIT, OSU, and PSU to gain insight into the roles and weight of in-class and out of class activities in influencing the choice of college major. The students take the survey as a mandatory part of orientation. The first returns are back for about 121 OSU students (this sample is more than 80% white with at least one parent holding a bachelors and male; females n=24). Some highlights from the data:
  - In-class, out-of-class, and events/speakers are similarly influential;
  - Hands-on activities are a large influence in choice of major; personal attention/interaction with adults matters more to girls (although our sample size is small);
  - 24% had participated in out-of-class engineering activities other than robotics; 14.9% did 4-H; OMSI camps and classes (22.3%); OSU Engineering Ambassadors (16.5%); and Science Fairs (12.4%)
  - The program elements identified as having large importance:
    - "feeling challenged and growing into that challenge, 58.7%
    - "Hands-on work, learning by doing", 77.7%;
    - "Learning about science technology engineering & math", 75.2%
  - *Thanks to Angela Aguiar (OIT), Brett McFarlane & Ellen Momsen (OSU) & Kris Nieman (PSU) for orchestrating our data capture point. Updated data will be posted in the fall. Please direct questions to Jo.*

### ***Data***

- **Engineering Image Problem Could Fuel Shortage:** ASQ Survey: Career not on radar for kids or parents, *American Society for Quality, January 22, 2009* -- <http://www.asq.org/media-room/press-releases/2009/20090122-engineering-image.html> -- Another survey shows that parents are more likely to encourage girls to become actresses than engineers; some data points cited. Engineering is seen as too hard for most people, working in isolation in a cubicle. Some possible ways to address these issues are addressed in *Changing the Conversation*, also based on market research -- [http://books.nap.edu/openbook.php?record\\_id=12187&page=17](http://books.nap.edu/openbook.php?record_id=12187&page=17) (also available from Amazon, but the NAP link is more useful for browsing).

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### ***PLTW***

- **Project Lead The Way Announces Partnership with the Technology Student Association and SkillsUSA** Clifton Park, N.Y. June 15, 2009 Project Lead the Way (PLTW) announced today the launch of the Engineering Alliance, a new partnership between PLTW, the Technology Student Association (TSA) and SkillsUSA that will provide PLTW students with the opportunity to participate in innovative activities in science, technology, engineering and math education outside of the classroom. The alliance will offer STEM-related co-curricular activities for PLTW students to participate in, including online competitions and leadership development activities designed to support teachers and excite students about technology, innovation and engineering. PLTW's critical thinking and project-based STEM curriculum is currently being implemented at over 3,000 schools and the program reaches over 300,000 students. More at <http://www.skillsusa.org/about/engineeringalliance.shtml> -- *Thanks to Brad Naas.*

### ***Classroom Resources***

- **Annenberg Media, Teacher resources and teacher professional development across the curriculum** -- <http://www.learner.org/> and includes an interactive periodic table and "which element doesn't belong" game -- <http://www.learner.org/interactives/periodic/index.html>.
- **YouTube EDU** -- . <http://www.youtube.com/edu> --contains hundreds of free video clips from each college and university's YouTube channel, including lectures by well-known professors and scholars on a variety of subjects. Site visitors can browse through each of these channels individually, or search by the most viewed clips each month (or all time). Recently added content includes commencement speeches by President Barack Obama, talk-show host Oprah Winfrey, country singer Dolly Parton, and Google CEO Eric Schmidt; the science behind the movie "Angels and Demons," as revealed by Carnegie Mellon professor Manfred Paulini; and "Innovating on a Shoestring," from Harvard Business School . *Thanks to eSchoolNews.*

### ***Fun Stuff***

- **Take an Engineering Vacation** -- Summer is an excellent time to learn more about engineering. When you travel around the country or even in your local area, there are many sights that will help you, your students or your family learn about engineering. Places such as Hoover Dam, the National Inventors Hall of Fame, Thomas Edison's Birthplace, Museums of Ceramics or Aeronautics, roller coasters, etc. can all be educational and fun too. For sights in your area or to help you plan a road-trip, visit <http://www.engineeringsights.org>. *Thanks to Celeste Baine.*
- **NSF has launched a series of video programs called *Science Nation***, examining breakthroughs and frontiers in our planet, our universe and ourselves. Created by former senior science producers at CNN, including Peter Dykstra and Kate Tobin, each program features a two-minute and five-minute version. NSF plans to release an "episode" every Monday on the Science Nation Web site: [http://www.nsf.gov/news/special\\_reports/science\\_nation/index.jsp](http://www.nsf.gov/news/special_reports/science_nation/index.jsp).. Schedule through August 17:
 

○ June 29: Renewable Energy	July 6: Greenland Ice Cores
July 13: Emperor Penguins	July 20: Geomagic Computer Graphics
July 27: Green Gasoline	Aug. 3: Slithering Snakes
Aug. 10: Antlers, Shells and the Toucan Beak	Aug. 17: Neon Cancer Detector

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