

In the OPASsphere – August 6, 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 or 503.725.2910

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

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In this issue:

New Address: OUS Industry Affairs has moved to the edge of PSU campus

Web: STEMup; IN Tech Flash; NASA & USA Today; OUS Tech Innovations

Equity: Workforce STEM Coaches; Women of Color in Science

Articles: Shortage or not?; Sketching; Elite College Grads Best Paid?

Research: Surveying CS in US High Schools

Policy: ACTE Issue Brief; Oregon Diploma Summary

Field Reports: Teacher Stays at NASA

PLTW: STI at OIT update; Oregon State Partnership Team formed

Classroom Resources: IN Tech Flash; Gates gets Feynman; Spanish Design Squad

Fun Stuff: OSU Thrill Ride; OSU back to wood tires

New Address

- The **OPAS Initiative office has moved** – along with the mothership, Oregon University System Industry Affairs – as of Monday, August 3:

Street Address	Mailing Address	Phones (same as 2 years ago)
2125 SW Fourth Ave., Suite 505 Portland, OR 97201 (Unitus Credit Union Building, SW Fourth and Lincoln by PSU)	Post Office Box 751, IAFF Portland, OR 97207-0751	Bruce Schafer: 503.725.2915 Jo Oshiro: 503.725.2910 Ken Cone: 503.725.2918 Michele Vitali: 503.725.2919 Cathy Swider: 503.725.2920 Fax: 503.725.2921

Weblinks

- From Dick Knight: Check out <http://www.stemup.org>. It is interesting in a couple of ways. First, it is probably one of the slickest STEM program websites I've seen. Second, it is an ambitious **Latino-student focused STEM initiative funded by the Army Corps** - a group with a significant local presence here. A related newspaper article is at: <http://egpnews.com/?p=11166>.
- **Indiana Tech Flash** -- <http://www.doe.in.gov/octe/technologed/pdf/IndianaTechFlash-2009-summer.pdf> -- The state of Indiana has a strong commitment to CTE education, with Project Lead the Way as one of their supported vehicles. They have a wealth of resources, including this newsletter. This particular issue is essentially a catalog of web resources for curricula and contests. Want Motorsports Math? Geodesic Dome Teaching Guide? And much more. *Thanks to Don Domes.*
- **No Boundaries Project Web Site** -- <http://www.noboundaries-stemcareers.com/> -- developed by NASA and USA TODAY Education -- <http://www.usatoday.com/educate/homesplash.htm> -- introduces students to opportunities at NASA and encourages them to work toward careers in STEM, showing students that working in STEM fields is an achievable goal if you are educated, curious, creative, and resourceful. The Web site is designed for educators and students in grade levels 7 to 12. Teacher and

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student toolkits with fact sheets, webinars, and complete project downloads are available online.

Thanks to the National Girls Collaborative Project Newsletter.

- **Oregon Research Universities Launch Collaborative Website to Showcase Tech Innovations,** Genomeweb, 7.22.2009 -- <http://www.genomeweb.com/biotechtransferweek/oregon-research-universities-launch-collaborative-website-showcase-tech-innovati> -- Four of Oregon's public research universities have launched a new website to promote interaction with industry and supplement technology-transfer efforts at the schools. Innovate Collaborate Oregon is the product of a partnership between Oregon Health and Science University, Oregon State University, Portland State University, and the University of Oregon. The website features a searchable technology portal that allows visitors to identify and learn about promising discoveries and collaboration opportunities at the partnering schools, allowing greater industry access to research at state universities and providing the public with an opportunity to learn more about research in the state. Oregon's public research universities collaborate on other technology-commercialization initiatives, including the University Venture Development Fund, the Oregon Innovation Showcase, and joint participation in state research centers such as the Oregon Nanoscience and Microtechnologies Institute, Oregon Built Environment and Sustainable Technologies, and Oregon Translational Research and Drug Development Institute.

Equity

- The STEM Pilot Project is looking for disadvantaged youth 16-24 and dislocated workers who need services for career planning; mentoring; tutoring; ; guidance and support. Must be:
 - Resident of Columbia, Washington, Multnomah, Yamhill, Marion or Polk county in Oregon
**OR* Clark, Wahkiakum or Cowlitz county in Washington*
 - interested in pursuing further STEM education/careers
 - Complete a qualification process that includes a skills assessment
 - For more info, contact:
 - Linda Browning, linda.browning@pcc.edu (Washington, Multnomah Cos)
 - Christine Watson - cwatson@workforce-solutions.net (Yamhill, Marion and Polk)
 - Clark, Wahkiakum, Cowlitz coach – TBA
- "***Swimming Against the Tide*** addresses a crucial lacunae in the body of literature on women in science, particularly women of color. This is a 'new' and innovative approach, since very few book publications on women in science have addressed the subject of African American women in science and from an age specific and culturally relevant perspective. Theoretically and methodologically strong, this is an example of feminist scholarship at its best." —*Josephine Beoku-Betts, Professor of Women's Studies and Sociology, Florida Atlantic University* – http://www.temple.edu/tempress/titles/1904_req.html --
Thanks to the STEM Equity Pipeline Press

Articles

- **Scientist Shortage, Maybe Not,** Greg Toppo and Dan Vergano, USA TODAY --
http://www.usatoday.com/tech/science/2009-07-08-science-engineer-jobs_N.htm --

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As the push to train more young people in STEM - science, technology, engineering and math - careers gains steam, a few prominent skeptics are warning that it may be misguided - and that rhetoric about the USA losing its world pre-eminence in science, math and technology may be a stretch. *Thanks to STEM Equity Pipeline newsletter and Tom Thompson. Jo notes:*

- *Sidebars emphasize rising portion of non-citizen STEM workers – a national security issue.*
 - *Anecdotal evidence says companies have trouble filling slots; workers have trouble finding jobs; the issue could be mismatches or search techniques rather than true shortages.*
 - *Article may or may not address technician and technologist jobs.*
 - *Despite cyclical nature of product cycles and engineering jobs, electrical engineer unemployment is significantly lower than overall unemployment; it would be interesting to see EE unemployment vs. those with similar levels of education.*
 - *Engineering and technology education help provide a more cognitively rich education.*
- **Sketching a Path to Better Education**, Markham Heid, Medill -- <http://news.medill.northwestern.edu/chicago/news.aspx?id=135901> -- "If you don't learn to read well early on, there are ample studies showing that you are crippled all through school," said Ken Forbus, head of the Cognitive Systems Division at Northwestern University's Department of Computer Science. "The question is: Is there an analogous phenomenon in spatial thinking" that relates to sketching? Forbus said spatial ability is a great predictor of whether a student will excel in the "STEM" disciplines: science, technology, engineering and mathematics. *Thanks to the STEM Equity Pipeline Project Newsletter. Jo notes that the connection between spatial ability, a teachable skill, and STEM persistence was also made in the NES Practice Guide "Encouraging Girls in Math and Science" -- <http://ies.ed.gov/ncee/wwc/pdf/practiceguides/20072003.pdf>*
 - **Do Elite Colleges Produce The Best Paid Graduates?** New York Times Economix Blog, July 20, 2009 + updates, Catherine Rampell -- <http://economix.blogs.nytimes.com/2009/07/20/do-elite-colleges-produce-the-best-paid-graduates/?emc=eta1> – Few surprises, but not all Ivies. Embedded in here, the best paid graduates are in engineering, when talking about the highest degree being a bachelor's. *Thanks to Dick Knight.*

Research

- **The Current State of Computer Science in U.S. High Schools: A Report from Two National Surveys.** Gal-Ezer and Stephenson. From internal evidence this paper was published in early 2009. Data from the surveys includes "types and contents of courses offered, trends in student enrollment (including gender and ethnic representation) and teacher certification and professional development."

Policy

- **ACTE Issue Brief June 2009: CTE's Role in Science Technology Engineering Math -** http://www.acteonline.org/uploadedFiles/Publications_and_Online_Media/files/STEM_Issue_Brief.pdf -- addresses increased rigor and hands-on, integrative nature of CTE pedagogy. Highlights PLTW and Math-in-CTE.

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- **Oregon Diploma Requirements Timeline --**
<http://www.ode.state.or.us/teachlearn/certificates/diploma/diploma-timeline.pdf> -- Someone was asking for these, and I found this concise page.

Field Reports

- **Teacher to Continue Working at NASA --**
http://www.teachermagazine.org/tm/articles/2009/08/03/teacheratnasa_ap.html?tkn=SOSFFQuS%252BuhEEExKCTeyRQdGBqxPEhCXo5mbq -- A former earth science teacher from Pennsylvania was asked to remain at NASA's Goddard Space Flight Center another year through their "Teacher on Loan" program. *Jo notes the high school internships coming up in the fall can include accommodations on nearby college campuses. Thanks to Teacher Magazine*

Presentations

- **Why TEams?** Ryan Collay did an insightful rework of Jo's "Why sTEem?" presentation more precisely aimed at integrative and inclusive best practices; feel free to use for educational & non-profit uses - http://opas.ous.edu/Committees/Resources/Staff_papers/Oshiro-Collay_Why_TEams_2009.pdf

PLTW

- **PLTW STI Update:** The Project Lead the Way for Oregon Summer Training Institute (PLTW STI) was held July 6th through 17th on the OIT Klamath Falls campus. Over two weeks, 61 middle and high school teachers from Oregon and across the nation underwent rigorous professional development. Each teacher was trained in a year's worth of PLTW curriculum for one of six PLTW classes: Introduction to Engineering Design (IED), Principles of Engineering (POE), Digital Electronics (DE), Computer Integrated Manufacturing (CIM), Engineering Design and Development (EDD), and Gateway to Technology (GTT). Twenty-nine of the teachers were from Oregon and 18 of those were trained in their first PLTW course, so there are now 37 schools in Oregon who have PLTW-trained teachers, a 37% increase from last year.
- **PLTW for Oregon State Partnership Team formed:** This team has set forth the vision to facilitate access for all Oregon middle school and high school students to the PLTW curriculum in order to provide the opportunity for them to explore and prepare for engineering academic and professional futures. The eight member team includes: Dick Knight, retired Tektronix executive and current PSU Interim VP for University Relations; Tom Thompson, Oregon Department of Education Industrial and Engineering System Specialist; Marcia Fischer, PSU Assistant Dean for Enrollment and Outreach; Edith Gummer, Northwest Regional Education Laboratory; Debbie Moller, CCWD Community College Education and Workforce Specialist; Bruce Schafer, ETIC; Lita Colligan, OIT Associate VP for Strategic Partnerships; and Claude Kansaku, University Affiliate Director of Project Lead the Way for Oregon. The team met on July 22 to revise and adopt a vision, goal, and duty statement.

Classroom Resources

- **Indiana Tech Flash --** <http://www.doe.in.gov/octe/technologyed/pdf/IndianaTechFlash-2009-summer.pdf> -- See Weblinks, above.

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- **Bill Gates Offers the World a Physics Lesson**, Ina Fried, CNET News -- http://news.cnet.com/8301-13860_3-10286732-56.html -- It's been a year since Bill Gates left full-time work at Microsoft, but he's found plenty to keep him busy. In between trying to eradicate polio, tame malaria, and fix the broken U.S. education system, Gates has managed to fulfill a dream of taking some classic physics lectures and making them available free over the Web. The lectures, done in 1964 by noted scientist (and Manhattan Project collaborator) Richard Feynman, take notions such as gravity and explains how they work and the broad implications they have in understanding the ways of the universe. *Thanks to National STEM Equity Pipeline newsletter.*
- **New Spanish Resource from Design Squad** -- <http://pbs.org/designsquad/parentseducators> -- Design Squad and Lemelson-MIT InventTeams have teamed up to create Invent It, Build It/Invéntalo, Constrúyelo, an activity guide for youth leaders that delivers five hands-on challenges designed to spark the inventive spirit of kids aged 9-12. Limited copies of the guide are available for free in English AND Spanish; contact designsquad_feedback@wgbh.org. Indicate if you would like English and/or Spanish versions. Please include your name, organization, mailing address (indicate work or home), and e-mail. *Thanks to the National Girls Collaborative Project Newsletter.*

Fun Stuff

- **OSU's Thrill Ride to Compete in Germany** -- http://www.gazettetimes.com/articles/2009/07/10/news/top_story/3aaa01_car071009.txt -- The Oregon State Formula team members plan to post updates from their travels and the Formula Student Germany contest, which takes places Aug. 5-9, to the team blog at <http://blogs.oregonstate.edu/>
- **OSU researchers say wood fiber can make car tires more energy efficient, less expensive**, The Oregonian, 7.21.2009, by Dylan Rivera -- http://www.oregonlive.com/environment/index.ssf/2009/07/osu_researchers_say_wood_fiber.html -- An Oregon State University researcher who developed a non-toxic adhesive for kitchen cabinetry says he has found a way to use wood fibers to make car tires better for the environment. Microcrystalline cellulose -- a product that can be made easily from almost any type of plant fibers -- can partially replace silica as a reinforcing filler in the manufacture of rubber tires, says Kaichang Li, an associate professor of wood science and engineering in the OSU College of Forestry

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