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MARCH NEWSLETTER

GOSTEM ADVISORY BOARD SURVIVES INSECT INVASION!



Brenda Smith and Peter Geisler diligently creating an insect invader.

The GOSTEM Advisory Board had its quarterly meeting at Eastern Oregon University this last March 8th. While often the group can meet asynchronously or via teleconferencing, this meeting required some face-to-face as members encountered Insect Invaders! The team experienced a contextual/integrated STEM lesson presented by board member, Michael Jaeger, professor emeritus at EOU.

Starting with a movie clip of a monster ant created from atomic testing in the desert in the 1950's, the team progressed through a quick series of experiences, skills, and content that had them create and label a model insect using starch packing bubbles. The biology of insects was reviewed while members created their six-legged starch bugs. The group then transitioned to making a more substantial model of an ant using other materials and tools like side cutters, long nose pliers, and glue guns. Once the models were created, animatronics were added to the ant to make it skitter across the table. The applied technology of the cell phone motor, battery, and switch helped the team recognize each aspect of a STEM-connected lesson. The Team used the experience as a centering lesson to help standardize the vision of STEM instruction and aspirations for quality curriculum design. For a complete set of lesson plans and directions for this STEM lesson see: <https://sites.google.com/a/eou.edu/stem-stories/insect-invasion>

The GOSTEM Advisory Board, chaired by Karen Patton, Wallowa ESD, also heard reports from ODE and Deb Bailey about developments in Statewide initiatives, a special presentation about the Girls Who Code program (See: <https://girlswhocode.com>), a progress report from Jennifer Pambrum on a regional database that would connect schools with business and industry, information about the High School Success Bill(Measure 98), and other GOSTEM organizational reports. GOSTEM has a committed Advisory Board representing all sectors of STEM in the region. For a complete listing of each member and their role, see: <http://go-stem.org/advisory-board/>

STREAM NIGHT--LA GRANDE MIDDLE SCHOOL



Although a blizzard howled through La Grande on March 1st, it did not deter 135 participants from having a STEAMy night at the Middle School. EOU Education students; ODFW; STEM Ambassadors from La Grande; La Grande Parks and Recreation; NEOAHEC; the EOU Chemistry Club; and Blue Mountain Conservancy were coordinated to provide 18 stimulating discovery stations for students and family involving Science, Technology, Engineering, Arts, and Mathematics themes. Each station included connections to careers. Students and families explored how exercise affected reaction times and then discussed careers in physical therapy. At another station, participants explored a water system and moved water from an aquifer through a cleaning facility and on to a city. Careers in physical engineering were linked to the station. The wildlife biology station allowed students to explore and touch skins, tracks and skulls of various animals. A wildlife biologist from ODFW spoke to students

about his work with cougars, bobcats and coyotes. Also at the stations were folks from Blue Mountain Conservancy who were offering students a chance to sign up for the newly created nature club for upper elementary and middle school students. Participants rotated through the numerous stations keeping presenters busy with questions and comments.

Kyle McKinney, principal at La Grande Middle School, is always welcoming and accommodating when asked about hosting a Family STEM or STEAM night. Kyle and the teachers at La Grande Middle School promote the event and encourage students and their families to attend. STEAM awareness and interest in taking STEAM classes is the goal of the event.

A WINDING PATH OF STEM SUCCESS



Chief Corpus is an impressive figure. A STEM professional with PGE (Portland General Electric), Chief has a varied background and an interesting path that led him to his current position as Generation Training Specialist with responsibility for all training across the PGE fleet of 9 power plants and its 540 employees. This means that he has to know the entire operation of a power plant and be prepared to arrange appropriate training for all STEM professionals. You might think that he landed this job

because he aimed early at a career in engineering. Not so. Chief's path to the job he loves and excels came through a winding road from medical technology, to biochemistry, to medicine, electrical technology and now management. He shares his career path with young people to encourage them to explore and to consider the multiple options they have to pursue a college degree or a technical path or both. Read his whole story at: <http://go-stem.org/voctech-ed/> For more stories of people engaged in STEM, see: <http://go-stem.org/newsletters/>

STEM LAUNCH POINTS

Each month GOSTEM will showcase a different STEM Launch Point and the connections that can be explored in each STEM discipline. These stories are quick summaries of interesting people and circumstances where using STEM was as an integrated way of thinking and necessary to solve the problem. The story we offer in this month's newsletter is Carrie Everson: Frontier Chemist.



The Story

Imagine it is the 1870s. You are the owner of a gold mine that has been played-out. You are out of money. And now, your husband flees to Mexico! What shall you do? Carrie Everson was precisely in

that pickle, but Carrie was no ordinary cucumber! Uncommon in her era, she had completed college and had a significant education in chemistry. Her scientific mind grappled with the predicament: She had a pile of ore and no way to extract the tiny gold particles hiding in the dust. The lore she had picked up from miners was that the tiniest particles of gold were missed by the sluicing and mechanical process. They could be seen floating away on the soap suds when the miner's clothes were laundered. With this observation, her understanding of chemistry, and now an effort to engineer a process, Carrie Everson began a journey that would earn her a patent that could save her mine, and perhaps, many others. In Carrie Everson's situation, she knew her science (Chemistry), invented an apparatus to skim the soapy water (Technology), designed a process or protocol with oils, detergents, and fine mineral ores (Engineering), and ultimately had to prove-out the utility of this solution by calculating the gold yield per ton and cost as a ratio of earnings (Mathematics). For the student, we can ask STEM questions: What chemistry did she know that she applied to this real problem? We can explore the nature of various minerals, their elemental structure, and relative densities. What was the technology of the day and how did gold escape from miner's processes? We can use some typical tools to mechanically separate metals from sand to understand how this might happen. What are many processes used in industry to remove precious minerals? We can try-out several kinds of mineral extraction through leaching, electrolysis, and static separation. These explorations, their instructions, and teacher guide are available at <https://sites.google.com/a/eou.edu/stem-stories/carrie-everson> STEM Launch Points are featured on the GOSTEM home page at <http://go-stem.org/> Check it out! GOSTEM would like to collect your stories and contexts that connect young people to explorations in STEM. Send us your ideas! Contact mjaeger@eou.edu
