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February 2018 Newsletter

GOSTEM Director's Report



“GO-STEM is re-funded!” Donna Rainboth, project director, reported that our STEM Hub grant proposal had excellent reviews from the State and would be supported until at least September of 2019. The backbone funding will allow staff to continue to work towards the aims of making STEM a high priority for the seven-county region.

The GO-STEM Hub is one of 13 in the State and is responsible to connect and serve Wallowa, Union, Harney, Grant, Umatilla, Baker, and Morrow counties. The Hub is advised by a diverse group of individuals representing education, industry, government, and workforce.

See <http://go-stem.org/advisory-board/> for the current membership.

The Board has defined its goals and has drafted a plan to help impact STEM in our region. How these plans should play-out, is shown in one example in Enterprise: Recently, Wallowa County professionals met to compare notes about what sorts of youth services were available in the region. Any agency or sponsor that did something for young people were invited to participate. The group assessed what was being done, identified gaps, and with help from GOSTEM staff, recognized some additional gaps in areas like career connected learning and technology. As an action of the group, they wanted to fill those gaps and provide young people with as many opportunities as possible. GOSTEM’s function was to support the Wallowa initiative by connecting them with others outside the region who had discovered how to fill those gaps. GOSTEM can help bring people together, share resources and, where possible, help to get things going. In this way GOSTEM is both a connector, communicator, and consultant to partners in the region to help forward STEM goals. For all the details about GOSTEM, visit <http://go-stem.org/>

Technology Student Association Competitions



March 1st will be an important date for regional high school students interested in showing their skills in technology. The regional Technology Student Association(TSA) competition will be held at the Blue Mountain Training Center in Boardman, OR. Dozens of students from La Grande, Milton-Freewater, Ukiah, Riverside, Westin, Pendleton, Umatilla, Heppner, and other towns will come together competing in areas such as CAD engineering design and architecture. There are multiple categories where students can aim. The national organization has a complete list of the opportunities at <http://www.tsaweb.org/High-School-Competitions>

Many students work on projects at their schools and then bring their designs or models to the competition for judging. An example of this style of competition was a project to design a tiny house made from a shipping container. In other competitions, students create 3D CAD drawings on site.

Besides the competition, students get to hear about career pathways from industry representatives judging the competition. Judges come from local industries, the Port, the Pendleton UAS Range Mission (drones), and others. As stated in the TSA mission, the organization enhances personal development, leadership, and career opportunities in STEM,

whereby members apply and integrate these concepts through intracurricular activities, competitions, and related programs. A full description of the organization can be found on their website at <http://www.tsaweb.org/>

Interested in starting a TSA at your school? There are spots for high school and middle school students to form local chapter. Your CTE teacher/s can get them started. Dave Fowler, at Heppner High School heads-up the regional effort. Ping him at Dave.Fowler@morrow.k12.or.us

MedQuest is Coming!



Should you attend MedQuest?

Answer these four questions:

Are you interested in a health career?

Do you want to know what college dorm life is like?

Do you enjoy science and math?

Are you currently in 9th-12th grade?

If the answer to any of these is "yes," MedQuest is the experience for you! Get a unique taste of the exciting world of medicine at NEOAHEC's week-long MedQuest Camp. Try out college

dorm life, shadow health professionals, sit on fascinating presentations and medical panels, help patients, witness the diagnostic process, and much more. You may even witness a surgery and ride along on an ambulance call!

Students completing grades 9, 10, 11 and 12 are eligible to apply. This opportunity is competitive. Approximately 35 students will be selected state-wide, with acceptance decisions based on recommendation, GPA, & quality of application. Preference is given to first-time participants.

The event will be held June 18-22, 2018 on Eastern Oregon University's campus in La Grande. The cost is \$400 for the entire week which includes a \$25 deposit. A limited number of scholarships are available. Applications must be received by March 15, 2018. Students can register at <https://www.neoahec.org/programs/medquest/> If you have questions about the program you can watch the PowerPoint on this webpage and/or contact NEOAHEC at bhargrove@neoahec.org or (541) 962-3422

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: 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/> This month is a story about a man that almost single-handedly, destroyed the atmosphere. 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

Visit us at our website <http://go-stem.org/>

Have a STEM event in your area others should know about? Contact drainbot@eou.edu or mjaeger@eou.edu

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