



Hot Air from EEOP – A Newsletter

Environmental Education Outreach Program (EEOP)
Volume 3, Issue 9 (August 2008)

Web version @
<http://www.nau.edu/eeop/newsletter>

The Newsletter

This newsletter is a service of the Institute for Tribal Environmental Professionals (ITEP) Environmental Education Outreach Program (EEOP). The EEOP staff created this newsletter for K-16 students, educators, and tribal professionals that are interested in learning more about environmental issues with an emphasis on air quality.

Renewable Energy for Nez Perce

Recently the EEOP staff participated in the Nez Perce Summer Program – PACE (Preparing for Academic Excellence) Math and Science Camp as a guest speaker. The program is held on the Lewis-Clark State College campus in Lewiston, Idaho. The Middle School students participating in the PACE program work on their basic math skills and get exposure to different science careers.

The EEOP staff challenged the students to think about their future and how they might be able to contribute to the future of their tribe, community, and family. The EEOP staff also challenged the students to be aware of the issues impacting them and their families. For example, most of the students were aware of the high cost of gasoline, however, they were less aware of the many other issues and costs associated with fossil fuels.

The EEOP staff explained several additional issues with fossil fuels and asked students to consider science and engineering careers in order to help address the many issues. After the brief discussion, the EEOP staff introduced the students to several applications of alternative energy. The students ate cookies baked in a solar oven, after learning a few basic principles of using solar energy. They also built small wind turbines that could supply power for a small LED light. The students that successfully built operating wind turbines were awarded a Compact Florescent Light (CFL) bulb. Along with the CFL the students were reminded that conservation of energy is another important way to reduce our dependence on fossil fuels.

The EEOP staff is available for classroom presentations on air quality and energy issues. For more information, contact one of the EEOP staff.

Issues with Fossil Fuels

Currently fossil fuels (coal, oil, and natural gas) are the primary source of energy in the United States, accounting for 85 percent of current fuel use. However, fossil fuels have many costs besides the costs of purchasing gasoline. These include human health problems caused by air pollution from the burning of coal and oil; damage to land from coal mining and to miners from black lung disease; environmental degradation caused by global warming, acid rain, and water

pollution; and national security costs, such as protecting foreign sources of oil. In fact, fossil fuel-fired electricity generation is the single greatest source of air pollution in the United States, and power plants are the leading US source of carbon dioxide emissions, a contributor to global warming. Fossil fuels also produce nitrogen oxides, sulfur oxides, hydrocarbons, dust, soot, smoke, and other suspended matter which can lead to acid rain and other air quality problems.

The United States dependence on foreign oil supply means that we may be forced to protect foreign sources of oil. The Persian Gulf War is a perfect example: US troops were sent to the Gulf, in part, to guard against a possible cutoff of our oil supply. Although the war is over, through taxes we are continuing to pay for protecting oil supplies with our armed forces.

In addition to environmental and national security costs, fossil fuels are a nonrenewable resource, which means they can not be replenished (made again) in a short period of time. Once fossil fuels are gone, they are gone forever (or at least for millions of years). The average age of the gasoline in your car's fuel tank is about 70 million years. While it is difficult to determine exactly how much fossil fuel is left, we know that eventually fossil fuel resources will be depleted. Some experts believe we have already achieved peak oil production and that oil supplies will only decrease in the future.

Since fossil fuels have many issues, perhaps it is time to consider alternatives such as wind power and solar energy. The EEOP staff is available to do presentations in schools or to collaborate with Tribal Environmental Professionals on getting information to tribal communities.

Interviewing Tips

After completing an educational program, you will need to find employment. Generally, college classes don't teach you about how to seek employment, however, here are some specific suggestions collected from newspapers and websites.

- Every contact with a prospective employer is a mini-interview; present yourself appropriately, including reasonable dress.
- When using email, use a salutation and communicate politely and clearly. Shortcuts may be cute when emailing or texting friends, but in business they are annoying and unprofessional. Avoid messages like "thx 4 ur help" or "Talk 2 you later."
- Do research about the company you want to work for, before contacting the employer. Use Internet or other means to learn as much about the company as you can.
- Proofread your resume and application for spelling and grammar errors.
- Set up an email account with your name or initials so an employer doesn't have to email "hotchick99" with an offer to teach young children.
- Be ready to support past career accomplishments with specific information targeted toward the company's needs during the interview.

There are several websites and books that can be useful in preparing for an employment search and interviews. The EEOP staff is also available to coach individuals seeking employment in an environmental area.

Summer Scholars: Working for a Sustainable Future.

Whether it was by touring the Grand Canyon wastewater treatment facility, or sitting behind the wheel of a new hybrid Chevy Tahoe, or riding one of Flagstaff's Hybrid Electric busses, or standing in the rain watching water be harvested for future use, this year's 2008 Summer Scholars were preparing for the future.

The topic for Summer Scholars 2008 was sustainability. Five one-week sessions were held. During each of the five week sessions, approximately 20 students and their sponsors learned first hand about future challenges and possible solutions. The students learned about the challenges that face our current society, including energy shortages, shrinking food supply, global climate change, increasingly unhealthy air, water, and soil, and a weakening economy.

After reviewing these current challenges, the students investigated how they could live more sustainably. The students selected one of four task forces: Energy, Water, Transportation, and Green Building. The student groups met with local area experts, participated in field trips, and conducted research on the Internet. As the students gathered information, each task force planned a short video. As the students met with the experts, they conducted video interviews and took pictures. Using video editing software, the students prepared a Public Service Announcement (PSA) video with their findings and recommendations.

Program Director, Matthew Zierenberg, stated, "After a full day of meeting with and touring the facilities of local sustainability leaders, these students often worked into the evening editing, researching, and discussing the day's events. It was fascinating and rewarding to see students actively learning so that they could apply and teach others through the medium of video."

A Summer Scholars student wrote, "Each day is a new adventure." This student captured the intent of the Summer Scholars staff, which was to provide a memorable, inquiry-based learning experience.

The Summer Scholars program was funded by the Science Foundation Arizona (SFA), the US Environmental Protection Agency (USEPA), and the National Science Foundation, through the University of Arizona Sustainability of semi-Arid Hydrology and Riparian Areas (SAHRA) program. Each school also contributed funding to make the Summer Scholars program possible.

The EEOP staff would like to thank the presenters, the student staff, and especially the participants for making Summer Scholars 2008 an adventure in learning. For more information on this and other EEOP programs visit us at www.nau.edu/eeop or contact one of the EEOP staff.

The EEOP staff has started planning for Summer Scholars 2009. If your school is interested in participating in the Summer Scholars program, please contact one of the EEOP staff.

Grant Writing for Educators

As a new classroom teacher, I quickly realized that the school district was not going to provide the resources I wanted for my classroom. As a chemical engineer, working for the US Army, I had written proposals for funding multi-million dollar development projects, so I decided to apply those skills to writing grant proposals in order to create educational programs for my students. While grant writing can be used to obtain additional resources, it is not the only way to get what you need; it might not even be the best way.

As a pre-service educator, I always told the pre-service educators that you don't need a lot of money to teach good science, but having money and other resources could make it a lot more fun! There are many ways to obtain additional resources for your classroom. Before getting involved in grant writing, I would always recommend considering alternative approaches. Check with the school administrators; inspired district administrators might be willing to allocate some funding to support your innovative educational ideas. Check with other local community organizations to see what resources they might have available. For example, I worked with the health clinic on an educational project and they provided a variety of resources for use in the classroom. You can also check with local universities, they often have educational programs that can enrich your classroom.

After checking out the alternative, if you still think you need to write a grant, there a number of helpful guides and other resources available on the Internet. The EEOP staff is also willing to be a partner on educational projects that support the EEOP mission.

EEOP Mission and Vision

“The vision and mission of the EEOP staff is to foster life-changing learning experiences in the application of science, mathematics, technology, and engineering to local issues that empower American Indian students of all ages to become self-determinate citizens of their sovereign tribal nation.”

Future Issues

The EEOP staff is interested in articles sharing stories from students, teachers, or tribal professionals influenced by ITEP or EEOP activities. If you would like to be published in the EEOP Newsletter, send Mansel your proposed article.

The next issue will provide information about services available from the EEOP staff.

Credits and Contacts

The US Environmental Protection Agency (USEPA) Office of Air and Radiation provides part of the funding to make this newsletter possible. The newsletter is disseminated on various list serves, however, if you would like to join the EEOP Newsletter list serve, contact one of the EEOP staff.

Mansel A. Nelson
928 523 1275
mansel.nelson@nau.edu

Matthew Zierenberg
928 523 8864
matthew.zierenberg@nau.edu