



Hot Air from EEOP - *A Newsletter*

Volume 4, Issue 8 (August 2009)

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.

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

Campus Visits / Saturday Academy

The EEOP staff will facilitate visits to the Northern Arizona University (NAU) campus. A focus of campus visits is to encourage students to consider post-secondary education in preparation for careers in science, engineering, and technology. The staff can organize a variety of agendas for the visits. Week-day visits will typically include presentations from NAU faculty and staff. Saturday visits will typically include activities from the various programs described in this newsletter.

Classroom Presentations / Field Trips

The EEOP staff is available to visit your school and conduct sessions to encourage students to consider science, engineering and technology careers. The staff can conduct classroom presentations and activities within the regular class schedule or do a school-based field trip with a more flexible schedule. The themes for the presentations will come from the various programs described in this newsletter.

Indoor Air Quality (IAQ) Building Assessments

The EEOP staff is available to work with students and teachers to complete an IAQ assessment of their school building. The staff has an IAQ Measurement Kit to facilitate air quality measurements such as carbon dioxide, radon, carbon monoxide, relative humidity, air movement, surface temperature, and moisture. The staff will also help students and teachers use the USEPA IAQ Tools for Schools kit to identify potential air quality issues in the building. There are four key components of the IAQ Building Assessments:

- Science education - students learn basic scientific principles about air and air pollution.
- Science - students are doing science by taking basic scientific measurements on air quality and interpreting the information collected.

- Student learning and health - students will make recommendations that will improve the health of all building occupants and improve the conditions for learning.
- Careers – students are learning about potential careers in air quality.

The data and observations collected during the IAQ Building Assessment will be provided to the school administration for their information and action. This is an educational program, not a regulatory program; only the school staff receives the assessment reports.

Air Quality Education

The EEOP staff is available to work with students, educators, and tribal professionals to create more awareness of the career opportunities in protecting human health and ecosystems from air pollution. Some lessons and activities available are:

- Air quality and the Global Positioning System (GPS)
 - Protection of air quality
 - Atmospheric monitoring (GLOBE)
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Engineering Outreach Program (EOP)

The EEOP staff is available to work with students and teachers in order to increase awareness of opportunities in engineering. Although engineering is applied science, mathematics, and technology, many students are not aware of the career opportunities for this fascinating field. The purpose of the Engineering Outreach Program is to increase awareness of engineering as a potential career and help students understand how they can prepare for an exciting and rewarding career in engineering. The classroom sessions will include hands-on engineering challenges.

Wildlife In Native Schools (WINS)

The EEOP staff is working with the US Forest Service Rocky Mountain Research Station with a focus of “More Children in the Woods”. During forest visits to the Fort Valley Research Forest (near NAU campus) students will be introduced to forest management, ecology, wildlife and environmental issues through hands-on activities. Topic areas will focus on forest management, biodiversity, land stewardship, wildlife management, basic ecological principles, related career opportunities, and the effects of good or poor air, water, and soil quality on ecosystems. Middle schools and high schools from Northern Arizona are invited to participate in this program. The WINS budget includes funding to support transportation scholarships for schools outside Flagstaff.

American Indian Mobile Educational Resources (AIMER)

The AIMER classroom is a mobile computer laboratory that is used to facilitate teaching concepts of physics, astronomy, and engineering to K-12 students. Community Star Parties held after dark allow the community members to get involved in the AIMER program. Star Party participants will have an opportunity to view stars, planets, and moons through several different telescopes. The EEOP staff is also available to conduct classroom presentations on topics such as:

- Telescopes, how do they work
 - Basic principles of rocketry
 - Constellations and their origins
 - Stars and different types of light
 - Scientific method
 - Planetary movements
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Water Education and Outreach

The EEOP staff provides activities and classroom presentations to increase hydrological literacy and spark interest of students in hydrological careers. The staff can do classroom activities or assist with a field trip to a local stream or pond. The EEOP staff also has water education supplies available on a loan basis. Some lessons and activities available are:

- Water quality
 - Ground water
 - Drought and water conservation
 - Water cycle
 - Watershed protection
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Climate Change Education

The EEOP staff provides activities and classroom presentations to increase understanding of global warming and climate change. The activities and presentations encourage students to seek engineering and science careers that can address climate change issues. Students are also encouraged to take action in their local communities to address climate change through adaptation or mitigation.

Family Math and Air Quality Career Night

The EEOP staff provides “Family Math Nights” in cooperation with schools and communities. The focus of a Family Math Night is to give parents ideas on how to prepare their children for science, technology and engineering careers. Mathematics skills are often a barrier for students interested in science, technology and engineering careers; families can help students overcome these barriers. The EEOP staff requests a \$100 match from the school to purchase Family Math books as door prizes. The EEOP staff also requests that the school staff provide refreshments.

Summer Scholars 2010

The EEOP Summer Scholars has provided a valuable educational experience for Native American students in middle school and high school since 1999. The Summer Scholars program provides Native American students a one-week, on-campus pre-college experience with emphasis in applied mathematics, science, and technology focusing on local environmental issues.

The EEOP staff is currently recruiting schools to participate in the Summer Scholars 2010 program. The majority of the funding for the program is provided by the US Environmental Protection Agency and the Science Foundation Arizona, but we also need a cost share from the school. The school staff selects the students and sponsors (teachers) that will participate in the program. The EEOP staff develops and facilitates the one-week program.

Services for Educators

The EEOP staff can support the implementation of several environmental education curriculums. This support could be a workshop inviting several teachers or responding to teachers on an individual basis. The EEOP staff is currently supporting the following curriculums and programs:

- Problem Based Learning
- Indoor Air Quality / Air Quality
- Global Learning and Observations to Benefit the Environment (GLOBE)
- Family Math and Science
- Water Education

Internships for Students

The EEOP staff conducts two internship programs. The Short Internship Program (SIP) gives both high school and college students a chance to experience different air quality careers for 20 to 80 hours. The Student Summer Internship gives college students a 10 week experience in an air quality career. Applications for both programs are found on the EEOP web-site.

Internships for Teachers

Educators are eligible for a professional internship. The EEOP staff can arrange for a one-week internship for educators working in a tribal environmental office. The primary focus of the internship is to encourage collaboration between tribal environmental professionals and educators. Educators will be encouraged to take what they learn about tribal environmental issues back to the classroom. Applications are found on the EEOP web-site.

Interns for Tribes

Tribal agencies and other organizations can apply to host an intern. Internships should have strong connections to air quality. Applications are found on the EEOP web-site.

Professional Assistance Requests

The EEOP staff will respond to requests for assistance. The requests can range from simple questions to small projects or training courses. Examples of requests include: a student asking a question about an environmental career; a teacher requesting assistance with curricular materials; a tribal environmental professional asking for assistance with outreach to the community.

Communications:

The EEOP staff offers a variety of communications. The EEOP website provides information about programs. We also have a list-serve for sharing information on internships, programs, scholarships, as well as EEOP services and projects. If you would like to join the list-serve send an email to Mansel.

Credits and Contacts:

We encourage educators and tribal environmental professionals to use the articles in this newsletter in their own newsletters and communications.

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 newsletter list serve, contact Mansel.

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