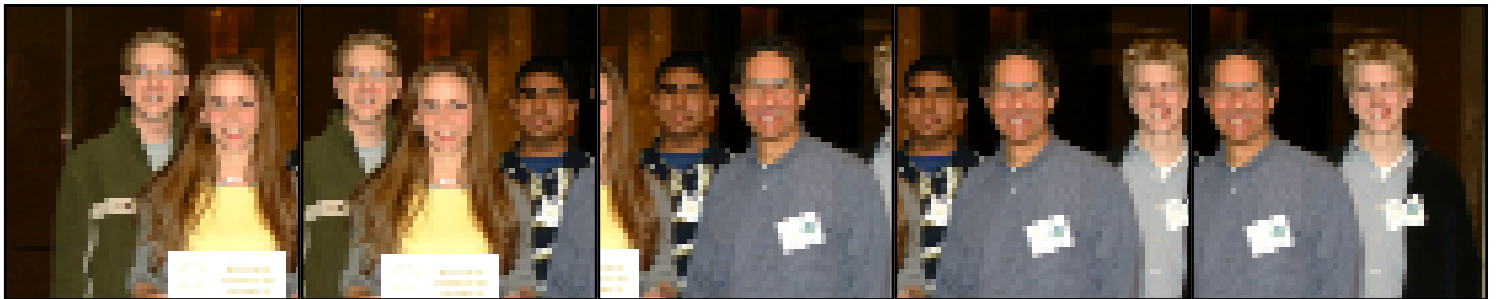


Tulsa Educational Outreach Program



helping to shape the future



Overview



Students and teachers of today will ensure the energy supply of our nation in the future. The

Department of Energy's National Energy



Technology Laboratory (NETL) recognizes the importance of



promoting science, mathematics and technology education to these students. Since it's



formation in 1977, DOE has been mandated to support education programs that help ensure an

adequate supply of scientists, engineers,



and technicians for energy related research and production activities.



The NETL National Petroleum Technology Office Education Program is consistent with

the National Energy Policy in promoting educational programs related to energy development and use, and

increasing public awareness of energy issues.

Goals

“The reality is that technological innovation is now widely understood to be the major driver of economic growth, not to mention a critical factor in our military superiority. And it is widely understood that we cannot expand our economy in the future if we don’t take steps now to expand our domestic pool of brainpower, the next generation of people who will incubate and implement the next generation of ideas.”

– Senator Joseph Liberman
Addressing the Technology Talent
Act of 2001 in the Institute of
Electrical and Electronics Engineers
“Policy Perspectives”
online-newsletter



Our goals include:

- increasing public understanding of petroleum energy issues,
- providing technical hands-on training in the petroleum industry,
- and promoting science and mathematics literacy.

The program achieves these goals by

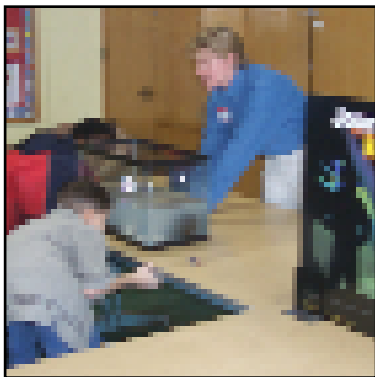
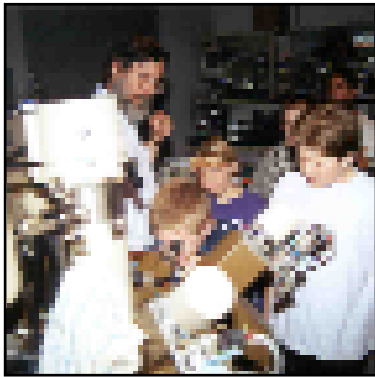
- maintaining an Adopt-a-School program to support an “at risk” elementary school,
- conducting a summer intern program through the Mickey Leland Energy Fellowship for college students,
- sponsoring the Oklahoma Science Bowl, a science and mathematics competition for high school students,
- conducting teacher training workshops in collaboration with other organizations,
- and supporting other educational initiatives such as California Oil Mentoring Entrepreneurial Training (COMET)



Bryant Elementary School
Principal, Barbara Mayes, and
National Petroleum Technology
Office Director, Bill Lawson.

Students and teachers on a
field trip to Keystone Dam.





From top to bottom: NOAA Weather Prediction Center; University of Tulsa Department of Geosciences; Hillcrest Medical Center; Society for Exploration Geophysicists display.

In 1999 our office partnered with Bryant Elementary school as part of the Adopt-a-School program. The program is designed to provide mentoring and support for “at-risk” schools. An “at-risk” school is defined as having repeated low test scores.

We have provided tutoring during the school day, school supplies, career day speakers, science fair judges and coordinated field trips for the students. Tours of local organizations that featured careers in science and technology were the highlight of the program for the students. The purpose of the tours was to give students the opportunity to see first hand how scientific knowledge is used in the workplace and capture their imaginations with the various applications of science and math knowledge.

Career Tours The tour series “Careers in Science and Technology” consisted of 5 field trips for groups of 20 to 25 students. The career topics of the trips were coordinated with the 5th grade science curriculum. This curriculum focused on studies of the Human Body, Chemistry and Physics, Earth Science, and Life Science. The field trip series included tours of the Hillcrest Medical Center, Tulsa Weather Forecast Office of the National Weather Service of National Oceanographic and Atmospheric Administration (NOAA), Army Corp of Engineers Keystone Dam Power House, University of Oklahoma Core Lab, and the University of Tulsa Geoscience Department. A fossil collecting trip was also conducted for the students.

Career Fair A one-day career fair focusing on earth science was also held for student in 4th and 5th grade. Two petroleum trade organizations – the American Association of Petroleum Geologists (AAPG) and the Society of Exploration Geophysicists (SEG) joined NETL in conducting Career Day presentations to the students.

Approximately sixty students participated and learned about careers in petroleum geology, oceanography, mining geology, paleontology, geological engineering, and geophysics. Adding to the learning experience were displays of rock and fossil samples, videos and a hands-on demonstration of wave physics.

After the first year of adoption by NETL the Bryant Elementary School principal reported an increase in test scores in the areas of math and science.



Mickey Leland Energy Fellowship

The Mickey Leland Energy Fellowship targets Historically Black Colleges and Universities (HBCUs), Hispanic Americans, and Tribal Colleges and Universities (TCUs) by providing opportunities for educational enhancement and career development through internships that target minority students in science, math, and engineering curriculums.

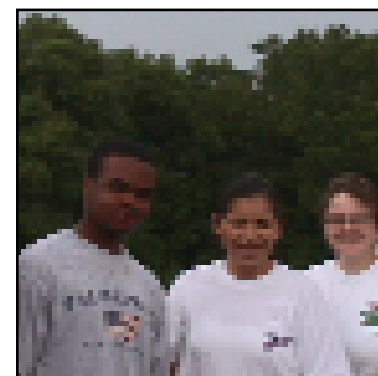
Students selected are placed in 10-week summer internships at Fossil Energy sites. This experience gives students an opportunity to gain hands on experience in the oil/gas industry and enhanced marketability upon graduation.

It is becoming increasingly important to foster interest in scientific and technical careers if the United States is to have a supply of qualified scientists and engineers for the future. To address the growing concern that there will be a shortage of workers skilled in science, engineering, and technology, the Mickey Leland Energy Fellowship focuses on encouraging students to pursue energy related careers.

HBCUs and TCUs were specifically targeted because of their unique, yet similar challenges. Most HBCUs were established in poor rural areas in the south and southeast. Because they were created as land grant institutions after the end of slavery they remained segregated until the Civil Rights Era of the late 1960's, most have not reached the national status of majority institutions.

TCUs were created over the last 30 years in response to the higher education needs of American Indians. Most TCUs serve geographically isolated populations that have no other means of accessing education beyond the high school level. The TCUs are unique because they combine personal attention with cultural relevance to help overcome the barriers of higher education. Within the population of these two mostly isolated institution types lies great potential for finding the energy workers of the future.

NETL recognizes the importance of the energy fellowship and supports it by hosting summer students each year. In the past 2 years five students have worked at the NETL Tulsa office. Some of their activities included tours of a refinery, drilling test facilities and a research laboratory. Students were assigned specific tasks to accomplish during their internships. The students were required to make a presentation about what they learned to the staff. This provided the students with the opportunity not only to learn about the petroleum industry but gave them the opportunity to learn presentation software and work on public speaking skills.



Student Summer Interns visit oil fields in Oklahoma to understand how oil is produced from underground reservoirs.

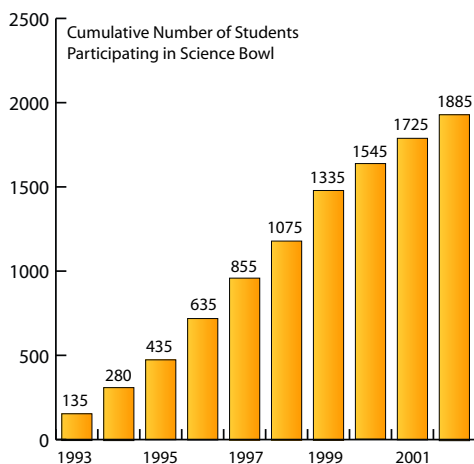
Science Bowl



Oklahoma Regional Science Bowl

Science Bowl is a fast-paced, tournament-style math and science competition, developed by the Department of Energy, for high school students. The competition questions are rigorous and include questions on math, general science, earth science, astronomy, computer science, biology, chemistry, and physics. Each team consists of four students and one alternate. Teachers serve as advisors and coaches.

NETL's Tulsa office has hosted the Oklahoma Regional Science Bowl since 1993. Over 1,800 students have participated in the math and science competition.



A volunteer team of over 100 people is required to conduct the Oklahoma Regional Science Bowl. Each match requires a team of officials consisting of a moderator who reads the

questions, a rules and scientific judge, a timekeeper and a scorekeeper. In addition to this volunteer team at each match there are many people “behind the scenes” who organize the competition and logistics, run registration, tally and post results, provide presentations for the students during lunch, and keep the competition running.

Winners have included:

1997

Booker T. Washington H.S. ;
Edmond Memorial H.S.

1998

Bishop Kelley H.S. ; Edmond Santa Fe H.S.

1999

Jenks H.S.; Yukon H.S.

2000

Booker T. Washington H.S.;
Edmond H.S.

2001

Booker T. Washington H.S.

2002

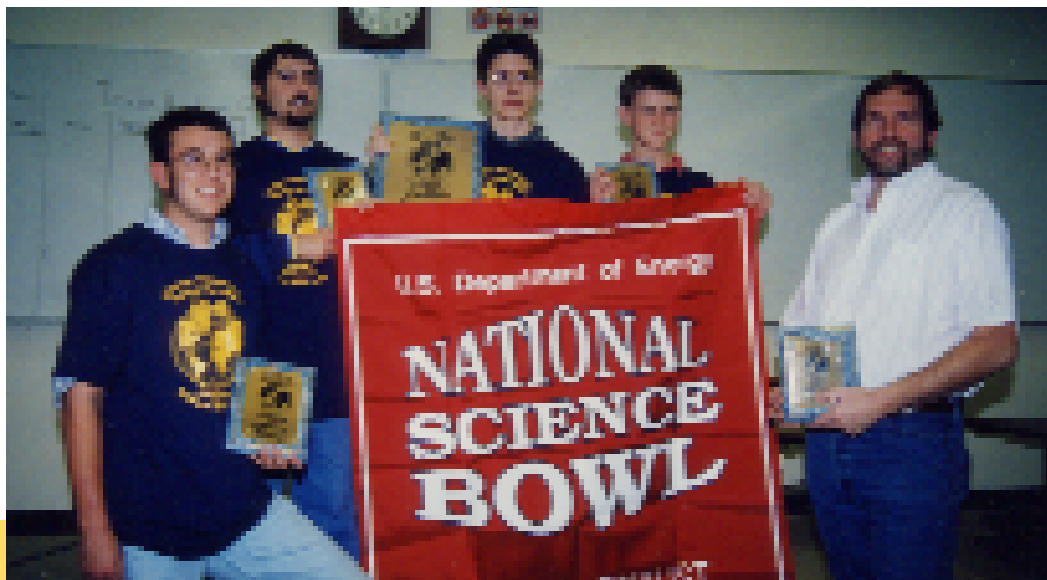
Norman H.S.; Classen School of
Advanced Studies

Each winning team receives an all expense paid trip to Washington D.C. to compete in the National finals.

National Science Bowl In 2002 more than 12,000 students from more than 1,800 high schools nationwide competed in 61 regional Science Bowl tournaments. These competitions are organized and run by DOE offices, other Federal agencies or educational institutions. Since its inception in 1991 more than 80,000 high school students have participated in regional tournaments.

The First place team is awarded a two-week international research trip. Texas Instruments has provided TI-89 calculators to each student on the top five teams and IBM has provided Work Pads to their coaches. The team showing the best sportsmanship also receives an award. All teams making it into the double elimination round are awarded one thousand dollars for their school physics department.

Photo below, Edmond Santa Fe.



Teacher Training



Teacher training is an important component of our Education Outreach Program. Teachers have daily contact with students and are one of the best resources for promoting careers in math, science and technology.

Since 1998, a Teachers' Training workshop has been part of the Society of Petroleum Engineers/ Department of Energy Symposium on Improved Oil Recovery. The purpose of these workshops is to provide energy related training and resources to teachers. The workshops enable teachers to present accurate and interesting material on petroleum-related topics in their classrooms.

Workshop materials have been provided by the Oklahoma Geological Survey, Oklahoma Energy Resources Board, the Nature Conservancy, and the Colorado School of Mines.

In addition to the classroom activities, teachers are invited to attend a field trip the Sunday before the meeting. Trips have included stops at outcrop exposures of major oil-producing formations in Oklahoma, fossil collecting at Skiatook Dam and the drilling test facilities at the Port of Catoosa. Symposium field trips facilitate interaction between teachers and oil industry professionals.

COMET California Oil Mentoring Entrepreneurial Training (COMET) is an oil and gas industry outreach program sponsored by public and private organizations and individuals. COMET was initiated in 1997 by the West Coast Regional Petroleum Technology Transfer Council (PTTC). It combines oil and gas industry experience with a high school science-mentoring program.

The COMET program gives high school teachers and motivated science students an introduction to oil and gas technology. An on-campus, five-day training program is held at University of Southern California. In addition to learning about oil and gas and visiting field operation sites, students learn computer skills relevant to the oil and gas companies and related agencies, including use of the Internet to access energy software.

Following the training, students have the opportunity to complete a four-week paid internship working with a sponsoring organization. An assigned mentor trains the student to fulfill the requirements of the job and provides orientation to the workplace and the industry.

COMET provides a practical roadway for high school students to explore a career in energy. Nurturing the students of today to become energy employees and entrepreneurs of tomorrow is essential to maintaining secure domestic supplies of oil and gas.

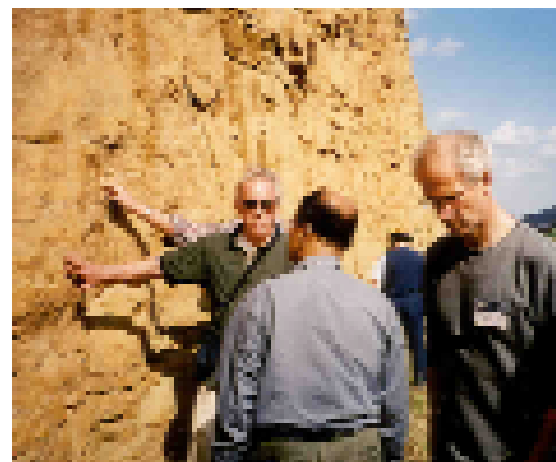
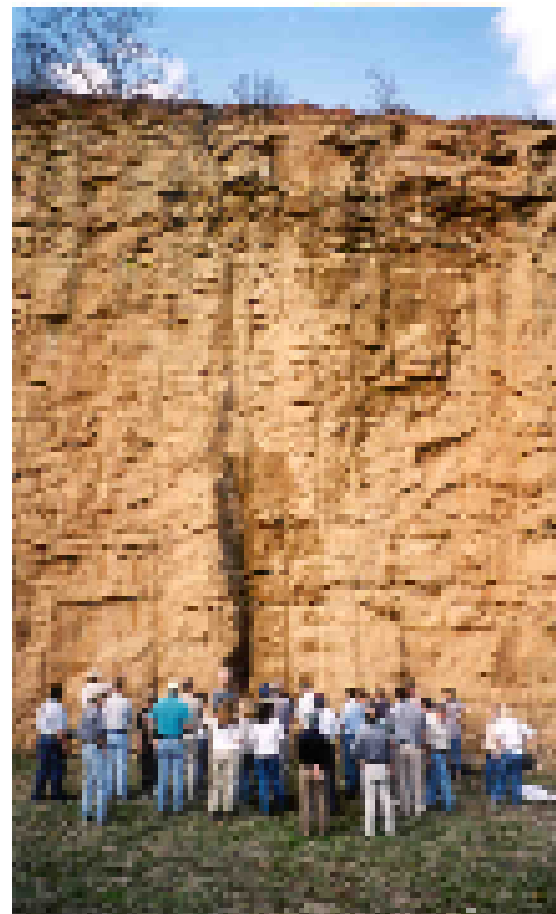


Photo above left: Teachers tour DOE imaging laboratory. Photo above: A geological field trip organized for teachers in conjunction with the Society of Petroleum Engineers / Department of Energy Improved Oil Recovery Symposium illustrates the types of rock formations and characteristics that are best for oil production.

expanding your
knowledge



National Energy Technology Laboratory

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Visit these websites:

<http://www.energy.gov/school/index.html>

<http://www.netl.doe.gov/coolscience/index.html>

<http://www.fe.doe.gov/education/>

