



"URBANIZATION"

Springfield Middle School – Mike Ransford, math; Joan Mathews, inclusion; Lesley Galyas, science; Susan Hanna, social studies; Student Teacher: Elizabeth Wilkerson, science

The students at Springfield Middle School looked at the problem of urbanization as a potential environmental health science problem for the Springfield area, especially near Airport

- City Planner
- Water Commissioner

The students in each group had to design their city keeping their roles and the responsibilities that come with them in mind. After the students were done presenting their cities to the class, problem-based learning stepped in. The students were to once again exam their city and find any potential environmental health problems that may arise. Of the many problems, some of them were:

- Not enough traffic lights
- Water pollution near landfills
- Destruction of habitat

The students then designed their own controlled experiments to research and study one of the problems they might have in their city. They ran their experiments in the Springfield area. The students not only learned a lot about environmental health problems, but they learned a lot about Springfield as well. It was a great learning experience. ✂

Highway where the school is located. Some of the problems the students discussed were:

- Overcrowding
- Traffic
- Pollution
- Waste generation and disposal

As a final project the students designed an "ideal city" in groups of four where each student was given a major role including:

- Waste Manager
- Department of Transportation

"SCHOOL MAKES ME SICK, LITERALLY!"

Youngstown – Joanne Zimmer, math / social studies; Claudette Richardson-Clinkscales, math / science; Donna Cooper, language arts/ social studies; Amy Majernik, language arts / science

The 4th and 5th grade students in Youngstown City Schools played the role of junior scientists. Dr. Chris Keil from Bowling Green State University arrived at Youngstown armed with an array of environmental health instruments. The students learned how to use the following instruments to investigate environmental health problems that may arise at their school:

- Light meters - to test light pollution
- Noise meters - to test noise pollution
- Drager pumps - to test carbon dioxide levels
- Sling psychrometers - to test humidity levels

The students were presented with a very relevant problem-based learning situation. There is one particular classroom of interest in their building. It is located in an unventilated locker room beneath the gym. Students complained that this room was too hot. The teacher in this classroom complained about getting headaches, being nauseated, and being lethargic. The students thought carbon dioxide and temperature might be the problem.

Using their investigation instruments the students found that there were three culprits:

- Temperature
- Humidity
- Carbon dioxide levels

These three tests showed that these suspects were beyond being at a safe level. Next year, the students participating in Excite will be doing investigations of their own, and unless something changes, they just might find the same problems. ✂



STUDENTS IN THE KNOW... The Third Annual Environmental Science Colloquium – COSI Toledo, May 27, 2004

Project EXCITE (Environmental health science eXplorations through Cross-disciplinary & Investigative Team Experiences) grant initiative at Bowling Green State University instructs educators to use locally relevant Environmental Health science (EHS) topics to engage students in valuable learning experiences across disciplinary areas.

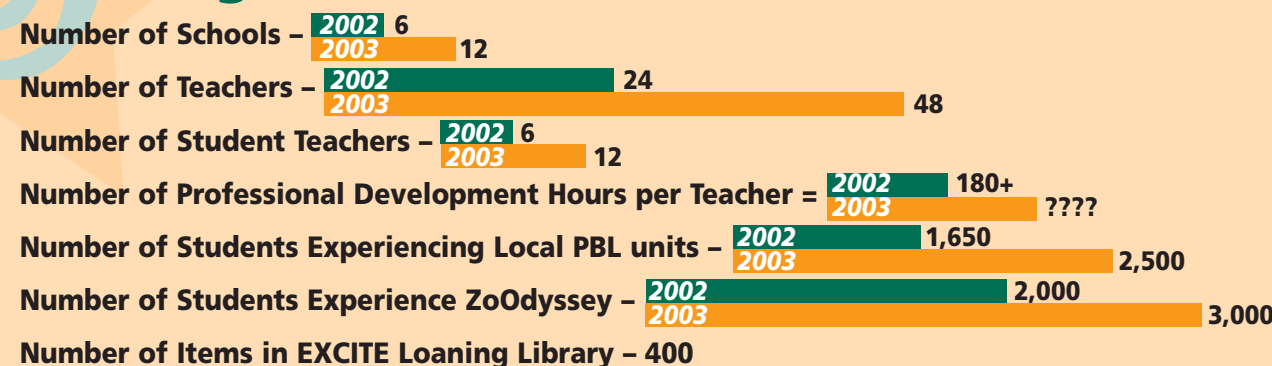
EXCITE students and teachers from Northwest Ohio will make presentations during the third annual Environmental Science Colloquium at COSI Toledo on May 27th, 2004 from 4:30-8:30pm. Sponsored by Project EXCITE, Bowling Green State University and COSI, the poster or multimedia presentations will highlight findings from the local EHS investigations. This year's participants include EXCITE students representing Arcadia Middle School, Findlay Central Middle School, Fostoria Middle School,

Liberty Center Middle School, North Baltimore Middle School, and St. Pius X Elementary School of Toledo. Bowling Green State University students studying Environmental Science will also be making presentations.

The Colloquium is also open to any K-16 student team that would like to present their findings from an environmental science investigation. Admission to view the projects is open to administrators, parents, and other school community members.

Over the past two years, over 300 K-16 students have participated and gave highly impressive presentations of their work. If you would like to have your students present at this event, please contact EXCITE Program Manager, Amy Boros at 419.372.9132 or aboros@bgnet.bgsu.edu prior to May 1st, 2004. ✂

Exciting Numbers



FEATURED IN THE UPCOMING ISSUE:

- ???????
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Website Highlight

www.nationalatlas.gov

The new National Atlas includes maps designed to stimulate children and adults to visualize and understand complex relationships between environments, places, and people. It contributes to our knowledge of the environmental, resource, demographic, economic, social, political, and historical dimensions of American life. The updated site is designed to provide a reliable summary of national-scale geographical information.

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WHAT'S INSIDE

INTERVIEW WITH DR. KASSA 2

3 EHS CAREERS

4 FOCUS ON FOOD-BORNE ILLNESS: E. COLI

5 FIELD REPORTS

6 STUDENT'S IN THE KNOW

Volume 2 • Issue 1

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Environmental health science eXplorations through Cross-disciplinary & Investigative Team Experiences

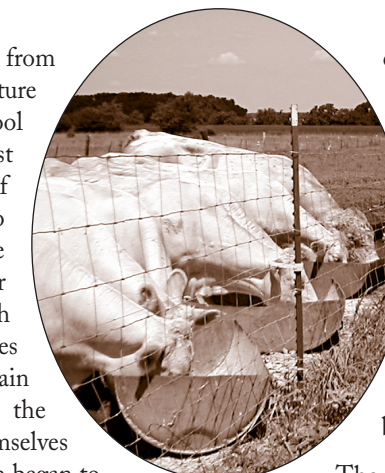
NORTHWEST OHIO TEACHERS BEGIN TO TRANSFORM THEIR TEACHING!

By Amy Boros, Program Manager

24 teachers and 6 preservice teachers from Northwest Ohio experienced agriculture like never before. These 30 middle school teachers spent two weeks this past summer investigating the timely issue of whether a large scale (often referred to as a "factory farm") dairy farm should be developed in the region. During their experience, the teachers visited both large and small area farms of all varieties including dairy, beef cattle, hog, and grain to gain background knowledge. As the teachers began asking questions of themselves many issues surrounding the mega farm began to surface: water quality in the area, odor and light pollution, pest control at the new facility, and the possible displacement of smaller local farmers to name a few. More research and investigation was needed, so off they went! The teachers immersed themselves into the topic by designing and conducting laboratory tests and research in the following areas:

- Water quality in and around existing farms as well as the proposed site by collecting samples and testing for various contaminants.
- Air quality in and around existing structures on farms (ex. animal barns) by sampling with detector tubes for various chemicals.
- Public reaction to the proposed dairy farm by interviewing fair attendees, local farmers, and residents.
- EPA Policies and regulations regarding large scale farms.

The teachers gathered their data and generated conclusions and solutions; which greatly varied. Some groups found no harm caused by a current mega farm while other groups were very concerned about the small farmer. The teams



created movies and PowerPoint presentations to explain their point of view on the issue to EXCITE staff, members and scientists.

But why did these 30 teachers from Arcadia, Fostoria, Findlay, Liberty Center, North Baltimore, Toledo and BGSU spend two weeks of their summer "out on the farm"? They are part of Cohort 2 in Project EXCITE and this was the summer institute (additional photographs and movies of the summer can be viewed on our website.)

The two-year intensive professional development experience only began with the above exploration. Cohort 2 officially started Project EXCITE with a kick-off weekend at Maumee Bay State Park and the Lake Erie Center located along the shores of Lake Erie, where the teachers met and collaborated with other school teams, EXCITE staff and scientists as they were introduced to the EXCITE framework through Zoodysey and an odyssey on environmental tobacco smoke.

continued on page 2



Zoodysey set for national release November, 2003! Our interactive PBL/EHS unit will be available soon.

Transform Your Teaching!

FALL 2003

Field Reports

INTERVIEW WITH DR. KASSA

By ????????????

Dr. Haliu Kassa has worked as an assistant professor at Bowling Green State University for the past four years, but he is not unfamiliar with the university. He came over from Ethiopia on a United Nations Scholarship to complete his masters and doctoral studies at Bowling Green State University in 1976. After the completion of his studies in 1982, he was sent back to Ethiopia to work with the United Nations in the Ministry of Food and Agriculture. He returned eight years later and continued his studies at MCO under Dr. Michael Bisesi. He earned a Masters of Occupational Health and a Masters of Public Health at MCO and continued to pursue research in his areas of interest, Food Safety and Public Health.

Q What events inspired you to study Environmental Health?

A I saw a great need for proper training for farmers in third world countries. The farmers abused pesticides and it continued to contaminate the food that the people of Ethiopia were eating. I was also given many opportunities through Bowling Green State University and MCO to study topics of interest to me that related to Environmental Health.

Q What did you do when you returned to Ethiopia in 1982?

A I worked for the Ministry of Food and Agriculture. After two years, I became the head of plant protection. The chemistry department that I was in charge of created different labs for training and research. At the labs, people were educated on how to properly use pesticides. I was able to fulfill a great need in my homeland. I consider this to be one of my greatest accomplishments.

Q What other positions had you held before becoming an associate professor at Bowling Green State University?

A I was a research assistant in the Biology department at Bowling Green State University. I held a position at Defiance College as a visiting professor and directly before this position I worked for the Lucas County Health Department for 4 years as a registered sanitation.

Q What is the future of Environmental Health?

A I believe that the United States is moving in the right direction. They are aware of the need to look closely at the important issues that effect our health. One of the concerns that I have is the overpopulation issue in China. Most of the manufacturing companies that produce products that we use everyday are made in China. This overload combined with the overpopulation issues breed environmental health risks. We need to be aware of this problem's effect on the United States. ✕

Contaminated Food

NORTHWEST OHIO TEACHERS BEGIN TO TRANSFORM THEIR TEACHING! cont.

The summer continued with the two-week institute held at BGSU where the teachers experienced the AgOdyssey mentioned above and gained indepth training in EHS and Problem-based learning. At this point the program progresses into the academic year where the teachers will meet on campus with each other and EXCITE staff once a month. The campus meetings prepare the teacher teams (4 from each school plus a preservice teacher from BGSU) to develop

and implement an interdisciplinary, problem based unit focusing on a locally relevant environmental health issue. The teachers and their students will present their units and findings at the Annual Environmental Science Colloquium held at COSI Toledo in May (please see the Colloquium article at the end of this issue).

Next summer the teachers will experience a one-week institute to be held at the 577 Foundation in Perrysburg, Ohio where the focus will be the refining and publication process of their team units. During the second and final academic year, the teachers will again meet on campus with EXCITE staff as well as reimplement their units with a new class of students. Ultimately, the units will be peer reviewed, edited and made available to the education community.

Project EXCITE will soon begin offering additional professional development opportunities to teachers of all grades. Focusing on integration of EXCITE developed odysseys, the staff and former participants are expected to begin training in summer of 2004. For more information regarding this experience and/or to apply for Cohort 3 (applications will be available spring of 2005) please contact our Program Manager about joining Project EXCITE! ✕



EHS CAREERS

By ????????????

What is Environmental Health? Environmental Health deals with all parts of human health and diseases that are determined by factors in the environment. Environmental health also deals with the practice of assessing and controlling the factors in the environment that can affect health. In summary of these two definitions, it is the study of everything around you that can affect your health in some way. From these two definitions you can tell that the job field for Environmental Health is very diverse and large.



Environmental Health workers try to carry out preventative and protective work to stop illnesses before they start. This is different from Doctors and Nurses who try to cure and treat illnesses after they have began. Most professionals in Environmental Health have a degree in Environmental Health or Public Health, though other degrees are available. A degree in Environmental Health can open the door to a wide variety of jobs available.

While working in Environmental Health, you could work for the public or the private sector. In the public sector your work could involve monitoring hygiene on food premises, dealing with a noise nuisance, or working on an air pollution problem. Most public sector jobs are through the government (federal, state, or local). In the private sector your work could involve being hired as a consultant for a food retailer, shipping company, or even an airline. Some people may also pursue a job in a non-profit organization.

One of the most exciting parts to working in Environmental Health is that no two days are the same, and you don't spend your whole day sitting at a desk and computer. The government is the biggest employer of Environmental Health Specialist there is today, and new jobs in Environmental Health are formed everyday.

Possible Job Areas in Environmental Health

- Environmental Specialist
- Epidemiologist
- Health Educator / Community Outreach Specialist
- Toxicologist
- Air Quality Specialist
- Chief Medical Officer
- Consumer Safety Officer
- Dietitian
- Industrial Hygiene
- Food and Safety and Toxicology Center
- Public Health
- Solid Waste Disposal
- Environmental Health Policy Analyst
- Environmental Health Research Scientist
- Environmental Consultant / Specialist
- Health and Safety Officer
- Hygienist
- Industrial Waste
- Professor (Environmental Health, Industrial Hygiene, Toxicology)
- Sanitary Engineer
- Scientist
- Occupational Safety
- Field Chemist
- Geologist
- Health Administrator
- Health Inspector
- Hydrologist

For more information on Environmental Health careers the following websites may be useful:

<http://www.ehocareers.org>
<http://www.epa.gov/epahrist/series.htm>
<http://www.niehs.nih.gov/kids/home.htm>

References:

<http://www.ca.courses-careers.com/environmental.htm>
<http://www.sph.umich.edu/ehs/careers.html>
<http://www.cast.ilstu.edu/hsc/EnHealth/Ehjobtitle.htm> ✕

FOCUS ON FOOD-BORNE ILLNESS: E. COLI

By Elizabeth Wilkerson

What is *E. coli*?

E. coli is short for the bacteria Escherichia coli which is found naturally in the intestines of cattle, sheep, deer, and pigs. There are many strains of *E. coli* that are harmless, however *E. coli* 0157:H7 can cause severe illness, and is potentially fatal, especially in young children and the elderly.

What are the symptoms of *E. coli* poisoning?

There is usually a sudden onset of severe abdominal cramps followed by diarrhea within the next day. Within a few days the diarrhea will usually become watery and bloody. There is usually no fever, but vomiting may occur. Long-term complications include Hemolytic Uremic Syndrome which causes organ failure, most prominent in the kidneys. HUS is the leading cause of death from *E. coli* poisoning.

How do I get *E. coli* poisoning?

Most people get *E. coli* from eating undercooked ground beef, drinking unpasteurized apple or orange juice, or drinking unpasteurized milk. It has also been found on alfalfa sprouts, lettuce, and other vegetables, usually resulting from the use of contaminated manure as fertilizer or from washing them with contaminated water. The water supply can be contaminated if animal manure leaches in through groundwater or is carried in by surface water. An infected individual is highly contagious and if they go swimming in a public pool or don't wash their hands after using the bathroom they have the potential to infect many other people through water, surface, and food contamination.

How can I prevent getting *E. coli*?

Always cook your beef using a food thermometer, keep raw meat away from ready-to-eat foods, wash anything that comes

into contact with raw meat thoroughly with soap and hot water, wash your hands before and after handling food, and especially after using the bathroom or changing a baby's diaper, wash your meat thermometer between every meat item you check, drink only pasteurized milk and juice, drink only chlorinated tap or bottled water, keep the chlorine in your pool at safe levels, and wash all raw fruits and vegetables. ✕



WHAT IS PROJECT EXCITE?



Project EXCITE (Environmental health science explorations through Cross-disciplinary & Investigative Team Experiences) is a 1.8 million dollar, seven-year grant partnership between The National Institute of Environmental Health Sciences, Bowling Green State University, and several area school districts. Project EXCITE provides professional development to interdisciplinary teams of middle grades teachers in order to develop locally relevant Environmental Health Science (EHS) problem based learning units. Each team implements their unit in the classroom to engage their students in valuable learning experiences across the curriculum. The project reflects current thinking about effective teaching and learning and is aligned with national and state education goals. Project EXCITE emphasizes critical thinking and problem solving skills, interdisciplinary connections, collaborative learning and the use of technology. During the unit, students investigate local EHS issues, explain fundamental concepts, and apply the knowledge and skills generated in a culminating service learning project. The ultimate goal of Project EXCITE is to enhance life long learning skills and encourage students to be active and well-informed citizens. Project EXCITE is directed by Bowling Green State University Associate Professors Dr. Chris Keil and Dr. Jodi Haney.

Escherichia coli

