TNRCC

# EDUCATOR'S Eco-Link

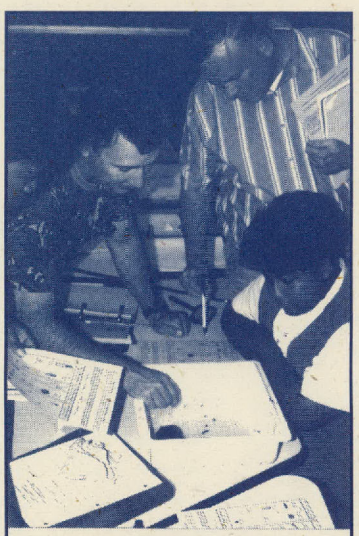
*A Publication of the Texas Natural Resource Conservation Commission*

PD-011/96-2



## TES Courses Double in 1996

Six universities joined the TNRCC's Education Assistance Section in conducting the Teaching Environmental Sciences (TES) graduate course in the summer of 1996. This was double the number of courses offered in 1995. The course is offered to teachers in grades K-6, although an occasional middle school or high school teacher joins the course as well. For example, a high school teacher took the course to obtain insight into techniques her class can use to reach elementary students they mentor.



*Texas Southern University TES course 1996–Dave Buzan presents water samples and shows how to identify bugs*

The TES course is held during summer sessions and covers the three environmental areas for which the TNRCC has regulatory authority: air, water, and waste. Course content includes field trips, lectures, and hands-on activities. The 120 course participants completed evaluations on each speaker or field trip, as well as an overall course evaluation. Courses are rated on a scale of 1-5, with 5 being the highest score. The TNRCC considers any score higher than 4.5 to be outstanding. The 1996 results are shown in the box below.

For the first time, the course syllabus included presenters from other agencies with environmental education materials, such as the Texas State Soil and Water Conservation Board, the Texas Parks and Wildlife Department, and the U.S. Coast Guard.

Tuition for the course is paid by TNRCC or other sponsors. Teachers pay only a registration fee to hold their place in the class.

Using information they have received throughout the course,

*continued on page 7*

| New Courses | Overall Score |
|---|---|
| Lamar University in Beaumont | 4.68 |
| Texas A&M University at Corpus Christi | 4.76 |
| University of Houston-Clear Lake | 4.81 |
| **Continuing Courses** | |
| University of Texas at El Paso | 4.86 |
| Texas Southern University in Houston | 4.81 |
| Stephen F. Austin State University -Longview campus | 4.71 |

### Highlights of the 1996 Courses

- a visit to the Cattail Marsh Wetlands at the Beaumont Water treatment plant, the first of its kind in Texas and only the second in the nation (the other is in Florida)
- a groundwater flow model demonstration from the Texas State Soil and Water Conservation Board at several TES courses, including information on how teachers can build a model for their own classroom
- talking with employees of Reynolds Aluminum in Corpus Christi about their jobs and seeing a demonstration on how alumina is processed
- BFI Recyclery tours for the TSU and University of Houston-Clear Lake participants, and free copies of the BFI MOBIUS curriculum for participants in all TES courses
- a tour of the Texas Eastman plant in Longview, which offered the opportunity to see a water treatment plant, hazardous waste incinerator, and landfill all at a single site
- a worm composting lesson at the University of Houston-Clear Lake conducted by a former TES course participant, Alice James, who attended the 1995 course at Texas Southern University
- a field trip to the Fred Hervey Water Reclamation Plant in El Paso, a winner of the Governor's Awards for Environmental Excellence
- seeing a vapor recovery system at the Valero Refinery in Corpus Christi and learning how the company recovers excess fuel vapors to prevent air pollution

# "Eye on Earth" Begins Fourth Successful Year

For the fourth consecutive year, the Texas Environmental Awareness Network (TEAN) will broadcast "Eye on Earth" over the Texas Education Agency's (TEA) satellite television network, called T-STAR. TEAN was created in 1992 to avoid duplication of effort in public education activities among state agencies and other organizations involved in environmental education. The T-STAR network is one of TEA's mechanisms for communicating information to school officials and providing teacher training. Receivers for these programs are located in schools, regional education service centers, and at local cable companies around the state.

Information on the "Eye on Earth" program is targeted toward TAAS objectives, and teachers are given specifics on incorporating program topics into their classroom activities. The format is interactive, allowing teachers to participate by calling toll-free 1-888-91-TSTAR. Teachers also can communicate with the T-STAR staff via e-mail at: <t-star-l@tenet.edu>.

Schools are invited to send information to be included in the program to John Hamilton of the Texas General Land Office for each standard segment. These are:

- What's New? (environmental news items)
- Campus Camera/Kids in Action (student video segments)
- Environmental Events (calendar of activities)
- Get Involved (teacher training opportunities)

Hamilton can be reached at GLO, 1700 N. Congress, Room 730, Austin TX 78701, (512) 463-5310, or via e-mail at <jhamilto@glo.state.tx.us>.

For the first time, the "Eye on Earth" show will alternate in some months with a new show from the Texas Parks and Wildlife Department (TPWD) called "Exploring Texas." TPWD hopes to make this a separate series if this year's pilot programs are well received.

The following topics will air on the dates listed. Shows are "Eye on Earth" series shows unless otherwise noted as "Exploring Texas" shows.

**November 20, 1996 3:30–4:00 p.m.**
***"EXPLORING TEXAS...Monitoring and Caring for Our Water"*** . . .Examines the status of our state's wetlands and water quality. Teachers will be presented with projects that teach students how to monitor water quality in rivers and streams and how to participate in maintaining water quality in Texas. Curriculum and video targeting elementary and middle school classrooms.

**December 18, 1996 3:30–4:00 p.m.**
**January 22, 1997 3:30–4:00 p.m.**
**(Rebroadcast)**
***"Alternative Fuels Can Fuel Your Classroom"*** . . . Presents educational programs dealing with energy and alternative transportation fuels; discusses the impact of the federal Clean Air Act on Texas and the effort by state agencies to promote the use of alternative vehicular fuels such as natural gas, propane, and electric; explores *Alternative Transportation Fuels*, a curriculum supplement for middle school teachers.

**January 15, 1997 3:30–4:00 p.m.**
***"EXPLORING TEXAS...Legacies on Our Landscape"*** . . . The harsh and diverse Texas landscape shaped a people and spawned a legacy. This program presents a portion of that legacy often left out of our classrooms. There will be a video on the Buffalo Soldiers and a segment on the history of the people and landscape in a small corner of East Texas.

**February 19, 1997 3:30–4:00 p.m.**
***"Coastline in the Classroom"*** . . . The Texas coastline offers a wealth of information for teachers. Learn about resources and activities suitable for the K-12 classroom.

**March 19, 1997 3:30–4:00 p.m.**
**March 26, 1997 3:30–4:00 p.m.**
**(Rebroadcast)**
**"Water Issues and Summer Learning Opportunities"** . . .Discusses our water resources including nonpoint source pollution and point source pollution. A review of supplementary curriculum materials on water issues will be presented. Also, teachers and students can fill their summer months with educational opportunities. Learn about workshops, camps, and internships.

**April 16, 1997 3:30–4:00 p.m.**
***"EXPLORING TEXAS... Biodiversity"*** . . . Explores the complex nature of healthy Texas ecosystems. This program presents teachers with curriculum and video explaining why biologists are concerned about maintaining a rich diversity of animal and plant life in Texas. The value of rare species will be examined, as well as ways to balance human and wildlife habitat requirements.

**May 7, 1997 3:30–4:00 p.m.**
***"Web-Based Education"*** . . .This summer explore the World Wide Web! Learn about Texas Parks and Wildlife's student-developed Web pages describing the bioregions of the state. Get on-line with a variety of agencies to plan your 1997-1998 lesson plans.

# CLEAN TEXAS STAR Shooting Across Texas

CLEAN TEXAS STAR

The CLEAN TEXAS STAR program has taken off! The TNRCC launched CLEAN TEXAS STAR to help meet the state's goal of reducing the amount of material going to Texas landfills by 50% by the year 2000. The CLEAN TEXAS STAR program can offer your school's teachers and students statewide recognition for their efforts to reduce waste, buy recycled-content products, and participate in environmental outreach. As a CLEAN TEXAS STAR member, your school's teachers and students will become affiliated with a group of organizations that follow the three Rs —Reduce, Reuse, Recycle. For more information on how to become a CLEAN TEXAS STAR, call 512/239-3100.

# Teaching Environmental Sciences ACTIVITIES

*Each teacher provides permission for the TNRCC to publish the activities they submit, in exchange for the TNRCC's or other sponsor's payment of course tuition. Teachers write the activity for the grade level they normally teach, and each activity is correlated to the Texas Education Agency's "Essential Elements for Education" so it can be incorporated into any classroom's curriculum.*

## Title:
**Effects of Ozone in the Air**

## Submitted by:
Mary Sloan, University of Texas at El Paso TES course, 1995

## Purpose:
To measure ground-level ozone.

## Level:
5th grade

## Essential Elements:
Environmental Essential Elements Across the Curriculum - 75.25

(2) Acquire data through the senses. The student shall be given opportunities to (B) observe properties and patterns of objects, organisms, and events in the environment, and (E) explore the environment.

(3) Classify, order, and sequence data. The student shall be given opportunities to (B) classify matter, forces, and energy, organisms, actions, and events from the environment according to similarities and differences.

(4) Communicate data and information in appropriate oral and written form. The student shall be given opportunities to (D) describe changes that occur to objects and organisms in the environment.

## Objective:
Students will learn how ground-level ozone is an air pollution problem.

## Focus:
Show a picture of a car tailpipe with exhaust coming out.

## Materials:
Ecobadge Smog Patrol Kits from Vistanomics Inc., 230 N. Maryland Ave., Suite 310, Glendale, CA 91206, Telephone: 818/409-9157. (This is the only source that the TNRCC has for this product, so this should not be taken as an endorsement of the product.)

## Background:
Ozone is a colorless gas. It is found in two layers in the atmosphere. High-level ozone is about 10 to 30 miles above the earth. It is there naturally. This ozone layer protects the earth from the sun's harmful ultraviolet light. Without this protection, the ultraviolet light would be harmful to humans. Ground-level ozone reaches from the ground to about 10 miles above the earth. Ozone at ground level is formed as a result of chemical reactions between oxygen and volatile organic compounds (which mainly come from automobile exhaust) and nitrogen oxides (which mainly come from industries and power plants) in the presence of sunlight. High concentrations of ground-level ozone are produced during warm weather (summer months). Ground-level ozone can be very harmful. It can cause breathing problems in humans. It can also injure forests and other vegetation and damage crops.

EcoBadge is a device that measures ozone levels. Treated paper in the badge can be read at short terms (1 hour) and long terms (8 hours).

## Procedure:
During the right weather conditions for the formation of ozone, divide students into groups of four or five. Give each group an EcoBadge kit. Review instructions in kit. Each group will measure ozone levels for four or five days (depends on the number in each group). Each student will wear the EcoBadge for eight hours and record the ozone level measured. After each member of the group has worn the EcoBadge, the group will graph its results for the four- to five-day period. Have each group answer the following:

1. What does your graph tell you about the ozone level in your area?
2. During what part of the day is the ozone level the highest? Why do you think this is?
3. What contributes to the ozone level in your area?
4. What is being done to decrease harmful ground-level ozone? (Possible answers - Smokestacks and cars are now equipped with air pollution controls. People are becoming more conscious of conserving energy.)
5. Have the students write what they see happening.
6. Discuss their observations and inferences.
7. Add corrected notes to notebook.

This lesson also appears on the TNRCC's Internet site at: <http://www.tnrcc.state.tx.us/air/monops/ecobadgelesson.html>

To participate in a World Wide Web site for hands-on, inquiry-based science involving ozone monitoring by students around Texas, click on: <http://chico.rice.edu/armadillo>

Technical questions regarding the TNRCC Web server: <webmaster@tnrcc.state.tx.us>

## Title:
Ahoy! Garbage

## Submitted by:
Diane E. Moore, Texas A&M-Corpus Christi TES Course, 1996

## Purpose:
To develop an awareness among elementary students about the problems of pollution in our oceans, the sources of that pollution, and exploring solutions. Also students can be made aware of the role of the Coast Guard in solving this problem.

## Level:
Science Grade 4

## Essential Elements:
1 A, C, D
2 A, B, C, D, E
3 B
4 A, B, C, D, F, G
5 A, B, D
6 A, B C, D
7 A, B, C
8 A, B, C
9 A, B, C, D

## Objective:
The student will be able to:

a. recognize different types of ocean pollution

b. compare classroom models of polluted ocean to the actual polluted ocean

c. relate some solutions for correcting the bad habits of ocean polluters

## Focus:
Ask students to study a globe or map and guess what percentage of the earth's surface is covered by the ocean (about 70%). Tell them that people used to think that the ocean was so vast that it could easily handle any trash, sewage, chemicals—even radioactive material—we dumped into it. And as we began to run out of places on land for our waste, more and more often we used the sea as our "garbage can." Call your local U.S. Coast Guard station and request the video called "Trashing the Oceans." Brainstorm and write on chalkboard a list of things that could be dumped into the ocean by people. Classify the items suggested by students into such categories as plastic, foam, rubber, glass, metal, paper, wood, food, medical wastes, oil, etc. Note which list is the longest (probably plastic).

## Materials:
Prior to beginning this lesson, make enough saltwater to fill each team's bottle to 3/4 full. Saltwater: 2 T of aquarium, kosher or canning salt for one quart water. Mix the salt in the water until it is completely dissolved. Store in an airtight container in a cool place until ready to use. You may want to discuss density of fresh water at this time and compare it to the density of ocean water using a hydrometer.

## Procedure:
1. Divide the class into four-person lab teams and give each team a clean 2L or 3L plastic bottle with the label and top removed. (see diagram)
2. Ask each team to collect small pieces of one type of trash for their bottle. (For example, paper, plastic, metal, vegetable food scraps, etc.) The team will need to decide which type they will test.
3. Teams should place their small pieces of trash in their bottle, cover the items with salt water, and place the tops back on the bottles with vinyl tape. (The teacher may want to model this before student lab teams complete their taping independently.)
4. Ask the teams to make predictions about which bottle of trash will decompose the most. Post the predictions.
5. Monitor the experiment until the end of the school year. Ask the teams to devise a data sheet to record their observations. Decide on how often to make observations and which senses to use. Decide on whether to keep the bottles still or to agitate them periodically. Decide on whether to use a magnifying glass to aid in observations. Discuss all of these decisions as a class, making sure you include advantages and disadvantages of each suggestion.
6. The whole class should discuss the observations periodically and attempt to relate the observations to those that could be seen in the real ocean.
   Ask: How is the plastic bottle different from the real ocean (size, no living plants and animals, no waves, currents or tides, more constant temperature, little chance to get much more dissolved oxygen in it, etc.)?
   Ask: How is the plastic bottle the same as the real ocean? Discuss and record all suggestions made by students.

## Extensions:
1. Continue your investigation of ocean pollution by creating a bulletin board title "Oh, Buoy!" Have each team do some research on their kind of ocean trash or maybe some other kinds such as old fishing line, six-pack rings, plastic shopping bags, toxic chemicals, thermal discharge, sewage, run-off from storm drains, siltation, military trash, trade-fishing trash, tanker spills, recreational ships, etc. Have the teams print the name of the type of trash they

researched on a construction-paper buoy. Under the buoy, they should illustrate or list the possible effects of the pollution or trash on marine life or water quality. For example, the team investigating oil spills could show oil blocking sunlight from plants, fish with fouled gills, birds with oil feathers, sea mammals with oily fur, etc.

2. When the display is complete, invite other classes to visit or invite the mayor, one of the TNRCC representatives, or the water-quality director of your region to visit. Ask the research teams to present their findings and possible solutions to the visitor. Ask the research teams to prepare questions for the visitor to answer.
3. Have your class attend a beach cleanup event. For information, call the Texas General Land Office, Adopt-A-Beach, at 1-800-85-BEACH or the Texas State Aquarium at 512/881-1249.
4. Experiment with different types of absorbent materials to clean up oil spills by using cooking oil and salt water in small bowls for each lab team. Experiment with different types of booms for containment within the small bowls also (feathers, fiberfill, cotton, vermiculite, perlite, sponges, bark, peat, straw, etc., for absorbing; string popcorn, Styrofoam packing pieces, etc. to simulate a boom). Have students make suggestions of things to try and then experiment with the items brought within each lab team.
5. Invite a U.S. Coast Guard Marine Safety Office representative to come talk to the class on what they do as a first response to an oil or chemical spill (Example: Jay W. Calahan, 512/888-3162, slide presentation and discussion).

## Acknowledgment:

"Seaworthy?" *Learning '92*, 20:7, March, pp. 48-9.

Lord, Susanne. *Garbage, The Trashiest Book You'll Ever Read*, New York: Scholastic, Inc., 1991.

## Title:

**A Recyclable Being**

## Submitted by:

Donna Hilliard, Texas A&M-Corpus Christi TES Course, 1996

## Level:

Grade 5 (can be adapted for grades 3 & 4)

## Essential Elements:

**Science**

1A -construct models
3A -classify objects according to similarities and differences
3B -classify materials as metals or nonmetals

**Health**

1H -recognize hazards in the environment
3B -recognize personal responsibility for protecting the environment

## Objective:

To create a "recyclable being" from waste products or materials.

## Focus:

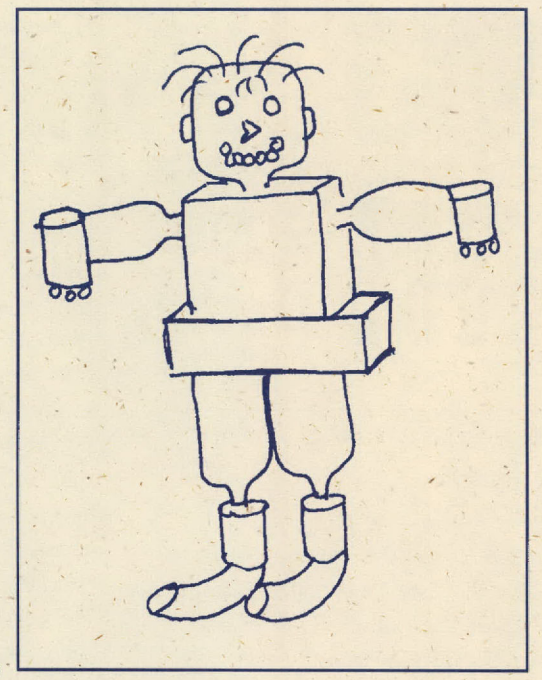
Dump a bag of previously collected "trash" into the middle of the room, i.e., aluminum cans, plastic, glass, paper, and/or cardboard.

## Materials:

trash bag of cans, plastic, glass, paper, and/or cardboard
hot glue gun
duct and/or masking tape

## Procedure:

1. Have each student previously bring two recyclable items from home and put in a giant trash bag.
2. Dump out trash on floor.
3. Have each student quickly locate the items he/she brought and take back to chairs.



4. Using the democratic process, have each student consider which items would make the most effective body part, beginning with the skull and moving all the way down to the toes and fingers.
5. Teacher glues, cuts, and/or tapes "being" together that the class has created.

Teacher Demonstration: The teacher leads the democratic process in decision-making of most appropriate recyclable item in representing various parts of the body.

## Extensions:

1. Discuss how recycling waste products can affect our own environment —present and future.
2. Let students sketch out another work of art that they might create out of "trash."
3. Visit a recycling center.
4. Learn correct vocabulary for the major bones of the body.
5. Have classes compete for the "best" recyclable being.

## Acknowledgment:

*Science Wizardry for Kids*, by Margaret Kenda and Phyllis S. Williams

# Clean Texas 2000 Update

## Be a Governor's Award Winner!

Every year the Governor of Texas honors the state's most outstanding waste reduction and pollution prevention projects. The Governor's Awards for Environmental Excellence, initiated in 1993 by the TNRCC's CLEAN TEXAS 2000 program, are presented in a variety of categories to honor individuals, organizations, schools, and businesses that have created successful environmental programs.

The 1996 winners included a project submitted in the Youth category by the Color Cats Recycle Club at Austin Elementary School in Harlingen. Every Friday, the fifth-graders at Austin Elementary trek to each classroom in the school to collect and sort more than one ton of recyclables brought in from the students' homes every week. The fifth-graders award a gold trophy as an extra incentive to recycle to the class that contributes the most recyclables. These weekly collections are just one of many environmental awareness activities the Color Cats have adopted to promote their slogan, "Everyday is Earth Day."

The Color Cats' commitment to recycling is year-round. On Texas Recycles Day (November 15), they collected more than 2,000 telephone books for recycling. In Harlingen's Christmas parade, the students marched with signs urging citizens to recycle Christmas trees. The students have also encouraged their school to "Stamp out Styrofoam trays" in the cafeteria and have planted a nature and vegetable garden complete with a compost pile. They once even paid a visit to city hall to propose curbside recycling.

"By working together, the Color Cats have proved that even a child can make a difference," said Cameron County Commissioner James Matz.

The Education category winner was the Harris-Galveston Coastal Subsidence District's "Learning to be Water Wise and Energy Efficient" youth education program. The district regulates the removal of groundwater in Harris and Galveston counties. The district was formed to end the subsidence (sinking) of the area caused by the removal of groundwater.

In 1993, the district introduced an education project that goes beyond its regulatory focus and is innovative in its measurable environmental benefits. Working in partnership with public and private water suppliers and school districts, the district offers this curriculum in 34 school districts.

Along with an educational curriculum, each student receives a kit that includes a free low-flow showerhead, kitchen and bath aerators, and several water conservation testing devices they and their parents can install at home.

The Subsidence District uses a "groundwater bank credit" system to remove disincentives for water conservation. For each student sponsored, a water supplier receives conservation credit for 84,000 gallons of groundwater. This allows the sponsoring water suppliers to conserve water and either sell the credit to make up for the lost revenues or redeem the credits at a later date.

The district estimates the 40,000 fifth-graders who participated in the program in the 1995-96 school year saved 672 million gallons of water and wastewater each year thereafter. Five years of the program will conserve 10 billion gallons of water and wastewater; 23 million therms of natural gas and 114 million kilowatt hours of electricity; and 309,177 tons of air pollutants.

Every Texan is eligible to apply by undertaking or completing an environmental project, and every applicant is enrolled as a CLEAN TEXAS 2000 partner. Projects are reviewed by a diverse blue-ribbon committee with final selection made by the TNRCC Commissioners and the Governor. For an application or more information, call CLEAN TEXAS 2000 at 512/239-3164. An electronic copy in PDF format is available at <http://www.tnrcc.tx.us/gov_awd.html>. The application deadline is November 15, 1996.

## Prizes to be Awarded on Third Texas Recycles Day

On November 15, every citizen, school, business, local government, civic, and environmental group in Texas is invited to participate in Texas Recycles Day by pledging to start a new recycling program, expanding existing recycling efforts, or by holding a recycling event. The second annual Texas Recycles Day was held in 1995 with hundreds of events held across the state and 82,000 Texans pledging to recycle.

To encourage pledges for the third annual Texas Recycles Day, great prizes will be given away, including a 486 Laptop Computer donated by Texas Instruments for a school or education-related entity. Last year the La Grange ISD won the laptop computer from Texas Instruments. Also offered as prizes are a Grand Prize 1996 Jeep Wrangler donated from the Steel Recycling Institute, a vacation package for four to Sea World of Texas, five $500 shopping sprees from H.E.B., and a $4,500 gift certificate to The Home Depot.

Also included this year is the Amoco Workplace and School Challenge. Amoco Chemical Company has issued a challenge to all workplaces and schools to increase recycling during the month of October in preparation for Texas Recycles Day on November 15, 1996. As an incentive for increasing waste reduction and recycling, Amoco is funding $6,000 in cash awards for programs that record the largest increase in recycling volumes and participation or the largest reduction in waste generation. There are several categories for entrants in the challenge, so small and large organizations and schools can earn recognition and win cash awards.

For more information on Texas Recycles Day, contact CLEAN TEXAS 2000 at 512/239-3151 or look for information on the Internet at:
<http://www.tnrcc.state.tx.us>.

# Texas Watch to Offer TEEAC Credit to Teachers

*Greg Bryant, Texas Watch Communication Coordinator*

Texas Watch, in association with the Texas Education Agency, is happy to announce that Texas Environmental Education Advisory Committee (TEEAC) credit will now be offered for all teachers who complete Texas Watch Certified Water Quality Monitoring (CWQM) training.

TEEAC, originally established by the Texas Legislature to assist and advise the Commissioner of Education on environmental education, offers a certificate of recognition to encourage teachers to learn more about the environment. Teachers completing Texas Watch CWQM training will receive nine hours of credit toward the 45 hours of environmental education programs that TEEAC recommends teachers complete. Upon completion of the full 45 hours of instruction, each educator will receive an Environmental Education Certificate and a letter of achievement will be sent to their principal and superintendent.

If you are a teacher interested in receiving TEEAC credit, you must attend all three phases of CWQM training, complete a Volunteer Monitor Training Packet, and indicate you are a teacher requesting a credit sticker. Upon receipt of the training packet from the training partner, Texas Watch will mail your TEEAC credit sticker along with the CWQM Certificate directly to you at the address on the packet.

If you are a teacher who has already completed your training and would like to receive TEEAC credit, send us a letter which includes your name, full mailing address, phone number, and a copy of your certificate OR the approximate date you received your certification. Upon verification of your training, Texas Watch staff will send you a TEEAC sticker for the nine-hour credit. Please mail your request to:

Greg Bryant /TEEAC Credit
Texas Watch/MC-150
Texas Natural Resource Conservation Commission
PO Box 13087
Austin TX 78711-3087

## Why Should Teachers Get Involved?

Besides the bonus of TEEAC credit, Texas Watch is a valuable teaching tool which lends itself to cross-disciplinary instruction. Environmental water quality monitoring helps bring the abstract ideas of biological, chemical, and physical relationships in the environment to a level where students can actually measure what is going on in the real world around them. With a broader understanding of water quality issues, students will be better prepared to form possible solutions to water quality and related environmental concerns. And with more and more students becoming interested in the environment, Texas Watch can also serve as an effective means of teaching students and promoting their interest in science at an earlier age.

Teachers who complete the three-phase training and become a Certified Water Quality Monitor have several options for getting their students involved in environmental monitoring through Texas Watch. Texas Watchers are students in grades K-12 who actually monitor a body of water under a teacher's supervision. The teacher works with students in monitoring a site for the entire school year, with monitoring activities based on educational objectives for the class. Teachers can also go a step further and become a Certified Trainer of Water Quality Monitors and then train students grades 6-12 to become certified monitors. These students can then form teams and monitor their own sites.

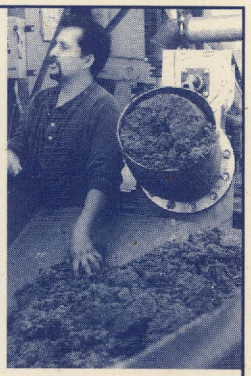
In the last five years, more than 300 groups, representing approximately 5,000 volunteers statewide, have received Texas Watch training. These groups range in size from one person monitoring a site to groups whose members monitor more than 50 sites. Texas Watch volunteers range from third graders to senior citizens, and from individuals to groups like the Girl Scouts, Sierra Club, and neighborhood associations. Out of this mix of committed volunteers, approximately 40 percent of Texas Watch monitoring groups are teachers and their students. If you are a teacher who would like more information about how you and your students can become involved in Texas Watch, contact the Texas Watch Volunteer Coordinator at 512/239-4741, or call the TNRCC's Environmental Information Line at 1-800-64-TEXAS and request a packet of information on the Texas Watch program.

## TES Courses

**(continued from page 1)**

teachers write one classroom activity on each environmental area. The activities are then distributed to all teachers in that course. In addition, selected activities also are reviewed by the TNRCC's technical staff and published in the TNRCC's Environmental Teaching Guide. A new edition of the Guide is published after each course year. Selected activities also are published in the TNRCC's Educator's Eco-Link newsletter and on the TNRCC's Internet Web site at <http://tnrcc.state.tx.us>.

To be placed on the mailing list for the Summer 1997 TES course registration brochure when it becomes available, write to the CLEAN TEXAS 2000 Section, Education K-12 -MC 113, Texas Natural Resource Conservation Commission, P.O. Box 13087, Austin TX 78711.



*An employee from Levi-Strauss shows teachers the material screened out of the plant's wastewater and describes experimental programs the company is piloting to reuse the material. (Univ. of TX at El Paso TES Course 1996).*

# Announcements

## Texas EE Conference Scheduled for Spring 1997

A Texas environmental education conference is being planned for April 10-12, 1997 at the University of Houston. The target audience will be EE decision-makers, such as school administrators and school board members, as well as providers of EE materials such as government agencies, businesses and industries, trade associations and nonprofit organizations. The conference is designed to involve Texans in developing a framework for environmental education. A highlight of this conference will be the release of a report from the George C. Marshall Institute for the Independent Commission on Environmental Education, which is investigating K-12 environmental education course materials to determine whether they are fact-based.

The conference is being coordinated by Duggan Flanakin, president of Texans for Responsible Environmental Education, and publisher of the *Environmental Insider* newsletter. Conference host is the Environmental Institute of Houston. Co-sponsors include the TNRCC and Stephen F. Austin State University. Additional co-sponsors are being sought. In addition to speakers on a variety of EE topics, Flanakin envisions that the conference will include an exhibit area and a series of teacher training workshops.

Registration brochures are scheduled to be mailed in mid-February. Until then, additional information can be obtained by contacting the Environmental Institute of Houston, Box 540, University of Houston Clear Lake, 2700 Bay Area Boulevard, Houston TX 77058-1098, 713/ 283-3950, FAX 713/283-3044, or by e-mail: <LESTER@CL4.CL.UH.EDU>.

## Captain Planet Foundation

Grants support environmental education projects that take kids out of the classroom and encourage them to get involved in environmental conservation. Grants range from $250 to $2,500. Schools, teachers, and school districts may apply. There is no specific deadline —just submit a proposal. For proposal guidelines, contact Chrissy Sapp, 404/527-4130. Also see their Internet site at <http://www.turner.com/cpf/>.

## Toyota TAPESTRY Grants for Teachers

The Toyota Motor Sales USA, Inc., and the National Science Teachers Association (NSTA) announce the annual Toyota TAPESTRY grant competition. Up to $500,000 each year is available to teachers who propose innovative one-year programs with budgets up to $10,000 that will enhance science education in their schools.

The TAPESTRY grant program is open to elementary teachers who teach science in a self-contained classroom setting or as teaching specialists, and to middle- and high-school science teachers who spend at least 50 percent of classroom time teaching science.

The 50 grant winners will be announced at the NSTA National Convention in New Orleans on April 3-6, 1997. Application deadline is January 22, 1997. For information, contact Toyota TAPESTRY, C/O NSTA, 1840 Wilson Blvd., Arlington VA 22201-3000.

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