WHAT: A workshop for Texas Teachers and Educators organized by American Ground Water Trust in partnership with Region 13 ESC and in cooperation with the Texas Water Development Board.

WATER TOPICS FOR TEXAS TEACHERS: A great training opportunity

WHEN: Friday January 23 and Saturday January 24 (2015)
(9:00am to 4:00pm – lunch provided)

WHERE: Education Service Center
Region 13 ESC
5701 Springdale Road
Austin, TX 78723

WHO: American Ground Water Trust is organizing this event in cooperation with Texas Region 13 Education Service Center

COST: FREE! Includes lunches, snacks and a (big) bunch of handouts

GRADES: Focus is Middle & High School

SUBJECTS: Water reaches all subjects!
The two-day program will show how water topics can be incorporated in the science curriculum. However, teachers in “other” subject areas such as math and social studies will find much helpful information in this event. Typically we have a full spectrum of teachers very few of whom have had much training or prior experience of basic hydrologic or environmental aspects of water, water supply or water related issues. We will give you background on topics such as the state’s water resources, implications of aquifer overdraft, impacts of hydraulic fracturing, groundwater quality, climate change and water supply, where and how water wells are drilled, how pumps work, water conservation strategies … and more ….. presenter and program details listed below.

ACTION: Sign-up NOW! Space limited… First come – first served.

To register: Go to Region 13 website https://ecampus.esc13.net/login.html
Workshop #:1531227

PROFESSIONAL DEVELOPMENT CREDIT:
You will receive 12 hours of CPE Science credit.
BACKGROUND:
The American Ground Water Trust has organized over 70 training programs for teachers in 17 states attended by close to 1,800 teachers and educators.

The Austin program will give a unique opportunity for teachers to explore aspects of water that are relevant to Texas. Water science and water management experts from the water industry and government agencies will be presenting the program. We recognize that teachers in all grades must adhere to state standards for content and required learning objectives, and so our approach, through class sessions, demonstrations, discussions and handouts, is to demonstrate how to integrate water topic subject matter into existing curricula. The program will show that exciting and practical “water science” can be applied to many traditional subject areas.

We believe that teachers who are excited about environmental education and who are provided with some training in water-related cause-and-effect will be more likely to effectively teach environmental concepts to their students with a positive and motivating style. Our Institutes get teachers excited and focused. There are thousands of school storerooms groaning with unused curriculum materials. The institutes get teachers fired up to make use of the many excellent materials that are already available.

Students made aware of the economic and environmental importance of water resources and aquatic habitat are likely to become motivated to protect and conserve resources. As the future voting citizens in Texas we hope students impacted by water-savvy teachers will recognize the connected and integrated nature of the environment and therefore be empowered to play an active role in protecting resources for sustainable use.

Many decision-makers, whose actions impact water resources, did not grow up understanding the science basics of water management and protection. An appreciation of the role of water in our state environment and economy should now be part of the learning heritage of every adult and child. To be effective stewards of our water resources, there must be greater awareness and understanding of the science behind the resource.

Program – Friday January 23rd (9:00am – 4:00pm)

8:30 – 9:00 SIGN-IN + FRUIT, COFFEE & DONUTS

9:00 – 9:15 WELCOME - ANNOUNCEMENTS & LOGISTICS
Shawna Wiebusch, Education Specialist: Secondary Science, Region 13 ESC, Austin, TX

9:15 – 10:00 INTRODUCTION - WATER TOPICS (Hydrology by Stealth)
Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH

- The importance of a foundation of basic environmental concepts
- Adding "water and environmental issues" to traditional subjects
- The importance of having citizens understand environmental "cause and effect"
- Seven Building Blocks to Hydrologic Literacy

10:00 – 10:45 THE BASICS OF ROCKS & WATER
- Geology fundamentals (Rock types and origins)
- Geologic structure/ aquifer geometry
- How water moves through the landscape (Where is it, how did it get there, where is it going?)
- Water budgets (rain, evaporation, flow in rivers, storage underground)
- Water from springs (What keeps the water flowing?)
- Concept of water balance (Hydrologic accounting at local & regional scales)

10:45 – 11:00 BREAK

11:00 – 11:45 IMPACTS OF HUMAN ACTIVITY ON SURFACE WATER AND GROUNDWATER
Mindy Conyers, Water Science and Conservation, Texas Water Development Board, Austin, TX

- Water science and conservation in Texas
- Porosity and permeability as they relate to soils and the water cycle
Watersheds and surface water and groundwater interactions
Point and non-point source pollution

11:45 – 12:30  SUPERFUND PROGRAM IN TEXAS
Marilyn Long, Superfund Section, Texas Commission on Environmental Quality, Austin, TX
- Laws & Regulations
- Origins of the Federal Superfund program
- The role of a geologist in site characterization and clean-up
- Examples of contamination clean-up in Texas

12:30 – 1:15  LUNCH (provided)

1:15 – 2:00  INNOVATIVE WATER TECHNOLOGY IN TEXAS
Andrea Croskrey, Hydrologist, Texas Water Development Board, Austin, TX
- Rainwater harvesting
- Desalination
- Aquifer Storage Recovery (ASR)
- Water reuse

2:00 – 2:55  AQUIFERIUM 3D MODEL: A TOUCH ENABLED EDUCATION PLATFORM
Suzanne Pierce, Research Assistant Professor, Environmental Science Institute, Jackson School of Geosciences; Assistant Director, Digital Media Collaboratory, Center for Agile Technology, The University of Texas at Austin
- Project concept and development
- Application to the Austin Area
- How scientific uncertainty influences our understanding of groundwater
- How 3D models can enhance high school students’ learning experience

2:55 – 3:05  BREAK

3:05 – 4:00  ENVIRONMENTAL ISSUES ASSOCIATED WITH OIL & GAS PRODUCTION
Leslie Savage, Chief Geologist, Oil & Gas Division, Railroad Commission of Texas, Austin, TX
- TX RRC environmental mandates and responsibilities
- Water quality monitoring and reporting protocols for the O & G industry
- What happens when an environmental problem is found?
- The scientific and technical expertise needed for environmental regulators

4:00  END OF DAY ONE

Program – Saturday January 24th (9:00am – 4:00pm)

9:00am - Meet at: Beverly S. Sheffield Education Center
2201 Barton Springs Rd., Austin, Texas 78746

9:00 – 10:00  EDWARDS AQUIFER – EDUCATION OPPORTUNITIES AT BARTON SPRINGS
Adrienne Clark, Culture & Arts Instructor, Beverly S. Sheffield Education Center, Austin, TX
- The physical setting of the springs
- Hydrogeology of the springs
- Significance of endangered salamander habitat
- Tour and explanation of the education center exhibits

10:15 – return to Education Service Center, 5701 Springdale Road, Austin, TX 78723
11:00 – 11:45  THREATS TO WATER QUALITY
Andrew Stone, Executive Director, American Ground Water Trust, Concord, NH
- Sources of biological and microbiological threats
- Sources of chemical compounds that could impact water quality
- Challenge of competing water demands for homes, agriculture and industry
- What can be taught in schools that will help change behavior and increase resource protection?

11:45 – 12:15  WELL and PUMP SYSTEM BASICS
- What is a water well?
- How are wells designed and constructed?
- What comprises a groundwater pumping system?
- What a down-hole camera can show about the well and aquifer

12:15 – 1:15  LUNCH (provided)
Video during lunch: ARE WE RUNNING DRY?
Call to Action for citizens? Teaching points & learning opportunities

1:15 – 1:45  DROUGHT AND GROUNDWATER
- How depleted are the aquifers worldwide?
- How depleted are aquifers in the US?
- Recharging aquifers with “spare” surface water
- Measure, monitor, model, manage

1:45 – 2:00  SCHOOL SUBJECTS AND CAREERS IN THE WATER INDUSTRY
- Subjects and skills needed for all aspects of water resource assessment, operation and management
- Hydrologic, environmental, health, engineering, water management, regulatory, planning etc.
- Technicians, operators, construction, maintenance, records data management, etc.

2:00 – 3:30  CLASSROOM LESSON OPPORTUNITIES
- Porosity & permeability (Easy to measure – gives “numbers” that students can use)
- Plant transpiration (Week-long water measurement project for any classroom, any grade)
- The water drop journey (Outside exercise with observation, recording and interpretation)
- Using literature and poetry with PowerPoint to enhance awareness of water (Project with interdisciplinary potential and adaptable for class and/ or homework assignments)
- Hydrology cartoons in water issues teaching
- Water softeners and carbon filters as a basis for water quality learning
- How to make use of YouTube water videos

3:30 – 4:00  HOW WE PLAN TO USE THE WORKSHOP INFORMATION IN THE CLASSROOM

4:00  WRAP-UP and END OF PROGRAM

4:00  PROGRAM ENDS

QUESTIONS:
Please feel free to call Andrew Stone at American Ground Water Trust, (603) 228-5444, Email, astone@agwt.org or Shawna.Wiebusch, Email shawna.wiebusch@esc13.txed.net if you have questions or need more information.
SOME TEACHER COMMENTS ABOUT AGWT TRAINING PROGRAMS:

The workshop covers KEY water concerns about our future.
Very informative! Fast paced! No downtime, just like I like it.
The information from the experts will add a dimension of realism to my lessons
A great amount of information was presented in a concise, understandable way.
The expertise of the presenters on water topics was enriching and an eye-opener.

Thanks again for the time, effort, experience, and appreciation for what we do as teachers. Meaningful, appropriately timed, inexpensive professional development is truly what helps teachers to grow and inspire students to make meaningful connections!