Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching

IN THE SERVICE OF SCIENCE AND MATHEMATICS TEACHERS

Fourteenth Annual Meeting

HIGHLIGHTS

Science

Technology

Engineering

Mathematics

From Legislation to Implementation

Achieving Excellence in STEM Education

July 9-11, 2008
Austin, Texas

Taking Legislation from Capitol Hill to the Classroom
the Focus of Texas Regional Collaboratives ANNUAL MEETING

The Texas Regional Collaboratives Annual Meeting, held on July 9th this year at the Austin Airport Hilton, is an opportunity for all of the program's partners and participants to come together and celebrate a year of growth and successes.

The program cover for the Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching (TRC) 14th Annual Meeting features a picture of the Texas State Capitol alongside scenes from science and math classrooms, perfectly embodying the theme of this year's event – "From Legislation to Implementation: Achieving Excellence in STEM Education."

"Excellence in science, technology, engineering and mathematics (STEM) education is something of a mantra for educators, policymakers and employers," said Dr. Kamil A. Jbeily, TRC Founder and Executive Director. The TRC's goal, as an organization, is to provide high quality, research-based, and sustained professional development for teachers to help them excel in an environment of complex and rapidly increasing state and national standards.

"We know that STEM education is a hot public policy issue of state and national significance, and that's not likely to alter any time soon. Part of our aim and purpose is to be flexible and capable enough to help teachers meet changing requirements with confidence and skill. We're here to serve the teachers, educators, and all of our partners to make Texas a showcase for the rest of the nation when it comes to STEM education."

The TRC conference features three days of fun, interactive, research-based professional development for science and mathematics teachers.

The July conference, which took place in Austin July 9-11, drew approximately 450 Texas Regional Collaboratives participants and partners from around the state. Like the professional development courses and workshops that the TRC holds throughout Texas each year, the annual conference highlights the most current breakthroughs in science and technology, the most innovative teaching techniques, and provides endless opportunities for networking.

The award-winning Texas Regional Collaboratives program has established partnerships in almost all 254 Texas counties and has served more than 14,000 science teachers and 8,500 math teachers.

During the three-day conference, educators are able to showcase interactive, cognitively challenging science, math, technology, and engineering lessons that exemplify excellence in STEM education. This year's scientific demonstrations and presentations included hands-on lessons that encouraged student inquiry, drew on the arts, and required concept integration.

Because the annual conference is as much a celebration of classroom victories enjoyed over the previous year as it is a training opportunity, the awards presentation, evening showcase of exhibits and the reception and dinner remain some of the most popular features of the event.

FROM LEGISLATION TO IMPLEMENTATION

At the awards ceremony, Shell Oil Company, AT&T Foundation, Toyota USA Foundation, El Paso Corporation, The Cynthia and George Mitchell Foundation and UT Center for Science and Mathematics Education presented teaching and mentoring excellence awards to 11 exceptional TRC teachers who were nominated by their Project Directors. Special recognition for excellence in instruction and mentoring included plaques as well as monetary awards.

TRC professional development coordinator Marsha Willis, who chaired the excellence awards selection committee, said: "winners of the awards exemplified the TRC focus on the higher-level thinking skills of applications, analysis, and synthesis rather than merely memorizing facts and information. These teacher leaders use teaching methodologies that challenge students to analyze, use, and apply information to take action and be productive citizens."

At an evening showcase of science exhibits, the spirit of celebration continued, with corporate partners enjoying interactive science demonstrations, policy makers soliciting feedback from teachers and Project Directors applauding their protégés' innovative lessons.

Shell Oil representative Frazier Wilson visits and explores the science exhibits at theconference's pre-dinner reception.

Dr. Kamil A. Jbeily, TEA Deputy Associate Commissioner Gina Day and Dr. James P. Barufaldi

"All of the TRC partners – the teachers, institutions of higher education, business leaders, TRC project directors, community members, policy makers and our friends in higher education – have a very sophisticated grasp of the importance of collaboration," said Dr. James P. Barufaldi, Ruben E. Hinojosa Regents Professor in Education and Director of the Center for Science and Mathematics Education.

"It has an indescribable, visible impact on everyone, though, when you gather 450 of them in one large room and actually look out at the crowd and see the tangible evidence of this substantial community that's been created! There is the support from corporations for school districts, support from teachers for their students, support from policy makers for the teachers. It's a very moving testament to the sheer commitment and dedication of a great number of people to Texas and our children - it inspires all of the partners and galvanizes them to produce even more powerful results the next year."

Dr. Jbeily and Leticia Konigsberg, El Paso Corporate Foundation Education Program Coordinator

In recognition of the powerful results that TRC partnerships have delivered since their inception 17 years ago, the program received welcome news this year from El Paso Corporation, a generous benefactor and dedicated advocate. During the conference dinner, El Paso Corporate Foundation Education Program Coordinator Leticia Konigsberg announced to TRC attendees that El Paso Corporation would be more than doubling its financial support and presented the program with a check for $125,000.

"The El Paso Corporation believes in the Texas Regional Collaboratives," said former educator Konigsberg, "and is very proud to support the program as it gives science and math teachers what they need for success. We want to ensure that the Collaboratives continue to empower educators and offer them the resources needed to prepare the next generation of scientists and engineers."

ACHIEVING EXCELLENCE IN STEM EDUCATION

In addition to Konigsberg, distinguished attendees at the conference included State Representative Drew Darby, Texas Education Agency (TEA) Associate Commissioner Barbara Knaggs, TEA Science Director Dr. Kenn Heydrick, TEA Deputy Associate Commissioner Gina Day, AT&T representative Bob Digneo, and Shell Oil representatives Frazier Wilson and Monte King.

Darby and Knaggs delivered brief comments to the standing-room-only dinner audience, with a keynote address from State Representative Howard.

"As I travel around the state," said Howard, "I ask teachers and administrators in schools that receive excellent ratings what makes the difference, what gives them that extra boost in achievement? They all concur that strong professional development is key, and then second in line is sustainability of the professional development training and support. The TRC excels at this."

Dr. Jbeily, Barbara Knaggs, TEA Associate Commissioner, and Texas State Representative Drew Darby

Texas State Representative Donna Howard, Conference Keynote Speaker

"We have to continue to get better and better at teaching our children critical thinking skills, collaboration and how to innovate. We must focus on these 21st Century skills because those are what jobs and a global economy demand. We're just so thankful for what the Texas Regional Collaboratives do – you're ensuring our future."

Echoing the conference theme of taking legislation and implementing it at the classroom level, all guest speakers addressed state and national policy changes that will demand a higher level of math, science and technology competence from students and, consequently, will challenge teachers to innovate.

"The TRC is such an important component for us as we work to meet our goals," said TEA Associate Commissioner Knaggs. "We know that of the 20 fastest-growing occupations, 15 of those 20 require substantial preparation in math and science. We must continue to improve student achievement in math and science if we want to ensure that our children are prepared to compete in the global economy.

"The Texas Education Agency sees its longstanding partnership with the TRC as key to achieving that goal. Professional development delivered by the TRC supports the new requirement of four years of high school math and science, and there is a TRC focus on STEM. This year's conference, in fact, targets STEM and new, innovative, integrative ways of thinking about math and science teaching and learning. The TEA funds a statewide network of 61 Regional Collaboratives – that's hundreds of school districts and dozens of institutions of higher learning. We feel that our support for the TRC is an excellent way to leverage money and support."

The evening celebration was capped with the announcement of science teacher mentor Nancy Schultz as the recipient of the TRC 2008 Distinguished Service Award. This was the first year that the award was presented to a teacher, and Schultz garnered the honor in recognition of over a decade of excellence in teaching, mentoring, coaching, recruiting and serving the mission of the Texas Regional Collaboratives.

Nancy Schultz, Science Teacher Mentor receives the TRC 2008 Distnguished Service Award.

Dr. Carol Fletcher, Assistant Director/R&D Coordinator and Dr. Jbeily with a group of TRC Project Directors

The Texas Regional Collaboratives is headquartered at The University of Texas at Austin in the College of Education's Department of Curriculum and Instruction, and it is part of the Center for Science and Mathematics Education. To date, the award-winning program has received over $45 Million in funding from state, federal and corporate sources. Generous supporters include the Texas Education Agency, Shell Oil Company, AT&T Foundation, El Paso Corporation, Toyota USA Foundation, The Cynthia and George Mitchell Foundation and the National Science Foundation.

"The state leadership of Commissioner Robert Scott and the commitment and support of the TEA administration have resulted in significant investments in the TRC and in a scale-up in the number and scope of activities statewide," said Jbeily. "TEA's support coupled with substantial contributions of corporate and foundation partners have generated a powerful synergy of people and organizations working together to improve STEM education in Texas and beyond."

The program has enjoyed commendations from the U.S. Department of Education, policy makers, state legislators and business partners, and in 2000, the TRC was inducted into the Texas Science Hall of Fame. In 2001, the TRC was recognized by the Texas Governor, Senate and House of Representatives for distinguished achievements and contributions in the support of education reform.

In 2006, a landmark $1 Million gift from Shell Oil Company allowed the TRC to expand its highly successful collaborative concept to Louisiana. Partnerships based on the Texas model formed there and now offer enhanced professional development training for Louisiana science teachers.

Press Release by Kay Randall
Office of the Vice President for Public Affairs
The University of Texas at Austin

For additional Annual Meeting information, please visit the following website links:

TRC website:	www.theTRC.org
Direct link to photos:	trcgallery.smugmug.com/14th%20Annual%20Meeting
Direct link to videos:	thetrc.org/trc/annualmeet/08/video.html
Direct link to press release:	www.edb.utexas.edu/education/news/2008/TRC08/

SHOWCASE, RECEPETION, AND DINNER

Around 450 Texas Regional Collaboratives education, business, legislative and community partners attended the 2008 conference.

An evening reception at the annual conference showcases teachers' best instructional strategies and creativity.

TRC teachers develop hands-on, interactive, relevant lessons that engage students' higher level thinking skills and may spark a love of science and math that will last a lifetime.

EVENING PROGRAM

SHOWCASE AND RECEPTION
6:00 - 7:00 p.m. - Bergstrom Ballroom Lobby

DINNER
7:00 p.m. - Bergstrom Ballroom

WELCOME AND INTRODUCTIONS
Dr. Kamil A. Jbeily
Executive Director, Texas Regional Collaboratives
The University of Texas at Austin

GREETINGS AND REMARKS

Texas House of Representatives
The Honorable Drew Darby
Appropriations Committee

Texas Education Agency
Barbara Knaggs
Associate Commissioner, State Initiatives

KEYNOTE SPEAKER
The Honorable Donna Howard
Higher Education Committee
Texas House of Representatives

TRC 2008 Distinguished Service Award

TEACHING AND MENTORING EXCELLENCE AWARDS

AT&T Foundation
Teaching Excellence Award

Cheryl Mosher
Parsons Elementary - Lubbock ISD
Region 17 Science Collaborative/Lubbock

AT&T Foundation
Mentoring Excellence Award

Kenton Page
Northside Children's Center - Northside ISD
OLLU Regional Science Collaborative/San Antonio

El Paso Corporation
Teaching Excellence Award

Jacqueline Belmarez
Mims Elementary - Mission ISD
UT-Pan American Regional Science Collaborative/Edinburg

El Paso Corporation
Mentoring Excellence Award

Tracy Mansfield
Stehlik Intermediate - Aldine ISD
Aldine ISD Regional Science Collaborative/Houston

The Cynthia and George Mitchell Foundation

The Cynthia and George Mitchell Foundation
Teaching Excellence Award

Jessie Minter
Crenshaw Elementary and Middle School - Galveston ISD
Galveston County Regional Science Collaborative/Galveston

The Cynthia and George Mitchell Foundation
Mentoring Excellence Award

Karen Freelove
Kirksey Elementary - Booker ISD
Region 16 Science Collaborative/Amarillo

2008 AWARD RECIPIENTS

Shell Oil Company
Teaching Excellence Award

Pam Baldree
Blooming Grove Elementary - Blooming Grove ISD
Region 12 Science Collaborative/Waco

Shell Oil Company
Mentoring Excellence Award

Lisa Webber
Sanchez Elementary - Houston ISD
Rice Regional Science Collaborative/Houston

Toyota USA Foundation
Teaching Excellence Award

Susanna Ramirez
Reed - Mock Elementary - Pharr-San Juan-Alamo ISD
Region 1 Science Collaborative/Edinburg

Toyota USA Foundation
Mentoring Excellence Award

Lynn Seman
City View Elementary - City View ISD
Region 9 Science Collaborative/Wichita Falls

UT Center for Science and Mathematics Education

UT Center for Science and Mathematics Education
Mentoring Excellence Award

Wanda Stuart
Mary Branch Elementary - Bryan ISD
TAMU-College Station Regional Science Collaborative/College Station

Congratulations!

Gina Day and Dr. Kamil A. Jbeily

"The TRC is like a party that's a great success – people are drawn to it. No other program that the Texas Education Agency is involved in has this kind of breadth, incredible networking ability and high quality sustained training."

Gina Day
TEA Deputy Associate Commissioner

Dr. Kenn Heydrick and Dr. Carol Fletcher

OPENING LUNCHEON PROGRAM

INTRODUCTION
Kamil A. Jbeily, Ph.D.
Executive Director
Texas Regional Collaboratives

GREETINGS AND REMARKS
Gina S. Day
Deputy Associate Commissioner
School Readiness and Partnerships
Texas Education Agency

STATE OF SCIENCE EDUCATION IN TEXAS
Kenn Heydrick, Ed.D.
Director of Science
Texas Education Agency

Teaching and Mentoring Excellence Awards
(Please see recipients on Page 6 & 7)

T-STEM representatives met with TRC Project Directors and Instructional Team Members to share mutual goals, objectives and activities, and to brainstorm opportunities for collaboration and coordination. The session was a follow-up to the first TRC/T-STEM Summit held at the TRC Thirteenth Annual Meeting in 2007.

TRC/T-STEM Summit Agenda

Wednesday, July 9, 2008 • 2:30 - 4:30 p.m.

Welcome and Introduction
Kamil A. Jbeily, Ph.D., *Executive Director*, TRC

TRC Statewide Program Overview
Carol Fletcher Ph.D., *Assistant Director/R&D Coordinator*, TRC
Todd Sherron, Ph.D., *Evaluation Coordinator*, TRC

Texas High School Project:
Update From the Communities Foundation of Texas
Pam Buckley, Ed.D., *Program Officer*, T-STEM Centers, Texas High School Project
Susan Henderson, *Associate Program Officer*, T-STEM Academies
Reo Pruiett, Ed.D. and Dee Chambliss, *Program Officers,* T-STEM Academies

TRC/T-STEM Regional Dialogues
Debbie Junk, Ph.D., *Coordinator of Mathematics Initiatives*, TRC

Regional Reports and Future Directions

Science Adventures:
Awakening the Early Years

The Phoenix has Landed! Using Inquiry, the Arts, and Concept Integration to Engage Students in Earth and Physical Science

Earth's Battle of the Lands:
Forces That Construct and Destroy

SESSION 1

A/B. T-STEM 2007-2008

Debbie Junk, *TRC*

At the Annual Meeting in 2007, a "summit" was held. Participants discussed progress on the STEM initiative in Texas. At this session project directors will be asked to revisit discussions from last year and give updates on this year's STEM related projects. Updates for the 2008-year from TEA T-STEM staff will round out the event.

C. Riding Round the Cycles

Melissa Duncan and Ross Ann Hill, *Lubbock ISD*

The transformation of energy through Earth cycles is necessary for human life to continue. Carbon, Lunar, Nitrogen, Rock and Water cycles will be introduced using fun activities, games and resources to engage middle school students. We will provide teachers with presentations and hands-on activities to effectively teach Earth cycles covered in middle school. The session will include active participation using board games, role-play models, songs, PowerPoints, PhotoStory, and Jeopardy-type assessments. Teachers will be given resources to create their own materials to use in their classrooms.

D. Fun with Magnets

Brenda Row and Sharon Nachlinger, *Coahoma ISD*

"Fun with Magnets" will give you ideas on how to implement magnets into your elementary classroom in fun ways. Participants will be asked to assist with activities such as magnetic puppet shows and other activities that are inexpensive and easy to make. Door prizes, such as "Lessons in a Bag," complete with lesson plans, will be given throughout the session.

E/F. The Phoenix has Landed! Using Inquiry, the Arts, and Concept Integration to Engage Students in Earth and Physical Science

Lucinda Presley, *Discovery Science Place*

Use the newest Mars lander to search for conditions conducive to life which will generate student excitement about Earth and physical science! In this TEKS-based, hands-on session, you will see how Earth processes, space, and forces and motion can be addressed by looking at the work of this newest lander, the Phoenix. By using strategies such as inquiry, the arts, and concept integration, we will promote information retention and higher level thinking skills. This workshop is based on partnerships with NASA, the Jet Propulsion Lab, and the Exploratorium.

G. Earth's Battle of the Lands: Forces That Construct and Destroy

Sue Ann De Cuir and Liz Janish, *Pflugerville ISD*

The constructive and destructive forces that change our Earth will be presented through a variety of activities, which reflect multiple learning styles. Participants will move through stations and receive instructions that include ideas for modifications of these stations to meet the needs of all students. Additional information will be included to reframe these activities into an inquiry.

H. Science Adventures: Awakening the Early Years

Bob Williams, *Professor Emeritus, Southern Illinois University*

Participants will be involved in a series of activities for 4-6 year-old children. All of the activities will be science based and can be used outdoors. Plan to go outside for half of the workshop. Everything will be hands-on. Prepare to be in kindergarten and thinking like a child.

HEADS UP: NUTRITION/PHYSICAL

ENGINEERING IS ELEMENTARY

COME PLAY WITH ME

SESSION 2

A. Tour of the Tapestry of Time
Stef Paramoure and Lyle Baie, *Comal ISD*
Come and take a tour of the USGS map "A Tapestry of Time and Terrain." This wall-size, colored map illustrates the age of rock layers in the United States. This workshop will allow you to preview the map, receive basic geological training, participate in a sample lesson, and learn how to acquire a map for your school at no cost.

B. Labs for Less: Science on a Shoestring
Sandra Elms and Natalie Fitzgerald, *Ector County ISD*
We will share our inventiveness and resourcefulness in putting together engaging elementary labs with items we purchased from the dollar store. Several objectives will be covered from primary to 5th grade.

C. HEADS UP: The Nutrition/Physical Activity-Revised & Updated
Rhonda Hatcher, Nathalie Sessions, and Nancy Murray
The University of Texas Health Science Center at Houston
We will provide teachers with new and updated activities such as Build-A-Meal, Food Fights!, Target Heart Rate, and Physical Activity Problem Based Learning. The digestive system, BMI, and the Go-Slow-Whoa concepts are also presented. Designed by field experts and teachers for middle school students, materials are aligned with science and health TEKS and the National Science Education Standards.

D. Engineering is Elementary
Stacy Avery and Annette Venegas, *ESC Region 13/ESC Region 20*
Presented by the Transformation 2013 T-STEM Center, the Boston Museum of Science *Engineering is Elementary (EiE)* project aims at fostering engineering and technological literacy among children. EiE is creating a research-based, standards-based, and classroom-tested curriculum resource that integrates engineering and technology concepts and skills with elementary science topics.

E. Middle School Science: Moving From Survival to Excellence
Lisa Baxter, *Hughes Springs ISD*
Organization and ideas for the beginning middle school science teacher will be the focus of this presentation. Teachers attending this presentation will receive templates and forms, suggestions for teaching science on a limited budget, and access to a variety of labs designed to increase student interest in science.

F. Microbes: Friend or Foe?
Jennifer Jordan-Kaszuba, *ESC Region 13*
Come explore the exciting world of microbes through a series of new lessons from Baylor College of Medicine. Activities include classifying microbes, exploring scale factors, and solving a medical mystery. Participants will receive a copy of the curriculum guide.

G. Not Another Atom Model
Sherri Carson and Peggy Schneider, *Pittsburg ISD*
This session demonstrates how to use a plant stand and craft objects to represent an atom and the different ways we use it in the classroom to make an abstract concept more concrete.

H. BAG-ABLES: Using a Grocery Bag in the Classroom
Sue Garcia and Becky Miller, *Lake Travis ISD/Del Valle ISD*
Using a grocery bag, construction paper, and glue, participants will learn how to make an exciting project that can tie together many of the objectives that need to be taught in a unit. BAG-A-BLES can be used in every grade level and for every subject. They can be used as a portfolio or as an alternate form of assessment…. And kids love them!

Who is a Scientist?

Labs For Less: Science on a Shoestring

More Picture Perfect Science

SESSION 3

A. The TRC Podcasting Network

Keith Mitchell, *TRC Program Office*

Learn about the TRC Podcasting Network and how it can be used to share and access professional development in science. All attendees who have podcasting projects are invited to present an overview of their current and planned podcasting initiatives.

B. Program Evaluation-MSP Impact in Wisconsin

Abdallah Bendada, *Wisconsin Department of Public Instruction*

We will focus on the impact of mathematics professional development on teacher content knowledge and student achievement. Participants will obtain excellent information on the development of evaluation plans, and learn how to analyze data and measure effectiveness.

C. HEADS UP: The Immune System & Infectious Diseases-New!

Rhonda Hatcher, Nathalie Sessions, and Nancy Murray
The University of Texas Health Science Center at Houston

We will explore discoveries in the field of infectious disease research. Topics include staphylococcus aureus, lassa fever, biological laboratories and bio-safety levels. Designed by field experts and teachers for middle and high school students, materials are aligned with science and health TEKS and the National Science Education Standards.

D. Science Expo

Martha C. Guerra, Mary Salas, and Amy Canales, *Socorro ISD*

Science Expo is a great way to enhance science inquiry. Children will conduct science inquiries and share their findings with peers and other children at different grade levels.

E. More Picture Perfect Science

Tina Stephens and Leanna West, *Trent ISD*

What do bubbles, body parts, and bugs have in common? They are all part of "More Picture Perfect Science Lessons!" Join us for a fun-filled time with hands-on lessons and experiments that encourage young learners to explore their world through captivating activities and creative children's literature.

F. Who Is a Scientist?

Pam Cohea, *Coleman ISD*

We will explore the importance of allowing students to become research scientists in the classroom. This workshop will focus on instilling interest in science careers and the concepts that are needed for success in TAKS. Teachers will be shown how to bring the EBAT lab into their classrooms.

G. Come Play with Me

Karen Harris and Deborah Tinsley Pledger, *San Antonio ISD*

In our presentation we will use games and old toys to teach science concepts. The games will be similar to twister, pin the tail on the donkey, musical chairs and jacks. The toys that will be used are pull and go cars, bouncy balls, and hot rod cars. Students will learn physics, chemistry and new vocabulary during this presentation that focuses on the water cycle.

H. Promoting Scientific Thought through Journaling

Reynaldo Ramirez, Jr., Isabel Henderson, and Zulema Williams, *UT Brownsville*

Encouraging students to observe carefully and offer accurate and detailed descriptions is an excellent way to improve writing scores and increase science knowledge and skills. This presentation chronicles the learning and experiences of two teachers as they embark on a journey to develop journaling skills in students that will lead to achievement gains.

Motivating Through Journaling

Jurassic Journey

Bounce, Walk, and Launch into Graphs

SESSION 4

A. Mapping the Science TAKS 2003-2007

Barbara ten Brink, *Austin ISD*

In six years of elementary science TAKS, we have longitudinal data about Texas students' performance on every tested science TEKS/ Student Expectations. We can use this data to examine trends, plan and pace instruction, support science initiatives, and work with students on specific deficits.

B. SCRUBS (Science Curriculum Resourcefully Utilizing Bargain Supplies)

Sara Flusche and STMs, *North Central Texas College*

Through the partnership with Texas Building Surplus & Procurement offices, the North Central Texas College has utilized surplus materials to engage students in hands-on and effective science lessons. These materials, along with recycled materials, are a welcome sight to those teachers who have a limited science budget.

C. Jurassic Journey

Brenda Lee Johnson, *Judson ISD*

Learn to create your own 3D Texas Dinosaur Museum. Let us show you how to build a Dinosaur math and graph pit. Teach your students to design and create their own dinosaur time line along with clay sculpture modeling. Take your students back to the Cretaceous Period.

D. The SSIA Model Promotes Teacher Renewal and Student Academic Performance

Eduardo Guevara, *Houston ISD*

This presentation will follow-up on last year's hands-on workshop. Results of the implementation of the *Student-centered Sheltered Instruction Approach (SSIA) Model* of the first group of Texas high school teachers trained show: a) improved student academic performance; b) decreased in discipline problems; c) increased timelines to submit assigned work; and d) increased in parental involvement in the educational process.

E. What Happened Before?

Wallace Dominey and C. J. Thompson, *Rice University*

Teacher interns who spent a full day each week throughout the academic year training at the Rice University Elementary Model Science lab in Houston ISD and Rice staff members will present hands-on activities that will be used in the new Conoco Phillips Rice Elementary Model Science Lab. The focus will be on the Earth Science 5.11B TEKS.

F. Grant Writing 101: Tips for Success

Brenda Weiser, *EIH/UHCL*

Are you interested in writing grants but just don't know where to start? What are some tips for writing grants? What does a grant budget look like? This presentation will address these and many more questions concerning grant writing.

G. Bounce, Walk, and Launch into Graphs

Robin Dehnel, *San Angelo ISD*

Get students up on their feet and into graphing. Actively involve them in kinesthetic graphing activities using bouncy balls, projectile launchers, and their own two feet. Some presentation materials will be given away.

H. Motivating Through Journaling

Marsha Tharp and Debbie Lisoski, *San Angelo ISD*

This presentation includes activities, ideas, and "foldables" to be integrated into science journals that students will use throughout the year. The ideas presented will include safety, life science, physical science, and Earth/space science. Motivation and the transfer of learned knowledge are some of the benefits of using these techniques.

Power of Podcasting

Motion Commotion

Early Childhood Science:
A Multidisciplinary Approach

SESSION 5

A. Power of Podcasting
Stef Paramoure, *Comal ISD*
Have you heard about podcasting? Come see specific podcast examples and how you can incorporate these free episodes into your science classroom. Attend this session and receive teacher-generated handouts on podcasting lessons for astronomy, plate tectonics, ecology, and science process skills.

B. The Surveys of Enacted Curriculum: Aligning Curriculum Standards, and Assessments to Improve Student Achievement
Michael Odell and Kris Trampus, *UT-Tyler*
The Surveys of Enacted Curriculum (SEC) model is a tool approved by the U.S. Department of Education for aligning Standards and Assessments to the enacted curriculum, curriculum materials, and other sets of standards. This session will examine the SEC and its use to improve curriculum alignment and student achievement.

C. There's Always the First-Time: Planning and Implementing Family Science Night
Carmen Sanchez and Laura Najera, *Fort Worth ISD*
We will share how we planned and implemented our school's first Family Science Night. We incorporated ideas from the University of North Texas Community Science activities and were able to have a very successful first event. We will share how we addressed concerns such as security and what we learned to improve our event next year.

D. Motion Commotion
Karen Freelove, *Booker ISD*
Come conquer Newton's Laws of physics, force, and motion with three hands-on, inquiry based, easy to implement labs. Using everyday common materials you will be able to entice and stretch the minds of your students in STEM educational style. Your students will leave your classroom wanting to know and experience more.

E. Fun Formative Assessments
Sarah Joy Anderson and Cheryl Mosher, *Frenship ISD/Lubbock ISD*
Are you tired of grading papers every spare minute of the day? In this workshop teachers will be provided activities to help check for understanding without grading a single paper. With these assessment activities, you will know immediately what your students know, and what they still need to learn.

F. Early Childhood Science-A Multidisciplinary Approach
Bob Williams, *Professor Emeritus, Southern Illinois University*
Participants will be introduced to several science activities for preschool children. Following each activity, presenters will introduce paper tools that will allow teachers to use the newly revised Texas Pre-K Guidelines to plan interdisciplinary lessons.

G. Metamorphic Munchies, Edible Igneous Rocks, and Sedimentary Sandwiches
Sherri Carson and Ronald Carson, *Pittsburg ISD*
This is a perfectly delicious lesson to inspire your students to sit up and take notice of rocks. Keep students motivated by enticing them with rock models that can "clean-up" at the end of class. You will experience this yummy activity just as your students would!

H. What YOU Can Do to Have Successful HS Science TAKS Scores!
Wanda Pagonis and Celina Terrones, *Lytle ISD/San Antonio ISD*
You will learn what to do with the two weeks prior to your high school TAKS Science test. We will demonstrate some of the techniques that show the concepts that will interest your freshmen through juniors and seniors that have not passed yet. We will talk about Super-Saturdays and what makes them successful.

BUILD A SUPPORTIVE RELATIONSHIP WITH THE CATE DEPARTMENT TO INCREASE STUDENT SUCCESS

BAG-ABLES: USING A GROCERY BAG IN THE CLASSROOM

SESSION 6

A. Using the NSTA SciPaks and Learning Center to Enhance TRC Teacher Content and Professional Knowledge
Al Byers, *National Science Teachers Association*
The NSTA has developed online professional development resources that can assist Science Collaboratives in developing content knowledge and professional knowledge. This session will introduce and demonstrate SciPaks and the NSTA Learning Center. The SciPaks system also comes with an administrative system that allows Collaboratives to track progress, conduct pre and post assessments, and facilitate Professional Development Communities.

B. Walk the Talk: An Introduction to Classroom Gallery Walks
Tamela Baker, *Round Rock ISD*
Gallery Walks are whole class participation activities, which involve students in motion as they discuss, answer, and expand upon varying levels of questions concerning vocabulary and content.

C. Space: The Final Frontier
Sue Ann DeCuir, *Pflugerville ISD*
Use math and engineering skills to explore space science concepts through inquiry learning. Activities help students compare the Earth and moon, identify characteristics of our solar system, and consider engineering needs for successful space travel. Modifications will be provided to support student needs.

D. Build a Supportive Relationship with the CATE Department to Increase Student Success
Jeanine and Paul Wolf, *Stephenville ISD*
Increase reluctant student's interest and understanding of science concepts with cooperation of the CATE teachers. Participants will see hydraulic concepts presented from both sides and learn how the departments can support each other's educational goals.

E. Lessons Learned: Barriers to Effective K-12 Science Programs
Wallace Dominey, *Rice University*
The Rice University model for improving science instruction in schools and districts takes a systems approach. The most important barriers to effective science instruction in the classroom will be detailed and suggestions for addressing these barriers will be made.

F. Using Classroom Performance Systems to Engage and Monitor Student Performance
Victoria Szabuniewicz, *Georgetown ISD*
Come see how I have used CPS in my classroom to monitor my student's understanding and as a review and assessment tool in preparing my students for the TAKS test. Classroom performance systems can be used in all subjects and in all grade levels.

G. Hairy Kitty Cat Genes and Kitty Cat Toes
Marcia Butcher, *Wharton ISD*
You will learn a creative way to teach genetics - the study of dominant and recessive traits. Using examples, games, and hands-on labs, I will promote the understanding of traits.

H. Investigation of the Atom
Jim Roberts and Kim De La Cruz, *UNT/Humble ISD*
The atom is one of the most vibrant discoveries in all areas of science. We will "count atoms" with Faraday's Law and explore atomic spectra in the activities during this session. A "poor man's" spectroscope will be built and Young's diffraction experiment will be explored.

FRIDAY PRESENTATIONS AND WORKSHOPS

Engineering for Elementary & Middle School Teachers

Strategies for Learner-Centered Instruction

Microbes: Friend or Foe?

SESSION 7

A. "Making Science Mentors"
Donna Wise, *ESC Region 7*
Many peer-mentoring guides claim to be unique. "Making Science Mentors" is. This book trains science teachers to be effective mentors for other science teachers and does so using a long-term, inquiry-based approach to teaching and learning how to be a more effective science educator.

B. Strategies for Learner-Centered Instruction
Cynthia Holcomb and Amy Rutherford, *ESC Region 15*
Participants will learn how to prepare students for TAKS using interactive graphic organizers and manipulatives made form TEA resources.

C. Navigating the Text: Literacy Strategies in the Content Area
Cheryl Wegscheid and Lynn Ketcham, *Spring Branch ISD/ Pasadena ISD*
Join us and practice several pre-reading, during reading and post-reading strategies you can implement in your classroom to increase your students' engagement with and comprehension of informational text. Leave with tools you can use to help all of your diverse learners.

D. Hands-On TAKS Science Review
Gregorio Garcia, *Brownsville ISD*
Through the use of real laboratory equipment, technology and teacher questioning, this presentation demonstrates and models how science teachers can supplement the state's 40% lab/field requirement and assist middle and high school students with TAKS science test achievement.

E. Easy Engineering for Elementary and Middle School Teachers
Roxanne Hammonds, *East Central ISD*
The presentation demonstrates the ease of incorporating the Engineering Design Process into science instruction. An overview of the Museum of Science's "Engineering is Elementary" program will be presented, and teachers will get hands-on experience in designing hand pollinators from the "Best of Bugs-Designing Hand Pollinators" unit.

F. Science in the 21st Century
Sherri Warren, *Seminole ISD*
Using computer activities, on-line assignments, and interactive learning games in your Moodle site, give students a link to learning at home. Interactive white board activities, PowerPoint slideshows, and movies created by students for an iPod are just a part of stepping into the 21st Century.

G. Explore Unifying Concepts of Science
Sandra Consilio and Tammy Waguespack, *Brazosport ISD*
Discover and explore four unifying concepts of science - Nature of Science, Systems, Properties, Patterns and Models, and Constancy and Change. Understand how these four concepts are seen throughout each grade level of the TEKS and participate in activities that can be used in the classroom to discover these four unifying concepts of science with your students.

H. Taking Inquiry Outside
Rebecca Vore, *Austin Discovery School*
Children have an innate curiosity about the natural world. Even small outdoor spaces can become classrooms where children can learn how to ask questions, make observations, and record information. Learn strategies for taking groups outside and using the natural world to foster important inquiry skills.

Planning Ahead and Looking Back: Connections Between Early Science Interest and Science-related Careers

Robert Tai, Ph.D.
Associate Professor, Curry School of Education, University of Virginia

What do you want to be when you grow up? If a child answers, "A scientist," are they more likely to actually enter a science-related career than a child that gives a different answer? When scientists recall developing their own interest in science, how far does it go back? This presentation offered some answers to these questions based on large-scale national research studies.

What do you want to be when you grow up? It's a question that most children have answered several times over the course of their lives even before they go to high school. But do their answers as 8th graders have any connection with the choices they make in college? What do you think scientists will say when they are asked, "When did you first become interested in science?" Will their responses cluster in a particular period of time or will it vary widely across time? This presentation discussed the research findings from the analysis of two different data sets: the Natonal Educational Longitudinal Study of 1988 and the Project Crossover National Survey of Chemists and Physicists.

The answers show a consistent trend that suggests science learning before entering high school has implications for students later in their lives. The outcomes have powerful implications for science education and highlight the importance of pre-secondary science education, and even more importantly, the role of inspiring the interest of young people in science.

Dr. Robert Tai and **Dr. Mary Hobbs**,
Coordinator for Science Initiatives, TRC

STEMming the Tide: Coping with Stereotype Threat in Mathematics and Science Learning

Matthew S. McGlone, Ph.D.
Associate Professor of Communication Studies, The University of Texas at Austin

Recent research suggests that some students' underperformance in mathematics and science learning is attributable in part to their concerns about confirming stereotypes associated with their gender or ethnic identities. These "stereotype threat" concerns yield a self-fulfilling prophecy whereby students come to resemble a negative stereotype due to their apprehension about confirming it and efforts to distance themselves from learning contexts in which they experience this apprehension. In his presentation, Dr. McGlone discussed the psychological factors underlying the stereotype threat phenomenon, the circumstances in which it is most likely to occur, and the strategies educators can use to reduce its pernicious effects in STEM learning.

"Stereotype threat" refers to a state of psychological discomfort people experience when they perceive a risk that their behavior might confirm an unflattering group stereotype. Recent research on this phenomenon suggests that female and ethnic minority students' underperformance in math and science learning is attributable in part to their concern about confirming stereotypes such as "girls can't do math" or "black people aren't smart." These studies have shown that seemingly innocuous cues – the gender composition of a class, a demographics question about ethnicity on a standardized test, etc. -- are sufficient to remind students of a stigmatized social identity and thereby elicit stereotype threat reactions. Once aroused, this threat can have a number of disruptive effects, such as the short-term impairment of intelligent thought and performance in tests and other academic activities. Over time, it prompts defensive adaptations that have far reaching effects for students, such as disengagement from mathematics, science, and other domains where the stereotype is relevant. But educators can mitigate these effects. Dr. McGlone's discussion highlights some fairly simple tools and strategies that research has demonstrated will reduce the achievement gap for women and minorities in science and mathematics assessment.

Dr. Matthew McGlone and
Dr. Carol Fletcher,
TRC *Assistant Director/ R&D Coordinator*

2008 NITA BETH CAMP LEGACY AWARD

Nita Beth Camp
(1940 - 2007)

The Story of Nita Beth Camp

In 1985, doctors told Nita Beth Camp her life was over. Facing such a grim outlook, it would have been easy for the longtime science teacher to give in to the breast cancer that had invaded her body. But Nita Beth had other plans.

"A lot of people think cancer is a death sentence, but I think it's a life sentence because you live every day to the fullest," Camp said from her office at the Region 7 Education Service Center in Kilgore.

"My doctor said I am a medical anomaly. I should not be alive. All of the studies say I should not have lived this long," Camp said. "God has a plan for me, and I'm supposed to be here. I take my chemo and come on to work every day," she said. "If you've got something else to think about, like coming to your job, that puts your illness at the back of your mind."

These quotes embody the attitude and optimism that characterized Nita Beth Camp, founder and former Project Director of the Region 7 Collaborative for Excellence in Science Teaching in Kilgore, Texas. For over 21 years after her diagnosis with cancer and with her passing, Nita Beth Camp continued to be an inspiration for thousands of Texas educators and teachers.

With great respect and admiration to her memory, the Texas Regional Collaboratives dedicates the Nita Beth Camp Legacy Award.

The 2008 Nita Beth Camp Legacy Award is Presented to Peggy Carnahan

"Nita Beth was really an outstanding, gracious and always giving person. I will cherish this because she was so special to me, and I think to all of you here. Please always back the teachers, and the students will learn."

Peggy Carnahan
Project Director,
OLLU Regional Science Collaborative

THE TRC LEGACY LECTURE SERIES

Honoring the Life and Memory of:
Edward C. Roy, Jr., Ph.D.
(1936 - 2007)

Distinguished Scientist,
Professor of Geology,
Mentor, and Special Friend of
the Texas Regional Collaboratives

The 2008 Lecture is the first in The TRC Legacy Lecture Series. This Inaugural Lecture is in memory of Dr. Edward C. Roy, Jr., scientist, mentor and gifted teacher who inspired students of all ages and stimulated their love of science.

Dr. Edward Geary, TRC Legacy Lecture inaugural speaker, Peggy Carnahan, and Dr. Kenn Heydrick shared stories of their fond memories of Dr. Ed Roy to an audience of over 400 participants, including Mrs. Roy who was deeply touched by the event honoring the contributions of her late husband.

Dr. Ed Geary, Peggy Carnahan, Carol Roy, Dr. Kenn Heydrick

I am a more effective teacher because of my involvement in this program. I have been able to network with other science educators who have a passion for teaching, expanded my personal knowledge in both science content and pedagogy, I have increased my confidence using research-based methods in the classroom, and I have so much fun participating in quality training. I love being part of this organization and hope to continue for many more years!

Stef Paramoure
Science Teacher, Comal ISD

After being in administration for so long and then returning to a science role, it has really stretched my knowledge base about teaching science.

Deborah Brendel
Project Director,
Region 10 Science Collaborative

I feel more equipped to make a difference in my classroom and school. Because of the TRC, I've been given the confidence to teach high school science after 20 years of teaching junior high. I also feel more qualified to help other science teachers.

Ronald Carson
Science Teacher, Chapel Hill ISD

The trainings have been very helpful in my approach to teaching more of what I thought I was teaching well to begin with. It is always good to know there is room for improvement. Communicating with other teachers is also a great way of picking up new strategies. The supplies and equipment that we are given is a huge asset to not only the teachers on my campus, but also the students. These are items that are not in our budget, but now are standard in our science lab. TRC has instilled a new confidence in teaching subjects that I felt were not my strong suits. Thanks, TRC and sponsors.

Barbara Lewis
Science Teacher, Graham ISD

My favorite part of this meeting was the opportunity to sit with the members of our collaborative and have long conversations revolving around developing our program over a beautiful meal. I was able to watch attitudes shift and minds expand. It was obvious that the firsthand opportunity to hear state-level legislative members and TEA representatives discussing and sharing their information directly with us and the opportunity to hear a variety of expert presenters created a broader view and shifts in thinking. This opportunity was priceless.

Linda Scott
Project Director, Aldine ISD Regional Science Collaborative

PARTICIPANTS' FEEDBACK

TRC has taught me not only about science, but how to teach science to my students. I am more comfortable, so my students have a great time in school. If you ask them what their favorite subject is, they'll tell you it's science... because we do "cool stuff!"

Genia Klein
Science Teacher, Pflugerville ISD

Hearing about what people say and actually hearing them say are two different things. I came away with a better understanding of the passion and commitment of the TRC leadership than I arrived with. I felt, as a teacher, appreciated for the first time in a long time. I am excited about teaching and using the content, the activities, and the materials I have received from the Collaborative. It has given me a new outlook and I have hope of making a bigger difference on my campus and in my students' lives. This was a wonderful experience and one that I look forward to sharing with my colleagues and hopefully repeating next summer. Thank you for the opportunity.

Chani Barton
Science Teacher, Pearland ISD

The TRC has opened up doors for me to move up professionally. I have gone from a classroom teacher to the Science Curriculum Coordinator for a school district. I have also been able to help teachers improve their instruction and strategies in the classroom, making an impact on student achievement. Because of the TRC, I am constantly learning the most current, up-to-date information and strategies in science education.

Patti McLelland
Project Director,
ACC Regional Science Collaborative

Everything was great! The speakers were excellent and the break out sessions were intersting and timely. The food was scrumptious. The ideas and information that were shared have given me great ideas for the coming year.

Denise May
Science Specialist, Aldine ISD

The TRC Annual Meeting continues to provide a forum for teachers to present (many for the first time) to their peers in a comfortable atmosphere where everyone is helpful and supportive. I love watching all the teachers grow and flourish professionally.

Jennifer Jordan-Kaszuba
Project Director, Region 13 Science Collaborative

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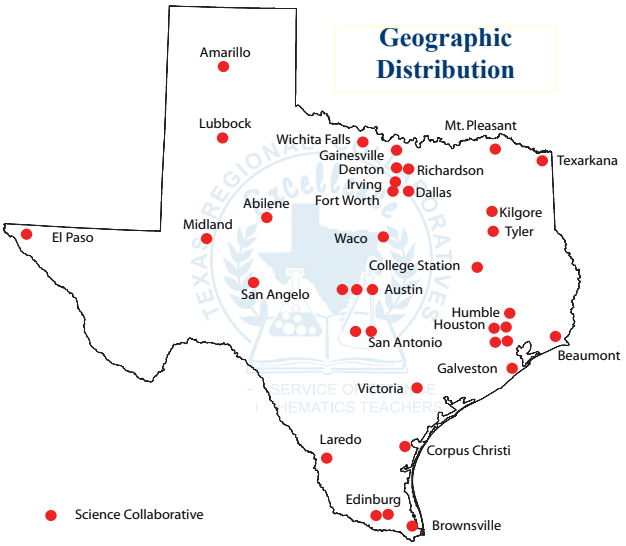
Regional Science Collaboratives Sites **



COLLABORATIVES	35*
DISTRICTS	853
CAMPUSES	2,341
TEACHERS	7,324
STUDENTS	590,000

One Year Data: August 1, 2006 - July 31, 2007
** two more Science Collaboratives have been added since July 2007*

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** LOUISIANA SCIENCE REGIONAL COLLABORATIVES

Two Louisiana Regional Collaboratives:
Louisiana State University/Southern University Regional Collaborative, and
Louisiana Tech University/Grambling State University Regional Collaborative,
are supported by the Shell-TRC Partnership.

24 REGIONAL MATHEMATICS COLLABORATIVES

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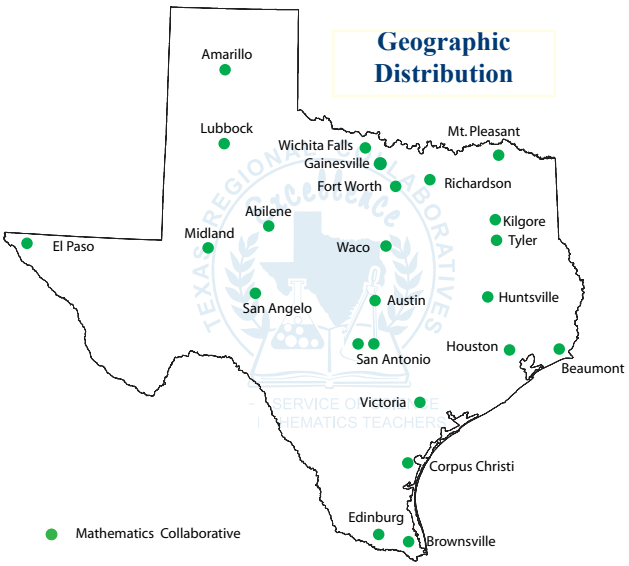
Mathematics Regional Collaboratives Sites



COLLABORATIVES	20*
DISTRICTS	957
CAMPUSES	2,663
TEACHERS	8,820
STUDENTS	512,332

One Year Data: August 1, 2006 - July 31, 2007
** four more Mathematics Collaboratives have been added since July 2007*

PARTNERS AND PROJECT CONTRIBUTORS

STATE AND FEDERAL PARTNERS

Texas Education Agency

U.S. Department of Education

National Science Foundation

STATEWIDE CORPORATE AND FOUNDATION PARTNERS

Shell Oil Company

AT&T Foundation

El Paso Corporation

The Cynthia and George Mitchell Foundation

Toyota USA Foundation

PROJECT CONTRIBUTORS

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Eleanor and Robert Hoppe Endowment DA Fund • J.E. Connally/Virginia H. Boyd
Morehead-Welborn LLP • Robert Gooch • Rockwell Fund
Sam E. and Ann Barshop • Scott Taliaferro, Jr. • Sydney E. Niblo
Walter F. Johnson • William Wright Jr. • Zachry Group, Inc.

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Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching

Background Information and History

In 1991, tremendous science education reform activities were underway across Texas and the nation. Changes necessitated that teachers provide science instruction in fields for which they were not prepared. Dr. Kamil A. Jbeily, then at the Texas Education Agency, initiated a series of regional meetings across the state to explore ways to create support systems of professional development for Texas science teachers. The meetings included representatives from education service centers, colleges and universities, school districts, business and industry, and institutions of informal education. The goal was to create regional partnerships built on collaboration and cost-sharing that provided science teachers with relevant, sustained, and high-intensity professional development. These P-16 partnerships, with initial federal funding from the Dwight D. Eisenhower Science Professional Development Program, developed into the statewide network that is now the Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching.

On March 2, 1996, with the reorganization of the Texas Education Agency, the statewide administrative office of the Texas Regional Collaboratives (TRC) was moved, under a TEA-UT partnership agreement to the Science Education Center, now the Center for Science and Mathematics Education at The University of Texas at Austin. The program has enjoyed support from a wide range of partners including the U.S. Department of Education Eisenhower Grants Program, the Texas Education Agency, the National Science Foundation, and a number of corporate supporters including AT&T Foundation, Shell Oil Company, Toyota USA Foundation, The Cynthia and George Mitchell Foundation, El Paso Corporation, and others. In addition, over fifty business and community partners support activities of the Collaboratives at the regional level.

In March 2006, as per a historic $1.0 Million gift from Shell Oil Company, two Louisiana Regional Collaboratives prototypes modeled after the TRC, commenced their activities in the service of Louisiana science teachers. In July 2006, the TRC launched a new initiative supported by Math and Science Partnership funding through the Texas Education Agency to provide high quality professional development to mathematics teachers across Texas. After a competitive process, grants were awarded to 20 Regional Collaboratives for Excellence in Mathematics Teaching.

To date, the Texas Regional Collaboratives have served over 14,000 science teachers and 8,500 mathematics teachers, who in turn have shared their knowledge with other teachers at the district, regional, and state levels. The long-range goal of the Regional Collaboratives is to continuously (1) enhance the quality of science and mathematics teaching in Texas through Professional Development Academies and inter-regional collaboration; (2) increase the number of qualified science and mathematics educators by building the leadership capacity of teachers to mentor and serve a larger number of teachers; and (3) improve accountability of the system by evaluating the impact of the professional development on teachers' knowledge and skills, their performance in the classroom, and on student achievement.

The Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching program has received commendations from the U.S. Department of Education, policy makers, state legislators, and business partners. The Program was inducted into the Texas Science Hall of Fame on January 17, 2000, and was recognized by the Governor, the Senate, and House of Representatives on January 16, 2001 for distinguished achievements and contributions to supporting education reform.

Who We Are

An award-winning statewide network of sixty-one P-16 partnerships that provide sustained and high intensity professional development to P-12 teachers of science and mathematics across the state. This infrastructure of over 46 institutions of higher education collaborating with the Texas Education Agency, education service centers, school districts, and business partners, has a 17-year track record of designing and implementing exemplary professional development using research-based instructional models, materials, and best practices.

Achievements

Served over one million students across Texas through improved instruction and performance of participating teachers; developed the leadership capacity of over 14,000 Texas science teachers who, in turn, shared their experiences with thousands of teachers through mentoring, peer coaching, and technical assistance. In addition, over 8,500 mathematics teachers have been served. Science and mathematics teachers in almost all of 254 Texas counties have been the beneficiaries of this extensive statewide support system.

Our Mission

To provide Texas science and mathematics teachers with support systems of scientifically researched, sustained, and high intensity professional development and mentoring to assist them in the implementation of the Texas Essential Knowledge and Skills (TEKS). Our programs equip teachers with the knowledge and skills to engage students in meaningful science and mathematics learning experiences. Activities are designed to improve students' scientific, mathematical and technological literacy, and inspire them to pursue science and engineering related careers.

Values

- We **serve** our teachers and students.
- We **treasure** our people.
- We **operate** with integrity.
- We **reward** our partners.
- We **contribute** to systemic reform and to the community.

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