



# Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching

TRC At-A-Glance

## WHO WE ARE

The Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching (TRC) is an award-winning statewide network of 66 P-16 partnerships (Regional Collaboratives) that provide sustained and high intensity professional development to P-12 teachers of science and mathematics across the state. This infrastructure of over 58 institutions of higher education collaborating with the Texas Education Agency, Education Service Centers, school districts, and business partners, has a 19-year track record of designing and implementing exemplary professional development using research-based instructional models, materials, and best practices. In addition, the TRC network includes 24 projects (BTIM and Mid-Career) that focus on teacher mentoring, recruitment, and preparation.

## 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 successful implementation of the Texas Essential Knowledge and Skills (TEKS). TRC 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.

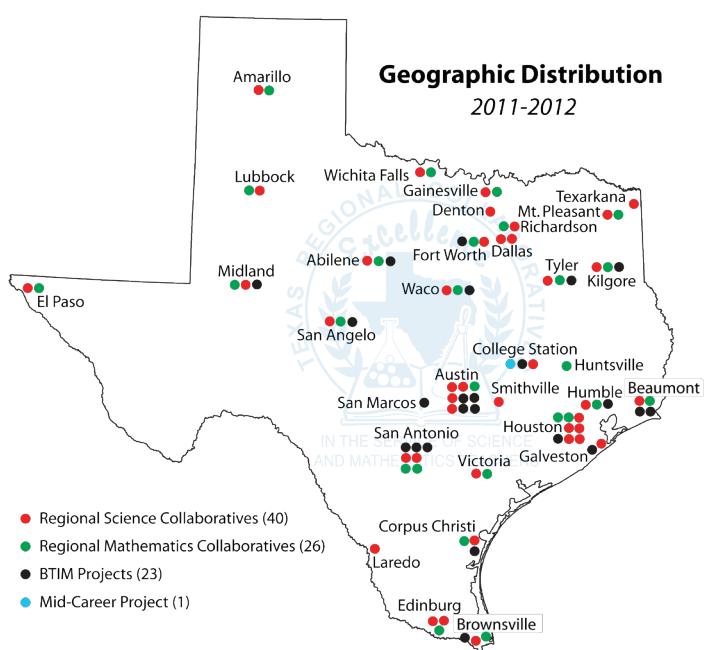
## ACTIVITIES

- **Professional Development Academies (PDAs)** are provided to Instructional Teams that consist of professors of education, science, mathematics, and engineering, instructional specialists and master teachers.
- **Professional Development Programs (PDPs)** are designed by instructional teams at each Regional Collaborative to provide 85-105 contact hours of TEKS-based professional development to prepare teachers to become Science Teacher Mentors (STMs), and Mathematics Teacher Mentors (MTMs).
- **Honoring the Teachers** events recognize and honor participating teachers and engage policy makers, legislators, and state leaders in the program.
- The **Annual Meeting** brings together teacher leaders, education and business leaders, policy makers, and legislators to share, network, communicate, and celebrate the achievements of the Collaboratives.

SCIENCE	2009-2010	MATHEMATICS
36	COLLABORATIVES	24
632	DISTRICTS	675
2,062	CAMPUSES	1,862
1,446	TEACHER MENTORS	921
6,692	TEACHERS	5,761
451,206	STUDENTS	373,809

One Year Data: August 1, 2009 - July 31, 2010

Student numbers based on an average student/teacher ratio of 64:1 in science and 59:1 in mathematics



## ACHIEVEMENTS

- Over two million students across Texas have benefited from the improved instruction and performance of participating teachers. The program has developed the knowledge, skills, and leadership capacity of approximately 30,000 science and mathematics teachers through sustained and high intensity professional development. Many of these teachers serve as Science Teacher Mentors (STMs) and Mathematics Teacher Mentors (MTMs), and share their experiences with other teachers through mentoring, peer coaching, technical assistance, and workshops at the campus, district, and regional levels. Science and mathematics teachers in almost all of the state's 254 counties have been the beneficiaries of this extensive statewide network.
- Received commendation from U.S. Department of Education, National Science Foundation, policy makers, legislators, and business partners; inducted into the *Texas Science Hall of Fame*, and recognized by the Governor, the Senate and House of Representatives for distinguished achievements and contributions to supporting excellence in science education.

# Texas Regional Collaboratives Program Components

## Sixty-six Regional Collaboratives

Forty Science Collaboratives

Twenty-six Math Collaboratives

Each Regional Collaborative focuses on participating teachers by:

- Enhancing their science or mathematics content knowledge,
- Improving their instructional skills, and
- Building their leadership capacity so that they can serve as a resource to improve student achievement throughout their school or district.

## Beginning Teacher Induction and Mentoring Program (BTIM)

Initiated in September 2008 with funding from the Texas Education Agency, the BTIM program is designed to increase retention of beginning science and mathematics teachers by assigning a qualified mentor teacher to each classroom teacher who has less than two years of teaching experience. Mentors provide weekly support to novice teachers through coaching, team teaching, observations, and sharing of resources.

## Mid-Career Teacher Recruitment Program

The goal of this program, implemented in September 2009 with funding from the Texas Education Agency, is to increase the number of certified science and mathematics teachers in Texas through recruitment of mid-career professionals with degrees in science, mathematics, engineering, and technology fields to teach in Texas schools. Mid-Career projects recruit, train, certify, place, and mentor those STEM professionals in high-need schools across the state.

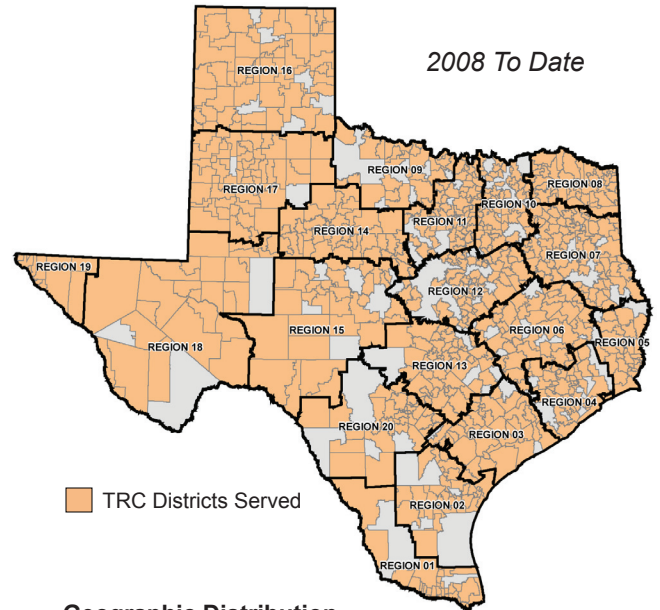
## STEM Certification Program

The purpose of the STEM Certification Program is to increase the number of highly qualified teachers through a professional development program that will recruit and assist in the certification of science and math teachers. Certifications must be advancing towards a higher grade-level certification within the same field or a more content specific area in Math or Science.

## Early Childhood Science Research

The NSF-funded *Building BLOCKS for Science* research study involves extensive classroom observation by teachers and researchers of prekindergarten children's ability to learn science processes and content, delivery of intensive professional development and mentoring support for prekindergarten teachers to learn science, and development of qualitative and quantitative assessment strategies.

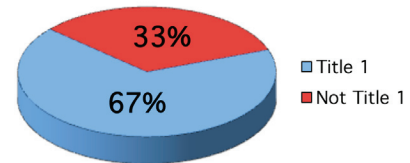
## District Participation in the TRC



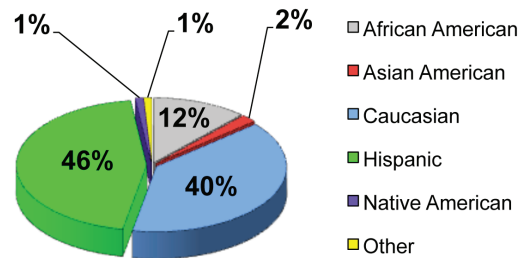
### Geographic Distribution

Teachers from 746 school districts and charter schools and 2,371 campuses have participated in the Texas Regional Collaboratives science program. The mathematics program served teachers in 778 districts and charter schools representing 2,244 campuses.

### Title 1 Status of Participating Campuses



### Ethnicity of Students Served by Collaborative Teachers



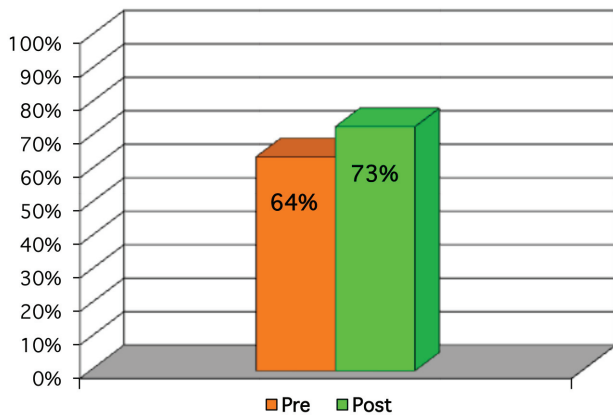
Based on a sample of 14,820 teachers who provided campus poverty level data for 2009-2010

# Effectiveness and Results

## CONTENT KNOWLEDGE

### Physics Assessment 2009-2010

The impact of TRC professional development on content knowledge of the teachers is statistically significant with an average 9 percent point gain.

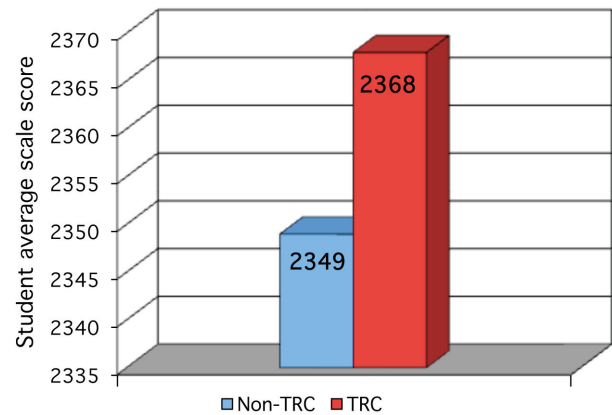


*Measured across 4 Regional Collaboratives for a total of 60 teachers*

## STUDENT IMPACT

### Rice University Regional Collaborative 5<sup>th</sup> Grade Science 2009-2010 TAKS

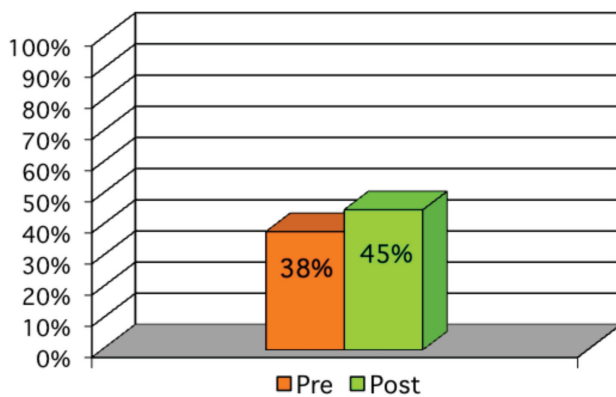
The impact of professional development on 5th grade science student achievement is statistically significant. The figure below demonstrates that students who have TRC teachers, on average scored 19 points higher on the 5th grade TAKS.



*Number of Non-TRC Students = 3114;  
Number of TRC Students = 2786*

### Algebra Assessment 2009-2010

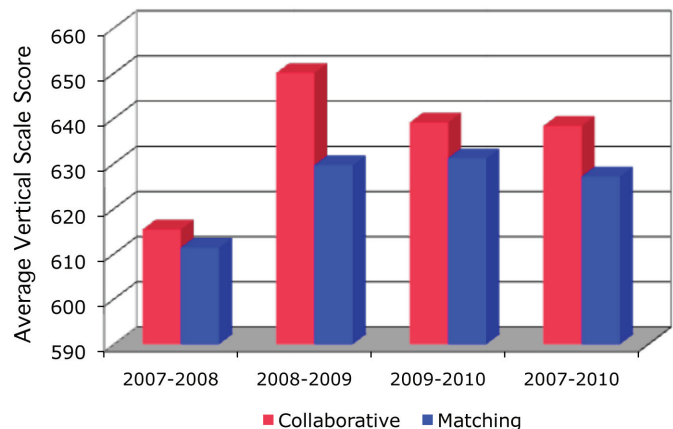
The impact of TRC professional development on the content knowledge of teachers is statistically significant with an average 7 percent point gain.



*Measured across 7 Regional Collaboratives for a total of 156 teachers*

### UT Tyler Regional Collaborative 4<sup>th</sup> Grade Math 2007-2010 TAKS

The impact of TRC professional development on 4th grade math student achievement is significant. The figure below demonstrates that students who have TRC teachers, on average score higher on the 4th grade TAKS.



# TRC Collaboratives and Projects At-A-Glance (Project Year 2011-2012)

## Regional Mathematics and Science Collaboratives

R	M	S	REGIONAL COLLABORATIVES
1	●	●	Region 1 Collaborative/ <i>Edinburg</i> UT Pan American Regional Collaborative/ <i>Edinburg</i> UT Brownsville Regional Collaborative/ <i>Brownsville</i> TAMU International Regional Collaborative/ <i>Laredo</i>
2	●	●	Region 2 Collaborative/ <i>Corpus Christi</i> Texas State Aquarium-ESC 2 Regional Collaborative/ <i>Corpus Christi</i>
3	●	●	Region 3 Collaborative/ <i>Victoria</i>
4	●	●	Region 4 Collaborative/ <i>Houston</i> Rice University Regional Collaborative/ <i>Houston</i> Galveston County Regional Collaborative/ <i>Galveston</i> Lake Houston Regional Collaborative/ <i>Humble</i> UHCL Regional Collaborative/ <i>Houston</i> UH-Downtown Regional Collaborative/ <i>Houston</i> Aldine ISD Regional Collaborative/ <i>Houston</i>
5	●	●	Region 5 Collaborative/ <i>Beaumont</i>
6	●	●	Region 6 Collaborative/ <i>Huntsville</i> TAMU-College Station Regional Collaborative/ <i>College Station</i>
7	●	●	Region 7 Collaborative/ <i>Kilgore</i> UT Tyler Regional Collaborative/ <i>Tyler</i>
8	●	●	Region 8 Collaborative/ <i>Mount Pleasant</i> TAMU-Texarkana Regional Collaborative/ <i>Texarkana</i>
9	●	●	Region 9 Collaborative/ <i>Wichita Falls</i>
10	●	●	Region 10 Collaborative/ <i>Richardson</i> Southern Methodist University Regional Collaborative/ <i>Dallas</i> UT Dallas Regional Collaborative/ <i>Dallas</i>
11	●	●	Region 11 Collaborative/ <i>Fort Worth</i> North Central Texas College Regional Collaborative/ <i>Gainesville</i> University of North Texas Regional Collaborative/ <i>Denton</i>
12	●	●	Region 12 Collaborative/ <i>Waco</i>
13	●	●	Region 13 Collaborative/ <i>Austin</i> Capital City Regional Collaborative/ <i>Austin</i> ACC Regional Collaborative/ <i>Austin</i> UT MD Anderson Regional Collaborative/ <i>Smithville</i> UT Austin-College of Nat. Sci. Regional Collaborative/ <i>Austin</i>
14	●	●	Region 14 Collaborative/ <i>Abilene</i>
15	●	●	Region 15 Collaborative/ <i>San Angelo</i>
16	●	●	Region 16 Collaborative/ <i>Amarillo</i>
17	●	●	Region 17 Collaborative/ <i>Lubbock</i>
18	●	●	Region 18 Collaborative/ <i>Midland</i>
19	●	●	Region 19 Collaborative/ <i>El Paso</i>
20	●	●	Region 20 Collaborative/ <i>San Antonio</i> OLLU Regional Collaborative/ <i>San Antonio</i>
26	40		

R: Region M: Mathematics S: Science

### Texas Regional Collaboratives for Excellence in Science and Mathematics Teaching

Center for Science and Mathematics Education, College of Education  
**The University of Texas at Austin**

*Physical Address:*

George I. Sánchez Building, Suite 340, 1912 Speedway, Austin, Texas

*Mailing Address:*

1 University Station D5500, Austin, TX 78712-0377

*Executive Director Contact Information:*

**Kamil A. Jbeily, Ph.D.** • 512-458-1310 • kjbeily@mail.utexas.edu

## BTIM (Beginning Teacher Induction and Mentoring)

R	M	C	S	INSTITUTIONS
1		●		UT Brownsville/ <i>Brownsville</i>
2		●		Texas State Aquarium-ESC 2/ <i>Corpus Christi</i>
4			●	Galveston County/ <i>Galveston</i> Humble ISD/ <i>Humble</i> University of Houston-Downtown/ <i>Houston</i>
5	●		●	Region 5 ESC/ <i>Beaumont</i>
6		●		Texas A&M University System/ <i>College Station</i>
7		●		Region 7 ESC/ <i>Kilgore</i> UT Tyler/ <i>Tyler</i>
11		●		Region 11 ESC/ <i>Fort Worth</i>
12		●		Region 12 ESC/ <i>Waco</i>
13		●	●	Austin Community College/ <i>Austin</i> Region 13 ESC/ <i>Austin</i> Texas State University/ <i>San Marcos</i> UT Austin - UTeach/ <i>Austin</i> UT Austin - UTeach Institute Expansion/ <i>Texas</i>
14		●		Region 14 ESC/ <i>Abilene</i>
15			●	Region 15 ESC/ <i>San Angelo</i>
18			●	Region 18 ESC/ <i>Midland</i>
20	●	●	●	Region 20 ESC/ <i>San Antonio</i> OLLU/ <i>San Antonio</i>
		23		

R: Region M: Mathematics S: Science  
C: Combined Science/Math

## Mid-Career

R	INSTITUTION
6	Texas A&M University System/ <i>College Station</i>

R: Region

### The Louisiana Outreach Project

**Two Louisiana Regional Collaboratives are supported by the Shell-TRC Partnership:**

Louisiana State University/Southern University  
Regional Collaborative

Louisiana Tech University/Grambling State University  
Regional Collaborative

### TRC Partners

#### State and Federal Partners

Texas Education Agency  
U.S. Department of Education  
National Science Foundation  
Texas Higher Education Coordinating Board  
The University of Texas at Austin, SECO

#### Statewide Corporate and Foundation Partners

AT&T Foundation, El Paso Corporation  
Shell, Toyota USA Foundation,  
The Cynthia and George Mitchell Foundation

#### Project Contributors

Fluor, IBM