

A Newsletter from the Houston Urban Network for Science, Technology, Engineering and Mathematics ([HUNSTEM](#))

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## Student Results Show Benefits of Math and Science Partnerships

Taken from [www.nsf.gov](http://www.nsf.gov) Press Release 07-080 July 18, 2007

Students' performance on annual math and science assessments improved in almost every age group when their schools were involved in a program that partners K-12 teachers with their colleagues in higher education.

While an earlier study tracked schools that began work in the first year of the National Science Foundation's (NSF) Math and Science Partnership program (MSP), the most recent study followed more than 300 schools participating in partnerships that began to be funded during the program's second year.

Participating school districts found that a significantly higher proportion of students scored at the "proficient" level or higher on state math and science assessments in the 2004-2005 school year than they had in 2003-2004. The only exception was in science at the middle school level, where student performance stayed the same (see accompanying chart).

Progress among elementary math students was particularly noteworthy, with student proficiency rising by more than 15 percentage points from one school year to the next.

The MSP currently supports 52 such partnerships around the country that unite some 150 institutions of higher education with more than 550 school districts, including more than 3,300 schools in 30 states and Puerto Rico. More than 70 businesses, numerous state departments of education,

science museums and community organizations are also partners.

"Teachers don't just have to learn more math and science," says Joyce Evans, a program manager in NSF's directorate for education and human resources. "They need to learn to become an expert resource for their colleagues."

Established in 2002 to integrate the work of higher education with K-12 and to strengthen and reform mathematics and science education, MSP was enhanced in 2004 with the addition of teacher institutes for the 21st century. While NSF has funded development programs for teachers since the 1950s, the MSP teacher institutes not only have an intense focus on subject matter expertise but also an emphasis on leadership development. More than 3,000 teachers participated in 12 such institutes around the country in the 2006-2007 school year.

Typically teachers work intensively with higher education faculty in the STEM (science, technology, engineering and mathematics) disciplines during the summer months to gain deep content knowledge, earn necessary certifications or degrees and receive mentoring from their higher education colleagues. The goal is for participating teachers to become school- and district-based intellectual leaders in mathematics or the sciences.

Student outcomes are beginning to parallel growth in teacher knowledge gained from participating in the Teacher Institutes. For example, in the

2005-2006 school year, a population of students with teachers who took part in the Rice University Mathematics Leadership Institute performed better on both the Texas state mathematics assessment and the Stanford 10 mathematics assessment (a national standardized test) than students of non-institute teachers in the same grades at similar schools.

Findings of the Houston Independent School District's research and accountability department indicated that students of institute participants outperformed comparison students on the Texas Assessment of Knowledge and Skills, with the most significant gains noted by low-performing students of institute participants, who made dramatic strides toward reaching the proficiency standards. Students of institute participants also showed growth on the Stanford 10 mathematics assessment, indicating that their learning of mathematics progressed more than that of the general national population.

"The institutes are helping us build capacity, bringing teacher-leaders in the STEM disciplines to districts around the country," says Evans. "This will continue to benefit their math and science students." - NSF-  
[http://www.nsf.gov/news/news\\_images.jsp?cintn\\_id=109725&org=NSF](http://www.nsf.gov/news/news_images.jsp?cintn_id=109725&org=NSF)

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### Related Websites:

[Math and Science Partnerships Web page](#)



*"Because this is all about learning..."*

*-Astronaut Barbara Morgan*

### [Engineering Design Challenges](#)

### [STS-118 Education Resources](#)

### [Ready to Launch](#)

## The Mission Continues ... Planting the Seed

Taken from: NASA.gov

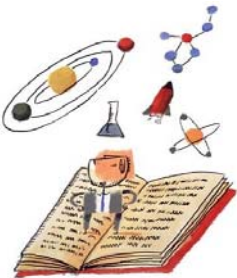
"What I really want them to do is to pay attention to themselves and to look very deep within themselves and dig up all the questions that they can that they have about our world, our universe, and about space exploration. Because this is all about learning, and we're here to help and we want to know from them -- what is it that they really want to know and learn? Because this is their future and it's open-ended for them. I also hope that they'll see an ordinary person doing the things that they can be doing. It's all about learning and exploring, and we want them to come with us." This is how Barbara Morgan would describe the upcoming STS-118 Endeavour Shuttle

Mission to kids.

To read more about Barbara Morgan and her upcoming mission to the International Space Center aboard [NASA STS-118 Endeavour](#), *What is an Educator Astronaut?* An Educator Astronaut is a fully qualified astronaut who brings expertise in K-12 education. With their education background, Educator Astronauts will help lead NASA in the development of new ways to connect space exploration with the classroom, and to inspire the next generation of explorers, while ensuring a successful mission.

Barbara Radding Morgan is scheduled to fly on STS-118 aboard the Space Shuttle **Endeavour** to the International Space Station. A member of NASA's Teacher-in-Space program in 1985, Morgan has remained active in the U.S. space program. In January 1998, she was selected as the first NASA Educator Astronaut. Astronaut Morgan will have one million basil seeds on-board her flight and conduct several educational downlinks with students. In addition to her educational duties, she also will operate the robotic arm. Morgan will involve classrooms all around the country through her work during this mission.

## Youinnovate21: It's Your Century



*How do we provide students an opportunity to learn more about a career in STEM-related fields?*

Taken from Scholastic Inc. and National Governors Association Launch:

[youinnovate21: It's Your Century](#)

### **To Inspire and Prepare our Nation's Youth – Innovators of Tomorrow**

Visitors to Vote "Education and Workforce Development" as Top Focus of American Innovation site at: New York, NY (July 24, 2007) -- In support of the National Governors Association's (NGA) Innovation America initiative, a lively new web site aimed at getting middle school students excited about science, technology, engineering and math (STEM) and inspiring and preparing them to become the innovators of the 21st century, launched at the National Governors Association 2007 Annual Meeting last weekend.

The web site, is the result of a collaboration between Scholastic, the global children's publishing, education and media company and the NGA. "We must prepare students of today to become the innovative leaders of

tomorrow," said Governor Janet Napolitano, who developed and led NGA's Innovation America initiative. "This web site will bring science, technology, education and math to life for children, which in turn will give them the tools to become innovators."

Participants at the National Governors Association 2007 Annual Meeting weighed-in on the site and identified "Education and Workforce Development" as one of the next decade's most urgent areas of American innovation. The web site features standards-based content to encourage young people to plan for careers that can better our world through innovation.

"Scholastic inspires children to learn by providing them with enticing educational content that propels them into new intellectual territory. With youinnovate21, Scholastic has developed a web site that helps young people see their role in solving society's problems and shaping the future of our nation," says Karen Proctor, Scholastic Vice President of

Community Affairs and Government Relations.

Through interactive games and activities the site students will have the opportunity to embark on innovation and identify professions and lifework that are aligned with their passions and interests. Specifically, the web site will:

**IMPART KNOWLEDGE** through content embedded in brain teasers, activities, multimedia experiences, and games;

**CHART CAREERS** in STEM-related fields using a dynamic career simulator that concentrates on the path from education to employment in more than 300 fields

**ENCOURAGE YOUNG PEOPLE** to convey their own ideas about innovation through contests; and

**OFFER TEACHERS INFORMATION** to augment and inspire their curriculum.

## Web bytes

### ThinkFinity

Verizon Foundation's comprehensive online portal to 50,000 standards based lesson plans and educational resources for K-12 teachers, students, and community organizations. [www.thinkfinity.org](http://www.thinkfinity.org)

### College Prep Sites (7-12)

- These sites offer tools for comparing colleges and for choosing the right college. Additional information includes tips for applying for financial aid and scholarships, safety suggestions, college prep resources, entrance exam study

guides, and much more. [http://www.educationworld.com/a\\_tech/sites/sites058.shtml](http://www.educationworld.com/a_tech/sites/sites058.shtml)

### A Guided Tour of the Visible Human Body (9-12)

- This site, based on the digitized images of the Visible Human Project, tours the human body using animation and images "to demonstrate planes of section and other introductory concepts in anatomy." <http://www.madsci.org/~lyn/VH/>

### iPod in Education (3-12)

- If you are ready to jump into lesson plans that involve using the ipod this

site is for you! <http://www.addysg.org.uk/iodined/news.php>

### Germ Experiment (K-8)

Observe the growth of germs on three germ-covered potato slices and one "control" potato slice. [http://www.educationworld.com/a\\_lesson/00-2/lp2189.shtml](http://www.educationworld.com/a_lesson/00-2/lp2189.shtml)

### "I'd Rather Be Counting Blades of Grass" - [How Many Blades of Grass in a Football Field?](#)

(**Estimation Activity for 4-12**) A sample count helps students estimate the total amount of grass. [http://www.educationworld.com/a\\_lesson/daily/daily/p/daily088.shtml](http://www.educationworld.com/a_lesson/daily/daily/p/daily088.shtml)



### [GRACE Educational Activities](#)

In partnership with 10 Master Teachers across the nation the Texas Space Grant Consortium has developed over 70 kindergartens through 12th grade classroom activities that are aligned to the national education standards. These activities are available on this web site in PDF format.

<http://www.csr.utexas.edu/grace/education/activities/>

## Check Out online TEKS support

If you are looking for [mathematics TEKS Toolkit](#) or [science TEKS Toolkit](#), this site allows you to download them in English or Spanish. This site offers online grade level resources for teachers to help them teach the content for the K-12 mathematics and science TEKS for students to do their very best on the TAKS. The site also offers instructional support using articles, lesson plans, answers to assessment questions, classroom tools, instructional materials including equipment lists for safety precautions for k-12 classrooms, tips and strategies.

## Teachers concerned about science education

*From eSchool News staff and wire service reports*

July 7, 2004—Many educators and employers liken the state of science education today to a chemistry project gone awry: A bad mix of factors has come together—and it spells trouble. [Read more](#)

## What does Science Teaching Look Like?

Taken from: December 2006/January 2007 | Volume 64 | Number 4  
**Science in the Spotlight** Pages 16-23

International comparisons are important because they challenge us to step outside our cultural assumptions. The report on the first TIMSS video study, which examined mathematics teaching, concluded that teaching is a cultural activity: It is learned implicitly, hard to see from within the culture, and hard to change (Stigler, Gonzales, Kawanaka, Knoll, & Serrano, 1999). Viewing videos of science teaching in different countries can help educators recognize alternative ways of teaching science and rethink

their ideas about effective science instruction. Although many teaching strategies were common to all five countries, the video study revealed two major differences between the United States and the other countries. First, each of the higher-achieving countries had its own distinct core pattern of science teaching; in contrast, the U.S. lessons were characterized by variety. Second, although each country had its own approach, all of the higher-achieving countries had strategies for engaging students with core science ideas—that is, their science lessons focused on content.

[Read the complete article](#)



## HUNWiki Is Ready for Action

*A Wiki is an interactive web page where users can make changes that stay on the page.*



HUN Wiki is our interactive lesson development tool. We have listed lesson plans for each age level of 13 TEKS strands. We've placed templates in each strand along with the lessons. You can edit an existing lesson or

start from scratch.

You can edit the template page to create a new lesson, and save it by putting a link to it here on the main page.

Wiki Help and Basic Editing instructions can be found at the bottom of the main page. You can also add a lesson you've already developed and get feedback from other Wiki users.

This is a great way to share lesson plans across campus! Or get new ideas for lessons!

HUNSTEM staff can work with your school to help you get started.

Check it out here:

<http://hunstem.uhd.edu/pmwiki/pmwiki.php>

## Teacher Professional Development Opportunity for Math Educators

**What:** [National Middle School Association's \(NMSA\) 34<sup>th</sup> Annual Conference and Exhibit](#)

**When:** November 8-10, 2007

**Where:** Houston, Texas

**Register by:** October 1 online ([click on NMSA above](#))

The world's largest conference for middle school grades will give educators the up-to-date information, tools, and encouragement to provide high quality classroom instruction. Ongoing professional development for teachers and administrators has never been more critical. Whether you work in a K-8, 6-8,

7-9, public, private, or charter school, if your work touches the lives of young people between the ages of 10 and 15, now is the time to plan on attending the largest and most comprehensive middle level professional development event in the world! The NMSA conference features more than 500 sessions in 50 topic areas.

So join 8,500 of your peers at NMSA's 34th Annual Conference & Exhibit. We encourage you to bring your knowledge, expertise, stories, questions, interests, and your desire to grow professionally.

Featured guests include Mae Jemison, former NASA astronaut, and Cal Ripken, Jr., baseball legend and Hall of Famer, author and community service leader.



## EdExtras . . .

### HUNSTEM Can Help

The HUNSTEM website is full of wonderful STEM resources for you and your staff to use. If you need help with finding the best STEM resources... give HUNSTEM a call in advance of your next workshop. HUNSTEM staff will come out to your school during your professional development

day and work with staff on finding STEM resources right from our website and much more. This is a wonderful way to work collaboratively with peers and colleagues within your building, as well as, staff on other campuses. We can work together to create a professional development day that will be helpful to your staff.

Check out our website: <http://hunstem.uhd.edu>  
Or send Dr. Brad an email.

### Grants

**Pay It Forward** mini-grants are designed to fund one-time-only service-oriented projects identified by youth as activities they would like to perform to benefit their school, neighborhood, or greater community. <http://payitforwardfoundation.org/educators/grant.html>

#### Youth Venture Program -

Help build a global movement of change makers. Students ages 12-20.

<http://www.genv.net/en-us/region/ysa>

### All-America Rose Selections

The National Gardening Association is the proud sponsor of this award, which is designed to help schools and youth organizations establish gardens to honor the lives of those lost on the attacks of September 11, 2001. These garden programs must also be integrated with education in conflict resolution and mediation skills.

<http://www.kidsgardening.com/grant/rosegrant.asp>

## Science Experiments - *Straight From the Web!*

*Taken from Education World.com*

Think of your favorite science lesson from elementary school, and it probably won't be one that involved a lecture. Hands-on means heads-up! Teachers are responding to their students' need for real-life, experimental science activities. But where can you find them? The Web is brimming with great lessons for you, so build a guitar, make a raisin dance, or build a solar

hot dog cooker. You provide the supplies, and the Net will show your students how to use them. Check out the following activities from some of the Web's best science sites. Go beyond the experiments highlighted; you'll find many more on these sites. Generate interest and excitement with experiments from the Net! Read the article.

[http://www.educationworld.com/a\\_lesson/lesson/lesson177.shtml](http://www.educationworld.com/a_lesson/lesson/lesson177.shtml)

## A Look at Videoconferencing

You may think that video conferencing has no benefit to your classroom or is much too expensive for your school to even consider.

Think again! Take a look at this interview from Education World and see how the use of videoconferencing is increasing in today's classrooms and connecting students to a variety of people all over the country.

[http://www.educationworld.com/a\\_issues/chat/chat127-2.shtml](http://www.educationworld.com/a_issues/chat/chat127-2.shtml)



Interactive videoconferencing (IVC) *(IVC) websites to check out:*

**Center for Interactive Learning and Collaboration:**  
[http://www.cilc.org/c/education/education\\_content.aspx](http://www.cilc.org/c/education/education_content.aspx)

**TWICE:Two Way Interactive Connections in Education**  
<http://www.twice.cc/fieldtrips.html>

**NASA Distance Learning Network** – Interact with NASA scientists and engineers!  
<http://nasadln.nmsu.edu/dln/>

## Upcoming Events

### *Fish City Collaborative Day*

**When:** August 7 – Fish City Grill – Children's Day with Collaborative For Children; 11:00 a.m. to 10:00 p.m.

**Where:** Fish City Grill located at: 3800 Buffalo Speedway, Suite 300 ~ Houston, Texas 77098 713-600-1100

**Who:** City Grill has graciously selected [Collaborative For Children](#) as their charity organization of the month.

### *STS-118 Endeavor*

**When:** August 7  
**What:** STS-118 Endeavour Shuttle launch from [NASA](#) Kennedy Space Flight Center  
**Who:** Barbara Morgan.  
**When:** evening launch

### *Weightless Flights*

**What:** Grumman Foundation's Weightless Flights of Discovery workshop

**When:** August 28 – Northrop Grumman Foundation's Weightless Flights of Discovery - 2 flights  
For further details go to: [Northropgrumman.com](http://Northropgrumman.com)

### *14th Annual Panhandle Area Math & Science*

**When:** September 22 –  
**What:** [Panhandle Math & Science Conference](#)  
**Conference-**'Equipping the Highly Qualified Teacher for Excellence'

**Where:** West Texas A&M University, Canyon, Texas

### *Grant Funded Workshop Opportunity*

In preparation for the Earth and Space Science high school course, the Texas Regional Collaboratives will host 3 professional development workshops. They have requested that each collaborative choose and send up to 2 high school teachers to each of the workshops. Overall, the primary goal of the workshops is to provide training to high school teachers that may be teaching the Earth and Space Science capstone course during the 2008-2009 school year. For more info: [Region 4 Education Service Center](#)

For other upcoming events watch our [HUNCal](#)

## HUNBoard – HUNSTEM's Bulletin board Community

Please check out our HUN Board – [HUNSTEM's Community Board](#) to contribute to share your experiences and concerns regarding STEM topics.

Post new topics or reply to existing ones. This is a wonderful way to collaboratively work with peers and colleagues. The HUNBoard is completely free.



# HUNSTEM

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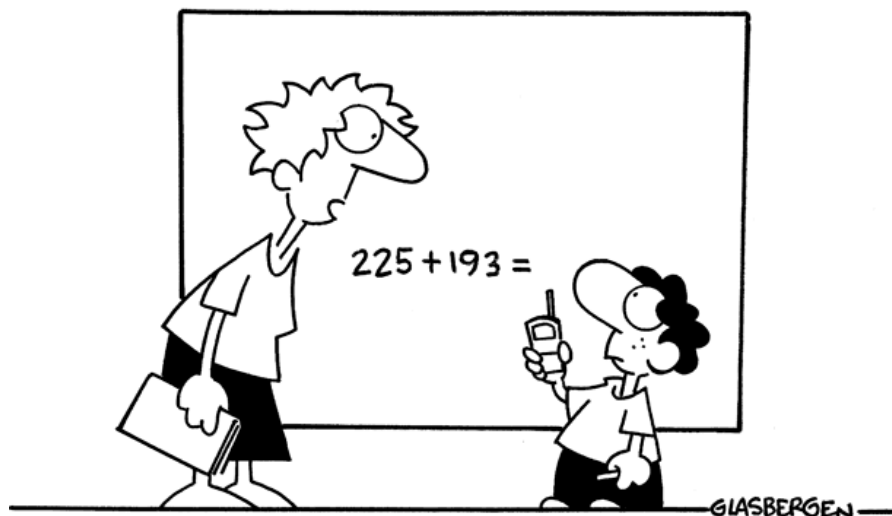
**We're on the Web!**

*Visit us at:*

<http://hunstem.uhd.edu>

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**"You have to solve this problem by yourself. You can't call tech support."**

## About HUNSTEM

We believe that inquiry-driven, problem-based STEM (science, technology, engineering and mathematics) lessons are the best teaching method to attain increased science literacy. HUNSTEM will promote the use of inquiry-driven, problem-based science curricula in all classrooms in the Houston area. HUNSTEM will encourage problem-based curricula through collaboration between teachers, school administrators, curriculum directors and developers, and the ISE and professional resources of the Houston community.