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# PACE IS...

Program for Acceleration in Careers of Engineering – Monmouth Branch

December 2001

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## A Changed America

By Brennan Williams

*Student*

On Tuesday, September 11, terrorists from the Middle East waged an attack on the United States. Now, after the World Trade Center's towers have been destroyed by two hijacked jetliners, and another identical attack hit the Pentagon, the nation has seemed to unite. As the hijacked planes flew into the twin towers thousands of workers and employees were lost due to this tragedy.

The number of missing and presumed dead has passed 3,000 for the World Trade Center, 189 at the Pentagon, and 266 more victims died in the plane crashes. Many people were devastated and could not believe that the U.S. was the victim of terrorism. This was the first time since Pearl Harbor that the nation has been attacked directly.

These attacks did not only declare war on the U.S., but caused anger at the same time. In the wake of the attacks, many Americans began to deal with war in the 21st century. In the words of President Bush, "We will make no distinction between the terrorists who committed these acts and those who harbor them."

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PACE Staff and Students pose in front of the Franklin Institute Science Museum

## PACE Visits Franklin Museum

By Silvano Brewster

*Staff*

By and large, PACE – Monmouth students enjoyed this fall's engineering trip to the Franklin Institute Science Museum. They called it "interesting" and "fun" and said "there was lots of stuff to do." Lora Austin said they were "interacting while learning."

Nineteen students and nine staff took the 95-minute bus ride to the museum, located in Philadelphia, PA. The museum, named for Benjamin Franklin and featuring a large statue of him just inside the entrance, features exhibits covering many areas of science and technology. The trip was on November 17, just after the Train Factory exhibit opened. This is the exhibit most of us on the trip first visited. It featured a short ride on the Baldwin 60000 locomotive. The 350-ton train traveled about 10 feet back and forth going at something under ½ mph. Although the ride wasn't particularly exciting, it gave one a chance to see how these old (it was built in 1929) locomotives worked.

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## Message from the Co-Administrators

PACE Family,

We are fast approaching the completion of the Fall Semester and all of our thoughts are slowly turning towards the upcoming holidays. This PACE year – our 20th Anniversary year – got started on a high note with the PACE Youth Development Conference, and we are still riding the wave of great energy that was generated then. A lot of teamwork and spirited efforts are being displayed by the students, parents and staff within our PACE Family and this is leading to great results! We hope that you see the results and we hope that you feel good about them.

As you gather with your friends & family during this holiday season, be sure to say a prayer for those who lost friends or family members on September 11th. If you personally know of someone whose life was affected by loss, reach out and include him or her in your gatherings so that they are comforted with love, warmth and remembrance.

Be Safe and Be Blessed 'til we see each other again...

**Happy Holidays!**

*Deborah and John*

*2001-2002 PACE – Monmouth Co-Administrators*

## PACE – Monmouth Calendar

December 15 – January 19	Winter Break – No PACE
January 26, 2002	First Day of Spring Semester
March 2, 2002	Science Forum 2002
March 9, 2002	Student Take-Over Day

### Other Upcoming Spring Events

February/March 2002	Spring Engineering Trip
February/March 2002	Basketball Jamboree
February/March 2002	Bowl-A-Thon

## PACE IS

The PACE Is newsletter is a forum for disseminating news of interest to the PACE family and showcasing the talents and accomplishments of the PACE – Monmouth students. We solicit news, articles, essays, poems, artwork, and photography, especially from students. Please submit contributions via e-mail to [newsletter@pace-monmouth.org](mailto:newsletter@pace-monmouth.org) or by U.S. mail to PACE Is, PO Box 493, Lincroft, NJ 07738.

Back issues of PACE Is can be obtained in PDF format from the PACE – Monmouth website: [www.pace-monmouth.org](http://www.pace-monmouth.org).

## Staff Profile: Michael Perry



**By Silvano Brewster**

*Staff*

Mike Perry, the popular lead instructor for Introduction to Engineering, is an engineer, an inventor, an educator, a mentor, and an avid sports fan.

Mike has been involved with PACE for longer than he is willing to say. He served as a tutor for Algebra, a Precalculus instructor, a Mechanical Engineering instructor, and as a member of the PACE Board of Directors. He designed and developed the Introduction to Engineering class with which he is most closely associated.

Mike grew up in North Carolina, but spent most summers and Christmas breaks in New Jersey, with occasional summers in Harlem. He attended college at North Carolina A&T State University, the “best school in the world,” where he earned a Bachelor’s degree in Mechanical Engineering. He then went on to earn a Master of Science degree in M.E. from the University of Illinois at Champaign/Urbana and another M.S. degree in Electrical Engineering from Rutgers University.

Mike’s professional career started at AT&T Bell Laboratories. At Bell Labs, in the mid-1980s, he was granted a patent for an invention related to undersea amplifiers. Mike now works at Tycom Ltd in Eatontown, NJ, where he is a Distinguished Member of Technical Staff. He is responsible for the mechanical design of equipment for state of the art undersea fiber optic communications systems.

Mike has served as a university Visiting Professor in the National Urban League’s Black Executive Exchange Program (BEEP) on several occasions, and is actively involved in numerous other community activities. In his free time, he watches as much sports (Pop Warner, Little League, high school, college and professional) as his sometimes weary eyes will allow.

Mr. Perry, as he is known by his current and former PACE students, has perennially been voted by the students as “Staff Person of the Year.” Mike keeps in touch with many of his former students. He occasionally runs into them while attending local high school football and basketball games. He also knows many of their parents. He even ran into a couple of former students while checking out the nighttime activities at the 1996 Olympics in Atlanta.

Mike has described his passion as mentoring and educating our youth to maximize their full personal, academic, and professional potential. He has enjoyed teaching nearly every student he has had. ❖

*Silvano Brewster is a PACE – Monmouth staff member.*

# The Unfolding War: Biological Terrorism

By **Brandon Batista**

*Student*

In light of the September 11 terrorist attacks on the World Trade Center complex and the Pentagon, the death of a Florida man infected with anthrax had Americans worried about a possible biological attack. At first, it was not clear if these events were related. But slowly evidence has surfaced to link the spread of anthrax to the ongoing campaign of terror. Cases of both the cutaneous, or skin variety, and the inhaled form of anthrax continue to emerge and various government agencies, including the CIA and FBI have thus far been unable to discover a source. However, what is clear is that Americans are now faced with surviving a biological attack.

Biological weapons include a wide range of bacteria, viruses, and toxins that are spread deliberately in the air, food, or water of a population to cause disease or death to humans, animals or plants. Bacteria and viruses work by entering the body, multiplying, and then systematically overcoming the immune system of an individual. Two examples of these, which are agents likely to be employed in a biological attack, are anthrax and smallpox, respectively. Biotoxins are the poisons given off by living organisms, such as the botulinum toxin produced by the bacterium *Clostridium botulinum*.

In order to mount a biological attack, terrorists would first have to obtain any one of a long list of desirable pathogens, carefully synthesize them in vast quantities, "weaponize" or turn them into a form that remains relatively stable and potent under normal environmental conditions, and lastly release them into a given environment or target. The U.S. has reason to believe that North Korea, Iraq and Russia all have stockpiles of biological weapons. Any one of these countries could possibly sell deadly pathogens to terrorists who are willing to pay the price to obtain the agents. In addition, synthesizing large quantities of certain pathogens, such as anthrax, would not entail sophisticated methods. All that is required is a small number of spores and the bacteria can from there be easily grown in a standard petri dish used in high school science classes. Weaponizing any biological agent represents the greatest obstacle the terrorists face. Besides needing extremely large amounts of an agent for an effective strike against a populous the size of the United States, the agent must ideally be converted into a powder that can be blown into the air and inhaled by unsuspecting victims. There are other closely guarded processes that are necessary to produce a military-

grade weapon.

Regardless of whether or not terrorists can launch a successful biological attack, most people are now fearful of future attacks being biological in nature. One of the biggest fears during the weeks following the initial suicide bombings was that our water supply would be contaminated with the Cholera bacteria. As in the anthrax cases, we would not have any warning until people came down with symptoms. The spread of smallpox is also another cause of concern. Smallpox, unlike anthrax, is a highly contagious virus and there are presently limited amounts of vaccine available in the event of an emergency necessity. Our government has reassured us that it is taking the necessary steps to protect our water supply and to thwart future biological attacks. As citizens of this time of uncertainty, it is our job to remain calm and take precautions that can lessen our exposure to biological agents based on the directions of our government. ❖

*Brandon Batista is a sophomore at Monmouth Regional High School.*

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## A Changed America

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Many people are wondering who would be behind such a carefully planned and sick crime such as this. Some are saying that a Muslim faction, known as the Taliban is behind this mass murder. The Taliban have been fighting their holy war, the jihad, for centuries. The jihad is a religious war against all those that believe in another God or religion. People are in fear that more terrorist acts are soon to be taken out on the United States, especially in the beginning of our country's recent military retaliation.

The U.S. has to be very careful in how they plan for this war, because one little misstep could break out into a bigger situation (Such as World War III). So, the U.S. formed a coalition, which is similar to the United Nations. In early October, orders to strike back against the Taliban were carried out. The U.S. and Britain launched powerful attacks in Afghanistan, aiming for terrorist training camps and military bases of the Taliban government who is protecting bin Laden. Along with the military attacks, the U.S. has been dropping thousands of humanitarian supplies, like food and medicine, to benefit the unfortunate Afghan people.

This crisis is far from over. Everyday that passes by, a new event develops in the ongoing war on terrorism. This war on terrorism may result in a cat and mouse chase, because bin Laden has networks set up in every country, waiting on his command. From this point on America will never be the same again! ❖

*Brennan Williams is a junior at Red Bank Regional High School.*

## FACTS AND FIGURES: NAEP FINDS DECLINE IN 12TH GRADE TEST SCORES

The National Assessment of Educational Progress (NAEP) has been used as an indicator of what students know in various academic subjects since 1969. In 1996 and 2000, the U.S. Dept. of Education conducted assessments in science at grades 4, 8, and 12. Although there were no significant changes in average scores for students in grades 4 and 8, there was a decline in scores for 12th graders, suggesting that more and more high school students are graduating with an insufficient knowledge of the sciences. What's more, when analyzed from a race/ethnicity perspective, the scores show that black and hispanic student scores remain at the bottom, across all assessed grade levels, with no significant improvement in scores between 1996 and 2000.

As part of the NAEP 2000 science assessment, students were asked about their background and classroom practices. Twelfth grade students were asked how frequently they used computers to collect data using probes, download data, analyze data, or exchange information using the Internet. Those who reported using computers to collect, download, or analyze data had higher scores than students who reported never doing so. Students who merely exchanged information via the Internet saw no increase in their scores. In addition, the study found that 12th grade students who had taken biology, chemistry, or physics at some point since eighth grade had significantly higher scores than students who had not. Those 12th grade students who took only a general science class and no more, saw no increase in their scores. ❖

*This article highlights a number of observations made in a study of the NAEP 2000 Science Assessment. The full report and related analyses can be found at: <http://nces.ed.gov/nationsreportcard/science/results/>*

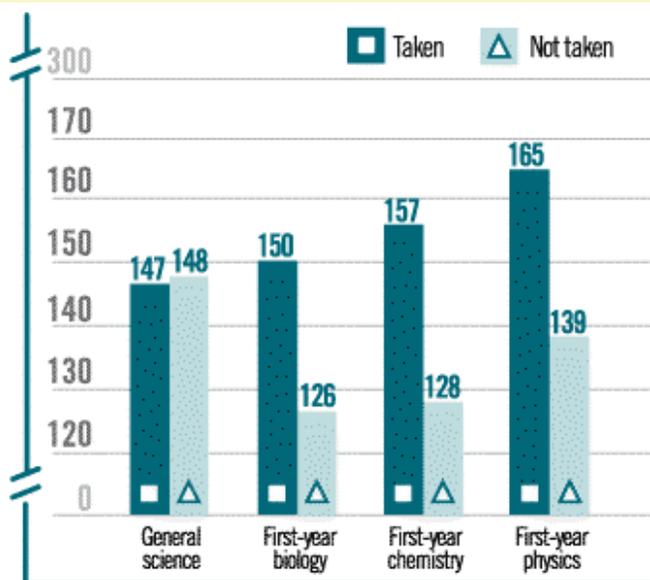


Figure: The above chart shows the effect different science courses had on 12<sup>th</sup> grader NAEP 2000 scores.



Lora Austin at one of the electric exhibits.

## Visit to Franklin Museum

*continued from page 1*

The exhibits at the museum are hands-on. The Bioscience exhibit features a walk-through heart. It also has an Aging Machine, which shows you how you'll look in the future. At the Aviation exhibits you can sit in the cockpit of a Lockheed T-33 "Shooting Star" fighter jet. You can ride the SkyBike, a bicycle perched on a one-inch cable 28 feet above the museum floor. The SkyBike has a 250-pound counter-balance that keeps the bike on the cable.

Some other exhibits visited by PACE students were the Electricity exhibit, Sports Challenge, Astronomy, and Mechanics. There was also a visit to the Fels Planetarium for the *Eyes on the Universe* show.

Charlie Celestine learned something that she did not know before, "that the currents changed in summer and winter." Barbara Davis's favorite exhibits were Aviation and Microorganisms. One student preferred the bonding to any of the exhibits. Annette Lewis said she liked them all. ❖

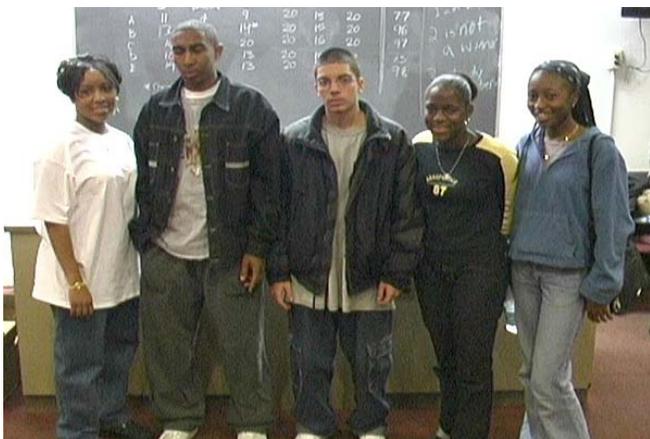
*Silvano Brewster is a PACE - Monmouth staff member.*



Angela Ogunsuyi on the SkyBike at the Franklin Institute Science Museum.



Staff and students at a Train Factory exhibit at the Franklin Institute Science Museum.



Winning Thinkathon Team: (l-r) Uneeda Williams (staff coach), George Fears, Juan Aquino, Sabrina Rencher, Charlsie Celestine

## Announcements

### PACE Graduates Win Scholarship

2001 PACE graduates Kimberly Johnson and Eric Majette, Jr. were each awarded a \$2400 Dr. Walter McAfee Minority Scholarship by the Fort Monmouth Chapter of the Armed Forces Communications Electronics Association (AFCEA) at its annual scholarship dinner in June. ❖

### Thinkathon Championship

The sixth annual Thinkathon was won by the team of Juan Aquino, Charlsie Celestine, George Fears, and Sabrina Rencher. The team, designated Team E, won the closest Thinkathon in history with a score of 98, just ahead of teams C and B, who scored 97 and 96 points in the five team competition.

The Thinkathon is a student team competition that tests logical thinking and general knowledge. Each team visits six stations trying to earn up to 20 points per station by solving the problems posed.

The winning team was coached by staff member Uneeda Williams.

### Spring Events

PACE – Monmouth students will undertake a number of activities in the spring semester:

- ◆ The students are organizing a Basketball Jamboree to be held next February or March.
- ◆ Tickets to Six Flags Great Adventure will be sold as a fundraiser.
- ◆ PACE – Monmouth will hold a Bowl-A-Thon jointly with the Newark-PACE and PACE-YDC Central Jersey branches.
- ◆ The PACE – Monmouth College Tour is planned for the week of April 1.



Team A Working on a Thinkathon Logic Problem: (l-r) Lora Austin, Gloria Manu-Anno (player-coach), Keosha Pointer, Angela Ogunsuyi

# Preparation for Science Forum is Underway

By **Silvano Brewster**

*Staff*

Preparation for Science Forum 2002 is well underway. The Science Forum, an annual showcase of student research projects, is scheduled for March 2, 2002. Thirteen students are working on several interesting projects. They include an egg drop (protect an egg dropped from 20 feet), web page design, a solar cooker, a robot, an electromagnetic crane, demonstrating the regenerative powers of a flatworm, and designing a magnetic levitation train.

The PACE Science Forum evolved from the Science Fair from the early days of PACE. For the Science Fair, students came up with their own project ideas and worked independently on their projects. In the early 1990s, participation in the Science Fair dwindled. In the mid '90s Carlos Ramos, a former PACE staff member, introduced the idea of the Science Forum. Students would work with staff advisors and be given more guidance on choosing a project, conducting scientific research, and presenting the results. But, participation remained low over the years as the Science Forum committee struggled to structure the event to address the impediments to greater success.

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ADDRESS CORRECTION REQUESTED

Today, the Science Forum features demonstrations, instructional sessions, a broader range of project ideas, project guidelines, and closer consultation with staff advisors. Science Forum 2002 is looking like a real winner.

Staff members Jesus Batista, Silvano Brewster, Michael Chin, and Courtney Pinnock are advising this year's Science Forum participants. Please plan to attend Science Forum 2002 and support the hard work of our young researchers. ❖

*Silvano Brewster is a PACE – Monmouth staff member and has been a member of the Science Fair/ Science Forum committees for many years.*

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