

MENTORING/FINANCIAL ASSISTANCE/SUPPORT NETWORKS/K-12 EDUCATION

BWA's 2010 STEM WORKSHOP

Take a test.

1. Do you play this game with young children? "What do you want to become?"
YES NO
2. Do you play this game with young children? "Guess what you can become."
YES NO
3. Have you ever said to children "I was never good at math"?
YES NO
4. Do you agree that BWA should develop recognition awards programs for schools to focus students on STEM?
YES NO
5. Do you make science part of everyday cooking?
YES NO

If you answered YES to all of the above questions except Number 3 you are headed in the right direction when it comes to encouraging children to aspire to achieve and not to fear mathematics and science.

These are typical of the more than 100 suggestions participants in the BWA 2010 STEM Workshop made after a two-hour discussion on how to improve participation and performance of America's students in science, technology, engineering, and mathematics (STEM). This event – the Thirty-Third Annual Workshop – that was held at the Grand Hyatt Hotel in Washington, DC on Friday, September 17 involved approximately 200 adults and 25 middle school students, was chaired by BWA Board Member Anne S. Pruitt-Logan.

Underwritten by GE, the Workshop opened with Deborah Elam, Vice President and Chief Diversity Officer at GE, moderating an incredible panel from the STEM community: Gwendolyn E. Boyd, Engineer and executive Assistant to the Chief of Staff at the Johns Hopkins University Applied Physics Laboratory, Carol Hamilton,

Aeronautical Engineer at NASA, Gary L. Harris , Professor of Electrical Engineer and Director of the Howard University Science and Engineering Facility, Carl P. Mack, Executive Director of the National Society of Black Engineers, Argentina James of The Links, Incorporated Missouri City Chapter. Able assistance was provided by Pamela Jackson Hall, General Manager, Critical Segment in the Respiratory and Sleep Business for GE Healthcare Systems, and Mamie Parker, Assistant Director (retired) U.S. Fish and Wildlife Service.

Moreover, GE sent an unbelievably talented group of 12 facilitators: Pamela Battle, Engineering Executive; Shawanna Brown, Senior Commodity Leader; Barbara Rhoden Bryant, Process Leader, Global Commercial Transformation;; Khrtie Dyson, Commercial Manager; Dianna Dunbar, Six Sigma Black Belt; Camille Edwards, News Vice President for NBCU; Janine Fletcher, Director, Finance and Administration for NBCU; Xchelsia Jennings, Six Sigma Blackbelt; Elizabeth Johnson, Engineering Support Leader; Joaniteka Nixon, Engineering Leader; Tanya Spencer, Director of Ecomagination; and Khalil Thomas, Quality Leadership Program.

Across the corridor, 25 students held their own STEM Rap Session. They came from both the Howard University Middle School of Mathematics and Science and The REALSkills Program of the Coleman A. Young Foundation in Detroit. Both the panel and student sessions were aided by 12 facilitators form GE. BWA Board Member Mattie Beckham led this session.

Following the panel presentation Workshop attendees spread throughout the meeting room, and around 25 round tables, tackled questions such as these posed by Moderator Elam.

1. How do we increase the level of exposure to STEM-related careers to middle and high school students?
2. How do we change the perception young girls have of what an engineer or scientist looks like?
3. What can parents do to set a strong math foundation at home, even before children start school?
4. How can educators strengthen the math foundation in elementary, middle and high school so that students are better prepared for STEM-related curriculums?
5. What can teachers do to encourage elementary and middle school aged students in math and science?
6. How can educators make math and science more fun, creative and appealing to students through high school to maximize student interest on the journey to college?
7. What are ways to encourage creativity and innovation for students throughout their education?
8. What are steps colleges and universities can take to keep students interested in STEM majors, especially in early college years?

9. What are potential strategies for community, government and private partnerships to increase the pipeline of minorities in STEM fields?
10. How do the strategic partners of BWA combine a collective voice and effort in program planning to make a measurable impact?

BWA's interest in encouraging women and girls to study science and mathematics stems from a report - *Land of Plenty: Diversity as America's Competitive Edge in Science, Engineering and Technology* - prepared by BEST* (Building Engineering and Science Talent). BEST, a public-private partnership, reported in 2004** that there is a pressing need in the United States to increase the representation of women and minorities in the science and engineering workforce, and identified best practices, one of which was that lay organizations should play a role. President Obama has launched an "Educate to Innovate" campaign to improve the participation and performance of America's students in science, technology, engineering, and mathematics (STEM).

Despite the fact that we have many great schools, excellent teachers, and successful students in America, there are also troubling signs that, overall, our students should be doing better in math and science. From President Obama's Educate to Innovate program we have learned the following:

- In the [2006 Programme for International Student Assessment \(PISA\) comparison](#), American students ranked 21st out of 30 in science literacy among students from developed countries, and 25th out of 30 in math literacy.
- On the [2009 National Assessment of Educational Progress \(NAEP\) math tests](#), 4th graders showed no signs of progress for the first time in many years, and 8th graders tallied only modest evidence of progress. We are not advancing as we must.

We must encourage our children – especially girls and women - to learn deeply and think critically in science, math, engineering, and technology. Moreover, we must raise America's place from being in the middle of the pack to the very top within the next 10 years.

Those who took part in the Workshop engaged in vigorous discussion, and came out with uncompromising recommendations – such as the ones listed below - that they planned to take back to their communities:

Ensure math trained teachers are actually teaching math.

Develop programs that train teachers to be creative in teaching math.

Retrain teachers so that they help the kids see math in a variety of forms

Connect the learning, have lesson plans that include technology that students currently use- dance, art, card games, chess, iPods

Utilize the media, attractive role models like Hill Harper, Athletes, Billionaire Brains, Female Role models

Computer Animation (NBC Universal, Disney, Paramount, and Sony)

- a. Create math and science games using computer animation and characters
- b. Minority/Young Disney engineers- Classroom discussions about character creations, rides, etc. using math and science inquiry process.
- c. Hands-On Learning for children to create end-product (service learning opportunities)
- d. Field Trips to companies for behind-the scenes visits
- e. Develop film documentaries that make careers real and involve culture and literacy (i.e. African American, minorities, etc.

BWA encourages its 15 collaborating organizations to develop recognition awards – including certificates, pizza parties, books and field trips - for schools that focus students' attentions on STEM. In sponsoring this workshop, GE has stepped forward to get the message out about our nation's critical needs in STEM to all who will listen. Let's all do our part in our homes, schools, churches and community organizations.

In addition to Pruitt-Logan and Beckham, this event could not have been successful without the able involvement of Board Members Mary Clark, Chair, Program Committee; Alexine Jackson, Wendy Winters, Marcella Maxwell, Toyce Newton, Rosalyn Smith, and Faith Blackburne.