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Japheth Wood

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The New York Math Circle specializes in a remarkable approach to teaching math via the use of challenging problems. It is amazing how a complex mathematical understanding can be disguised in a simple context that is very approachable. I am seeing amazing things happening at the New York Math Circle as a result of bringing together eager problem solvers, expert math teachers, and some amazing problem writers. It is an amazing community!
The Circle of Math (Continued from page 1)

As future mathematics teachers, we are always interested in the future of math pedagogy. Can you indicate anything specific in the field of mathematics education that you feel will play a big role in the next generation of math teachers?

I am excited by all the innovation and expertise that I see on math teachers’ blogs and twitter accounts. But, I am also convinced that the basics will never change when it comes to good math education: a strong background in mathematics, a love of teaching, and the perseverance to stay in the profession, despite its many challenges. I noticed that one of your Google+ posts from a few years ago pointed to a proof of the Distributive Law existing on the wall of a train station, namely the Franklin Avenue station on the Brooklyn C line (pictured on page 4). How often do you look at something seemingly random and see the mathematics that exists within it?

I see mathematics everywhere, all the time! When I see something truly amazing, I do try to share it. I posted the photo you mentioned on the MAA (Math Association of America) Found Math gallery, and I have several other photos there (for example, http://www.maa.org/community/columns/maa-found-math/maa-found-math-2012-week-36). Seeing math is a symptom of being a “math person” - and I see this in mathematicians and math teachers, alike.

Will we see any juggling at the conference? (I’m joking, but I can dream, right?)

Juggling is one of my favorite things, along with Origami and puzzles. I am always looking for interesting new mathematical hobbies, although I have less time for them than I used to.

Where’s the Math? In Juggling, Of Course!  By: Zean Khan (T-16)

Siteswap is a form of notation that is used by jugglers in order to represent the patterns of props (such as balls, clubs, rings, torches) as they are manipulated. Dr. Wood knows how to juggle all of the aforementioned props! He also knows the siteswap notation, which can be quite involved.

A typical siteswap for juggling 3 props could be:

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R L R L R L R L
3 3 3 3 3 3 3 3
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The top row indicates the hand, and the bottom row indicates what happens to the prop. The “R” stands for the right hand, and the “L” stands for the left hand. The “3” indicates that the prop will be thrown at a medium height (around eye level) to the other hand. The above notation is for what is known as a “cascade toss” and is typically used for juggling 3 props. Other numbers that are used are 0 (empty hand), 1 (short pass between hands), 2 (holding prop), 4 (throw up and into the same hand), and 5 (high toss between hands).

The siteswap notation was actually invented by a mathematician from California, Paul Klimek. For more information about siteswap and to find the math, visit www.siteswap.org.

Summer Daze: My Week in Washington, D.C.  By: Faviola Guzman (T-16)

My life has been greatly impacted by the National Hispanic Leadership Institute (NHLI), which is based in Washington, D.C. It was established in 1987 to address the underrepresentation of Latinas in the corporate, nonprofit, and political arenas. NHLI’s mission is to develop Latinas as ethical leaders through training, professional development, relationship building, and community activism. One of the programs run by this organization is Latinas Learning to Lead (LLL). This program annually selects 22 fellows who are college-enrolled Latinas between the ages of 18 and 24. These women travel from across the country to Washington, D.C., for a week of leadership training and professional development. Session topics include effective communication and presentation skills, advocacy training, public policy issues affecting the Latino community, financial literacy and career opportunities. This past June, I was honored and privileged to be selected as an LLL fellow.

During my week in Washington, I attended daily workshops and met wonderful people. The workshops were held at the Catholic University of America, where I stayed during the trip. Although the workshops and trainings were fun, three moments stand out: shadowing the human relations director of CentroNia, visiting the Department of State, and visiting the Department of Education. Fellows were paired with professionals in fields in which the fellows were interested. Although being a human relations director is not directly related to being a mathematics teacher, CentroNia is a multicultural learning community with an emphasis on bilingual education. I learned what can be done to help students and their families. The school not only educates children in
Summer Haze: My Light!  

By: Mahrрук Paracha (T-15)

I ran around the two-story, white Georgian house in which I resided with eight other counselors and 40 eighth graders. It was Ramadan, a religious month when Muslims go about their days without consuming food or water from sunrise to sunset. The sun was close to setting and my stomach was growling; it felt as though I hadn’t eaten in days. During Ramadan, I woke at 3 a.m. and began my fast with three students; on Fridays, we would go to the local mosque to open our fast. It was a Friday; the cab driver was waiting as I looked for the students. As I scurried around looking for the last one, another student came up to me with a worried look.

“Mahrрук, Mahrрук, I need to talk to you,” Odalys whispered.

Hesitant whether I should delay the conversation for when I got back from the mosque, I answered, “What’s wrong?”

“I was showering and the light started to flicker. I went to see what it was, and there’s a fire!” Odalys was not one to lie, but I just could not believe the words that were coming out of her mouth.

“What did you say?” I asked, to make sure I comprehended what she was trying to tell me.

“Mahrрук, I was taking a shower and I started to smell smoke, so I got out, and the light, it is on fire.”

Not sure what to expect, I ran up the stairs as fast as I could and into the girls’ bathroom.

Not only did I see fire burning from the light fixture and dripping to the counter tops and the walls, but I pictured the 40 eighth graders who now meant so much to me. I sprinted out of the bathroom, looked Odalys right in the eye and told her that I was counting on her to get everyone who was on the second floor out of the building. As Odalys knocked on all the doors and cleared the second floor, I tried to get as many students out as I could and notified my boss.

As I saw the students running out of the building, some with only one shoe on, some with towels on, and so many crying, I knew that this was where I was meant to be.

This past summer, I spent all of July as a residential counselor and teacher’s assistant at Bard College in Red Hook, New York, for the Summer Program of Mathematical Problem Solving (SPMPS). SPMPS is a three week program for students entering eighth-grade from underserved backgrounds. As posted on artofproblemsolving.org, one goal of the program is to “get students onto a pathway toward careers in mathematics, science, engineering, and computer programming.”

The reason why I initially applied for this position was for that feeling; the feeling I experienced once I knew that all of the students had made it out safely. Maybe in the future it will not be firefighters applauding me for how I handled the situation, but rather just making a student smile. All I wanted was to influence the lives of others in a positive way. The bond that we created during those three weeks still astonishes me. Each and every student at SPMPS became special to me.

In the end, despite the fire and all of the other hardships we faced, I was never prouder than to see all of the students walk down the aisle and accept their diplomas as they graduated from the program.

In the beginning of July, when the program began, the students were distant from each other. They were uncertain about their decisions to spend a part of their summers in a learning program.

Sometimes, they were disrespectful to one another and did not always get along. There was one specific student whom everyone would make fun of and be rude towards. On the last day of the program, there was a talent show. The same child who was picked on daily was now on stage singing about wanting to save kids who were suicidal. Every single student, staff member, and guest stood up to cheer him on. It is moments like this that remind me why I am pursuing a career in education.

I have learned so much from this experience, and I am thankful to have been presented with such an opportunity. When the semester gets rough and my mind begins to question if I am making the right decision about whether or not I want to become a secondary mathematics teacher, my thoughts always return to these 40 eighth graders and how much they mean to me. These students still keep in touch and are anxious to see me again. These seemingly small things remind me of the light at the end of the tunnel; my own classroom in the near distant future with my own students! And so despite the coyotes, black bears, poison ivy, ticks, lack of cell reception and Wi-Fi, the fire, and 40 middle school students running around, if someone were to ask me whether I would redo the experience, I would say “Yes.” A million times, “YES!”

Summer Daze  
(Continued from page 2)

class, but also shows them how to live healthy lives by recommending certain foods to eat and how to act. In order to set a good example for the students, I was told to use the stairs rather than the elevator. Visiting the Department of State was another rewarding experience because we met inspiring women who worked there and we learned about how they achieved their goals. Lastly, we went to the Department of Education. I learned about Common Core Standards and how funding is allocated to schools. A major topic discussed was immigrant children and the programs that enable them to get an education.

This was an amazing trip and a rewarding experience. I met people who have changed lives and thereby inspire me to do great things. Above all, they accepted me into their network of influential people who I now consider family. Just as I have a TIME 2000 family, I am fortunate to now have an LLL family.
Have You Met Professor Dave Miller?  
By: Kathleen Lyons (T-15)

If you have ever taken Discrete Mathematics, Linear Algebra, or Problem Solving at Queens College, you may have had Dave Miller as a professor. If so, you know that Dave is passionate about the subject matter. You remember that he was always willing to help students after class, during office hours, or wherever you might happen to cross paths on campus.

What many people do not know about Dave Miller is that he is not your typical “math person.” To begin, he enjoys reading. As a math major, I believe that reading and writing should only be done when necessary. But, I digress; I started the interview with typical questions: "Is this something you always wanted to do? Did you always want to teach math?"

"No," he blankly stated. I thought to myself, not only was that the wrong answer, but he could have elaborated a bit more. So perhaps he is your typical math person; he gets straight to the point. "So how did you end up teaching mathematics at Queens College?" I asked.

"I was an English major at Queens College, you may have had Dave Miller as a professor. If so, you know that Dave is passionate about the subject matter. You remember that he was always willing to help students after class, during office hours, or wherever you might happen to cross paths on campus."

"Well, if I am not teaching, I am usually tutoring for math courses, SAT's, LSAT's, GMAT's..." My mouth dropped. If I had any trouble before about deciding whether he was your “typical” math person, his response definitely influenced my decision. Dave Miller is NOT your typical math guy. LSAT? Really?

"So if you could be anything besides a math professor, what would you be?"

"A psychologist," he answered. "Or something in the field of baseball statistics and strategies. I like that kind of stuff."

In that moment I realized that everything that I thought I knew about Dave Miller, I did not. He is a math professor who started college as an English major, who would be a psychologist if he the field of baseball analytics, who tutors students for the LSAT exam, who reads in his leisure time, who hated mathematics in high school. The one thing I learned from interviewing Dave Miller is, "Do not judge a book by its cover!" Perhaps, "Do not judge a professor by his subject" is more fitting.

How well do you know Dave Miller? Take this quiz and find out.

Would Dave Rather...?

See a play or see a musical? Crash with friends or stay at a hotel? Travel by train or car? Spend a night out or evening in? Win the lottery or find a perfect job? Watch sports or play sports? Win a free trip or money? Watch TV or read a book? Visit Europe or Mexico?

Accounts on bottom of this page.

Japheth Wood recognized an illustration of the distributive law in this tile pattern, on the left, found on a wall in the Franklin Avenue subway station on the Brooklyn C line.

\[(2 + 8)\times(4 + 11) = 2\times4 + 2\times11 + 8\times4 + 8\times11\]

Answers to quiz on Dave Miller:

Musical; Hotel; Evening in; Win the lottery; Play sports; Money; Read a book; Europe; Mexico; Train; Travel; Visit Europe; Play Sports; Win the Lottery; Travel by Train; Stay at a Hotel; Watch a musical; Crash with Friends; Visit Mexico.