

Closing Ceremony Speech at MathPath 2013
Mr M (Prof Stephen B Maurer), Academic Director
July 27, 2013

Parents and Students,

At the opening ceremony, I told the students what I hoped they would experience at MathPath. They did experience it. Let me review that.

MathPath was the first national camp exclusively about mathematics and exclusively for middle-school aged students. It was founded by George Thomas, after he had already founded a high school age math camp and before he founded Epsilon camp for even younger students.

Now there are competing camps – other national camps exclusively for math that accept middle-school age kids. But MathPath remains unique, not just because it only accepts middle school aged kids, but also because of the variety of mathematics and the amount of fun.

Some of you are very interested in math competitions. That's a good way to get hooked into mathematics, and the competing camps that accept middle school age kids emphasize competition preparation. But professional mathematicians don't do competitions. To be sure, they can get prizes for research, and sometimes for teaching and for writing mathematics, but it's not run the same way. So bringing you into the real world of mathematics must take you beyond competitions.

We do have competition practice here, this year Ms C's MATHCOUNTS courses, Adam's AMC courses and his Team Competition Course, and Prof Pylyavskyy's AIME and Olympiad courses. But MathPath does much more.

We have foundation courses – courses on basic mathematical concepts that aren't much emphasized in the North American school curriculum, such as number theory and induction. We have more advanced special topics courses, such as Dr V's Fabulous [pause – students shouted the rest of the name] Fibonacci Array, courses on 4 different geometries: for 5 bonus points each name the courses [a student from the audience correctly answered 3, another got the 4th] Analytic, Hyperbolic, Elliptic and Projective. We have exciting courses that build mathematical ideas based on recreation, as when Dr B (Prof Jane Butterfield) taught Ramsey Graph

Games. And we have plenaries where you see active mathematicians at work, for instance, John Conway explaining some of his many original ideas and Prof Su explaining the modern work on how many shuffles it takes to randomize a deck.

Add to that our month long courses on history of mathematics and on writing mathematics and you get a very broad view of the mathematical enterprise.

And that is not all. Let me mention the Problems of the Day, run this year by Kip, or was it Philip? These are thinking out of the box problems. They are only sometimes solved by traditional mathematical techniques; they usually need some sort of clever special idea. But many problems in life as well as mathematics need clever special ideas, so practice in looking for them is very valuable – as well as great fun.

So that's an overview of what we *do* in the official academic program of the camp. Before I go on to the unofficial part, I want to say something about the sense of *community* in the academic part. Let me begin with a statement a student made 2 years ago on one of our student surveys. He or she wrote: This is the first time I have felt mediocre.

I want to turn that statement around. While the *density* of math-smart people in the world is low, in *absolute numbers* we are actually quite large. What this MathPather was saying was: before now I noticed only the density and felt special; at MathPath I suddenly saw the absolute numbers.

But this is a good thing. There is a vibrant worldwide community of math people; together we accomplish a lot and there is a place for us all. At MathPath you began to see the collaborative nature of that community. In all my classes there were many students who made good contributions. There were many winners for the Problems of the Day and the various other contests. We are all in this together, and together we should feel proud and accomplished, not mediocre.

So let me go on to the unofficial part of the program. The key aspect is how you students interact with each other. Sometimes you talk math, sometimes you teach each other how to solve Rubik's Cube, often you just kid around. But as someone said in the 2008 EndCamp Survey, this is a camp where it is

ok to be a geeky math kid because there are lots of geeky math kids. As a result, you do all sorts of things that geeky kids like to do.

Among these are all the games and tournaments – chess, Set, other card games, pool, table tennis, but also soccer, Frisbee, racketball, tennis and pickleball. And then there are the great trips – tubing, cycling, indoor rock climbing, the Minnesota Science museum, and yes, for those who want to shop until they drop, the _____ (audience answers Mall of America).

Throughout, you have a great sense of humor. I particularly noted the daily dual between Kip trying to get out important information in a timely fashion and you guys, obsessed with wanting to know every detail in advance, trying to sink him with questions, or irrelevant comments, or tournament announcements, or spirit week announcements, before he said 2 words. He could have said “ $1+1$ is 2” and already 10 hands would go up with questions and objections. Perhaps we need a new contest – the really bad questions to Kip contest.

The point is, through your geeky natures bouncing off each other, you create a unique spirit and have a lot of fun.

You’ve made a lot of new friends, from around the country and the world. And today, with email, instant messaging, cell phones, Skype, and online MathPath forums at Facebook and the Art of Problem Solving, you can easily keep up with these friends until you see them again – at this camp next year, or other camps, at national competitions, at college, or later in life.

So keep thinking back on what happened here. A few years from now, even things that that didn’t seem so important here may stand out in ways you can’t foresee.

I’ve enjoyed being here with you, and I’m proud to have played a role in making it happen. Thank you.