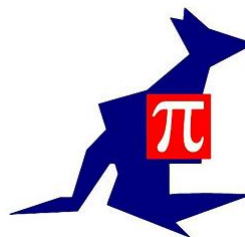


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# Math Kangaroo

# Bulletin



The bulletin of Math Kangaroo in USA, NFP

Volume IV, Issue 2 – Fall 2012 – Special Edition

[www.mathkangaroo.org](http://www.mathkangaroo.org)

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**Welcome to this special edition of the Math Kangaroo Bulletin!**

## Twenty Years of Mathematical Kangaroo



**Gregor Dolinar is a professor of mathematics at the University of Ljubljana, Slovenia. He is the current president of the Association KSF.**

**He is also the secretary of the IMO Advisory Board.**



### What is the Mathematical Kangaroo?

Every year on the third Thursday in March a huge number of students (this year over six million) from all over the world take part in an important international mathematical event, a competition called the Mathematical Kangaroo.

On an international level there are plenty of mathematical competitions, the most prestigious being the International Mathematical Olympiad (IMO), which has the longest tradition among scientific Olympiads (this year the 53rd IMO was held in Argentina with 548 contestants from exactly 100 countries taking part). But the IMO is only for the six best high school students from each participating country, and these students solve six extremely difficult problems on two consecutive days, for four and a half hours each day. The IMO is very important from many points of view: it helps to find talented students in mathematics; it enables many students to develop proper mathematical thinking at an early age; it is a big challenge and motivation for the best; and it opens the doors of the world's most prestigious universities to the best contestants. However, it clearly influences only a small proportion of students.

The Mathematical Kangaroo is a very different competition from the IMO – in many ways they are exact opposites. It is more of a game than an uncompromising competition. In contrast to the IMO, students of all ages (from 7 to 18) take part, in six different age categories, solving 24 or 30 relatively easy multiple-choice questions in 90 minutes. But perhaps the most obvious difference is that the Kangaroo contest is not just for the best mathematically talented students. Instead it aims to attract as many students as possible, with the purpose of showing them that mathematics can be interesting, useful and even fun. Though, sadly, it has generally become accepted that mathematics is difficult, very abstract and not approachable by the vast majority of people, the number of contestants in the Mathematical Kangaroo proves that this need not be the case. With more than six million competitors in 2012, and with a very high proportion of the student population solving the problems (for example, in Slovenia more than three quarters of students aged 7–10), the Kangaroo contest helps to eradicate such prejudice towards mathematics.

## History

At the end of the last century, many countries considered the idea of using mathematical competitions to popularise mathematics among a wide circle of students. In 1991, André Deledicq and Jean Pierre Boudine were inspired by the Australian mathematical competition to start a similar contest in France, which they named the Mathematical Kangaroo. The contest, consisting of mostly easy and attractive multiple-choice problems, was a great success. As a result, in 1993 a meeting was organised in Paris, at which it was proposed to several European countries that they should jointly organise a European Kangaroo contest. The idea was well received and in June 1994, at the European Council in Strasbourg, representatives from 10 European countries established the Association Kangourou Sans Frontières (AKSF). This association, which is responsible for organising the Kangaroo contest, was officially established and registered on 17 January 1995 in Paris, with André Deledicq as its first president.

## Present and future

Every year since 1993, in October or November, representatives from all member countries gather at an annual meeting, at which the problems for the next year are chosen. After the meeting, representatives from each country translate the problems into their own language, adapt the questions (for example, changing the name John to Johann) and then use the selected problems in their own countries. The results of the students from different countries are not compared to each other; this would be against the spirit of the Kangaroo, which is intended to be an individual contest, not the basis for international comparisons. So the problems and rules of the contest are international but the contest in each country is organised independently and each country has its own winners. However, many countries organise joint summer camps for the students (for example, Poland, Germany, Romania) or even some additional joint competitions (for example, Austria, Germany and Switzerland). Countries also cooperate in many other fields, for example, publishing materials or buying prizes for the students or even working together on EU projects.

At the moment the AKSF has 52 member countries and this year at the annual meeting in Cyprus three new members (Ghana, Panama and Peru) will join. Since so many countries from all over the world organise the contest, a lot of freedom is given, though the same mathematical problems are used. More precisely, each country may organise the contest however they wish, provided they follow a few rules set down by the AKSF. For example, countries are allowed to organise the contest later than the third Thursday in March (for example, owing to school holidays) but never before that day. That is the reason why the Kangaroo problems may be published on the internet no earlier than one month after the official date of the contest. Also, owing to the very diverse curricula in different countries, each country is allowed to change some of the chosen problems or use fewer than the original number (for example, 24 problems instead of 30). However, the entry fee is another matter, being entirely within the control of each country.

Even though the contest is organised in such a decentralised way, there are many new challenges ahead for the AKSF, especially with more and more new countries wanting to join. One issue is the security of the problems, an issue which is made more difficult because participating countries come from many different continents with many different time zones but one which is growing in urgency as students become more proficient with modern communications technology.

Nevertheless, the Mathematical Kangaroo has managed to bound over many difficult barriers in the last twenty years and there is no doubt that it will be able, if necessary, to overcome more in the next twenty. In any case, the Kangaroo contest is certain to fulfil its primary role, that of popularising mathematics all over the world, especially among students who may not become mathematicians.

### *52 current members of the Association KSF:*

Armenia, Austria, Belarus, Belgium, Brazil, Bulgaria, Canada, Catalonia-Spain, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cyprus, Czech Republic, Ecuador, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Indonesia, Iran, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Macedonia, Mexico, Moldova, Mongolia, Netherlands, Norway, Pakistan, Paraguay, Poland, Portugal, Puerto Rico, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tunisia, Ukraine, United Kingdom, United States, Venezuela.

### *Current board of the Association KSF:*

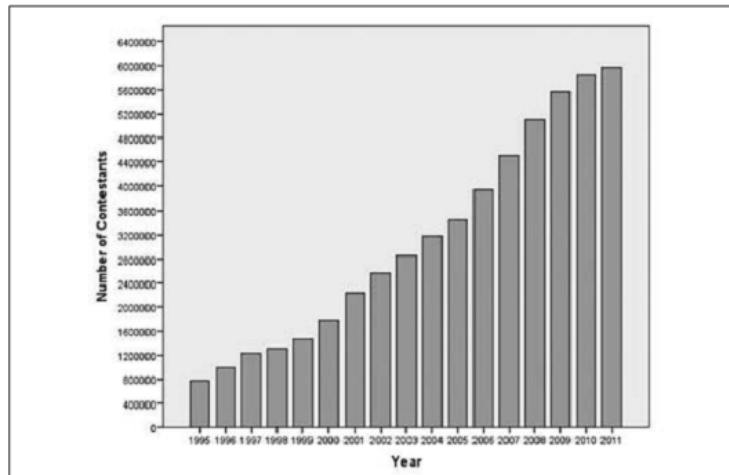
Gregor Dolinar (Slovenia), Gregory Makrides (Cyprus), Andrew Jobbings (United Kingdom), Marta Berini (Catalonia-Spain), Jean-Phillipe Deledicq (France), Robert- Geretschläger (Austria), Monika Noack (Germany).

*Some recent and future annual meetings of the Association KSF:*

Barcelona (2006), Graz (2007), Berlin (2008), Minsk (2009), Tbilisi (2010), Bled (2011), Protaras (2012), UK (2013), Puerto Rico (2014), Sweden (2015).

*Numbers of contestants from 1995 till 2011 (see graph):*

780,443; 991,201; 1,236,298; 1,315,969; 1,465,514; 1,788,280; 2,239,248; 2,565,451; 2,855,989; 3,186,493; 3,449,737; 3,933,935; 4,504,202; 5,106,709; 5,571,560; 5,840,684; 5,967,277.



Some additional information about Mathematical Kangaroo can be found at <http://www.math-ksf.org/index.php>.

First published in [the EMS Newsletter](#), issue 85, September 2012, pp 27-28. Reprinted with permission.



**Maria Omelanczuk, CEO**

We hope you have found the article by Gregor Dolinar both interesting and inspiring.

On the following pages Math Kangaroo 2012 American winners share their memories from summer camps in Milton, MA and Zakopane, Poland.

Enrollment for Math Kangaroo 2013 is in progress and it will end in December. However, some competition centers are already full and registration has ended for them. We are thrilled with the dynamic with which the competition spreads across the states.

Schools are still welcome to join us in order to host the competition for their students and, if they like, for other children and teenagers in the area. Parents are welcome to register their children for participation at any place that does not limit enrollment to its students, as they are listed on our list of [Participating Centers](#).

Enjoy the bulletin and feel free to forward it to families and to educators. Please like us on [Facebook!](#)

Thank you for your support!



**Izabela Szpiech, CFO**

Since September 15th our registration page has been very busy. As of today, there are over 4000 participants enrolled in our competition at 215 centers all over the USA, and these numbers are changing every day. We are so happy to have many new locations, especially in places we weren't able to accommodate all interested students in past years.

Registration for Math Kangaroo 2013 will end on December 15th but hurry up since the centers fill up very quickly, [several of them are already full](#). If you have any registration or log in issue, please feel free to contact me at [izabela@mathkangaroo.org](mailto:izabela@mathkangaroo.org).



## Math Kangaroo 2014 Poster Contest



**Joanna Lasek-Matthiesen, CIO**

It's that time again: **Math Kangaroo Poster Contest**. It is hard to believe but we are looking for design submissions for the 2014 Math Kangaroo Poster promoting our popular international math competition. It is open to everyone – students and adults. Can't wait to see your creativity! Get familiar with this project [2014 Math Kangaroo Poster Contest Rules](#) and check out the works from [previous years](#). The main prize is a \$250 Amazon gift card and a nationwide recognition. Have fun with the project!

## Best Math Kangaroo 2013 Photos Contest

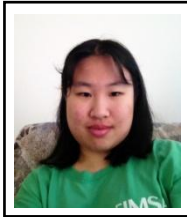


**Grazyna Zmyslowski,  
Math Kangaroo State Director - IL**

"Math Kangaroo" never rests, or rests only a little. With registration in full swing, here comes yet another opportunity for all participants and their supporters: Best Math Kangaroo 2013 Photos Contest.

See [Best Math Kangaroo 2013 Photos Contest Rules](#) how to participate.

## MEMORIES from 12 Days Mathematica - Wolfram Research Camp in Milton, MA



**Megan Chen, IL**

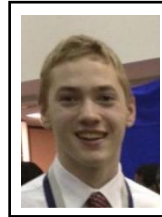
**1<sup>st</sup> place at level 12, and three years in Math Kangaroo. She headed to Carnegie Mellon University this fall, double majoring in computer science and mathematics.**

Camp was far beyond amazing! Each and every one of the 12 days spent there at Curry College was genuinely rewarding and fun, and I sometimes just wish the camp could be open to college students so that I can spend more years at the camp! I really enjoyed the daily Mathematica, chaos theory, and guest speaker lectures, as they truly allowed me to explore the most wondrous insights within the beauty of math. There were many things that I took out of those lectures that I never imagined of learning about before, especially with interesting applications of Mathematica with various scientific areas of study, such as cellular automata.

The weekends and free time periods were very relaxing and fun, too. I particularly enjoyed the Boston Duck Tour and Museum of Science field trip, as there were so many interesting sights to see in the museum and around the city of Boston, that it seems quite hard to imagine how long it would take for me to see everything in entirety if I were to stay there a little longer!

Learning to play around on Mathematica was also an intriguing experience, as I got to see many cool effects one powerful mathematical tool could do. Making my Demonstration took a while, but the while was totally worth it. I made my Demonstration into a Rubik's Cube mathematical analyzer, which allows viewers to compute and look at different mathematical aspects of different sizes of Rubik's Cubes, while observing some cool patterns in the process. My Demonstration even got published on [the Wolfram Demonstrations page!](#)

Overall, the camp was plain awesome in general, and I would totally recommend it to a friend. The TA's were amazing and I made a phenomenal circle of friends (and even more amazingly, I got to meet Stephen Wolfram!) that I hope to keep in touch with for a long time! :D

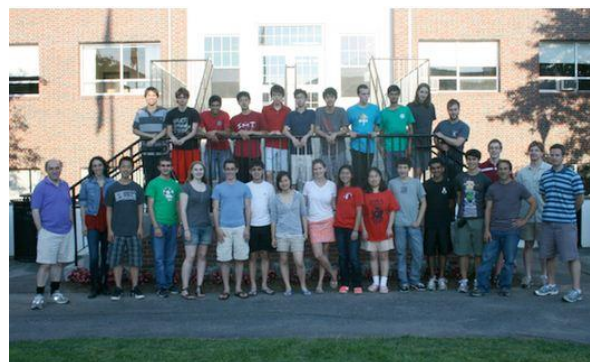


**Konrad Wrobel, IL**

**4<sup>th</sup> place at level 12, and eleven years in Math Kangaroo since the fourth grade. He headed to The University of Illinois at Urbana-Champaign. His major is mathematics and physics.**

Camp was absolutely fantastic and I'm staying in contact with all of the students whom I met.

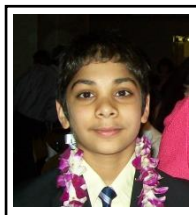
I recently attended Wolfram Mathematica Camp where a group of like-minded students come together for 2 weeks and learn programming in Mathematica. A great byproduct of this was all of the close friends I made and stay in contact with daily. We basically had hours of lectures and project time mostly about Mathematica, but also a lot about chaos theory and several guest speakers on specific topics such as integer sequences and photo editing as well as animation in Mathematica. My personal favorite moment is a hard choice between two. One was talking with [Stephen Wolfram](#) the first time and seeing his viewpoints on topics such as the recent discovery of the Higgs Boson, which actually occurred during camp. The other actually had nothing to do with math, and was the hiking trip that the entire group of us went on together. We exchanged logic puzzles throughout the hike, such as the problem where 100 prisoners are chosen in a non-exclusive random order to enter a room that only contains a switch. How do you figure out when everybody has entered the room for sure? It truly was a great two weeks that I would love to be able to relive and I thank Math Kangaroo for sending me there this year.



**Megan and Konrad among the participants of [Wolfram's Mathematica Camp in Milton, MA](#)**



## MEMORIES from 10-days Math Kangaroo International Math Camp at Zakopane, Poland



**Shyam Narayanan, KS**  
**1<sup>st</sup> place at level 9.**

I was one of the students who attended the Math Kangaroo International Math Camp at Zakopane, Poland this summer for winning the Math Kangaroo National contest in USA. I thoroughly enjoyed everything about the Zakopane math camp. I was enjoying the Zakopane camp myself so much that I didn't even call home even once during the camp☺. The math was interesting, hikes were very exhilarating, and most of all, I really enjoyed meeting new people from different countries and different cultures, speaking different languages. My experience at Zakopane was great and the Math Kangaroo camp was definitely the best math camp I have ever been to (and I have attended several summer camps before).

The biggest reason why this math camp was so great was that I could meet people who were from different countries and spoke different languages. Some of the people at the Zakopane camp could not fluently speak English (though some could), and I could not speak any Polish, Russian, or any of the other languages that were spoken in the camp. Nevertheless, I still became very good friends with several of the campers, whether I could easily communicate with them or not. That demonstrates how interesting this camp was to me as well as others from different nations who spoke different languages.

Making a lot of new friends was not the only reason for enjoying the Zakopane camp. The hikes that we did were a lot of fun as well. Nearly every day we went up on a hike to a mountain or hill. Traveling up the hills and visiting places like the Salt Mines were great. The places we went to were beautiful and fascinating. Learning math was also very fun and interesting. The math was also not only interesting, but also enlightening, and I learned a lot from the lectures. Meeting new people from different national, cultural, and language backgrounds and making friends with them were the most important reasons why I thought the Zakopane camp was wonderful, but the math and the hiking were extremely interesting as well.

To ultimately summarize my feelings about the Zakopane International Math camp, I thought the camp was simply, in a single word, "AWESOME". I wish I could go to this camp again and again.



**Five High School students who were awarded with a 10-days International Math Kangaroo Camp in Zakopane just flew to Poland.**



**Shyam enjoying his ice cream from Gubalowka.**

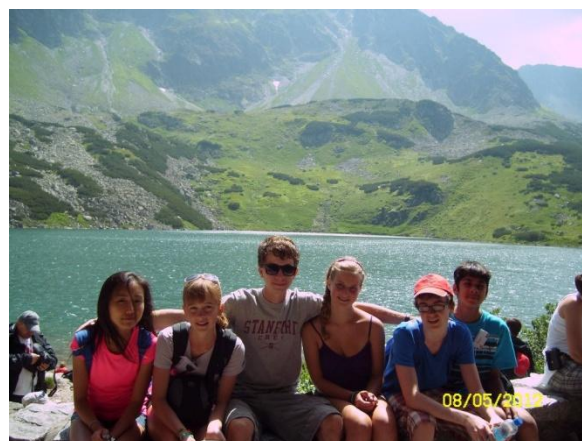


**On top of Nosal Hill, our very first hike in Tatra.**



**Yelena Mandelshtam, CA**  
**2<sup>nd</sup> place at level 9.**

I am really thankful for the opportunity to go to this camp. It was an amazing experience to interact and become friends with like-minded kids from other countries. I don't think I would have had that opportunity anywhere else. I also loved hiking through the mountains and seeing the gorgeous views, and then coming back to math lectures, which were short, but kept me engaged and interested. Zakopane is absolutely beautiful, and the hikes, though strenuous, were very rewarding. The problems of the day, which we received every morning, were difficult and perfect to think about during the hikes. Our days were full of fun and interesting activities, but we still had enough time to meet and play games with the other kids at camp. The whole time that I was at the camp, I felt amazingly lucky to have been chosen to go, and have this wonderful experience.



**In the Valley of Five Polish Ponds.**



**Wen "Wendy" Sun, VA**  
**1<sup>st</sup> place at level 10.**

What an extraordinary experience at the Zakopane Camp! Poland is such a great country and Zakopane is such a beautiful city. Not only had I have the opportunity to enjoy the gorgeous scenery in the countryside and on top of the high mountains, but also I have truly cherished learning math from professors and interacting with mathletes from all over the world. I'm looking forward to climbing the mountains in Zakopane again in the future and I will continue to exert all my effort to overcome the mathematical mountains towering over us.



**Yelena and Wen on top of Gubałówka, walking to Butorowy Wierch.**



**Group of Math Kangaroo 2012 Winners Remembers Zakopane.**



**In the high Tatras. On the right Yelena Mandelshtam, Wen "Wendy" Sun, Kasper Kubica, Shyam Narayanan, and Taylor Herr.**





**Magdalena Teodorowicz,  
Office Manager**

**Next Math Kangaroo Day: Thursday, March 21, 2013  
(Guam: Friday, March 22)**

Registration takes place on [www.mathkangaroo.org](http://www.mathkangaroo.org) from **September 10 to December 15, 2012** – subject to place availability.

**Schools are welcome** to join us until **December 1**. If interested, send e-mail to [info@mathkangaroo.org](mailto:info@mathkangaroo.org)

Plenty of free practice material can be found in [Tests & More](#) section on our web page.

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