AKSF NEWSLETTER

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Association Kangourou Sans Frontières











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Hello and welcome to our 16th edition of Kangourou sans Frontieres Newsletter.



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As another wonderful Kangaroo season comes to a close in many countries, I want to take a moment to celebrate the incredible energy, creativity, and dedication that made this 34th edition of Kangaroo such a success around the world. From excited students solving challenging problems to passionate educators organizing competitions and inspiring young minds — THANK YOU for making the Kangaroo spirit shine brighter than ever.

This newsletter is filled with valuable information, inspiring stories, creative ideas, and exciting updates shared by our AKSF community. I am deeply grateful to all members who contributed articles, reflections, and mathematical insights. Every contribution helps strengthen the international friendship, collaboration, and joy of mathematics that make Kangaroo so special.

It is exciting to see how the creativity of Kangaroo problems continues to attract worldwide attention. At the time of this newsletter, we are celebrating a historic milestone — 120 countries are now involved in AKSF: 90 full members, 25 provisional members, and 5 applicant countries. What an incredible achievement for our global Kangaroo family!

Summer is almost here — and after another busy Kangaroo season, we all deserve a little rest, sunshine, and celebration! At the same time, I would like to gently remind all AKSF members about our important summer responsibilities. Here are the easy-to-remember dates:

- Register for the 2026 AKSF Annual Meeting (June 1 – July 31)
- Submit the Annual Report (June 1 – August 31)
- Propose Math Kangaroo 2027 questions (June 1 – August 31)

To register for the meeting, submit reports, or propose questions, please use our internal website: https://support.aksf.org/
I always look forward to hearing your feedback and especially encourage new members to share ideas or propose topics for future AKSF newsletters. The strength of Kangaroo comes from the voices, creativity, enthusiasm, and friendship of our global community.
Wishing you all a joyful, restful, and inspiring summer filled with mathematics, friendship, and new adventures!

Warm regards,
Joanna Matthiesen
Editor-in-Chief

News from the President



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Kangaroo 2026: Reflections and What's Ahead

As the Kangaroo Competition 2026 draws to a close for most members — with a few still completing their events — we hope this has been a successful and inspiring year for all involved. The Annual Report, opening in early June, will offer a broader view of our shared experiences. Please remember that completing the report is part of our membership duties.
This article highlights the following three topics:

- The Spring Board Meeting in Berlin
- The developments of receiving the charitable grant
- Further actions in Africa

Spring Board Meeting in Berlin

The Spring Board Meeting was held in Berlin, and it was a very productive one. The choice of location was excellent, as it helped reduce overall travel distances for Board members, improving cost efficiency while reflecting our ongoing commitment to more sustainable practices. It was also inspired by the kind invitation from the German Kangaroo team. We also had the opportunity to visit the German Kangaroo headquarters and warehouse, as well as meet some members of the German Kangaroo team.
Thank you, Alex, for organizing this!



In addition to the regular agenda, the Board focused on several key issues:

- **Annual meeting in Canada**
- **AKSF4FD applications for attending the Annual Meeting or Maths Camps**
- **International Kangaroo Open – quo vadis?**
- **The findings of the No – Cheating - Committee**
- **Developments: Charitable grant**

In the previous newsletter I wrote the following: "At the moment, we are working on two main fronts: strengthening and professionalizing our IT infrastructure, and determining how to receive the generous donation—along with navigating the financial and legal requirements that come with it. We will share more details as soon as we have clearer information."

In the meantime a lot has happened so here an update. Together with Cristina Diaz from the Board, Matjaž Željko from the Slovenian Kangaroo team and Eljakim Schrijvers from the Bebras community, we are still working on professionalising our IT infrastructure and we are making progress. We will report in detail at the Annual Meeting.

Following a due diligence process covering documentation, financials, and the proposed operating model, XTX Markets awarded AKSF a charitable grant. We were informed by the donor that the total could reach up to EUR 1.9 million over three years, provided that certain conditions are met and that the funds are managed with a high level of diligence. The funding will therefore be released gradually over this period. At the appropriate time, we will inform all AKSF members that it will be possible to submit projects for grant approval, with funding allocated based on the amount granted by XTX. The main objective of these projects must be to support the growth and increase the impact of the Kangaroo Contest in each participating country.

Projects will need to be submitted for approval by each country's representatives within the AKSF and will be evaluated by committees specifically established for this purpose. We will review projects carefully and rely on the existing structure to ensure successful implementation over the next three years.

AKSF is structured as a not-for-profit association registered in France, benefiting from certain tax exemptions and privileges. In line with legal guidance and in agreement with the donor, it was necessary to establish a new structure in the United Kingdom. Working together with XTX Markets and the legal advisers appointed by AKSF's Board, the agreed solution was to incorporate a company limited by guarantee in the UK with exclusively charitable objectives. This led to the establishment of the **Kangaroo Maths Trust** (KMT).

The Trust consists of a Board of Trustees which were carefully chosen. Right now there are two AKSF-dependent Trustees: David Crawford and me (both members of the AKSF Board) and three independent Trustees: Ava Yeo, Michael Studer and Yichan Yue (who we will introduce to you at the Annual Meeting). This choice of Trustees tries to ensure that AKSF and KMT are independent of each other.



Below the agreed and published mission of KMT (from the Articles of Association)
The Charity's object is the advancement of education, research and learning for the public benefit, including, without limitation, by:

- promoting interest, engagement and achievement in mathematics, logical reasoning and related disciplines;
- encouraging participation in mathematical activities, competitions, problem-solving initiatives and educational events and programmes at local, national and international levels;
- supporting, funding, collaborating with and promoting the work of the Association Kangourou Sans Frontières in the oversight and development of mathematical competitions, educational events and learning initiatives for the benefit of children and young people generally;
- supporting and funding the work of local, regional and international educational and mathematical organisations in delivering programmes, resources and events for the benefit of children and young people generally; and
- carrying out, commissioning and disseminating research into the development, evaluation, and application of approaches, methodologies, and tools in mathematics education.

KMT will achieve its objectives by supporting the activities of the Association Kangourou Sans Frontières (AKSF) dedicated to promoting and disseminating basic mathematical culture worldwide. KMT will provide support for AKSF to expand their activities and achieve wider reach and greater impact.

Further actions in Africa

As many of you know, together with cuttle.org we are able to help African countries set up the Kangaroo competition and run it either on-line or on paper (and then scan and grade it). This latter procedure often causes problems as paper and a printer are sometimes non-trivial problems. Cuttle received a small donation this year from Jane Street, with which we are able to organise five printers (and paper) for some members in Africa. This will help them run the competition in areas with unstable internet connection or unreliable electricity.

A further action came from the IT support in my department (ETH Zurich). Whilst re-newing a set of desktop computers, the question arose what to do with them.



As these computers are still of high quality the idea arose to donate them to support Kangaroo in Africa. We managed to transport a classroom set of computers to Uganda where they are now used to give children the opportunity to participate in Kangaroo.

We look forward to continued collaboration and engagement in the months ahead. Thank you for your ongoing dedication to the Kangaroo community.
Yours,





Meike
AKSF President

Creating Good Questions: Reflections from the 2026 AKSF Workshop



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The 2026 AKSF Workshop was held virtually on May 2, 2026, with more than 56 participants. The seminar theme was *"Creating Good Questions."*
Three talks were presented during the workshop.
The first talk was delivered by Mike Clapper from Australia and was titled *"What Makes a Good Competition Question and How Can I Go About Constructing One?"*
Mike divided his presentation into three parts. In the first part, he discussed the characteristics of a good mathematical problem. In the second, he presented a collection of problems that he particularly likes and believes strongly exemplify these characteristics. These carefully selected problems covered a wide range of mathematical areas and skills, including geometry, algebra, visualization, and more. In the final part of his talk, Mike shared suggestions, based on his personal experience, for writing effective competition problems.
The second presentation, *"From Teachers to Creators: Building a Sustainable Math Kangaroo Problem Ecosystem,"* was given by Heather Duan from the Kangaroo China group. Heather explained the model used by the Kangaroo China Math project to involve mathematics teachers in the creation of problems for Kangaroo competition papers. This professional development model, centered on problem-posing strategies and strong recognition for participating teachers, has produced outstanding results.

The talk highlighted the achievements of the Kangaroo China team in contributing teacher-created problems to international Kangaroo papers. It also discussed the key components of the project and presented practical strategies that could be implemented by other educational groups.
The third talk, *"Creating Nice Kangaroo Problems for Younger Categories,"* was presented by Agnieszka Krause and Lucja Mentzen from the Poland group. The presenters focused on important ideas related to creating problems for younger students. Agnieszka gave an insightful analysis of problems that are not suitable for the Math Kangaroo Competition and explained the reasons why, contrasting them with examples of effective and appropriate problems. Lucja focused on strategies for constructing problems based on concrete, everyday situations. She demonstrated several examples of how ordinary experiences can inspire engaging mathematical problems.
We are very grateful to all the speakers for preparing such thoughtful presentations, featuring carefully selected problems and clear ideas about how to construct strong mathematical questions—especially for the world's largest international mathematics competition.

Luis Caceres

Summary: International Kangaroo Open – Pilot Report



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Background and motivation Around the beginning of October 2025, the idea (suggested to us by professor *Hiraku Nakajima*, president of the IMU) emerged to organise a free online mathematics competition alongside the official Kangaroo competition, accessible to everyone. The primary goal was to reach a wider audience — such as parents and teachers of participating pupils — and to further strengthen the Kangaroo brand globally. The competition was envisioned as a low-barrier entry point into mathematical enrichment. During a meeting in Istanbul, a working group was established to develop the format further.

Format and structure After discussions within the working group, it was decided to start with a limited number of pilot countries in order to keep the scale manageable. The competition was named the *International Kangaroo Open* and hosted at https://open.aksf.org/. Two difficulty levels were offered: a more accessible version (*Kangaroo*) and a more challenging version (*Kangaroo PRO*), each consisting of 24 questions of increasing difficulty. The questions were drawn from past Kangaroo archives and made available in the languages of the participating countries. The competition was free of charge, privacy-friendly (only a name and country were required), and open to everyone — multiple attempts were allowed. Participants could see their score immediately after completing the contest, and after the one-month competition period, they could also view their relative score compared to other participants, both nationally and internationally. The competition officially opened on the 19th of March.

Results The pilot was a considerable success in terms of participation. In total, more than **14,000 participants** from over 50 countries took part: approximately 9,800 in the standard version and more than 4,200 in the PRO version.

The countries with the highest participation were Poland (4,236), the Netherlands (2,386), Austria (2,099), the United States (1,294), and Slovenia (1,283).

In terms of scores, **3.75% of participants** achieved a perfect score of 120 points, while **50% of participants** scored at least 80 points, meaning they answered roughly two-thirds of the questions correctly.

Feedback and areas for improvement Participant reactions were generally (very) positive. Based on the feedback received, several areas for improvement were identified for future editions, including: simplifying the score calculation, providing clearer instructions on the website, and more explicitly communicating that participants need to keep their personal code safe in order to view their relative score at a later stage.

Conclusion The pilot is considered a great success overall. The plan for the following year is to promote the competition through a greater number of participating countries, while ensuring that the scale remains manageable for the organisation.

Please send me your feedback and ideas for improvement if your country participated. I would love to hear your perspective, experiences, and any thoughts you would like to share.

Vriendelijke groet,
Martin Winkel

Working further with Kangaroo problems

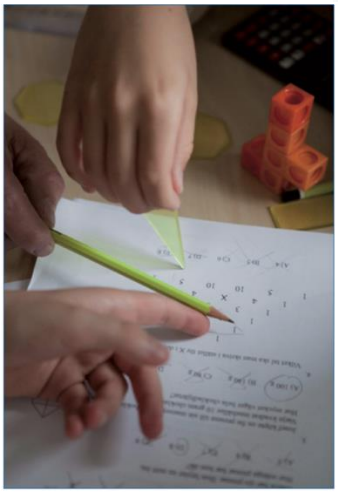


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In many countries, the Kangaroo competition is primarily seen as a one-day event: students solve a set of engaging multiple-choice problems, results are compiled, and the experience ends there. In Sweden, however, we have deliberately developed a different approach. The competition is only the starting point.

A central idea in the Swedish work with the Kangaroo is what we call *"working further"* ("arbeta vidare"). Inspired by classroom practices, teachers use the competition problems as a resource for continued mathematical activity. Instead of treating the problems as finished once answers are submitted, they are brought back into the classroom as objects for discussion, exploration, and deeper learning.

In this approach, students typically work in small groups, comparing strategies and explaining their reasoning to one another. The teacher's role shifts from evaluator to facilitator, circulating in the classroom and supporting mathematical conversations. Importantly, students are often encouraged to engage with ideas that have not yet been formally introduced.



The problems themselves create a need for new concepts, allowing motivation and understanding to emerge naturally from the activity.

This "working further" phase is not an add-on but a substantial part of the Swedish Kangaroo tradition. For many teachers, the real mathematical value lies here rather than in the competition itself. The original multiple-choice format is transformed into open-ended tasks: students justify answers, find alternative solutions, generalize results, and even pose new questions. In this way, the problems become rich teaching material aligned with inquiry-based and discussion-oriented mathematics education.

To support this work, Sweden has built a comprehensive and openly accessible resource. All Kangaroo problems used over the years have been collected and published on a dedicated website maintained by NCM (National center for mathematics education). Today, this archive contains nearly 4,000 problems across different age levels. Teachers can freely browse, select, and integrate these tasks into their regular teaching, independent of the competition date. This long-term accumulation of problems represents a unique and powerful resource for classroom practice.

Ulrica Dahlberg

In addition to the digital collection, we have also developed three books in which Kangaroo problems are systematically categorized. Rather than being organized by year, the problems are grouped by mathematical content and ideas, making them easier to use for teaching specific topics. These books further support teachers in identifying suitable problems and designing coherent sequences of lessons based on rich tasks.





Together, these efforts reflect a broader educational perspective: competitions can serve as catalysts for learning, but their true value depends on how the material is used afterward. The emphasis on "working further" highlights the importance of discussion, reasoning, and exploration—core aspects of mathematical proficiency.

Seen in this light, the competition itself is only a small part of a much larger endeavor. The real impact lies in how the problems continue to live in classrooms, fostering curiosity, collaboration, and deeper mathematical understanding.

As mentioned in a email in March, you are all warmly invited to contribute materials related to this year's Kangaroo problems. We would very much like this work to become more widely shared internationally, rather than remaining primarily a local practice in Sweden.

Ulrica Dahlberg

The Kangaroo Math Problems, Not Just Solving The Problem, But A Position To Experience Mathematics Of Other Kind



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Preface

We all know that Kangaroo Math is essentially a problem-solving event, not a competition. Therefore, we carefully and meticulously select each year the problems at the general meeting. But these problems are not used by teachers only on a specific day and time, and in previous issues of this magazine, we have read how in some countries, after the competition, these problems are used to teach mathematics and problem-solving. But I believe that because of the nature of Kangaroo problems and the thought that goes into designing and selecting each problem for all age groups, these problems can have a function beyond teaching problem-solving: **they are mathematics themselves**.

By solving these problems, students learn to do maths and to think mathematically. The experiences of elementary school teachers in Iran demonstrate this. In the remainder of this article, you will read two narratives from two teachers, the first of whom is a second grade elementary school teacher and the second of whom wrote about her experience with students in the third, fourth, and fifth grades of elementary school.

Reviewing such experiences will help us, as representatives of our country in AKSF, to always remember that we have a heavy responsibility on our shoulders.

Narrative 1

Written by: Niloofar Fooladvand

I am a teacher who has always been concerned that mathematics will not only be in the textbook and become a sweet, challenging and living experience for children. One of my warranted experiences was related to avery hyperactive student. He solved the exercises of the textbook in less than thirty seconds, and then created for the rest of the harassment and not allowed their classmates to find the opportunity to think. First, this was a great challenge: How can I respond to the needs of this student, and keep the class restriction? I found the solution in Kangaroo's questions. This time, instead of repetitive exercises, I asked him problems that were not quickly solved and not just a simple answer. It was not even important to always answer correctly; It was important to be forced to think, try different paths and drowned for a while.

The result was amazing! He was so involved in resolving problems that were not only disturbing others, but he came to me with his enthusiasm and said: "Mrs! Give me more kangaroo problems." Sometimes it could succeed in the right answer, and the power of

joy shone in his eyes, and sometimes it was tired and abandoned the problem for recreation. But in any case, his energy was directed to the constructive path.
This experience taught me that sometimes we find the right tool; A problem that, instead of getting a quick response, opens the thinking path. Kangaroo's problems for me were a tool for training curious mind and class management.

Narrative 2

Written by: Sima Rabbi

This is the story of a journey in which the rigid walls of routine math classes collapsed, allowing students to experience an entirely new world of thinking. It all began with a single idea: fostering and strengthening problem-solving skills in the elementary grades with problems aligned with Kangaroo Mathematics.

Background and Motivation (Teacher's Voice)
Throughout 22 years of experience teaching mathematics and geometry in Iranian middle and high schools, I have always been committed to helping students develop essential skills such as problem solving, reasoning, visualization, expressing ideas, and defending their conclusions. In the previous academic year (2024), I decided to focus on strengthening these foundational skills at the elementary level—not as a full-time classroom teacher, but as a problem-solving instructor. I shared the idea with the school principal, who welcomed it enthusiastically. According to the plan, one dedicated problem-solving session per week was scheduled for students in grades three, four, and five.

Alignment with the Curriculum
At the Fatemi Cultural Institute, the official representative of *Kangaroo sans Frontières* in Iran, a series of books has been developed based on problems from previous years' Kangaroo contests. These books follow the national curriculum grade by grade, presenting problems aligned with each topic so that students can solve them independently. For consistency with the school curriculum, this series of books was selected as the core resource for the problem-solving classes.

Transforming the Classroom and Teaching Approach
An open classroom environment that encouraged students to express their ideas and beliefs allowed them to witness a new dimension of mathematics instruction rarely experienced in routine math lessons.
Students were encouraged to solve problems through multiple approaches. Their solution paths were written on the board under their own names, and the responsibility of evaluating the most effective strategy rested with them. Removing grades and points fostered excitement, confidence, and intrinsic motivation.
Creating conditions in which a problem takes the form of a game and placing students in the imagined situation in a realistic way strengthened their ability to visualize and ultimately led to successful problem solving. You can see examples in the box bellow:

Example 1: Time and Real-Life Scenarios (Grade 3)
The math workshop starts every day at 5:00 p.m. Today, he arrived fifteen minutes late. What time did he get to the workshop?
A) 5:00 p.m. B) 5:10 p.m. C) 5:15 p.m.
D) 5:20 p.m. E) 4:45 p.m.

Example 2: Real-Life Scenarios (Grade 3)
Thirteen children are playing hide-and-seek. One of them is the seeker, and so far he has found 9 of the children. How many children has he not found yet?
A) 3 B) 4 C) 5 D) 9 E) 22
In solving this problem, upon seeing the numbers given in the problem statement, students suggested using subtraction. To help them discover the correct line of reasoning on their own, they took on the roles of the characters in the scenario. Very quickly, they realized that they had mistakenly placed the seeker among the group of children who were still missing!

Example 3 :The Time Problem (Grade 4 and 5)
The sport class starts at 11:50 and lasts for 30 minutes. Esmaeil was late and arrived exactly in the middle of the class. What time did he arrive?
A) 11:30 B) 12:00 C) 12:10
D) 12:20 E) 12:30

In most problems that could be enacted in the classroom allowing the teacher and students to immerse themselves in the actual context of the scenario the problem-solving process reached a successful conclusion. By organizing a real-life model of the problem situation, students gained a clearer understanding of the given information and the question being asked. In the process of solving the following problem, students took turns playing the role of Esmaeil. Each time, the class start time and duration were changed. Then, for example, the teacher would ask: *'Sara, why are you late? Half of the class has already passed! Do you know what time it is now?*

Students were consistently encouraged to defend their answers with reasoning until they were convinced that their answer was incorrect. Since students with diverse abilities were present in the classes, there was no strict time constraint for answering difficult problems. Students themselves discovered the different paths to finding the correct answer. In the problem below, they decided to first find the incorrect options:

Example 4:The Pet Problem (Grade 4 and 5)
Mitra, Mina, Parisa, and Ziba each have one of the animals: cat, dog, fish, and bird. Mina's animal has hair, Ziba's animal has four legs, Parisa has a bird, and Mitra and Mina do not like cats. Which statement is NOT correct?
A) Ziba has a dog B) Parisa has a bird C) Mitra has a fish
D) Ziba has a cat E) Mina has a dog.

The absence of a specific algorithm for solving problems and the possibility of freedom of action created a different atmosphere in the class. Discussion and interaction with friends were a unique and unparalleled opportunity they were experiencing. In their own words, they never thought they would learn math in such an environment! Almost all students participated happily and with satisfaction in the class discussions.

During the process of solving the following problem, most students initially suggested, without any hesitation, that they should simply divide the total sum by three. Students who disagreed with this spontaneous proposal were asked to provide their reasoning.
The key arguments presented by the students were:
Student 1: "If they were triplets, we would divide." (Critiquing the assumption of equal ages)
Student 2: "I wish they were the same age! Let's do something to make them the same age!" (Proposing the strategy of simplifying the problem model)
Student 3 (Key Insight): "First, we should subtract the difference in age of the sisters from their total age so that all three become the same age. Then we can find the age of the twins and, after that, Armita's age."

Example 5: The Sisters' Age Problem (Grade 4 and 5)
Armita is seven years older than her two twin sisters. If the sum of the ages of all three sisters is 22 years, what is Armita's age?
A) 12 B) 18 D) 16
D) 20 E) 14

Given that the students did not have the books, selecting problems that involved figures was challenging. Nevertheless, every effort was made to help students observe how figures could be used to find the solution.
In the following problem students were told they were free to choose the unit of measure for their drawing, depending on the space available on their worksheet.

Example 6:The Fractions Problem (Grade 4 and 5)
Behnood was going from home to school. When he had walked a quarter of the way to school, he realised he had forgotten a book so returned home to get it. What fraction of the distance from home to school has Behnood walked?
A) $\frac{3}{4}$ B) $1\frac{1}{4}$ C) $1\frac{3}{4}$
D) $1\frac{4}{4}$ E) $1\frac{1}{2}$

Providing the opportunity to express their opinions, articulate their arguments, and simultaneously hear supporting and opposing viewpoints, created invaluable learning experiences that were fully evident in the students' faces and voices. This project led not only to the strengthening of mathematical skills but also to the development of vital abilities such as critical thinking, defending arguments with evidence, and teamwork. This experience demonstrated that with a little creativity and freedom of action, the math classroom can be transformed into a vibrant and highly satisfying environment. The teachers stated at the end of the academic year (2024-2025) that there was not only a major growth in students' problem-solving abilities, but also significant growth in self-confidende and interest in formal math lessons and motivation for talking and telling new ideas –which was clearly visible in their formal, regular classes.

Sepideh Chamanara

Kangaroo AI Partner:
Architecture for Math Problem Design



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Partnering with an AI model to generate Math Kangaroo-style problems presents a unique challenge. Unlike standard exercises, Kangaroo problems prioritize narrative logic, visual reasoning, and satisfying "aha!" moments over rote calculation.
A Math Kangaroo problem generator must disguise that abstract logic within an engaging narrative (like "Three kangaroos are jumping on a number line...") and pair it with spatial puzzles.

To achieve this, the prompt architecture must be easily adaptable to Math Kangaroo-style problems. This framework relies on dynamic parameters—Level, Topic, and Difficulty/Points—that can be adjusted to target specific age groups and skill sets. Additionally, we provide two distinct visualization pathways to support problem comprehension: generating a static visual aid or creating a hands-on interactive simulator. The template below provides more details:

Part A: Problem Generation

Role: Act as an expert mathematics educator and competition puzzle designer.
Task: Generate an original, previously unpublished, and story-driven multiple-choice Math Kangaroo-style problem based on the following parameters:

- **Level:** [e.g., Pre-Ecolier, Ecolier, Benjamin, Cadet, Junior, Student]
- **Topic:** [e.g., Combinatorics, Geometry, Algebra, Number Theory, Puzzle]
- **Difficulty/Points:** [e.g., 3, 4, 5 Points]

Constraints:

- **No Jargon:** Do not explicitly name the mathematical concepts (e.g., "combinatorics," "permutations") in the story or the question.
- **Age-Appropriate:** Tailor the math logic, reading level, and vocabulary perfectly to the requested grade level.
- **Engaging Theme:** Wrap the mathematical challenge inside a fun, relatable, or adventurous narrative (e.g., video games, space exploration, solving a mystery, animals).
- **Plausible Distractors:** Generate wrong answers (A-E) based on common, logical student errors (e.g., off-by-one errors) rather than random numbers.

Output Format Requirements: Please format your response exactly as follows:

- **The Story/Scenario:** (1-2 short, engaging paragraphs setting up the logic)
- **The Question:** (A clear, concise concluding question)
- **Options:** A) [Option 1] B) [Option 2] C) [Option 3] D) [Option 4] E) [Option 5]
- **Answer & Explanation:** (Reveal the correct answer. Briefly explain the hidden mathematical algorithm and the logical steps to solve it in simple terms.)

Part B: The Visualizer

Once the AI generates a problem you like, you can use these follow-up prompts to trigger the "Artist" module.

Option 1: For Static Image Generation

Task: Act as a children's book illustrator. Generate a visual aid for the math problem above. The image should be fun, intuitive, and help the student visualize the problem's core logic without giving away the answer.

Option 2: For Interactive Simulator Generation

Task: Act as an interactive web developer. Generate an interactive simulator based on the math problem above. The simulator should be fun and allow the student to manually drag, click, or experiment with the objects in the story to test the logic. Do not include the final answer in the simulator itself.

To provide a clearer understanding of how the AI partner operates, we will examine two examples.
Example 1: Static Visualizer
Based on the provided prompt, we have asked the model to design a Benjamin-level Geometry problem with a 4-point difficulty rating, and include a funny, motivating image (Option 1).
Here is the original Geometry problem and visual aid tailored for the Benjamin level that the model has designed:

Problem:

Leo is helping his mom build a special square patio in their garden for their pet turtle, Shelly. He uses identical small square tiles that are exactly 1 unit long on each side.

To start, Leo builds a central pattern made of 6 blue tiles arranged in a solid rectangle that is 2 tiles wide and 3 tiles long.
Now, he wants to put a single layer of gray tiles all around this blue rectangle to make a border that is exactly 1 tile wide, filling in all corners.

The Question
How many gray tiles does Leo need to build this complete 1-tile-wide border?

Options: A) 10, B) 12, C) 14, D) 16, E) 18
Answer & Explanation: Correct Answer: C) 14



For more details and explanation of the solution look the model response at:
https://gemini.google.com/share/78fd23602e9f

Example 2: Interactive Simulator

To demonstrate the interactive simulator, we applied the prompt template to generate a 4-point Junior-level combinatorics problem, selecting Option 2 for the simulator output. For further details, please refer to the model's response at:
https://www.eduarena.ai/chat/1c7100b4-e05a-42b7-a5a2-ec44719cbf0b.
We have provided two side-by-side outputs, feel free to interact with them and explore!

Maths Kangaroo Problems for All!

Developing a Math Kangaroo problem generator through an AI partnership creates a dynamic AI Playground, providing educators and students with hands-on resources that foster mathematical mindsets.
Crucially, this framework is built on the principle that AI should amplify human creativity, not replace it. By treating the AI as a true cognitive partner, educators can critically evaluate outputs and engage in an iterative, collaborative dialogue to refine and perfect each puzzle. Ultimately, Maths Kangaroo is for everyone—an invitation to embrace the challenge and share in the universal joy of problem-solving and those sudden "aha!" moments!

References

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Prof. Dr. Yahya Tabesh

Bringing the Kangaroo Mathematics Competition to Bolivia: The Commitment of the Olimpiada Matemática Boliviana (OMB)



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The *Olimpiada Matemática Boliviana (OMB)* is a non-profit organization with over thirty years of experience promoting mathematical education and competitions throughout Bolivia. Its members include university professors, school teachers, and former Olympiad students who represented Bolivia in international contests. This broad academic community ensures both institutional continuity and national reach.

In practice, OMB members have organized the *Kangaroo Mathematics Competition* in Bolivia for the past two years, under the umbrella of another institution. Building on this successful experience, OMB now seeks to assume official responsibility for coordinating the competition nationally, ensuring its long-term sustainability and academic integrity. The official representative of OMB before the *Association Kangourou Sans Frontières (AKSF)* is **Sonia Cordero**, who leads this initiative together with **Jimmy Santamaria**, Academic Coordinator of the OMB. They jointly coordinate a dedicated team of collaborators located in different regions of Bolivia, combining academic expertise, organizational experience, and a shared commitment to expanding access to mathematics nationwide.

For the past decade, OMB has organized Bolivia's national mathematical competitions within the framework of the *Olimpiada Científica Estudiantil Plurinacional Boliviana (OCEPB)*, reaching more than one hundred thousand students every year. OMB is also responsible for selecting and training the national teams that represent Bolivia in major international competitions such as the *International Mathematical Olympiad (IMO)*, the *Iberoamerican Mathematical Olympiad (OIM)*, the *Olimpiada Matemática del Cono Sur*, the *Asian Pacific Mathematical Olympiad (APMO)*, the *Pan-American Girls' Mathematical Olympiad (PAGMO)*, and the *Olimpiada Rioplatense de Matemática*.

To ensure nationwide participation, OMB will coordinate with regional university networks and local teacher communities that already collaborate in Olympiad activities across the country. As an innovation, OMB plans to expand the use of digital platforms and interactive resources to make the Kangaroo experience more accessible, engaging, and pedagogically enriching for students from all regions of Bolivia. Starting in **2026**, OMB will also publish written support materials at an affordable cost, aimed at helping teachers and students strengthen their mathematical reasoning through Kangaroo-style problems.

Sonia Cordero Cardenas

Kangourou 2026 in Greece: A New Chapter of Participation, Reach and Mathematical Joy

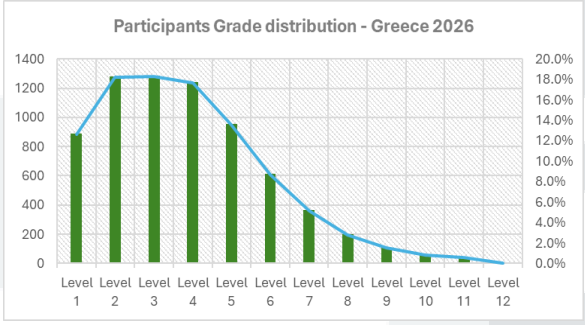


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The 2026 edition of the International Mathematical Kangaroo Competition in Greece marked an important new chapter for the national organization of the contest. With ED-HUB assuming responsibility for the coordination of Kangourou in Greece, the 2026 competition combined continuity with renewal through respect for the long-standing tradition of the contest in the country, together with a strengthened organizational framework, clearer procedures, and a renewed focus on accessibility, participation and educational value.

The Greek case in 2026 was especially encouraging in terms of scale and geographical spread. A total of **7,035 students** participated across **12 competition levels**, corresponding to all grades from Grade 1 of primary school to the final grade of upper secondary education.

The largest participation was recorded in the primary school levels, especially Levels 2, 3 and 4, which together represented more than half of all participants. Overall, Levels 1-6 accounted for approximately **89%** of all students, confirming the strong appeal of Kangourou among younger learners and primary schools.



Graph 1. Greece 2026 participant distribution per level.



Graph 2. Greece 2026 examination centers geographical distribution.

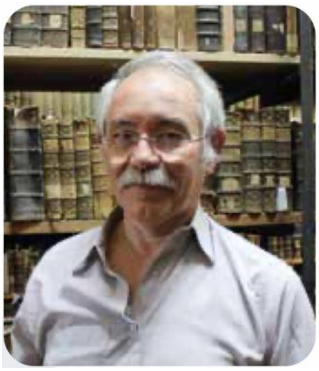
At the same time, the 2026 competition reached a wide and diverse network of examination centres. The list of centres included schools and educational organizations across Greece, with strong representation in Attica and Thessaloniki, as well as centers in cities and regions.

A particularly positive aspect of the 2026 Greek participation was the balance and inclusiveness of the student body. Based on a representative sample covering approximately 10% of total participants, **59% of participating students were boys and 41% were girls**.

Beyond numbers, the 2026 Greek case confirms something essential about the identity of Kangourou. Students are willing to engage deeply with mathematics when it is presented as creative, playful and meaningful. The enthusiasm of schools, parents, teachers and students demonstrates that mathematical culture can be strengthened not only through formal instruction, but also through shared educational experiences that celebrate curiosity, reasoning and imagination.

Scripta Manent

The purpose of this column is to discuss, periodically, proverbial phrases from philosophy, literature or history that are relevant to Mathematics. In each case, we explore the origin, meaning, and use of maxims which mathematicians and intellectuals often like to refer to.



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Novacula Occami or Ockham's Razor

Ockham's Razor, also known as the principle of parsimony (lex parsimoniae), is a methodological principle that re-commends preferring explanations that invoke no more assumptions than are necessary to account for a phenomenon. When several competing hypotheses explain the available evidence equally well, the principle advises selecting the one that postulates the fewest assumptions.

Although the proverbial phrase "Ockham's Razor" is commonly associated with the English medieval philosopher, logician, and theologian William of Ockham (c. 1287–1347), its origins predate him and can be traced to classical antiquity. The maxim most frequently linked to the principle - *Entia non sunt multiplicanda praeter necessitatem* ("entities should not be multiplied beyond necessity") - does not appear in Ockham's own writings. Rather, it emerged in later interpretations of his thought. Ockham nevertheless employed closely related formulations and consistently advocated explanatory economy in both philosophy and theology.

At its core, Ockham's Razor holds that when rival hypotheses account for the same evidence with equal adequacy, preference should be given to the one requiring fewer assumptions. Importantly, the principle does not establish the truth of a theory. Instead, it functions as a heuristic that promotes economy, clarity, and methodological discipline.

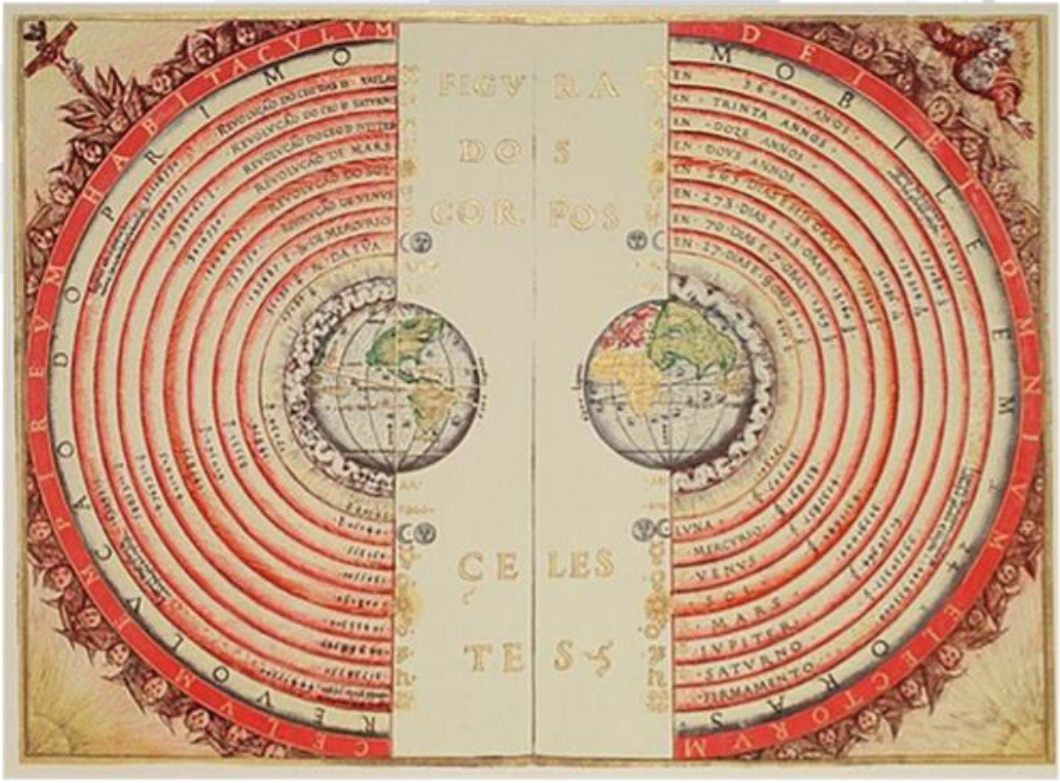


William of Ockham on a stained glass window at All Saints' Church, Ockham.

The term *razor* is metaphorical: it denotes the elimination of unnecessary theoretical commitments, thereby preserving only those required by the evidence. It extends beyond Ockham's principle. Philosophers and logicians have employed the term to describe various principles designed to eliminate unwarranted explanatory elements. Examples include Bertrand Russell's (1872–1970) rejection of unsupported theoretical entities, sometimes informally referred to as Russell's Razor, and David Hume's (1711–1776) sceptical treatment of miraculous claims, often called Hume's Razor.

The ideal of explanatory economy can be found in several strands of ancient Greek thought. Aristotle (384–322 BC), for example, argued in the *Posterior Analytics* that demonstrations proceeding from fewer assumptions are preferable, provided they possess equal explanatory power. Similarly, the astronomer Claudius Ptolemy (100–170 AD), whose system of the Heavens was followed for 15 centuries, maintained that celestial phenomena should be explained through the simplest hypotheses consistent with observation. A comparable concern for economy characterised Greek mathematics, where extensive bodies of knowledge were derived from a limited set of simple axioms. In fact, the long-standing efforts for centuries to derive Euclid's parallel postulate from simpler principles illustrate this aspiration toward theoretical minimalism.

During the medieval period, appeals to parsimony became a recurring feature of scholastic philosophy. Maxims such as "plurality should not be posited without necessity" and "it is pointless to do with more what can be accomplished with fewer" circulated widely in thirteenth- and fourteenth-century intellectual discourse. For example, Robert Grosseteste (1175–1253) endorsed such principles in his commentary on Aristotle's *Posterior Analytics*, while Thomas Aquinas (1225–1274) argued that nature does not employ multiple means where one is sufficient. Within this broader intellectual context, Ockham developed one of the most influential formulations of explanatory economy. The influence of parsimony extended beyond philosophy into the emerging natural sciences. For example, Nicole Oresme (1320–1382) appealed to considerations of economy in his scientific investigations, and Galileo Galilei (1564–1642) similarly favoured explanations that reduced unnecessary theoretical complexity.



Ptolemaic geocentric system by Bartolomeu Velho, 1568

Over time, the preference for simplicity became deeply embedded in scientific methodology and theory construction.

One of the most frequently cited historical illustrations of parsimony in scientific reasoning is the transition from the geocentric to the heliocentric model of the cosmos. Classical astronomy placed the Earth at the centre of the universe, with the Sun, Moon, planets, and stars revolving around it in circular orbits. As astronomical observations became increasingly precise, however, the geocentric system required a growing number of auxiliary mechanisms to accommodate discrepancies between theory and observation. The apparent retrograde motion of Mars, for example, was explained through the introduction of epicycles - secondary circular motions superimposed upon planetary orbits. Successive refinements generated an increasingly complex theoretical structure.

The heliocentric model, first proposed by Aristarchus of Samos (310–230 BC) and later developed by Nicolaus Copernicus (1473–1543), provided a more economical explanation of the same phenomena. By placing the Sun at the centre of the planetary system, it accounted for retrograde motion as an apparent effect arising from the relative motions of the Earth and the other planets. Although the eventual acceptance of heliocentrism depended on many factors, including improved observations and theoretical developments, its greater explanatory economy is often cited as an illustration of the value of parsimony in scientific inquiry.

Nevertheless, Ockham's razor should not be regarded as an infallible guide to truth. Simplicity is not synonymous with correctness, and nature does not necessarily conform to human preferences for elegant explanations. An exclusive reliance on simplicity may occasionally encourage oversimplification or obscure genuine complexity. Historical experience demonstrates that reality is sometimes more intricate than the simplest available account suggests.

Prior to the twentieth century, many philosophers and scientists believed that the universe itself possessed an inherently simple and orderly structure, leading them to regard simpler theories as more likely to be true. Such convictions often rested on metaphysical, aesthetic, or theological assumptions. Contemporary philosophy of science, however, generally interprets parsimony in more modest terms. Rather than treating simplicity as a mark of truth, it is regarded as a methodological virtue that facilitates the construction and evaluation of theories.

More than seven centuries after William of Ockham, the principle associated with his name remains a cornerstone of rational inquiry. Its enduring appeal derives from a simple yet powerful insight: explanations should not be burdened with assumptions that contribute nothing to their explanatory value. Although the history of science demonstrates that the simplest theory is not invariably the correct one, it also reveals that unnecessary complexity often hinders rather than advances understanding. Occam's razor should therefore be regarded not as a criterion of truth but as a guide that promotes clarity, economy, and intellectual discipline. Its lasting influence across philosophy, science, and other fields of inquiry reflects the continuing importance of seeking explanations that are as simple as the evidence permits, but no simpler.

Michael Lambrou

Important dates for the 2026/27 season

Kangaroo day Thursday, March 18, 2027



Report Submission
01.06.2026 – 01.09.2026
Submit your report about Kangaroo 2026

Registrations for Annual Meeting
01.06.2026 – 31.07.2026
Register for the Annual Meeting





Problem Submission
01.06.2026 – 26.08.2026
Submit problems for Kangaroo Math 2027

Problem Rating
05.09.2026 – 25.09.2026
Rate submitted problems online



Study Problems
26.09.2026 – 11.04.2027
Study problems before the Annual Meeting

ANNUAL MEETING
10 – 14 OCTOBER
CANADA