AKSF NEWSLETTER

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Association Kangourou Sans Frontières

Hello and welcome to our 13th edition of Kangourou sans Frontières Newsletter.

Joanna Matthiesen
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The Kangaroo Season has now concluded in most countries, and what a joy it has been to celebrate the achievements of so many students around the world (111 to be exact).
We recognize and congratulate the countless students, educators, and volunteers who poured their hearts and minds into making this year's Math Kangaroo a global success. Your enthusiasm, creativity, and dedication continue to inspire our entire international community.

THANK YOU to all the members who found time to write an article or share an idea on something interesting as it relates to Mathematics and Math Kangaroo happenings. Please read the articles below, as all are important.

Summer break just started, and we all deserve it. At the same time, I want to remind all AKSF members that during these summer months, we should not forget the member obligations below. All the below is already open for review and completion:

- Register for the 2025 AKSF Annual Meeting (by August 15)
- Submit the Annual Report (by August 31)
- Propose Math Kangaroo 2026 questions (by August 31)

To register for the meeting, submit your reports, or propose questions, use our internal website here: https://support.aksf.org/.

I would love to hear how Kangaroo is celebrated in your country, your reflections as a teacher or professor, or an original idea you introduced that led to meaningful success. Whether it's a local tradition, a challenge overcome, or a small moment that made a big impact, your story matters.

Wishing you a wonderful summer,

Joanna
AKSF Newsletter Editor in Chief

News from The President

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Kangaroo 2025: Reflections and What's Ahead

As the Kangaroo Competition 2025 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 three important matters on the horizon:
• The upcoming Spring Board Meeting in Valencia
• The presidential elections at the Annual Meeting in Istanbul
• Decisions regarding provisional members at the General Assembly

Spring Board Meeting in Valencia
Preparations are underway for the Spring Board Meeting, which this year will be hosted by the Brazilian team and held in Valencia. This choice helps reduce total travel distance for Board members, reflecting our ongoing commitment to more sustainable practices.
In addition to the regular agenda, the Board will focus on several key issues:
• Managing growth: As the Association continues to expand, so does the administrative and organizational workload. The Board will discuss strategies to manage this more effectively.
• Support for African countries: Last year, a generous donation — supplemented by contributions from AKSF members — made it possible for new African members to attend and experience the AKSF community in person. This year, new funding will help establish a platform to support Kangaroo competitions in African countries. Details will be presented at the Annual Meeting in Istanbul, along with discussions on creating a long-term, sustainable partnership with donors.

Presidential Elections in Istanbul
This year's Annual Meeting will also include the election of the next AKSF president. While the current president remains eligible for re-election, long-term planning is essential. Members are encouraged to begin reflecting on future leadership. Vice President Luis Cáceres will share more information in the upcoming Newsletter edition.

From Provisional to Full Membership
Following the updated membership framework adopted in Belgium in 2021 — and first implemented in 2024 — several provisional members will now reach the end of their initial term. The General Assembly will vote on whether these members should be granted full membership or whether alternative partnerships should be explored.

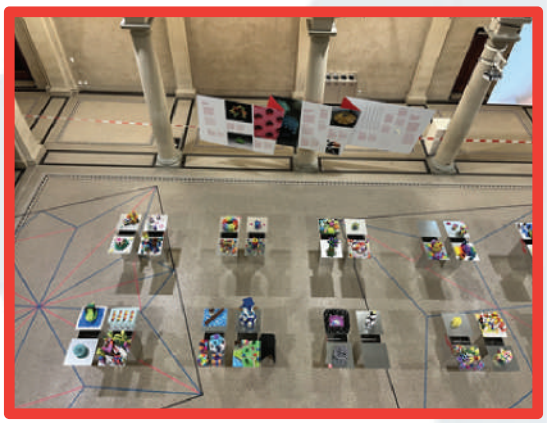
The Board will discuss each case in detail during the Valencia meeting and communicate its findings in advance of the Annual Meeting, allowing members sufficient time for consideration and feedback.

Some fun facts

On a lighter note, here are a couple of small but meaningful Kangaroo-related events that have taken place since my last newsletter article.

This year, I had the pleasure of celebrating Pi Day in Barcelona—a city where mathematics truly comes alive. The day was filled with engaging activities, and I had the opportunity to meet some exceptionally talented students and a dedicated Kangaroo team.

More recently, in May, my good friend and longtime Kangaroo collaborator Robert Geretschläger visited Switzerland. Together, we organized an origami exhibition in the main hall of our institution, showcasing creations from school classes. Robert also led inspiring origami workshops, much to the delight of students and teachers alike.



These are just two small examples of the vibrant communication and exchange happening within our Kangaroo family. I'm sure there are many more wonderful stories from around the world.

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

Math Kangaroo Team Challenge: Uniting Minds Beyond Borders

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Inspired by the Math Kangaroo in Pairs initiatives from the Netherlands, the Math Kangaroo China Committee, in collaboration with committees from the Netherlands, United States, Switzerland, Sweden, Norway, Portugal, and other member countries, is committed to promoting the concept of team-based math competition, a pioneering competition designed to redefine mathematical learning through teamwork, creativity, and cross-cultural dialogue. We warmly welcome more countries to join us in this exciting endeavor!

Why Team Math? A Successful Global Movement

Team-based math competitions have gained immense popularity worldwide. In the United States, prestigious university math clubs have a long-standing tradition of hosting such competitions, including the Harvard-MIT Mathematics Tournament, the Berkeley Math Tournament, Princeton University Mathematics Competition and beyond. These events feature various engaging formats such as Guts (fast-paced problem-solving), Relay (either problems relay or players relay), and Power (proof-based problem solving) rounds, each designed to foster teamwork, challenge students, and create an exciting competitive atmosphere.

Similarly, in the United Kingdom, the UK Mathematics Trust (UKMT) hosts the Team Maths Challenge for both secondary and high school students, attracting thousands of participants annually.

[Kangaroo China committee has collaborated with UKMT Team Based Challenge to host this event locally and sent winning teams to UK for national final event.]

In China, we have successfully introduced the team competition format to the Math Kangaroo Asia Camp and witnessed the incredible power of teamwork. For many children, this was their first time participating in a team-based competition. They engaged in lively discussions, actively contributed to the intense competition, and, most importantly, connected with like-minded peers who shared their passion for mathematics, building friendships that could shape their lives for years to come.

The Value of Team-Based Competitions

At its core, team-based mathematics is a form of Problem-Based Collaborative Learning. Unlike individual math study, working in teams encourages students to:

•Understand and explain their analysis to peers
•Compare ideas with teammates
•Listen to different perspectives and learn how to reach a consensus
•Be less intimidating that can encourage MORE students to do math

Additionally, participating in team math challenges helps students develop t**ransversal communication skills, teamwork organization, and time management**—all essential for long-term academic and personal growth. After engaging in team-based competitions, students often demonstrate increased self-confidence, extended learning endurance, and enhanced adaptability to new challenges.

In the era of artificial intelligence, educators are increasingly recognizing the impact of AI on mathematical learning. The core competencies of mathematics are evolving beyond mere computation to emphasize deep inquiry, systematic thinking, interdisciplinary collaboration, and real-world problem-solving. We believe that team-based math competitions are an ideal way to reflect these emerging trends.

Team-Based Math in Math Kangaroo

At the 2024 Math Kangaroo Annual Meeting in Brazil, we were thrilled to hear about the successful implementation of team-based math competitions worldwide. The Netherlands shared their innovative approach of encouraging students to form pairs to solve problems collaboratively, fostering teamwork and boosting mathematical confidence.

For China, we took the first step by piloting a team-based math competition at the 2024 Math Kangaroo Asia Camp in Boao, Hainan. We introduced classic team competition formats, including team discussions, relay challenges, and Guts relay rounds with real-time leader board. The students demonstrated exceptional problem-solving collaboration, and showed great interest and passion in these team based activities, which reinforced our commitment to expanding Math Kangaroo's team-based competition model.

[Team members cooperating with each other in Math Kangaroo Asia Camp, many campers fostered long-term friendship during the event]

The proposed Math Kangaroo team competition

We are delighted to announce that in 2025, Math Kangaroo China will officially launch a comprehensive team-based math competition, inviting member countries to contribute and explore various applications of our carefully curated problems. These may include team competitions, classroom activities, and peer coaching programs.

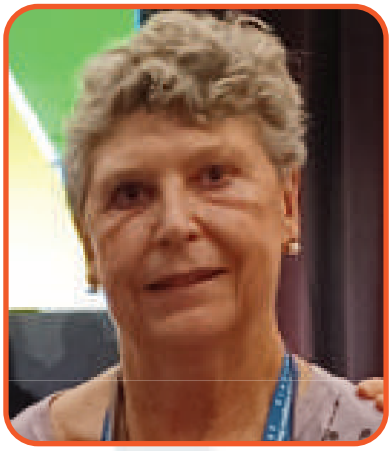
Math Kangaroo Team competition in China will encourage teams of 2-3 students working together to solve Math Kangaroo problems slightly more challenging than the individual competition. There will be six-level papers incorporating mainly 4- and 5-point questions from Kangaroo shared question bank. The format is paired competitions for Pre-Ecolier, Ecolier, and Cadet levels; and team competitions (2-3 students) for Benjamin, Junior, and Student levels.

Math Kangaroo Team-Based Math Timeline

• Problem Development: The Chinese academic team is currently drafting high-quality team-based problems based on the Math Kangaroo question bank.
• International Collaboration: From June to **September 2025**, we welcome interested member countries to contribute to problem refinement.
• Finalization: The final version of the competition paper will be completed in October 2025, with participating countries having the flexibility to use it as needed.
• Competition Period: Between **November 2025** and **February 2026**. Each country may schedule the competition independently, but the problems must remain confidential until the end of February.

We warmly invite all interested member countries to connect with the Math Kangaroo China Committee and join forces in promoting team-based math competitions through the power of **collaboration!**

International Day Of Mathematics Pi Day



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Activities in Catalonia organized by the Catalan Society of Mathematics

Greater global awareness and strengthened teaching of mathematical sciences are essential to addressing challenges in areas such as AI, climate change, energy, and sustainable development and improving the quality of life in both the developed and developing world. For this reason, the 40th UNESCO General Conference in November 2019 proclaimed March 14 of each year as International Mathematics Day.

As the world mathematical community already knows, March 14 (3/14, 3rd month, 14th day) was already celebrated as Pi Day in many countries. For this reason, UNESCO consolidated the recognition of mathematics's crucial role in solving the challenges that exist in the world today.

The Catalan Society of Mathematics (SCM), a member of the Institute of Catalan Studies (IEC), celebrated this important day with various events.

We invited the president of the AKSF, Mrs. Meike Akveld, a Professor in the Department of Mathematics at ETH Zurich, to preside over these events.

The day (13/03/2025) began with an institutional reception at the IEC headquarters, where she was welcomed by Mr. Àngel Messeguer, Secretary General of the IEC, and by Mrs. Montserrat Alsina, president of the SCM, and members of the Catalan Kangaroo team. She visited the historic building and then chaired a press conference to which Primary, Secondary, and High School students who had performed well on the 2024 Kangaroo test had been invited.

The AKSF President answered questions from accredited journalists in the room about the importance of the Kangaroo tests in motivating students towards Mathematics, the growing number of countries joining the Kangaroo Association, and the great work done by the members of the Kangaroo commission in each country to select the test problems. The journalists also asked the students present in

the room whether they liked the problems they solved in the test and what their participation in the Kangaroo test brought them.

The press conference also announced news and date for the 30th edition of the Kangaroo Test and the activities to celebrate the International Mathematics Day, which included activities co-organized with the Barcelona City Council.

When the press conference ended, the president of the AKSF spoke for a while with the students and accompanying teachers.
To help the President relax after a hectic morning, we went for some "tapas" with teachers and students and enjoyed a delightful time sharing anecdotes about old kangaroos, curiosities about the tests, and other topics related to mathematics.

At 5:00 p.m. in the Saló de Cent of Barcelona City Hall there was the institutional event for International Mathematics Day where Ms. Meike Akveld gave the conference “Why we need to celebrate mathematics”.
Below you can read some of the slides he commented on.

ETH zürich

π

Why we need to celebrate mathematics

Meike Akveld, ETH Zürich

History of π-Day

- π-Day is an annual celebration of the constant π
- π-Day was founded in 1988 by Larry Shaw, an employee of a science museum in San Francisco, the Exploratorium.
- UNESCO's 40th General Conference designated π-Day as the International Day of Mathematics in November 2019

International day of mathematics

Why do we celebrate mathematics?

→ Possible answer: Because mathematics is beautiful
→ Other possible answer: Because mathematics is important

Why is mathematics important?

→ Possible answer: Because it is the basis for all STEM subjects and usually the first one students encounter

Conclusion

Fact: All over the world we observe a shortage of skilled workers in STEM areas

Problem: Mathematics is often not a popular subject, but it is the entrance to STEM!

Popularisation of mathematics

Key question

How do you popularise mathematics?

- Note, this is a hard question, which does not have a simple answer.
- It's a multi-faceted problem with multiple partial answers.
- We present one possible solution here: Mathematics competitions
- Maths Competitions can have various goals e.g.
  - Talent search and selection;
  - Popularisation.

→ Let's look at the international Kangaroo competition organised by AKSF.

Saló de Cent (Hall of One Hundred) is a medieval room, the noblest in the Barcelona City Hall Building, which is where the Consell de Cent (Council of One Hundred or the 100's) meet. The 100's council was a municipal government institution, which governed the city of Barcelona since the 13th century in the format of an assembly.

We then enjoyed an aperitif in the magnificent premises of Barcelona City Hall, where there was a relaxed conversation between the speaker, municipal authorities, members of the Catalan Society of Mathematics, and the Cangur Commission.

Afterwards, we went on a guided tour of the Gothic Quarter of Barcelona and ended with dinner, when we had a lively and relaxed conversation about different topics related to mathematics and the Kangaroo test.

Dinner was served in the boardroom of the Ateneu Barcelonès. It is a century-old institution, located in the city center, very close to the Ramblas. Before dinner, we could visit the most interesting parts of this institution: the garden and the library.

The romantic garden is in the central part of the block of houses. It has a small pond with water lilies, plants and tables where members and people who go to the restaurant can enjoy a moment of relaxation, reading or socializing. It is one of the many quiet corners that can be found in the city.

However, the star - and the most used part of the Ateneu - is the library. Its large windows open both to the Plaça de la Vila de Madrid and to the romantic garden, and it is entrusted with the quietness of the latter. It has more than 250,000 volumes, and is considered the largest private library in the country. In addition, the ceiling of the reading rooms is decorated with Noucentista frescoes, which have recently been restored.

The following morning, Marta, the president of the Kangaroo Commission of Catalonia, together with Meike, took a tourist tour of the modernist houses in the city of Barcelona built by different modernist architects (Antoni Gaudí, Lluís Domenech i Montaner, Josep Puig i Cadafalch, Josep Maria Jujol and Joan Rubió) and with this walk the visit of the president of the AKSF to Barcelona ended.

To conclude this article, let me end with a curiosity:

Barcelona's Plaça del Pi (Pine Square, pronounced in Catalan as the π number) has been temporarily renamed "π Square" for this period: March 14th to March 21 to commemorate the International Mathematics Day. This initiative is carried out as a symbolic act to highlight the presence of mathematics in the city.

A fairytale about a Möbius strip

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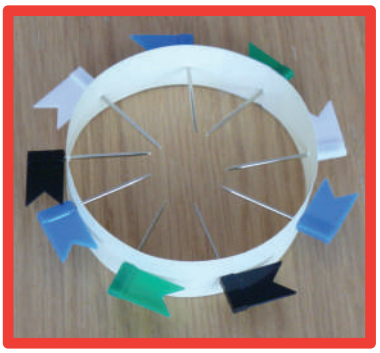
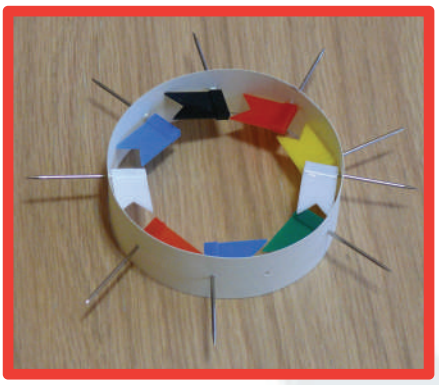
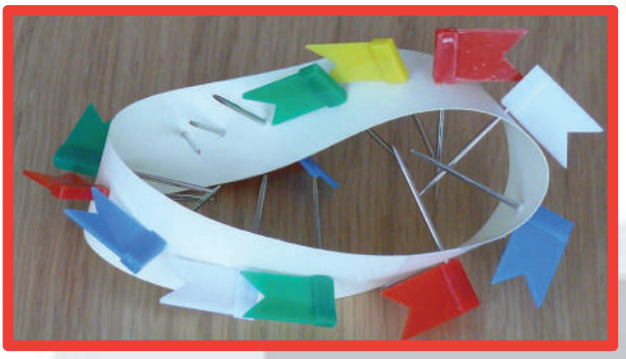
The Möbius band is a fascinating and elegant object, ideal for conducting experiments and running mathematical workshops with students. Many of us are familiar with various “tricks” involving cutting a paper model of the strip — there is plenty of material on this available online. Therefore, apart from three photos, I will omit these popular cutting experiments with the M¨obius strip.

Instead, I would like to present a few lesser-known experiments that highlight some intriguing properties of the Möbius band. For comparison, we will also perform the same experiments using a cylindrical strip.
When working with cylindrical paper bands, we can insert one into another with ease. However, this is not possible with two Möbius strip models, as illustrated in the photos. (The Möbius strip is one-sided.)

Now imagine holding a paper model of a Möbius strip between your thumb and index finger. If you insert pins into the model from the side of the same finger, you'll notice a curious effect. In cylindrical bands, the pin tips end up either inside or outside the surface. But in the Möbius strip model, both the tips and the flags of the pins appear side by side —– see the photos. (Möbius strip is non-orientable.)

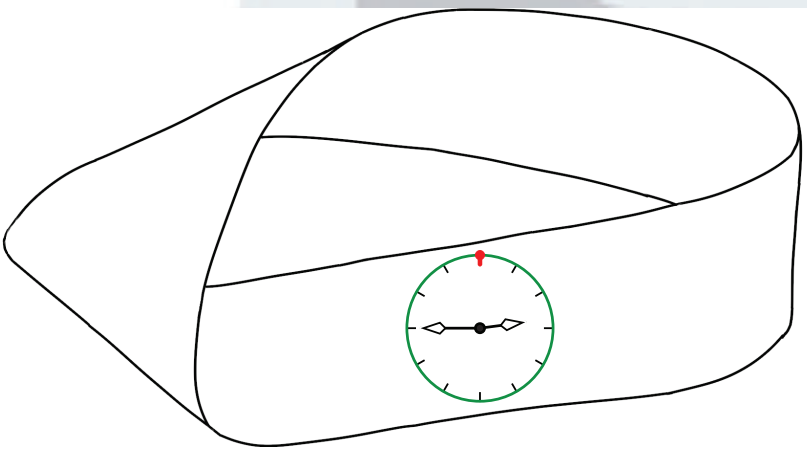




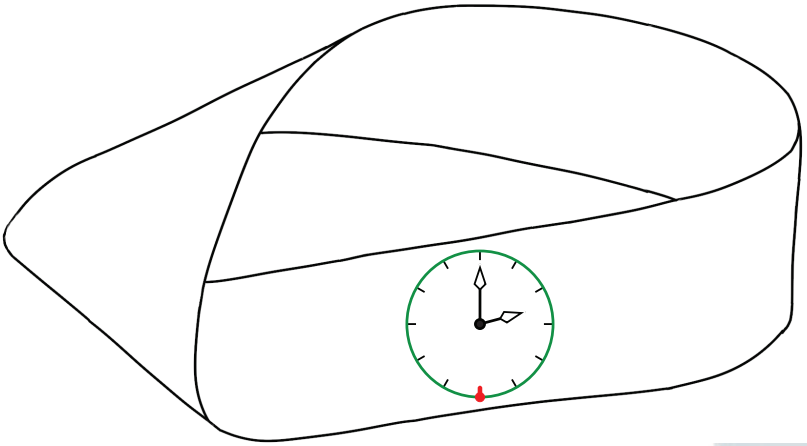


The next experiment involves the dimensions of a rectangular strip used to construct the models. Give children paper rectangles of various sizes. A cylindrical band can be made from any rectangular piece. However, a Möbius strip cannot be constructed from a square or, for example, a rectangle measuring 3 × 2 (the ratio should be a : b > p3).

Here is a Kangaroo–style problem related to the strip at the end:
It is now 2:45 AM. A transparent-faced clock is traveling along a Möbius strip. Within no more than half a day, it has made a circuit.



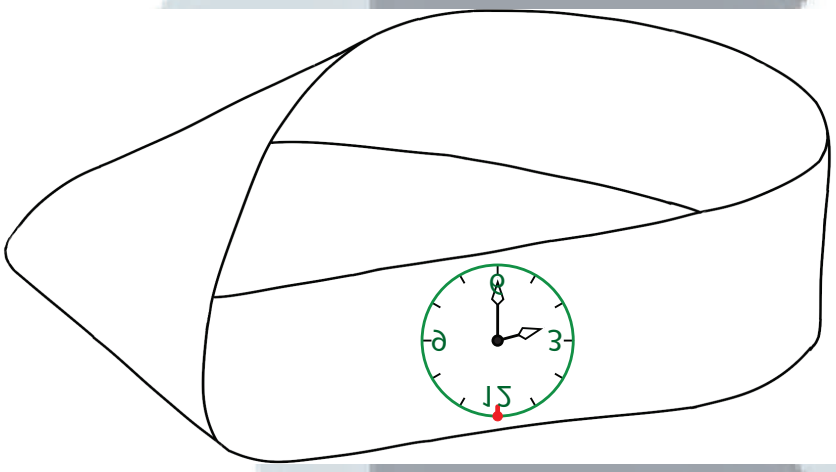
The wheel of the dial stopped when it first reached the spot from which it started (when the center point of the watch is in the same place from where it started). Now the clock face looks like this:



How long did the journey take?

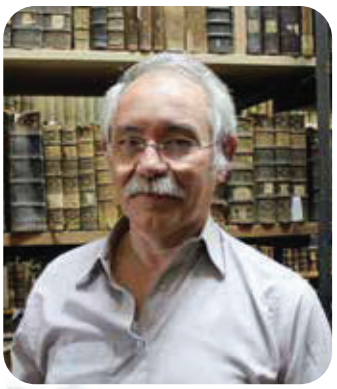
(A) 1 h 45min (B) 5 h 15min (C) 5 h 45min (D) 15min (E) 45min

Answer. At first glance, one might think the correct answer is (C) — the clock is now standing upside down. That is how the dial appears after the circuit. However, upon closer inspection, we find that the clock's journey actually took 45 minutes (we see it upside down and mirrored now).



Perhaps this inspires someone to create a Möbius strip problem for the Kangaroo competition!

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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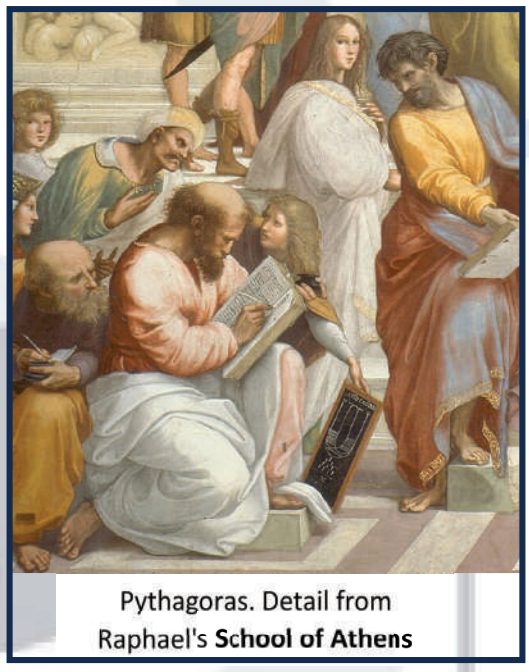
Αυτός έφα or Ipse dixit

The phrase "Ipse dixit" is an exact translation in Latin of the corresponding ancient Greek phrase "Autos efa", which means "He said it". The personal pronoun "He" refers to the outstanding Philosopher and Mathematician Pythagoras (580 B.C. - 496 B.C.) whose contributions to Mathematics are deep and profound. The phrase itself is used, often ironically, to denote the dogmatic acceptance or unquestionable validity of an opinion. It is widely attributed to his followers, the ancient Pythagoreans. It is traditionally held that they invoked this phrase to appeal to the supreme authority of Pythagoras, their revered Philosopher, Mathematician, and mystic.



Pythagoras. Detail from Raphael's **School of Athens**

The earliest surviving reference to the phrase we are discussing appears in a Latin source, specifically by the polymath Cicero (106–43 BC). In his De Natura Deorum (On the Nature of the Gods), Book I, V, 10, Cicero translates the phrase as "ipse dixit." This Latin rendition has endured in Western thought as a stereotypical phrase, retaining its original meaning from the Greek. Cicero's relevant passage reads (I translate from the original Latin):

"I do not approve of what we know about the Pythagoreans. As they say, when they claimed something in their disagreements and were questioned as to why it is so, they used to answer 'Ipse dixit'. Such was the prejudice concerning the power of his authority, and there was no need for logical reasoning."

While Cicero provides the earliest known attestation, no direct references to this proverbial phrase survive in the extant works of the classical Greek era. All known Greek sources date from later authors of the post-Christian period, transmitted by erudite scholars of classical literature, both pagan and Fathers of the Church. The latter usually in writings that challenge ancient (pagan) Greek Philosophy. The oldest Greek reference emerges in the 2nd century AD, where Clement of Alexandria, in his Stromateis (Miscellanies), remarks (I translate from the Greek original): "the admirers of Pythagoras of Samos, renouncing the search for proofs, derived their faith from 'He said it,' and only his words were sufficient for them to confirm what they had heard."

Similar attestations are found in the writings of Gregory of Nazianzus (4th century AD) in Against Eunomian and Theodoret of Cyrus in Graecarum Affectionum Curatio (Cure of the Greek Maladies). Gregory writes: "From your philosophers such as Pythagoras, whose 'He said it' is the first and greatest of dogmas." Similarly Theodoret notes: "if anyone demanded proof of the assertions, he used to say 'He said it,' thinking that it is, and urging them to consider, the voice of Pythagoras stronger than any proof."

The widespread currency of "He said it" as a proverbial expression in antiquity is further underscored by Diogenes Laertius's (3rd century AD) biography of Pythagoras in his Lives of the Eminent Philosophers. Laertius mentions that during Pythagoras's lifetime, four individuals bore the same name. After briefly listing the other three, he concludes that the fourth is "ours, the philosopher to whom it is said that the mysteries of philosophy belong and where the proverbial phrase "He said it' came to life."

The custom of dogmatically attributing absolute truth to Pythagoras, often without even explicitly mentioning his name, undoubtedly stems from the profound reverence his disciples held for him. As Iamblichus writes in his 3rd-century work On the Pythagorean Life: "none of the Pythagoreans called Pythagoras by his name but, as long as he lived, when they wanted to refer to him, they called him 'divine,' and after his death they called him 'that man.'" This deification of Pythagoras by his followers is further corroborated by Sextus Empiricus in Against the Mathematicians (VII, 94–95). At a certain point in his book, he discusses an oath taken "in the name of the one who gave us the 'quadrivium'," interpreting the sentence "the one who gave us" as a reference to Pythagoras, signifying his divine status among his adherents.

Finally, it is worth noting that the disciples of Pythagoras routinely attributed their own discoveries and writings to their master. Iamblichus, again in On the Pythagorean Life (paragraph 198), states: "and it is interesting that they attributed everything to Pythagoras and referred to it by His name, and they themselves did not reap for themselves the glory of their inventions, except rarely." This practice further cemented the authority of Pythagoras and the unchallenged acceptance of any statement prefaced with "He said it."


René Descartes

In conclusion, the persistence of the phrase "ipse dixit" in Western discourse, even in its ironic usage, testifies to a perennial human inclination towards intellectual shortcuts. Fortunately, its historical context within Pythagorean philosophy stands in clear opposition to the practices of all other ancient Greek Philosophical Schools. It is actually an exception. Moreover it is in contrast to the methodological demands of contemporary science. Indeed, the narrative of "ipse dixit" implicitly champions the fundamental scientific tenet that all assertions, irrespective of their proponent, must be substantiated by empirical data and sound reasoning, thereby rejecting the uncritical acceptance of authority in favour of demonstrable truth. A scientist must follow the principle that René Descartes (1596-1650) summarises in just one phrase: "Cogito, ergo sum" (I think, therefore I am). He meant that questioning what we receive is a significant step in his search for irrefutable knowledge. How true.

33rd Congress of the International Kangaroo Mathematics Association

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Dear Kangaroo Friends,

This year, Turkey will host the 33rd Congress of the International Kangaroo Mathematics Association. At the Congress, which we will hold in Istanbul, one of the most important cities in Türkiye both historically and currently, we will select the questions of the Kangaroo Mathematics Competition to be held in 2026 and hold the ordinary General Assembly of our Association. In our meeting, which we expect to be attended by members from nearly 100 countries, we will come together as Kangaroo Mathematics members from different countries to share experiences and hold important discussions about the future.

As members of our Association in Türkiye, we are excited to host this meeting and to host you here. We are already completing all our preparations for our meeting to be smooth and productive and are looking forward to your arrival in Istanbul.

You can access general information about the congress at www.ksf2025.com and register your participants through our country representatives.

We are already dreaming of the valuable memories we will create in Istanbul and are excitedly waiting for you.

Important dates for the 2025/26 season

Kangaroo day	Thursday, March 19, 2026

Register Annual Meeting
16.05.2025 / 31.07.2025
Registration period for Annual Meeting in Istanbul

KANGAROO DAY!
19.03.2026

Submit Problems
01.06.2025-31.08.2025
Submit your best problems for Kangaroo 2026

AKSF Report
01.06.2025-31.08.2025
Report refers to the Kangaroo Contest 2025

Rate Problems
10.09.2025 - 30.09.2025
Problems can be seen and rated

AKSF Annual Meeting in Istanbul
15-19.10.2025