SIMC Educators' Learning Festival Programme 2026

Date: 26 May 2026
Venue: NUS High School, Theatrette

Welcome Message

Welcome to the SIMC Educators' Learning Festival 2026 — a vibrant gathering of passionate educators united by a shared purpose: to reimagine and enrich teaching and learning. Here, ideas come alive through the exchange of innovative practices, research-informed insights, and practical strategies that make a real difference in the classroom. May this festival spark meaningful conversations, deepen collaboration, and inspire you to bring fresh possibilities to your learners.

Programme Overview

Time	Programme	Presenter/ Speaker
0900	Opening Address	Mr Goh Hock Leong Deputy Principal (Academic) NUS High School
0905	Brain-based learning and higher-order thinking skills	Professor Er Meng Hwa Founder and Chairman Brain-based Learning Academy
1000	Supporting Gifted Mathematics Students in Slovenia: From Classroom to Research	Ms Urška Markun Gimnazija Bežigrad Slovenia
1020	Beyond Formulas: Using History to ignite gifted minds	Mr Emil Lua Naval Base Secondary School Singapore
1040	**Tea Break**	
1100	Teaching of Math modelling and computational thinking	Associate Professor Ang Keng Cheng National Institute of Education Singapore
1200	Computational experiments in Math	Mr Roman Gusarev H-FARM International School Italy
1220	Developing Statistical Literacy through the General Linear Model Framework	Mr Koichiro Hiromatsu Ritsumeikan High School Japan

Time	Programme	Presenter/ Speaker
1240	Modeling with Programming	Mr Knut Skrindo Oslo Cathedral School Norway
1300	**Lunch**	
1400	Using Productive Failure via AI tools to teach Math in schools	Professor Manu Kapur Director of the Singapore-ETH Center Professor for Learning Sciences and Higher Education at ETH, Zurich, Switzerland
1500	Data Modeling Using Functions	Mr Chan Yew Fook St Joseph's Institution Singapore
1600	**Tea break**	
1620	From Rubber Duck to AI: Tools and Challenges in Computer Programming Instruction	Mr Prompong Pakawanwong Kamnoetvidya Science Academy Thailand
1640	Using Vibe Coding to create Mathematics Simulations	Mr Calvin Wu Beatty Secondary School Singapore
1700	**End of Learning Festival**	

Featured Sharing

Title: Brain-based learning and higher-order thinking skills

Speaker: Professor Er Meng Hwa, Founder and Chairman, Brain-based Learning Academy

Synopsis: The rapid advancement of artificial intelligence is reshaping not only the future of work, but also the nature of human learning and thinking. In an age where AI can increasingly perform routine cognitive tasks, education must move beyond knowledge transmission toward the development of higher-order thinking (HOT) skills such as critical thinking, creativity, problem solving, metacognition, adaptability, and ethical reasoning.

This keynote explores how Brain-Based Learning (BBL) and Computational Thinking (CT) together provide a powerful framework for reimagining education in the AI era. Brain-Based Learning, grounded in neuroscience and the science of learning, explains how the brain learns best through meaning, emotion, attention, pattern recognition, memory consolidation, and active engagement. Computational Thinking complements this by equipping learners with essential cognitive processes such as decomposition, abstraction, pattern recognition, modelling, systems thinking, and algorithmic reasoning.

The keynote argues that AI should not be viewed merely as a technological tool, but as a catalyst for a broader educational paradigm shift. Learners must become adaptive thinkers and lifelong learners who can collaborate intelligently with AI while preserving deep human cognition and creativity. At the same time, the growing reliance on AI raises important concerns about cognitive offloading, passive dependency, and the "illusion of understanding" without genuine learning.

Drawing from neuroscience, learning sciences, and emerging educational practices, this keynote proposes an integrated BBL + CT framework to nurture future-ready learners who are cognitively resilient, reflective, innovative, and capable of tackling complex real-world challenges.

Featured Sharing

Title: Supporting Gifted Mathematics Students in Slovenia: From Classroom to Research

Speaker: Ms Urška Markun, Gimnazija Bežigrad, Slovenia

Synopsis: This presentation explores how gifted secondary school students in Slovenia are supported in mathematics through a progressive approach that moves from classroom work to research.

After a brief overview of the educational context and identification of gifted learners, the focus will be on practical strategies used in teaching, including differentiated instruction, enrichment activities, and participation in mathematical competitions. These approaches provide opportunities for deeper understanding and challenge within the regular school setting.

Special attention will be given to research work as an advanced form of engagement for highly motivated students. In Slovenia, this often involves collaboration between schools and university researchers, where students are guided by both a school teacher and an academic mentor. Such experiences allow students to move beyond solving problems towards formulating their own questions and developing independent thinking.

Featured Sharing

Title: Beyond Formulas: Using History to ignite gifted minds

Speaker: Mr Emil Lua, Naval Base Secondary School, Singapore

Synopsis: Many gifted students are good at mathematics, yet very few choose to continue studying it and instead choose to study other STEM related fields. This sharing explores how the history of mathematics can help build deeper interest and long-term passion in high-ability learners.

Through three examples, we show how mathematics can be presented as a human story rather than just a set of formulas. First, we look at Fermat's Last Theorem, an extension to the Pythagoras' Theorem. Second, we examine the rivalry behind the solution of cubic equations and how this story can add depth and excitement when teaching quadratic equations. Finally, we reflect on how Newton developed calculus after observing a falling apple, showing how powerful ideas can grow from simple questions about the world.

Beyond the curriculum, we teachers can introduce simple to understand mathematical concepts to these students. Some examples are Buffon's needle problem, 4 colour theorem and Euclid's theorem on the infinity of prime numbers.

By bringing these stories and theorems into the classroom, educators can help gifted students see mathematics not just as something to solve, but as something worth pursuing.

Featured Sharing

Title: Teaching of Math Modelling and Computational Thinking

Speaker: Associate Professor Ang Keng Cheng, National Institute of Education, Singapore

Synopsis: This talk focusses on computational thinking within the context of mathematics teaching and learning, specifically in mathematical modelling. Basic concepts and common aspects of computational thinking are first presented. This is followed by a discussion of specific examples of mathematical problems where computational approaches may apply. A common technological platform will be used to support these discussions and as a demonstration tool. Participants will also be given the opportunity to work through these examples to fully appreciate the applications. The talk concludes with recommendations for developing computational thinking in the mathematics classroom, which is the key takeaway for schoolteachers attending this session.

Featured Sharing

Title: Computational experiments in Math

Speaker: Mr Roman Gusarev, H-FARM International School, Italy

Synopsis: Using computational experiments in math helps you understand a problem much better by letting you see it in action. Sometimes, running a script can help you spot patterns and create a hypothesis that you can later try to prove.

Featured Sharing

Title: Developing Statistical Literacy through the General Linear Model Framework

Speaker: Mr Koichiro Hiromatsu, Ritsumeikan High School, Japan

Synopsis: High school statistics is often taught as a collection of separate techniques, t-tests, ANOVA, regression, etc. As a result, students tend to focus on procedures and on choosing the "correct" technique rather than developing conceptual coherence. This presentation proposes introducing the General Linear Model (GLM) as a unifying framework for statistical inference in high school education. By framing common statistical methods as special cases of one underlying model, students could gain a deeper understanding of hypothesis testing, parameter interpretation, and model comparison. The GLM approach also strengthens the connection between statistics and authentic scientific inquiry, making statistics more practical and research oriented. It is also easy to introduce more advanced topics such as multiple regression, polynomial regression, ANCOVAs, and interaction effects in an intuitive and approachable way. It also allows students to develop more structured and complex research questions.

Featured Sharing

Title: Modeling with Programming

Speaker: Mr Knut Skrindo, Oslo Cathedral School, Norway

Synopsis: In regression modeling, models are usually functions with known formulas. But what if no standard function fits the data? One example is a cooling liquid: its temperature decreases exponentially, but not exactly like a simple function of the form a·b^x.

We consider two approaches. First, we use Euler's method and write Python code that models the relationship between x and y, testing different models and data sets. Secondly, we let a neural network learn the relationship from the data. In both cases, the model itself is a Python program.

Featured Sharing

Title: Using Productive Failure via AI tools to teach Math in schools

Speaker: Professor Manu Kapur, Director of the Singapore-ETH Center

Professor for Learning Sciences and Higher Education at ETH, Zurich, Switzerland

Synopsis: Learning is driven by pedagogy. Learning environments (e.g. AI tutors) without scientifically validated models are merely perpetuating the very problems of learning we ought to be solving. Productive Failure offers one such promising model, with transformative effects on deep learning, transfer, creativity, and resilience.

Featured Sharing

Title: Data Modeling Using Functions

Speaker: Mr Chan Yew Fook, St Joseph's Institution Singapore

Synopsis: This session will focus on how real-world data and standard elementary functions can be used by teachers to help students understand the underlying structures and patterns involved in modelling natural phenomena and human activities. Learning experiences for high school students (Grades 10–12), or upper secondary to pre-university students, designed using Texas Instruments TI-Nspire™ CX graphing technology, will be presented during the session.

Featured Sharing

Title: From Rubber Duck to AI: Tools and Challenges in Computer Programming Instruction

Speaker: Mr Prompong Pakawanwong, Kamnoetvidya Science Academy, Thailand

Synopsis: Computer programming instruction in secondary school is relatively new in all parts of the world. Once thought to be necessary to only specialized scientists and mathematicians, computer programming is now a vital, foundational skill in this digital era. This talk will walk you through the increasingly challenging world of computer programming instruction.

Featured Sharing

Title: Using Vibe Coding to create Mathematics Simulations

Speaker: Mr Calvin Wu, Beatty Secondary School, Singapore

Synopsis: For many mathematics educators, the technical barriers of traditional programming have long limited the creation of effective interactive digital manipulatives. While teachers can readily identify student misconceptions, crossing the programming barrier to create digital tools that address these specific misconceptions remains challenging, even for those with prior coding experience.

This session introduces "Vibe Coding", a transformative approach in which natural language and pedagogical intent replace complex coding through the use of AI. Educators can move seamlessly from a conceptual sketch to a fully functional classroom simulation within minutes.

The session will showcase the development of interactive algebra simulations that enable students to engage with abstract concepts through experimentation and discovery. It highlights the synergy between a teacher's deep understanding of student misconceptions and AI's capacity to generate precise, responsive digital manipulatives. Attendees will gain insight into the iterative design process, including how mathematical logic is refined through dialogue with AI, and examine its impact on student engagement through productive struggle.

This can be a hand-on session. Participants will design and build their own interactive manipulatives tailored to a specific challenge in their curriculum. By the end of the session, they will leave with a ready-to-use resource and a practical workflow for future creation.

Thank you for being part of Learning Festival 2026. May you leave energised by new perspectives, inspired by shared experiences, and empowered with ideas that will shape and enrich your teaching practice.