



SCHOOL OF PHYSICS
UNIVERSITI SAINS MALAYSIA

IGNITING
MINDS,
FUELING
DISCOVERY.

Partnership Opportunities

USM School of Physics STEM & Astronomy
Outreach

The USM School of Physics leads a consistent effort to bring practical learning to schools across northern Malaysia. Our researchers and student mentors volunteer their time, giving students rare opportunities to meet active researchers and explore science up close. These engagements help nurture a stronger interest in Science, Technology, Engineering and Mathematics (STEM) learning among students. With supportive partners, we can extend this work to more schools seeking meaningful STEM experiences.

VISIT OUR
WEBSITE



To those who care about the future of education

Like many people in academia, industry, and business, we did not grow up with many advantages. Our lives improved because of dedicated teachers, good books, and people who encouraged us to keep learning. Today, as researchers at the School of Physics, we see ourselves continuing that support for the next generation. We think back to our own school years, when guidance and opportunities shaped our path, and we believe it is now our responsibility to offer that same support to students.

Despite the research challenges we face every day, we find joy in engaging with younger generations and explaining the science behind everyday phenomena. The SoPhysics STEM Team comprises lecturers, researchers, and student mentors who volunteer their time to introduce science, technology, engineering, and mathematics directly to students. The team has been doing this across Penang, supported by USM's investment in equipment, teaching kits, and dedicated educators. Every visit shows that talent is everywhere, but opportunity is not.

Over the last two years, invitations have grown from schools in Kedah, Perlis, northern Perak, Kelantan and Terengganu, many of them located in rural or B40-majority communities. Teachers often tell us their students are hardworking and knowledgeable, yet they seldom experience hands-on science activities or have opportunities to interact with university researchers. Just as earlier generations once donated land, built classrooms and supported the growth of schools, we now feel a responsibility to keep knowledge moving forward, to protect it, enrich it and pass it on.



[Updated] Low interest in STEM worrying, says PM

By **Hana Naz Harun, Qistina Sallehuddin**

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KUALA LUMPUR: The decreasing interest among Malaysian students in Science, Technology, Engineering and Mathematics (STEM) is a worrying trend, said Prime Minister Datuk Seri Anwar Ibrahim.

He said the country lacked high-skilled engineers, despite producing engineering graduates that were of quality.

"There is a decrease in interest among students in STEM. This is worrying and the Education Ministry has taken several measures including urging parents to refocus on Mathematics and Science.

Malaysia continues to face a shortage of students entering the STEM stream, making outreach essential. To respond to this national need, we run STEM programmes that bring hands-on experiments and demonstration booths to as many schools as possible.



Our Gaps and Aim

To run our STEM outreach programmes effectively, we rely on portable yet sensitive teaching kits such as optics and laser demonstrations, sound and resonance rigs, Arduino and electronics sets, wave-simulation tools, and consumables for hands-on stations. USM funding supports these instruments and their maintenance. At a northern-region scale, three gaps appear clearly:

MOBILITY: We need safe, protected transport for our fragile kits, especially when travelling to schools further from Penang;

SUSTAINABILITY: frequent use across states accelerates wear and requires more systematic maintenance;

CONSUMABLES: Hands-on learning uses materials that run out or get used up, such as basic components, batteries, wires and small optics parts;

ACCESSIBILITY: Many teachers and students cannot travel to USM because of distance and cost limitations, so they miss the chance to explore real STEM experiments and equipment in our labs.



USM SoPhysics team setting up an inflatable planetarium dome for a school STEM session—portable equipment that depends on reliable transport to reach more schools.

We aim to grow USM’s STEM outreach into a sustainable northern-region model that reaches more schools in need of support, helping improve education (SDG 4) and reduce learning gaps between communities (SDG 10).

Each STEM outreach visit includes a short inspirational STEM talk, live physics demonstrations, and guided hands-on stations. Modules are designed suitable to school level and typically include waves and sound resonance, optics and ray concepts, basic electronics and Arduino coding, plus “physics behind technology” showcases that connect classroom science to real careers. Some kits are self-made, crafted by knowledgeable team of talented physicists. Each session ends with reflection and STEM career sharing to build confidence and aspiration.

In 2026, we aim to run at least 10 STEM outreach visits across Penang, Kedah, Perlis, northern Perak, Kelantan and Terengganu, reaching 1,500-2,500 students and 150-250 teachers with hands-on modules. Along the way, we will maintain and upgrade a portable suite of STEM kits for safe multi-state use, while training and mobilising 30-50 USM student mentors to grow as the next generation of science leaders.



A portable STEM lab of delicate optics, sound and electronics demos—equipment that relies on safe, reliable transport to reach schools across the northern region.

Budget, Spending and Sponsorship

We propose a STEM Mobility and Engagement Support (SMES) Fund that focuses only on programme delivery needs. It does not include lecturer or instructor fees. The SMES Fund supports equipment transportation, kit maintenance, hands-on materials and mentor training. It may also support a dedicated transport setup for STEM outreach, including the possibility of acquiring a van to move fragile kits safely to any school.

SPONSORSHIP OPTIONS*

Option A Comprehensive Mobility Support (RM 40k and above)
Covers the full SMES Fund, the renewal of our science kits for wider use, and a dedicated transport setup for STEM outreach.

Option B Partial Support (RM 10k-40k)
Covers SMES Fund for kits, consumables, and cross-state logistics using pooled/rented mobility.

Option C Cluster Sponsorship (Below RM 10k)
Sponsors 3-5 school visits, including consumables and logistics.


*A detailed itemised breakdown can be matched to your Corporate Social Responsibility (CSR) reporting format.


We will measure our progress using clear and meaningful indicators, such as the number of schools we visit, the students and teachers we reach, the modules we deliver and the involvement of our mentors. Teacher feedback will also help us understand the impact of each visit. Every year, we will provide an impact


report with photos and simple KPI tables, and we will refine our modules and travel routes based on what we learn.


Your contribution help us to expand our current achievements.

OUR STEM IMPACT IN NUMBERS

 **>20**
schools reached each year.

 **>2000**
students benefit from the STEM outreach in 2025.

 **>150**
teachers involved in advanced Physics education training.

 **>20**
STEM key areas involved including basic physics, electrical engineering, chemical engineering and more!



A young student shares his thoughts during a USM SoPhysics STEM session. Every ringgit invested turns into confidence, curiosity and a voice for the next generation.

The Impact of Your Support

Your support helps build a stronger STEM pathway for young people, especially in places where students have fewer chances to explore hands-on STEM experiences. It also has a strong potential to encourage students to pursue further studies and careers in Science, Technology, Engineering and Mathematics. Our current focus is in the northern region, and with the right support, this model can be expanded and replicated across Malaysia. USM already commits the expertise and equipment as an in-kind contribution. So, your contribution directly grows the programme and keeps it going for more schools.

This initiative fits well with common industry Corporate Social Responsibility (CSR) goals, such as

helping develop future talent, encouraging a culture of innovation, and reducing STEM learning gaps between rural and urban communities.

Sponsors will receive visibility on our outreach banners and teaching kits, along with features in USM's outreach media. An annual impact report will also be provided to show programme outcomes. Co-branding options are available, for example "STEM North presented by [Sponsor] and USM," and sponsor representatives are welcome to join our major outreach visits. This ensures your CSR contribution is clearly recognised by the communities and education stakeholders we engage.

LET'S BUILD OUR NATION'S STEM TALENT.



SoPhysics
STEM
Team



SoPhysics
Astronomy
Team

SoPhysics STEM outreach group operates under the leadership of Universiti Sains Malaysia, ensuring high standards of planning, delivery and long-term impact. For organisations interested in supporting or contributing to this initiative, please email us at:

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