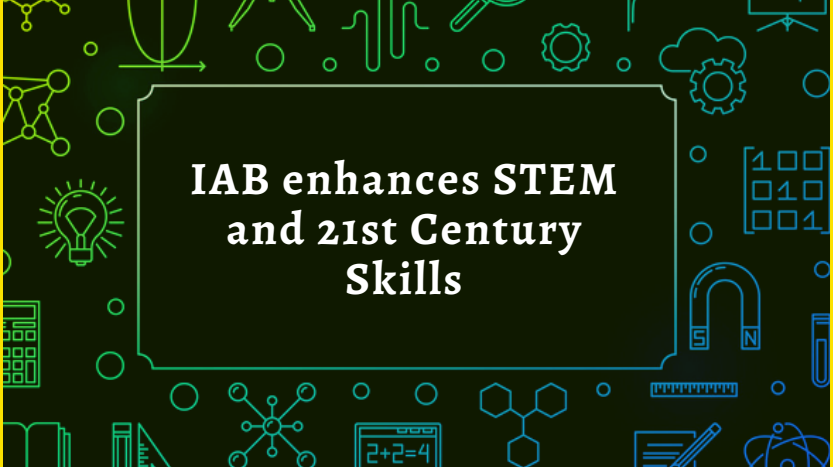

International Arab Baccalaureate (IAB) meets students where they are with flexible curricular topics designed to develop holistic skills, innovative thinking, and create pathways for the future. The IAB program enhances the development of highly sought-after skills and prepares students to change the world today, and tomorrow. With designed curricula using evidence-based practices for STEM and 21st century learning, the IAB program provides educators with flexible, high-quality STEM learning experiences for their students in the classroom or structured after-school programs. STEM stands for science, technology, engineering, and mathematics, and it covers any subject that falls into these categories.

Educators face an urgent, uphill battle to engage and enthuse students with the real-world applications of STEM subjects. Promoting interest in STEM is top of the agenda for IAB experts. Using information technology for teaching is becoming increasingly common and it is something that IAB seeks to incorporate into the curriculum. STEM fields and topics change and evolve so quickly. For this reason, IAB supports teachers on what to teach and research to make sure what is being taught is going to be relevant and useful in the future.

The IAB program supports teachers that tackle fundamental problems with students lacking a desire to learn STEM subjects. For example, some students have mathematics anxiety, which girls are more likely to suffer from than boys. We need to focus on how to move students away from a fixed mindset, where they believe they are inherently good at certain subjects, to a growth mindset, where they believe they can become better through hard work. Studies have shown that the gender gap for STEM subjects almost disappears when students have a growth mindset.

The UK Institute of Physics recently found that a high proportion of girls drop physics in their final year of secondary school, and it is usually the brightest ones who abandon the subject. This could be because physics is perceived as being hard to try and do well in, and girls are choosing ‘easier’ subjects. This is definitely something for educators and academics to consider.

About the Author

Dr. Tony Tohme

Tony Tohme is an experienced figure in the field of education, curriculum development and educational research.
He has a PhD in Chemistry, Teaching and Science Education from the American University of Beirut.
Throughout his career, Tony has worked as an instructor, subject coordinator, committee leader and educational trainer at an impressive scope of school and university institutions.
He is widely published and has fifteen years of experience with Librairie Du Liban Publishers, where he was Co-founder and Director of the Educational Research Centre. His duties involved curriculum development for Arab World Education Ministries, educational research projects, teacher training and professional development, and educational resources development for different subjects. He was also involved in the development of the International Arab Baccalaureate (IAB) project.
He worked as Academic Director at Lebanese Synod Schools. He is now Senior Educational Consultant at the Educational Research Centre (ERC).

IAB INTERNATIONAL ARAB BACCALAUREATE

Sciences are intricate, yet should not be seen as too challenging. Girls are very self-critical, which might cause problems with subjects that need trial and error. If something goes wrong in an exceedingly practical experiment, they take it on themselves. The social and emotional sides of STEM subjects – learning to expect failure and respond positively to that – are a few things that must be explored still.

One thing we do not acknowledge often enough is the importance of the gender of the teacher. Studies have shown a powerful link to girls' achievement during a subject if they had been taught by a female teacher at some point. We must not underestimate the ambition, potential, and achievements of ladies in STEM fields.
Practical knowledge can be precious and delicate to set up. Running virtual simulations of trials could be an answer to those problems. Working with simulations allows you to assess how scholars would handle a dangerous situation and enable more complex, real- life practical tasks to be carried out.
STEM is much further than a four-letter acronym. It is a trans-disciplinary approach to working real world problems, and IAB know-how in this space is reflected substantially in the system's approach to classes and the cross-curricula design.
Unfortunately, there is a deficiency of trained instructors in the STEM disciplines. IAB provides training in STEM and computer knowledge as well as problem grounded literacy so that educators are fit to prepare their pupils for a successful career and help them be ready to apply what they learn to real world situations just like they would on a job.

What about STREAM and STEAM?
The difference between STEM and these acronyms is the addition of "Art" and "Research" or "Reading".
Even though this seems like a small addition, but in fact it encompasses all the benefits of the skills obtained by scientific subjects (Technology, Engineering, Math…) in addition to general skills that prepare students to be successful in their behavior and future careers. These skills include:
-Creativity and Artistic Expression
-Investigation Skills
-Critical Thinking and Analyzing
-Working in groups and Collaborating
-Showing Initiative and Setting a good Example
-Bridging Communication
-Erasing illiteracy
-Problem Solving
Among many others…

STEM PROJECTS TACKLING REAL WORLD ISSUES	IAB PROJECTS IN STEM THAT DEAL WITH REAL WORLD PROBLEMS
• Preventing soil erosion • Solving infrastructure needs • Engineering systems that work on solar power and use solar panels • Bettering the life of the Disabled	• Hybrid Cars: tackling pollution issues caused by regular modes of transportation. • Stem Cell Regeneration: tackling issues with disease and the limits of modern medicine. • Climate Change: tackling the harsh changes in our global climate that threaten nature and our natural resources, as well as life on earth. • Addiction: tackling societies riddled with drug abuse and psychological diseases.