



AMERICAN
UNIVERSITY OF BEIRUT
FACULTY OF ARTS & SCIENCES

SCIENCE AND
MATHEMATICS
EDUCATION CENTER

24TH ANNUAL SCIENCE AND MATHEMATICS EDUCATORS ONLINE CONFERENCE

CONFERENCE PROGRAM

MARCH 4–5, 2023 | BEIRUT, LEBANON

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PROGRAM AT A GLANCE

SATURDAY MARCH 4, 2023

10:00–10:15 AM

OPENING CEREMONY

CONCURRENT INTERACTIVE SESSIONS

	TITLE	PRESENTER(S)	MODERATORS	AUDIENCE
	Approaches to Learning	Alaa Karnib	Tamer Amin	Math and Science
	Visual Tools Using Geogebra	Abdulhalim Ali Ghadady and Mohammad Othman	Rabih El Mouhayar	Math all levels
	Enhancing the Development of Student's Critical Thinking and Scientific Reasoning Skills through the Implementation of the '5-E Instructional Model' in the Process of Learning Sciences	Fawzia Mashmoushi	Enja Osman	Science all levels
DEVELOPMENTAL WORKSHOPS 10:30 AM–12:30 PM				
DEVELOPMENTAL WORKSHOP 1:30 PM–3:30 PM	Digital Learning and Digital Teaching Experiences	Muriel Albina, Haigo Dolmayan, and Reine Sakr	Rana Bassaj	Math and Science

	TITLE	PRESENTER(S)	MODERATORS	AUDIENCE
INNOVATIVE IDEA SESSIONS 10:30 AM–11:45 PM	Mathematical Olympiads in Lebanon	Giuseppe Della Sala	Ghina Rahi	Math Secondary
	Comment intéresser, en classe, les élèves de tous les niveaux scolaires?	Andrée Chaoui	Saouma Bou Jaoude	Science all levels
INNOVATIVE IDEA SESSION 1:30 PM–2:45 PM	Outdoor and Experiential Learning as a learning approach. An international course in science and Friluftsliv (outdoor life) teacher Education	Ann Holme	Rabih El Mouhayar	Science
BREAK				
PLENARY SESSION 1 4:00 PM–5:00 PM	MATHEMATICS MODERATOR: RABIH EL MOUHAYAR MAKING MATHEMATICS REAL: BRINGING STUDENT’S OUT-OF-SCHOOL MATHEMATICS INTO THE CLASSROOM ANITA A. WAGER PEABODY COLLEGE VANDERBILT UNIVERSITY			

SUNDAY, MARCH 5, 2023

**RESEARCH AND
PROJECT REPORT
SESSIONS**

**MODERATOR:
RABIH
EL MOUHAYAR**

9:30 AM–12:00 PM

	TITLE	PRESENTER(S)	TIME
	Effects of multi age teaching on the academic performance and motivation of Syrian refugees in biology	Fatima Haidar	9:30–10:00 AM
	Évaluation des expositions environnementale et humaine liées à la présence des polluants organiques classiques en milieu côtier : la côte de la ville d'El-Mina	Fatima Sleiman	10:00–10:30 AM
	Procedural or Proceptual Thinking of Irrational Numbers in Lebanese Mathematics National Textbooks	Layal Saikaly and Nina Hayfa	10:30–11:00 AM
	Students' Resolutions of some Paradoxes of Infinity in the Lens of Grossone Methodology	Layla Nasr	11:00–11:30 AM
	The Effect of STEM Education on the Students' Perception of Engineering and Technology	Mahdi Mansour and Sarah Rahhal	11:30 AM–12:00 PM

CONCURRENT INTERACTIVE SESSIONS

	TITLE	PRESENTER(S)	MODERATORS	AUDIENCE
DEVELOPMENTAL WORKSHOPS 10:00 AM–12:00 PM	Teaching Sciences Outside the Classroom	Nasser Barakat	Rana Bassaj	Math and Science intermediate and secondary
	الرياضيات مشوار حياة	Ikhlas Hammoud, Khadija Ibrahim, and Zahraa Haidar	Lara Hawash	Math kindergarten and elementary
INNOVATIVE IDEA SESSIONS 10:00 AM–11:15 PM	Immersive Learning Approach in Science Classes	Orly Bernaba, Anna Saab Abu Shakra, and Nivine Aziz	Jana Salameh	Science Intermediate
	Solar Car	Hind Itani and Raifa Al Hamwi	Ghina Rahi	Science kindergarten
	Empowering Education through Video Games	Mike Harb	Rana Bassaj	Math and Science elementary and intermediate
PLENARY SESSION 2 12:00–1:00 PM	MATHEMATICS AND SCIENCE MODERATOR: RABIH EL MOUHAYAR TEACHING SCIENCE AND MATHEMATICS OUT OF DOORS JUSTIN DILLON IOE, UCL'S FACULTY OF EDUCATION & SOCIETY UNIVERSITY COLLEGE LONDON			

ABSTRACTS

PLENARY 1: MATHEMATICS

SATURDAY | 4:00–5:00 PM

MAKING MATHEMATICS REAL:

BRINGING STUDENT'S OUT-OF-SCHOOL MATHEMATICS INTO THE CLASSROOM

ANITA A. WAGER,
VANDERBILT UNIVERSITY

All humans engage in mathematics outside of school settings. For young children, these opportunities provide a foundation for life long learning, particularly when recognized and built on by classroom teachers. Based on research findings from three projects with teachers from pre-school through grade five (children aged 4-11), I will discuss examples of: (a) mathematics children engage with outside of school; (b) how teachers can learn about what their children do; and (c) how teachers bridge out of school mathematics to what is happening in their classrooms. Building on the many resources that children bring into the classroom supports their identity as learners and doers of mathematics and validates their home and cultural practices.

PLENARY 2: MATHEMATICS AND SCIENCE

SUNDAY | 12:00–1:00 PM

TEACHING SCIENCE AND MATHEMATICS OUT OF DOORS

JUSTIN DILLON,
IOE, UCL'S FACULTY OF EDUCATION & SOCIETY | UNIVERSITY COLLEGE LONDON

Mathematics and science are two of the core subjects in many countries' curricula. Both subjects are traditionally taught in classrooms and laboratories with differing amounts of practical activities. However, the outdoors offer enormous potential for learning about science and mathematics whether it be in the school grounds, the local area or on school visits. In this talk, Justin Dillon will discuss the reasons why teaching these subjects beyond the classroom should be considered by school leaders and teachers. The talk will be illustrated with effective practice in schools, museums, science centres, zoos and aquaria.

DEVELOPMENTAL WORKSHOPS

SATURDAY | 10:30 AM–12:30 PM

1 IMPACTS OF INFORMAL ACTIVITIES ON FORMAL EDUCATION

ALAA KARNIB,
WELLSPRING LEARNING COMMUNITY, LEBANON

The classroom teachers encounter plethora of obstacles, as they are loaded with assessments, standardization of the exams, and lesson plans. Most importantly, they struggle when it comes to including real life examples that make the lessons more conceptual and motivate the students at the same time. On the other hand, students join after school clubs and STEAM activities, watch TV documentaries, visit the museums, explore the environment to feed their desires and to gain experiential learning. Formal educators need to work with informal educators because they supplement each other in terms of enriching the classroom content. Integrating informal learning activities in teaching sciences and mathematics promotes students' engagement, peer communication, critical thinking, problem solving and thus tackling the 21st century skills, the utterly required pre-requisites for university and work life. "Approaches to Learning" is about how to invest in informal learning and combine it to the formal learning through interactive minds-on activities. The workshop is divided into three activities that enable the participants to define the informal learning, distinguish the formal learning from the informal learning, make sense of its impacts on learning in formal settings, and implement informal experiences in their plans.

2 VISUAL TOOLS USING GEOGEBRA

ABDULHALIM GHADADY AND MOHAMMAD OTHMAN,
HOUSSAM HARIRI HIGH SCHOOL, LEBANON

In our project, we are going to visualize some rules and properties of mathematical concepts by using Geogebra. We aim to facilitate the way of teaching and introduce new ways and techniques in teaching and help students to understand the properties in an easy way. By using these models, the geometric and Algebraic proofs will be easier and students will be able to modify their way of learning these concepts.

3 ENHANCING THE DEVELOPMENT OF STUDENT'S CRITICAL THINKING AND SCIENTIFIC REASONING SKILLS THROUGH THE IMPLEMENTATION OF THE '5-E INSTRUCTIONAL MODEL' IN THE PROCESS OF LEARNING SCIENCES

FAWZIA MASHMOUSHI,
AL MAKASSED INSTITUTION, LEBANON

Critical thinking is an essential life skill that prepares learners to deal with challenges they will face in real life. The aim of this training is to examine the impact of the 5-E Instructional Model in enhancing the development of critical thinking skills among learners through adopting and implementing the five phases of this model during the science classes in all grade levels. The training is divided into three phases, the introductory phase which comprises an ice breaking activity, an introductory activity where participants reflect their previous knowledge about the topic, and a group work activity where participants in groups will discover the 5 stages of the 5 E instructional model through watching a short video and filling up a chart template and will use educational applications that enhance integration of technology and develop students' higher order thinking skills. The second phase which represents the delivery phases, it comprises five activities which enable participants to gain a clear understanding of the topic and master best practices and strategies. The third phase represents the closure to wrap up all key concepts and make a proper evaluation. To determine the usefulness of implementing critical thinking skills in science classrooms, researchers conducted investigations to determine if critical thinking skills result in improving students' academic achievements in the science

subject. Teachers on all levels from preschool through grade twelve need to shift their traditional strategies to new strategies. The 5E Instructional Model (Bybee & Landes, 1990) can be used to design a science lesson, and is based upon cognitive psychology, constructivist-learning theory, and best practices in science teaching. The cycle appears consists of cognitive stages of learning that comprise engage, explore, explain, elaborate, and evaluate. Bybee (1997) declares that “using this approach, students redefine, reorganize, elaborate, and change their initial concepts through self-reflection and interaction with their peers and their environment. Learners interpret objects and phenomena, and internalize those interpretations in terms of their current conceptual understanding” (p. 176). Science teachers and curriculum developers may integrate or apply the model at several levels. The model can be the organizing pattern of a sequence of daily lessons, individual units, or yearly plans (Bybee, 1997). In conclusion, the 5-E-Instructional Model is a key for the implementation of best practices that promote the development of critical thinking skills among the learners. This model is aimed at developing effective and sustainable strategies to improve the quality of teaching and learning science.

4

DIGITAL LEARNING AND DIGITAL TEACHING EXPERIENCES | 1:30–3:30 PM

MURIEL ALBINA, HAIGO DOLMAYAN, AND REINE SAKR,
LEBANESE ALTERNATIVE LEARNING, LEBANON

The Lebanese Alternative Learning mission is to provide all students in Lebanon with a transformative digital learning experience that takes into account the student as a whole and responds to their intellectual, emotional, and creative needs. LAL created a highly interactive digital learning platform, “Tabshoura”, and a digital resource bank “LALmoudaress” for teachers.

► **TABSHOURA PLATFORM** offers an autonomous learning environment, allowing learners to be actively engaged in their learning experience. Tabshoura includes all subjects, from kindergarten to Grade 9, in three languages (Arabic, French and English), skills-based co-curricular digital projects, and non-formal education programs for out of school children. Based on the fact that learners are more likely to remember concepts and knowledge that they have discovered on their own, the Math and Science chapters follow a mode of teaching deeply inspired by the Discovery-Based learning model.

► **LALMOUDARESS PLATFORM** is an initiative to support teachers transition to remote and blended learning, and empower teachers to provide an enhanced distance learning experience. “LALmoudaress” provides access to a library of blended learning resources, synchronous or asynchronous, open to all educators and connects them with each other through a discussion forum. Our team will take you on a journey through both platforms. You will discover some of Tabshoura’s Math, Science and STEM content and get a sneak peek of their underlying methodology. We will then walk you through LALmoudaress platform.

INNOVATIVE IDEA SESSIONS

SATURDAY | 10:30–11:45 AM

1

MATHEMATICAL OLYMPIADS IN LEBANON

GIUSEPPE DELLA SALA,
AMERICAN UNIVERSITY OF BEIRUT, LEBANON

The Math Olympiads are a competition aimed at high school students, which has developed a solid tradition in many countries around the world. The style of the contest puts a strong emphasis on creativity and inventiveness, with the idea of presenting types of questions which are not normally seen in high school curricula. Recently, the American University of Beirut has started to stage a competition of this kind in Lebanon: we will discuss the first and second (still ongoing) editions of the contest, as well as the possible future developments.

2

COMMENT INTÉRESSER, EN CLASSE, LES ÉLÈVES DE TOUS LES NIVEAUX SCOLAIRES?

ANDRÉE CHAOUÏ,
BALAMAND UNIVERSITY, LEBANON

Si certains élèves perçoivent l'intérêt d'apprendre, d'autres sont démotivés. Comment intéresser l'ensemble de la classe ? Pouvez-vous, les enseignants, présenter des solutions pour un cours qui n'apas fonctionné? Parfois, les élèves comprennent mieux la consigne présentée par un camarade que par l'enseignant. Il est préférable que les élèves partagent le cours avec l'enseignant. L'enseignant peut, par sa façon d'agir, amener les élèves, à aimer sa matière.

On peut dire qu'il existe un lien étroit entre la motivation de l'élève et la relation professeur/élève. Le professeur, par sa personnalité et son comportement, a le pouvoir de susciter l'intérêt de ses élèves ou au contraire de les démotiver. Si le professeur réussit à être dynamique, à faire régner dans sa classe une atmosphère de confiance, il augmente largement ses chances de se retrouver face à une classe intéressée et motivée pour apprendre. La réussite du cours, c'est quand l'enseignant met en évidence, la créativité des élèves, leur imagination et leur donne de l'importance.

3

OUTDOOR AND EXPERIENTIAL LEARNING AS A LEARNING APPROACH. AN INTERNATIONAL COURSE IN SCIENCE AND FRILUFTSLIV (OUTDOOR LIFE) TEACHER EDUCATION | 1:30–2:45 PM

ANN HOLME,
UNIVERSITY OF SOUTH EASTERN NORWAY, NORWAY

Learning science is a crucial part of any teacher education all over the world. The learning is often done in traditional courses where curricula-based topics are thought in class, laboratories or on short field courses. In this talk we present a course that may build on the shoulders of these courses, offering the teacher-students learning techniques, as tools, to use while educating children through active learning outdoors.

The outdoor course gives the students a chance to place their learning about nature, into nature itself. The course focuses on the learning approach, opening the door for teachers to gather experience in how teaching children both indoors and outdoors in rich and inspiring learning projects. The famous quote of John Dewey, learning by doing and reflecting about the doing stands strong in the culture of outdoor schooling in Norway. Combining indoor and outdoor learning arenas has by previous researchers, proved to be an optimal way of securing in-depth learning among students and children (Jordet, 2011). New demands to education in the green shift, demands universities and schools to use learning arenas that may give deep learning as well as student active learning in accordance with the 21st century skills.

The Outdoor and Experiential study program is an optional course in the teacher training program at the USN. It is also an international course receiving teacher-students from countries around Europe, the USA, Taiwan, and Lebanon. In the current 45-minute talk, the focus will be how this course is run with a couple of learning projects as examples.

RESEARCH SESSIONS

SUNDAY | 9:30 AM–12:00 PM

1 EFFECTS OF MULTI AGE TEACHING ON THE ACADEMIC PERFORMANCE AND MOTIVATION OF SYRIAN REFUGEES IN BIOLOGY | 9:30–10:00 AM

FATIMA HAIDAR,
GHASSANIEH PUBLIC SCHOOL, LEBANON

As a result of the war in Syria, Lebanon was flooded by millions of refugees. Many of their kids missed school for a few years and when they went back to school this resulted in an age gap that can reach 5 years in the same class. This gap created a problem in the public school I taught at where the curriculum was not adapted for this multi-age setting. The students' grades were suffering as well as their motivation, as an effort to solve this problem I decided to use multi-age teaching strategies such as differentiated learning, peer tutoring, role play and author's chair to test the effects of these techniques on this class. The previous research shows that multi-age teaching can have a positive impact on the student's achievement however the effects on the social and emotional level seemed inconclusive. The intervention was done in a public school on 20 students who were separated into two groups; a control group and an intervention group. The intervention was done over 10 sessions, two activities were taught during this period. A pretest and a posttest were done to test their achievement along with a pre and post motivational scales to test their motivation. The results showed that their achievement increased and was statistically significant however, the motivation even though it changed however the change was not statistically significant. This research solved the problem with the academical performance and was of a great importance for my experience as a teacher.

2 ÉVALUATION DES EXPOSITIONS ENVIRONNEMENTALE ET HUMAINE LIÉES À LA PRÉSENCE DES POLLUANTS ORGANIQUES CLASSIQUES EN MILIEU CÔTIER: LA CÔTE DE LA VILLE D'EL-MINA | 10:00–10:30 AM

FATIMA SLEIMAN,
AL MAKASSED INSTITUTION, LEBANON

Les rejets continus des eaux usées brutes et/ou traitées dans l'environnement aquatique nécessitent l'utilisation des techniques de détection développées pour mettre en évidence la présence des polluants, même à l'état de trace, dans les différentes matrices environnementales. Ces polluants peuvent être trouvés dans les produits de consommation humaine (poisson) ce qui engendre des risques écologiques et sanitaires. Les données disponibles sont encore insuffisantes pour juger d'une façon certaine des risques associés. Ce contexte représente un large champ d'étude nécessitant des organismes modèles pour des études de transfert et d'écotoxicologie.

Une fois arrivés dans l'environnement aquatique, les polluants sont dispersés entre matrices biotique et abiotique, selon un cycle fermé dirigé par des phénomènes de transfert. L'occurrence environnementale des polluants dans l'eau, les sédiments et les poissons résume le transfert de ces molécules dans les différentes matrices environnementales.

La zone d'étude de cette occurrence environnementale s'étend le long de la cote de la ville d'El- Mina, couvrant 4 sites recevant des rejets des eaux usées brutes depuis des décennies.

Les molécules retenues pour cette étude sont des polluants prioritaires historiques classiques : les HAP. Les organismes sélectionnés sont deux espèces de poissons largement consommés par la population d'El-Mina: *Siganus luridus* et *Mugil cephalus*.

L'analyse a révélé des concentrations très faibles en HAP dans l'eau, ces concentrations varient entre les seuils de détection (0.1 mg/l) et de quantification (0.33 mg/l) de la méthode d'analyse adoptée en chromatographie liquide à haute performance (HPLC). Les concentrations en HAP dans les sédiments varient entre 3350 et 6350 ng/g poids sec, ce qui révèle un grand risque écologique. La présence des HAP dans les poissons, surtout dans l'espèce *Siganus*, montre qu'il y a un transfert des HAP entre sédiments et poissons lié au mode de nutrition de ces organismes. L'évaluation de risque écologique (ERE) montre un quotient risque QR>1 dans les sédiments et dans le *Siganus* pouvant engendrer des effets néfastes sur la santé humaine et environnementale.

3

PROCEDURAL OR PROCEPTUAL THINKING OF IRRATIONAL NUMBERS IN LEBANESE MATHEMATICS NATIONAL TEXTBOOKS | 10:30–11:00 AM

LAYAL SAIKALY AND NINA HAYFA,
LEBANESE UNIVERSITY, LEBANON

The textbook is a widely used resource in the practice of teaching and, consequently, is a subject of educational research considered from various theoretical perspectives. This research is to investigate the language and tasks used when introducing the set of real numbers in the Lebanese mathematics national textbooks. It aims to explore the structure of the theoretical approach used in these books when constructing the set of real numbers, and the kind of thinking, procedural or proceptual, that is encouraged. By adopting the three worlds of mathematics developed by Tall (2004) and the notion of procept introduced by Gray and Tall (1994), the content of the Lebanese national mathematics textbooks of grades 8, 9 and 10, related to irrational numbers and the introduction of the set of real numbers, is analyzed in terms of the language used and tasks proposed. The method implemented, help to obtain the didactical-mathematical knowledge that help the teacher in making decisions about the textbooks' possibilities and limitations. The results show that these books introduce the irrational numbers primarily as procedures to be executed and most of the language used wrongfully implies that irrational numbers are few. In addition, the approach used to construct the set of real numbers mostly yields procedural thinking, which is the type of thinking that does not contribute in developing a longterm ability to resolve non-routine mathematics problems related to real number.

4

STUDENTS' RESOLUTIONS OF SOME PARADOXES OF INFINITY IN THE LENS OF GROSSONE METHODOLOGY | 11:00–11:30 AM

LAYLA NASR,
LEBANESE UNIVERSITY, LEBANON

In this article, students' responses to some classical paradoxes related to infinity were investigated by considering the traditional methods and later by considering a new methodology for dealing with infinity (grossone methodology) which was introduced to them briefly. Eleven students of grade 12 participated in this study. In phase 1, the students (who learn in the traditional methods) provided their intuitive resolutions to three paradoxes of infinity. In phase 2, the students were introduced to the grossone methodology after which they were asked to resolve the same paradoxes using this methodology in phase 3. After being presented by the normative and the grossone-based resolutions, the students reflected on them by writing. Results of this study showed that students' intuitive solutions were similar to grossone-based solutions of the three considered paradoxes. As a consequence, the students accepted those solutions. This study shows the relevance of using an alternative method, which is the grossone methodology, in order to simplify some paradoxical situations with infinity for undergraduate students.

5

THE EFFECT OF STEM EDUCATION ON THE STUDENTS' PERCEPTION OF ENGINEERING AND TECHNOLOGY | 11:30 AM–12:00 PM

MAHDI MANSOUR AND SARAH RAHHAL,
LE LYCEE NATIONAL, FRANCE

There is a continuous growing call for expanding the role of engineering in the school curriculum along with the disciplines of science, mathematics, and technology.

The inclusion of engineering in primary school levels serves the need to promote innovation and produce creative graduates who can excel in STEM fields. Studies have reported that most elementary students perceive an engineer as a male figure who works alone to fix or build. One of the most popular teaching methods used in STEM education is the engineering design process. In this research we dealt with the engineering design process in the implementation of STEM education to explore students' potential changes in perceptions of the work of engineers and technology after studying a unit of the Engineering is Elementary (EiETM) curriculum in a Lebanese School. The Tools used in the study were the "What is Engineering?" and "What is Technology" tests designed by EiE along with the well-known "Draw-An- Engineer Test (DAET) to assess students' perceptions of engineers, engineering, and technology. It was determined that the study of the EiE unit positively affected the engineering perceptions of elementary students.

DEVELOPMENTAL WORKSHOPS

SUNDAY | 10:00 AM–12:00 PM

1

TEACHING SCIENCES OUTSIDE THE CLASSROOM

BARAKAT NASSER,

BEIRUT BAPTIST SCHOOL AND BEIRUT ANNUNCIATION COLLEGE, LEBANON

As the 21st century skills become a persistent need in our daily life regarding work or just social routines, schools need to implement these skills within their classes. As for sciences, these skills have to be taught inside class and outside class as well and sticking to traditional lecturing methods won't change a lot. However, shifting to these approaches is challenging and time consuming, the transitional phase should be prepared in advance and studied properly. Using some STEM activities, low budget ones, and some PBL (problem-based learning) activities can help during this phase and can also open new horizons for students and teachers. These activities do not need to be sophisticated, but well prepared in an engaging way and autonomous form as learners need to be able to execute them by themselves with minimum intervention of teachers, whose role would be monitoring and facilitating the process. Outdoor science activities are usually interdisciplinary and engage different routines as they are performed; for that, preparation in advance is obligatory and particularly, highlighting focus areas where the educator needs to pause and intervene. To have a curriculum covered with outdoor activities may take up to 5 or 6 years of planning, trying, and evaluating. Teachers' societies are encouraged to produce mini-PLCs to follow up and share activities to support each other, take the class outside and let the students have fun, the classroom time can wait a little.

الرياضيات مشوار حياة

إخلاص حمود، خديجة إبراهيم، و زهراء حيدر،
ثانوية الكوثر، لبنان

2

يتمحور موضوع هذه الدورة حول تعليم الرياضيات داخل و خارج المدرسة بطريقة محببة للمتعلمين حول مفاهيم رياضية مختلفة كالجمع الطرح الضرب الأعداد... وباستخدام وسائل حسية متنوعة: ملعب المدرسة، أشياء من الطبيعة، مدينة ألعاب وربطها بالحياة اليومية وسيتم استخدام أنشطة وفق استراتيجيات متنوعة، استراتيجيات البالونات العشر / تنال القمر / دوائر الألوان... مع عرض فيديو و صور للأنشطة تظهر كيفية شرح هذه المفاهيم مع التلامذة حيث سيتم بعدها المناقشة بالإضافة إلى تنفيذ بعضها مع المتدربين من خلال استراتيجيات اخفض يدك... و في الختام سيتم عرض النقاط المستفادة.

INNOVATIVE IDEA SESSIONS

SUNDAY | 10:00 AM–11:15 PM

1

TEACHING SCIENCES OUTSIDE THE CLASSROOM

ORLY BERNABA, ANNA SAAB ABU SHAKRA AND NIVINE AZIZ,
SAINT MARY'S ORTHODOX COLLEGE, LEBANON

Immersive learning is a digital approach to education that allows learners to immerse themselves in interactive digital environments. This digital learning technique makes use of simulated or artificial environments to create unique learning experiences for learners. Immersive learning techniques help learners to experience, explore and navigate real-world subjects and destinations within the comfort of their classrooms.

This workshop introduces immersive learning approach that focuses on the tools educators need in order to ensure the best learning outcomes for learners. It provides them with a set of techniques and guided activities to implement immersive learning strategies for teaching and learning in Science classes. It also supports learners' preparation for the future addressing the 21st century skills.

2

SOLAR CAR

HIND ITANI AND RAIFA AL HAMWI,
AL MAKASSED INSTITUTION, LEBANON

Why choosing "Solar Car"? Simply because solar industry is one of the most important projects that we all nowadays should empower ourselves in. Moreover building a solar- powered car will introduce students to the alternative energy concepts and at the same time they will be practicing problem-solving, design, and modeling skills. It a relative meaning for STEAM project which is the new learning path. In addition, this project will allow kids to experience hand tools as they construct the solar car. The most amazing part is that no experience needed. It is fun and interesting; we will be sharing with all of you every step so you too- if you liked our project- can build your own solar car and you can even be creative in designing the body of your car. It is going to be an amazing experience which through it we will be learning more about solar energy and its advantages such as how by using solar power we are not using any of the earth's resources like oil or coal which in its turn make the solar car a renewable source with a zero pollution effects. We hope that you like our project and we are very excited to present our work with all of you. Thank you for this experience it will be so beneficial and we can't wait to get innovative waiting you to share with us our joy in building our module.

3

EMPOWERING EDUCATION THROUGH VIDEO GAMES

MIKE HARB,
SILA, LEBANON

Despite the negative connotation of video games, they can be used to empower education. We can give contextual meaning to lessons through this controversial medium. Imagine if learning was as compelling as the entertainment industry. What are the design requirements for such an innovation, and how can it be integrated into our rigid system?



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