

CREATIVE MATHEMATICS HANDS-ON ACTIVITIES IN THE CLASSROOM

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Short description of the workshop:

Many children find that Mathematics is difficult and boring. But they are curious and they love to have fun with exciting things around them. Appropriate activities can be found to stimulate them to have fun and love to learn Mathematics. The workshop will show ways to develop creativity in Mathematics and Technology Education to increase intellectual curiosity, to develop problem solving and thinking skills, to promote discovery as well as to unleash creativity. In the workshop, the participants will share with each other how to make Mathematics lessons more meaningful, effective and interesting, how to cultivate intrinsic motivation for learning Mathematics, and how to develop thinking abilities, problem-solving skills and creativity.

Every participant will receive a fun and creative activity pack. Samples of creative hands-on activities will be demonstrated as follow: Curves in Nature, Reaction Time Test, Simple Balance, Mathematics of Robot arms, Augmented Reality (AR) in Mathematics Education.

Planned structure:

Insert the planned structure of the Workshop here after leaving ONE empty line below the abstract. Please use this style for the timetable and insert necessary rows. Due to technical reasons the timetable shall not exceed 10 rows.

<i>Planned timeline</i>	<i>Topic</i>	<i>Material / Working format</i>
20 Minutes	Curves in Nature	These activities will show how to observe the nature and try to find the relation between 2 variables using curves, for example; the relation between the sectors of bamboo tree and their lengths, etc..
10 Minutes	Reaction Time Test	Measuring a reaction time of each participants from a given material. The plot between reaction time and the number of participants (frequency) will

		be studied.
20 Minutes	Simple Balance	A simple balance will be made using cardboard, paper clips, a small thread and a coin. The learners will learn about the principle of moment and how to calibrate the scale as well as to calculate the error of the measurement.
20 Minutes	Mathematics of Robot arms	A simple robot arm will be constructed using Ice-Cream sticks. The learners have to find the mathematic relations of extended lengths of robot arm.
20 Minutes	Augmented Reality (AR) in Mathematics Education	This activity will show a brief potential and challenges of using Augmented Reality (AR) in mathematics education. This workshop will describe how to develop a simple AR system for the improvement of abilities of learning mathematics. Sample AR materials used for mathematics education at high school as well as university level will also be discussed. The learners can generate and view geometrical objects in 3-dimension using mobile phones or computer tablets for better understanding of the structures.

References

Yingprayoon, J. (2015). Teaching Mathematics using Augmented Reality, *Proceedings of the 20th Asian Technology Conference in Mathematics*. (pp. 384-391). December 16-20, 2015, Leshan, China