

TECHNICAL WORKSHOPS SERIES – 2017

Summer Activity Club

Math Gaming Club

- Organized by Tinkering Lab, Venture Center -

Potential gains	<ul style="list-style-type: none"> • Improve logical, analytical and strategic thinking in children through games • Learning while having fun playing games that use mathematical principles and strategies • Bring together a peer group of young people with interest in math-based games
Workshop Director	Mr. Vinayak Lele, Director and CTO at Prescient Technologies Pvt Ltd
Organized by	<ul style="list-style-type: none"> • Tinkering Lab, Venture Center
Supported by	<ul style="list-style-type: none"> • Venture Center
For whom	<ul style="list-style-type: none"> • Age group 10-18 yrs old • Familiarity with English required
When	Start date: Monday, 17 April 2017 -29 April 2017 , Time: 3.15 PM to 6.15 PM
Where	Lecture Theatre, Venture Center, 900 NCL Innovation Park, Dr. Homi Bhabha Road, Pune
Contact	Ms Lipika Biswas Phone: 91-20-25865877; Email: eventsdesk@venturecenter.co.in
Cost	<p>Cost: Rs 5,000 for 12 sessions Register at: http://tinkeringlab.co.in/events-2/ Seats limited to 20</p> <p>Note:-</p> <ul style="list-style-type: none"> • Attendance only after confirmation of registration by organizers. • Organizers reserve the right to accept or refuse or delay registrations so to optimize the composition of the group and hence maximize learning for all participants. • Fees paid is not refundable and non transferable under any circumstances.

Introduction

Math is an abstraction of logical thinking. By putting structure to thinking and developing methods to deal with complexity, math enables the human mind to stretch its limits. But most children learn Math as a series of boring procedures without any context and fun. At the same time, most kids love games – physical or virtual. Can math gaming bring together both fun and learning.

This club intends to bring together children and encourage them to “learn” math and logical/analytical thinking through fun activities and games. A series of group interactions is planned where children can compete and collaborate around these activities/ games while also analyzing and thinking through the strategy behind the games.

Workshop Outline

A typical session will have:

- Review of take-home game
- Grouping the participants (5 groups of 4 each)
- Introduction to a competitive/ collaborative activity or board game. Learning the rules.
- Participants will be allowed to play the game as per the rules.
- Analysis of the game with focus on basic elements of the game and strategies
- Listen to selected examples of how math was used to solve important and not-so-important real-world problems.
- Puzzles/games to play at home.

Workshop includes

- Workshop includes refreshment break with snacks
- Membership in mailing list of all participants
- Board games used shall be provided by Venture Center and retained by Venture Center after the session.
- Tour of the Tinkering Lab and Venture Center’s labs
- Participation Certificate (for more than 80% attendance)

Workshop does not provide

- No ranking or scoring shall be provided. Idea is to enjoy math via games and encourage analytical/ strategic thinking.
- Lunch is not planned under this workshop

Dates for Club Sessions	
Dates	Illustrative themes and games
Monday -17 April 2017	Pigeon Hole Principle. Combinatorial methods Two player games. (Ex) Othello
Tuesday -18 April 2017	Dealing with invariance Puzzles. (Ex) Chessboard/cards based.
Wednesday -19 April 2017	Graph Theory Two player games. (Ex) Tic Tac Toe
Thursday -20 April 2017	Nim. Probability. Game theory Tangram and geometry.
Friday -21 April 2017	Deterministic vs probabilistic methods. Two player games. (Ex) Battleship. Rules of elimination.
Saturday -22 April 2017	Minimization / maximization, shortest distance finding
Monday -24 April 2017	Probability & Multi-player games. (Ex) Risk.
Tuesday -25 April 2017	Cryptography- the art of writing or solving codes.
Wednesday -26 April 2017	Map colouring / tiling
Thursday -27 April 2017	Multi-player games. (Ex) Monopoly and calculated financial risk taking
Friday -28 April 2017	Rubik cubes. Topology Single player games. (Ex) Sudoku. Tree expansion
Saturday -29 April 2017	All Two player games & Multi-player games.

Faculty and volunteers (in alphabetical order of last names)	
<p>Girish Arabale</p> 	<p>Girish is Founder, Molqbits Sensors & Data Pvt Ltd, Pune and incubated at Venture Center. He obtained his PhD [Carbon Nanostructures] from National Chemical Laboratory, Pune. His research Interests include Raman Spectroscopy, Nanoscale Carbon, Energy Storage Technologies, Open-Source Hardware, Data Visualizations, Biohacking.</p>
<p>Vinayak Lele</p> 	<p>Vinayak is Director and CTO at Prescient Technologies Pvt Ltd. He obtained his masters degree in engineering from IISc Bangalore. His field of work is computational geometry. His interests include aviation, theatre.</p>
<p>Anant Patki</p> 	<p>Prof. Anant Patki is a Scientist from ISRO and had worked on India's first Satellite Aryabhata and the Launch Vehicles like SLV and PSLV. He specializes in Aerospace Engineering. During his service he had interactions with NASA, ESA and GlavCosmos. He also worked as Visiting Professor at Dept of Aerospace Engg of IIT/Bombay and at Dept of Aerospace Engg of IISc, Bangalore. He has been confirmed fellowships by many professional bodies and has won many awards during his tenure</p>
About the organizers	
	<p>About Tinkering Lab The Tinkering Lab is a facility developed and managed by Venture Center, NCL Innovation Park, Pune, India. The main aim of the Tinkering Lab is to help inventors and entrepreneurs to build prototypes of their ideas and generally “tinker” around exploring new ideas. The focus is on electronics, instrumentation and optics besides related prototyping and design. For more information about Tinkering Lab: http://tinkeringlab.co.in/</p>
	<p>About Venture Center Entrepreneurship Development Center (Venture Center) – a CSIR initiative – is a Section 60 company hosted by the National Chemical Laboratory, Pune. Venture Center strives to nucleate and nurture technology and knowledge-based enterprises by leveraging the scientific and engineering competencies of the institutions in the Pune region in India. The Venture Center is a technology business incubator supported by the Department of Science & Technology's National Science & Technology Entrepreneurship Development Board (DST-NSTEDB). Venture Center focuses on technology enterprises offering products and services exploiting scientific expertise in the areas of materials, chemicals and biological sciences & engineering.</p>