Tinkering lab: Tinkering Lab Technical Workshops Series – 2018

Summer Activity Club
Math Gaming Club
- Organized by Venture Center

Learn	• 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
Organized by	Tinkering lab, Venture Center
For whom	Age group 10-18 yrs old (Familiarity with English required)
When	**Wednesday, 16 May 2018 –Sunday 27 May 2018 | Time: 2.30 PM to 5.30 PM**
Where	Lecture Theatre, 900 NCL Innovation Park, Dr. Homi Bhabha (Pashan) Road, Pune-411008
Contact	Technical queries Ms. Sayali - 0202586-5875/77; sayali@web.venturecenter.co.in Logistical queries Ms Lipika - 0202586-5875/77; eventsdesk@venturecenter.co.in
Cost	*Rs 5000/- for 12 sessions* Maximum **20 seats**; First-come-first-serve. **Application form available at- https://goo.gl/forms/IwGJcvwtUaQeGBqI3** **More info on: http://tinkeringlab.co.in/events-2/** Last date for receipt of payments- 8 May 2018 Note:- • 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.

Course 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.

Course 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)

Course 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

*Please note, the participants will have to arrange for their own travel/local transport and accommodation and dinners.**
- For accommodation (standard and budgeted hotels) please visit: www.venturecenter.co.in/puneguide/standard.php
- For accommodation (deluxe and luxury hotels) please visit: www.venturecenter.co.in/puneguide/deluxe.php
- For local transport details visit: www.venturecenter.co.in/puneguide/taxi.php

Dates for Club Sessions

Date	Topics	Games	Faculy
Wed,16th May 2018	Pigeon Hole Principle; Combinatorial methods	battleship	Mr.Vinayak Lele , Mr.Girish Arabale, Ms.Manjushri Dhume
Thu,17th May 2018	Dealing with invariance; Rules of elimination		Mr.Vinayak Lele , Mr. Girish Arabale, Ms.Manjushri Dhume
Fri,18th May 2018	Geometry	Tangram, Tetromino puzzle ,Origami	Ms.Manjushri Dhume
Sat,19th May 2018	Tree expansion; Graph Theory	Tic tac toe, othello	Mr.Subhojit Basu
Sun,20th May 2018	Shortest distance finding		Mr.Subhojit Basu
Mon,21st May 2018	Cryptography- the art of writing or solving codes		Mr. Girish Arabale
Tue,22nd May 2018	Geometry	Tangram, Tetrominopuzzle ,Origami	Ms.Manjushri Dhume
Wed,23rd May 2018	Map colouring / tiling		Mr.Vinayak Lele Mr.Girish Arabale
Thu,24th May 2018	Map colouring / tiling		Mr.Vinayak Lele Mr.Girish Arabale
Fri,25th May 2018	Minimization / maximization		Mr. Anat Patki
Sat,26th May 2018	Probability; Game theory	Risk, monopoly	Mr.Subhojit Basu
Sun,27th May 2018	Deterministic vs probabilistic methods	Nim. (Using monopoly chips)	Mr.Subhojit Basu

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Faculty	
  Girish Arabale	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.
  Subhojit Basu	Subhojit has worked in diverse technical roles on an array of technologies relating to VLSI Design , EDA and Multicore Processor Design and Computing at INTEL, India, Mentor Graphics , India and DocomoLabs USA. Subhojit is an expert electronics designer (System Level & Component level) in both Analog and Digital Domains and Embedded. He was the recipient of INMO '98 [Indian National Mathematical Olympiad] for his outstanding ability in mathematics by Govt. Of India. He holds a degree in Electrical Engg. (B.Tech) and Instrumentation (M.Tech) from IIT, Kharagpur. Subhojit has been showcased in several TV shows and is a CNBC TV-18 YoungTurk, 2013. He ran a startup focusing on Toys from 2010-14 and is an avid gamer and puzzle enthusiast himself.
  Manjushri Dhume	Manjushri is founder of LearnQuest and worked for over 18 years in different fields like Engineering, Software and Training. She has over 10 years experience in designing and conducting training programs, both in India and abroad. She is a visiting faculty for Mumbai University and teaches "Media and Knowledge Management" for post graduate students.
  Anant Patki	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
  Vinayak Lele	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.

VENTURE CENTER	T nkering Lab
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About the organizers	
T nkering 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/
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. For more information, visit http://www.venturecenter.co.in/

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