

STEM LAND



STEM Land Newsletter

Volume-1, Oct-Dec 2017

STEM (Science Technology Engineering Mathematics) Land

STEM Land are resource centres located in Udavi school and Isai Ambalam school, two outreach schools of Auroville. Children come to STEM Land for Math and science classes and even during their break times. They learn Mathematics, Electronics, 3D Printing, Programming, Mindstorms and play strategic games that enhances logical thinking. Children take responsibility for their learning and plan their goals. They only ask support when needed. This self directed learning is based on Sri Aurobindo's first principle of education, "Nothing can be taught". We believe a nurturing environment can support a child learning and taking responsibility of his or her learning.

Bamboo Torch

During sleep over children needed a torch when there was no power. They connected a circuit with a switch and 1 watt LED to get maximum light. They used bamboo and coconut shell and made a torch. One of their teacher got inspired and learnt to make one by herself. They gifted the torch to some visitors.



How we begin everyday

We start with a gathering where children, volunteers and visitors sit in a circle and have a minute of concentration. After this we share updates/announcements, and plan the day.



Tracking progress

Children used to create their plan in Excel. They had various difficulties including formatting, accidentally deleting their data and the process taking too much time. They now use a software that we created for filling their plan for the week. The software allows children to quickly select their plan and track their progress.



They fill a daily and weekly update of their accomplishments. Children submit assessments at the end of week. Based on their assessment they are able to see their progress which is represented pictorially.

Education by Design

At Isai Ambalam we have been looking at education by design including creating a herbarium of plants found in the school and studying and creating models for the honey bee. We also took on real life challenges including creating a pond and refurbishing a clay room. This term 4th graders did an EBD about honey bees with the question, 'Can honeybees create a forest?'



This included studying about the honey bees way beyond what is expected of them visits to aparies and creating charts, materials to display their learning including this large model of a honeybee.



Here are some reflections from the children:
Harish: I feel really happy. Want to do the same kind of project. Want to grow honeybees. I want to tell what I learnt about honeybees to everyone. I learnt how to make projects. Learnt what honeybee gives us and its importance and its threat. It is used for medicines also. I learnt how to draw and do honeybees and where they live. Honeybees can create forest.

i-SMART classroom

We received a grant from Bajaj through SAIER to renovate a factory building into an i-SMART (Intelligent and Smart) classroom, where we record the projects of children, make videos, train teachers and conduct courses for youth. The 9th graders at Udavi measured the room and came up with ideas, on how the room should look like. They took responsibility to paint the walls.



On 25th November 2017, we inaugurated the room. Children from Udavi and Isai Ambalam had a sleep over the previous night to collaborate and share what they have learnt. Their interaction was one of the highlights of the year. Isai Ambalam children had brought their projects for demonstration. The whole room and the path was decorated by children. The creativity of their projects and the enthusiasm of their presentation and interaction was an inspiration to all.



Sleepovers with robots

This term with the opening of the iSMART classroom we created enough space to work with the mindstorms robots we also brought out a large number of spare motors, gears and connectors that had been donated to us by Future school.



The activity for Isai Ambalam children was kick-started with their interaction with the Udavi 9th graders showing them how to build and use the robots the night before iSMART classroom opening. This has continued into two more sessions going late into the night experimenting and building small creative robots on their own using spare parts.



Volunteers in STEM Land

This year, we had two volunteers, Pranav (who left Google) to volunteer with us for 4 months and Raghu who holds a masters degree in VLSI design and embedded systems. Pranav generated interest in children to work on mobile apps and helped with the visualization software for children to track their progress.

Courses offered in STEM Land

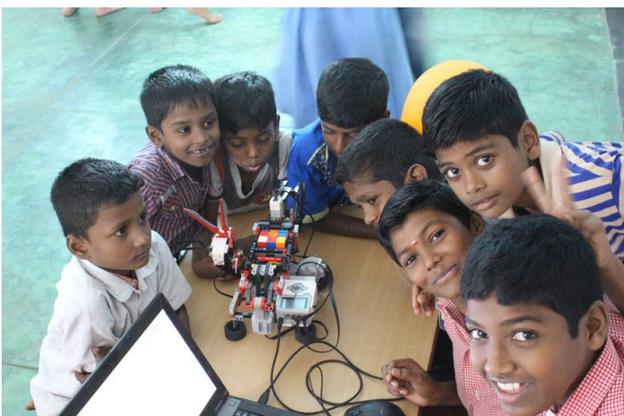
We conduct courses on electronics and programming for interested children and adults in and around Auroville. We ran a companion hands-on basic electronics in parallel with an on-line certification course over 8 weeks course. Around 22 youth and 4 children attended this course. Although, we had two days for videos and one day for theory the practical hands-on sessions had the most attendance.



Since everyone enjoyed the practical sessions Siva (Isai Ambalam) and Raghu (volunteer in STEM land) who attended the course are conducting a short and intense course on the hands-on electronics activities. This course in Dec is seven two hour sessions. It is being conducted in the i-SMART classroom in a comfortable setting with enough equipment to explore electronics including voltage sources, oscilloscopes and signal generators.

Project work

This term children did projects on statistics, algebra, practical geometry, Cartesian product and recorded them. Children have also created mobile applications in MIT app inventor. Some build a mind-cuber, a robot in Lego Mindstroms to solve Rubiks cube.



Multiplication tables

We identified multiplication tables as one of the stumbling blocks in children's ability to do calculations. This in turn made children feel they were not good at Mathematics. We attempted to use Vaughn Cube methodology including the videos and soon found that it was exhausting for children. We adapted it by creating laminated sheets for the objects that need to be mastered so children could touch feel and work with the sheets instead of watching videos. We also identified where the children needed help and focused on these. Many children who struggled with the tables have been able to master it now.



About us

We are eight engineers working with children in STEM Land. Three of our team members are going through a D.El.Ed program. We use leadership tools to maximise growth of children and us. We have presented a paper on STEM Land in epi-STEME6. We spend 3 hrs a day volunteering at schools and the rest learning and working on programming and electronics.

Learn more

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To Support

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