STEM Land Newsletter

About STEM (Science Technology Engineering Mathematics) land

STEM Land is currently located in two outreach (Isai Ambalam and Udavi) schools of Auroville. Children come to STEM Land for their Mathematics, EVS and Science classes. They learn Mathematics, Electronics, 3D-Printing, Programming, Mindstorms

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(Robotics), strategic games puzzles and much more.

The children take responsibility of their learning and plan their goals. They work individually, in pairs or peer groups and ask for support from facilitators when they need it. This self-directed learning is based on Sri Aurobindo's first True principle of education (Aurobindo, 1910); "Nothing can be taught". With younger children we work on real life projects that impact their surroundings. We believe a nurturing environment can support a child's learning.

Reflections of STEM Land team of the year 2018-2019

Each year since our inception we have used the new year as an opportunity to reflect on how our year went - what we learned, how we grew and what was meaningful in the last year at work and with children. This year we did this exercise at the end of the financial year. We were a little more rigorous this year and had a format to track our growth as individuals and as a team. We noticed that in the last year we had spent over 60 days for our learning and growth from participating in stewardship workshops, to those in python-django, raspberry pie to Vipassana.

AV Marathon 2019

One of the aspects that came up in our reflections were the need to focus on our fitness. An opportunity to kick start this came through the Auroville marathon '19 took place on Feb 10th. Many of us ran the 10 km run that was part of the event. The STEM Land team gathered near the start line at 7 a.m..

Switching to e-cycles

As engineers we look at using technology for good. As part of this effort we looked at our own practice of how we come to work, travel between schools (and the need for more exercise). We decided to do something different and switched to e-cycles as a whole team. We tied up with Kinisi a company in Auroville that rents e-cycles.

It has been around 2-months since our switch to cycles. A couple of a children who live near Isai Ambalam got excited and interned at Kinisi for a moth learning about cycles and e-cycles. The teachers at Isai Ambalam school are also inspired to make this switch in June.

Programming for Educators Workshop

In the summer we took the opportunity to share our experience with educators and teachers in an intense 8 day long workshop to support them further or start their own STEM activities. This course focused on the use of programming with children to learn Mathematics. We had diverse participants, seven from around Auroville in schools and centers that want to start STEM land, 10 from (Asha) Chennai who supplement computer classes in government schools and one each from Gujarat, Mumbai and Sittlingi. While some were teachers working with children others were part of school management this diversity was valuable as the program was structured now only to develop skills, but also competencies as well as inner capacities. A picture of the

participants and facilitators is in the title of thisnewsletter.

Ladder EBD

Children from 6th grade worked on ladder EBD. We wanted to make the ladder with natural materials, so we used bamboo to make it. Before making the real model children made a small model to get an idea of how the ladder will look. They learnt the different views of a ladder. In this small model, children used bamboo sticks, glue gun, thread and wheels.

Puzzle Solution Box

Each week a Mathematical puzzle is placed on the STEM Land notice board. Students who want to solve the puzzle will write the answer and drop the answer in the Solution Box. The students took it upon themselves to have a solid box for this and went about building one.

Radical transformational leadership - interview

Sanjeev had an interview with Dreamvisions Radio Station with Dr. Monica Sharma (ex-director of UN) as host on *conscious business and conscious learning*. The show went on-air on 2nd of May 2019. Sanjeev shared how the tools and templates for radical transformational leadership have supported we do with the children to be profound; and, at the same time, supportive of the growth of the team members, enabling them to be intensely engaged in the technology. Similarly, interacting with a high quality international team at Aura Semiconductor Pvt. Ltd. helped us get become proficient engineers.
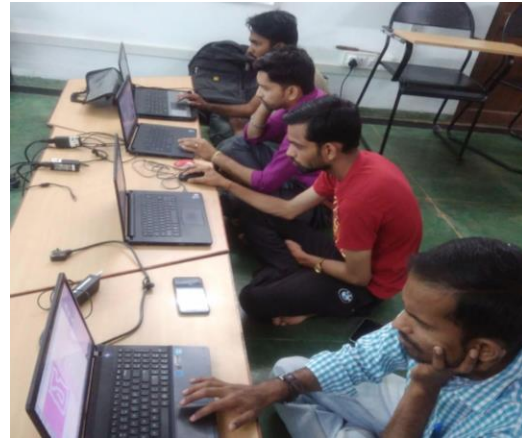
Summer Scratch Course with children

During the summer the children at Isai Ambalam had requested a scratch course. We decided to do one with children fom Isai Ambalam, Udavi and a few children from Auroville. We formatted the course similar to what we had done for the educators. Children who had graduated from STEM land at Udavi last year and the year before joined as facilitators for this course.

Research session with Heidi

STEM land team along with Kavitha and Nirmala from Isai Ambalam had a session with Heidi Watts on research in the i-SMART class room. We started the session with what we wanted to learn and went over quantitative and qualitative research.

Three principles of true education with Isai Ambalam teachers

The school was off for one week during the election. We used this time for collective sharing and growth with the teachers at Isai Ambalam School. We started with 10 minutes Anna Pana (breath) meditation and read about **"The Three Principle of True Teaching"**. We read the book (Psychic Education workbook) together and we were able to connect with our classroom experiences. At the end of the week each teacher shared what they learnt about themselves (insights).

Scratch programming (Gujarat Team)

Rahul and his team from Gujarat came to visit Udavi STEMland and Isai Ambalam school STEM land. There were 4 of them and they ran residential school at Gujarat. They take Mathematics and Science for their children. They wanted to observe the classes (@STEM land) on how we teach. They were very surprised that we don't teach in STEM land.

They also interacted with Isai Ambalam children for the sleep over. They wanted to observe the activities and when they learned about the drumming circle they were curious and delayed their departure to participate in that session too.

Scratch course for Sunflower Team

Tamara Moss from Rajasthan visited our STEM land in February. She is running Sunflower Learning Center in Rajasthan. When she visited STEM land she was inspired by children's projects in Scratch. She wanted their children from SLC to learn scratch programming. There were 3 teachers and one student from Rajasthan. Saranya and Muralidharan conducted course for their team. They learned it and they were using it in their learning center. After completing the course we received update from Tamara Moss. She shared about their children making projects by using scratch.

Arduino course

Vimal who is the founder of Redshade Robotics and a mentor cum trainer for embedded systems with

college students offered an Arduino robotics course for STEM land facilitators in end of April. We learned how we can work with motors to create cheap robots and not only rely on Mindstorms for robotics.
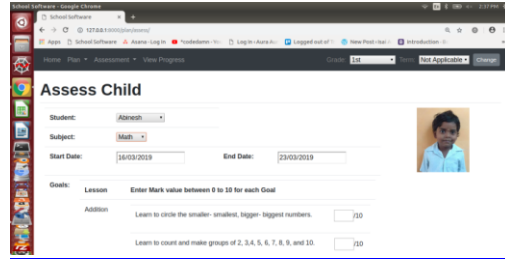

Medaiyil Thisaimaani 2019

Medaiyil Thisaimaani is an annual seminar organized for Upper Primary Teachers organized by Azim Premji Foundation. Alexander, Logeshwari, Saranya and Vasantharaj month of May and presented some of the projects children had done at the Isai Ambalam school. There were 30 teachers from different government schools in Puducherry. It was a three day seminar with a focus on dialogue and discussions on papers presented which made it a very interactive seminar bringing many perspectives about each topic. We presented a paper "**Science Technology Engineering Mathematics (STEM) land at Isai Amabalam school**". Before lunch we had panel discussion on each paper presented at the seminar.

Second Version Of School Plan Software

We made a software in python Django to track the progress of children. The first version was limited

but useful. We cleaned up the code and made is scalable in the second version. It also had some useful features like editing if there was an error and also creating the monthly progress cards that teachers currently make by hand automatically created from the progress over the four weeks of the month.

Our Team

We are a team of 14 engineers at STEM land. Our projects range from creating embedded software in Python, Analog VLSI layout and more recently Artificial Intellegence.

(Left to right) Logeshwari, Abilash, Murali,, Sandhya, Arun, Anupama, Naveen, Pratap, Sanjeev, Poovizhi, Ranjith, Sundar, Saranya, Prabha (not in picture).

Support A Child Program

Last year in partnership with Asha for Education we have set up a Support a child program for Isai Ambalam School the school we all volunteer in. The support of Rs.11,000/year covered some of the running expenses of the school including teachers salaries; nutrition; activities in sports, music, swimming and STEM land activities. Last year we successfully found support for all children at the

school by the end of the schooling year. This year the strength of the school has increased to 150 and we will restart the program. A positive development we see this year is that some of the parents are putting in funds to collectively support some children themselves.

Contributions towards STEM land can be directed towards

Auroville Unity Fund

with a note for STEM land and mail it to

Dr. Sanjeev Ranganathan,

STEM land Udavi School, Auroville,

Edayanchavadi, Tamil Nadu - 605101

All donations are 100% tax deductible in India.

www.auraauro.com