Invention Fair 2015

Education Labs

SELCO Foundation – www.selcofoundation.org
About Invention Education Programme

A pilot program introduced in government schools to sow the seeds of invention in the young minds of children, who will eventually be effective contributors to inventions for sustainable villages in India. Selco Foundation supported by the Lemelson foundation, is implementing the programme along with Rotary club, Belthangady, Kalike (an initiative of Sir Ratan Tata Trust) as partners.

Objectives of ‘Invention Education’

To give a hands-on experience of ‘science’ by facilitating experiments that strengthens the fundamental principles of science in the minds of the children.

To leverage the children’s innate sense of curiosity to make science interesting and fun.

To target the children when they are young (during schooling) and inspire them to invent.
About the Invention Fair

Invention Fair 2015 was conceptualized by Selco Foundation to provide a platform for the children who have been through the invention education programme to showcase the innovative solutions built by them. Throughout the course of the programme, the facilitators guided the students to identify issues around them. The children had gone through various exercises to tone their skills that aid in the invention.

The fair was organized in association with SDME Society at SDM D.Ed college, Ujire on the 28th of February. It was the culmination of the invention education programme and the goal was to celebrate all the creative ideas of the students. There were 400 children from 12 different schools in and around Belthangady who visited the fair along with their teachers to understand and learn the different solutions built by the students. There were more than 100 participants who displayed their solutions to the visiting schools. 12 students from Yadgir and 4 students from Muthur in Chikballapura district had also showcased their solutions at the exhibition. Nearly 50 different innovative solutions were exhibited. The following were the key areas that were showcased to the visitors during the fair:

1. Innovative solutions developed by the children to the issues faced in daily life
2. Science hands-on experiments demonstrated by the students from the schools under invention education
3. Different types of solar cookers made by the children
4. Creative items made from locally available materials

List of schools who participated in the invention fair 2015

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<tr>
<th>Sl.No</th>
<th>NAME OF THE SCHOOL</th>
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<td>1.</td>
<td>G.H.P.S Kiloor, Belthangady</td>
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<td>G.H.P.S Killanakera, Yadgir</td>
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<td>G.H.P.S Warknahalli, Yadgir</td>
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<td>10.</td>
<td>G.H.S Muthur, Chikkabalarapura</td>
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<td>11.</td>
<td>G.H.P.S Shalethadka, Belthangady</td>
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<td>12.</td>
<td>G.U.P.S Barangaya, Belthangady</td>
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<td>13.</td>
<td>G.U.M.H.P.S Mundaje, Belthangady</td>
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<td>14.</td>
<td>G.U.P.S Charmady, Belthangady</td>
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<td>15.</td>
<td>S.D.M.E.M.S (state) Ujire, Belthangady</td>
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<td>17.</td>
<td>S.D.M.E.M.S Dharmasthala, Belthangady</td>
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Snapshots of the Invention Fair

CREATIVITY

Throughout the programme children have been showing their creativity in various forms. Many children from Belthangady have used areca sheets to make grocery bags, purses and sandals. While children from Yadgir used waste cloth to make grocery bags and door mats. A group of children used old bottles and cut them into thin strips and attached it to an old PVC pipe to make floor sweepers. Some children created artistic materials like lamp (made from mud), pen stands, and flowers from plastic covers.
INNOVATIVE SOLUTIONS

The innovative solutions were built by the students to solve any issue which they identified in their community such as sprinkler developed to address the shortage of water, grass cutting machine to replace the heavy machine that is available in the market, a tool to pluck coconuts made from an old shuttle bat, improved cob web remover, floor cleaners, and a trolley to move a huge rice vessel in the school during mid day meal. The solutions were developed by the application of their knowledge gained through observation and individual experiences, concepts learnt from their regular school curriculum and hands-on activities in invention education coupled by the motivation from facilitators of the programme to identify the issues around them and their valuable guidance and feedback on improving their solutions. All the solutions have gone through a multiple cycles of do-experiment-improve, which has aided children in learning new concepts at every stage of the cycle.
Science Hands-on Experiments

Children from the intervening schools (students who belong to the schools where invention education is been implemented) demonstrated hands-on science experiments to the visiting students. Students demonstrated selected experiments that helped children to connect the underlying principles to their relevant daily life experiences. For example, children demonstrated experiments on how the pH of water changes with the soil type, capillary effect and how it works in plants, air pressure and its applications in daily life and how huddling in animals conserves heat in their body, etc.
Children from the intervening schools had made solar cookers from waste cardboard and gift wrappers with the support of the facilitators (for design and construction) during the invention education classes. Different groups from the schools had made various types of solar cookers such as cook-kit, fun panel, parvathi 12 sided solar cookers, solar cooker from umbrella, reflective open box, and box type. Some children were enthusiastic to come up with their own design and one such solar cooker designed by Sharath of GHPS, Belthangady was also displayed at the fair. Children from other schools who came to the fair were excited to see Maggie that was cooked in the solar cookers.
Highlights of the invention fair:

1. **Solutions to solve issues in daily life:**

   Students showed that science is an integral part of our life through their innovative solutions to the problems they faced in their day-to-day life. This exhibition stood out because the children decided what they wanted to work on and facilitator’s role was to guide them throughout the process of solution building than give them ready-made problem statements and solutions. The innovative cobweb removers, floor cleaners, light weight grass cutting machine, innovative brush to clean the basin, grocery bags from chips packets, trolley to move the rice vessel for the mid day meal distribution, and machine to remove a child from bore-well are all issues that children chose to work on and it indeed shows us how much it is connected to our life on a daily basis.

![Image of students working on a project](image)

2. **Outdoor exhibition with pictorial representation in charts**

   The exhibition was held in the SDM, Diploma in Education block where children could stand under the shade of the tress to exhibit their models. The planning was done such that a group of schools had a schedule to follow and rotate across the four sections of the fair namely innovations (outdoor), innovations (hall), creativity and science hands-on experiments (in the classrooms). Also the charts were pictorial and contained information on issue the group had chosen, details on the solutions (how is it innovative and sustainable).
3. Thinking about the next steps

This exhibition was unique because children had not developed these solutions as a prototype for displaying for a one-day event but these were solutions that they wanted to improve and also implement it on field. They had thought through the sustainability and livelihood implications of the solutions as well and some of the students calculated the costs associated in making the product/solution. Few solutions were even scalable like the grocery bags from chips packets and low cost grass cutting machines.
4. Upholding sustainability of the environment

Children planted a sapling to inaugurate the fair to cherish the importance of trees for the sustainable earth.

During the fair, banana leaves were used to serve the snacks and lunch was given in areca plates.

5. Certificates given to cherish the efforts of the students

The certificates were distributed to the children to cherish their efforts and there was no judgment on the solutions developed by the children but honest feedback on how to improve their solutions.
Each solution had a story behind its creation. The fair was a platform given to the children to showcase the innovative solutions to students from other schools and an outlet to exhibit their efforts towards the development of the solution. The children could summarize their learnings and insights they gained during the process of solution building.

Stories behind each model

1. Grocery bags from chips packets

This idea occurred to Sinan and Sarfuddin, students of GHPS, Belthangady after they watched a video called ‘Paper boy’, a motivational video on how a boy took efforts to save environment from plastic covers by making many paper bags and distributing it to the grocery shops and took keen interest in spreading awareness to his friends. Another important motivation to these students came from the session on plastics during the invention education classes and the solution developed in different places to address this problem. They were really excited to see one of the solutions of using chips packet to make grocery bags and decided to work on it. They started collecting discarded chips packets in their vicinity. But their neighbors were laughing and teasing the children when they saw them collecting the packets. The facilitators motivated the students to keep working towards the solution when they noticed that the neighbors discouraged children.

The children carefully washed the packets after collecting them, and stitched it using a sewing machine. They went to around Belthangady and got feedback on the grocery bags from three shopkeepers. The children incorporated the valuable feedback given by the shopkeepers to improve their design.
2. Trolley for moving the rice vessel for mid day meals

Ganesh and his friends in GHPS, Killanakera in Yadgir noticed that during the mid-day meals in the school, distribution of rice was done in an aluminum vessel. Children sit in the veranda in a line with the plate on the floor during the mid day meals and the rice vessel was dragged to serve rice. Subsequently the vessel was getting damaged. Ganesh along with his friends decided to work on this issue and hence designed a trolley that could hold the vessel. 12 children from Yadgir had come to Ujire to showcase their solutions. Ganesh was one among them who was proud to be in the exhibition. His solution was much appreciated by the children, and other visitors and the Block Education Officer of Belthangady.