



Children collaborating to create and construct models and prototypes

SCIENCE IS FUN!

I drew a picture of a water wheel. I then made a model using plastic spoons, chopsticks, strings, and construction and manipulative toys. My favourite part was trying to count the number of spins it made. Although it was difficult to count and I got wet, it was exciting to see the water make the wheel turn.

Ong Yun Chong, 6



STREAMING AHEAD

CHILDREN AT KINDERLAND PRESCHOOL MINISTRY OF EDUCATION
BUILD CREATIVITY AND CONFIDENCE ALONGSIDE SCIENTIFIC LEARNING.

With their natural curiosity, children are little scientists at heart. At Kinderland Preschool Ministry of Education, children are engaged in experiential learning using the STREAM methodology on science-based projects. The term is an extension of STEM (Science, Technology, Engineering and Mathematics) and includes Reading, wRiting and the Arts.

The Making of a STREAM Project

The STREAM projects had children learn about sound production, attributes of materials, and simple machines by building kinetic structures which include a Tubulum, a Pendulum Art Machine and a Wishing Well. Through the projects, the children underwent an entire process ranging from conceptualising and planning, making predictions, generating explanations, creating models or prototypes to constructing and assembling the final products.

According to Principal Ms Pramadevi, "STREAM focuses on developing the children holistically. The teachers encourage children to ask questions, investigate, hypothesise and test these out. The children had several discussions and bounced ideas off their teachers and peers. They were better able to communicate and express themselves, listen to different perspectives and ideas, negotiate

and collaborate. The outdoor kinetic structures are now utilised to enrich the children's play experiences."

Learning to Solve Problems Independently

Teacher Connie Pang observed that children working on STREAM projects were able to devise solutions to challenges: "As they may not be able to predict the items and materials that they may be working with, they learned to be flexible and make adjustments to their plans, where necessary.

"For instance, when presented with a rusty, recycled wheel, the children realised that they had to remove the rust first before they could use the wheel. This spurred them to want to discover how best to remove the rust. Together with the teachers, they researched on ways in which they could do this," she says. She also observed that the children became more confident and independent as the projects progressed. It brought out the leadership qualities in some children, who volunteered to take charge of certain tasks.

The teachers also encourage parents to help with some tasks such as sawing and drilling, and contributing recycled materials. Having parents involved in STREAM projects helped them get up to speed and take an active interest in their children's learning (see box for more tips). ♥



LEARNING CONTINUES AT HOME

CONNIE'S TIPS ON HOW PARENTS CAN MOTIVATE AND SUSTAIN THEIR CHILDREN'S INTEREST.

- **USE VARIOUS INFORMATION SOURCES** such as resource books and the internet to deepen children's understanding of the concepts learned in preschool.
- **BUILD VARIATIONS OR MINIATURE MODELS** of projects that your child has created in preschool. Discuss the process.
- **ENGAGE CHILDREN IN HANDS-ON ACTIVITIES** such as playing with dough, construction toys and magnets, cooking, water play and shadow play. These experiences are gateways to learning about basic science concepts.

EVERY DROP COUNTS

CHILDREN AT PCF SPARKLETOTS PRESCHOOL @ CHUA CHU KANG BLK 10
BECOME BETTER ADVOCATES FOR WATER CONSERVATION.



Children use the collected rainwater to clean the centre and water plants, learning about water conservation in the process



For their respective projects, Kinderland Preschool Ministry of Education and PCF Sparkletots Preschool @ Chua Chu Kang Blk 10 were conferred the 2018 ECDA Innovation Award (Distinction). Visit bit.ly/ECDA-Awards-2018-Innovation-Awards for this year's winners showcase.

Instead of telling children about our finite water resources and the importance of conserving water, it makes a deeper impact when they are involved in the process and see tangible results for themselves. This was the centre's thinking behind the "Harvesting Rain" project by PCF Sparkletots Preschool @ Chua Chu Kang Blk 10.

"Our goal was to raise awareness of issues that affect the environment and inculcate a sense of responsibility in the children," says teacher Nur Amirah Bte Roslee. "Our children need to know that they can do their part. We want our children to walk the talk so that they can be advocates for water conservation."

From Doing To Learning

As part of the project, the centre installed a water tank to collect rainwater. The children were taught how to measure and record the amount of water collected. They learnt about water consumption by undertaking various tasks. They used the water to flush toilets, and clean furniture and toys during the termly spring cleaning with parent volunteers, and watered plants that they had potted themselves.

The teachers also discussed relevant newspaper articles with children and they visited the NEWater plant as part of their learning journey. Through these

My child learned that rainwater can be used for many purposes. I see him practicing water conservation at home. This project has taught the children that it is important to recycle and reuse. It has pushed them to think creatively and to find ways to reuse things rather than to throw them away.

Ms Lydia Hakim, parent of Nursery 2 Student Asher Tan Jia Le

immersive experiences and, more importantly, being part of the solution to save water, the children were better able to grasp and communicate the key concepts of water conservation. They also became more conscious of how they used water daily such as for tooth-brushing and bathing.

Bringing The Lessons Home

Back at home, the parents worked with their children to design posters on how to conserve water for display

at the water tank area. These posters were also made into flyers and cards for children to distribute at the neighbourhood marketplace and coffee shops.

Parent volunteers joined them as guides, and the children were able to confidently explain their mission to the community. By getting involved in these activities, parents were better able to support and strengthen their children's learning in preschool. They learnt how to engage children more meaningfully through authentic and hands-on learning experiences.

Deepening The Project's Impact

The water tank has now become the centre's main source of water. Aside from cleaning and watering plants, the centre uses the rainwater collected for art & craft and science activities. Cleaners from the town council also use it to mop floors. The vendor who cleans the centre's fans even uses the rainwater to do so.

With the successful outcomes of the "Harvesting Rain" project, the centre plans to keep the programme going and share the benefits of this project with other centres. ♥

ECDA INNOVATION PROJECTS GRANT
All ECDA-registered preschools can apply for the Innovation Projects Grant which offers funding support to equip educators with the skills and knowledge to carry out innovative activities with the children. For more information, visit www.ecda.gov.sg/Educators/Pages/ECDA-Innovation-Projects-Grant.aspx.