



Children learning how to build a two-legged robot at KidsSTOP

GAINING STEAM

Adding the arts to science-based STEM learning produces a more confident, positive and well-rounded child.

To help children keep up in the Information Age, preschools expose them to STEM – which stands for Science, Technology, Engineering and Mathematics. In recent years, however, there has been a push towards adding an ‘A’, or the Arts, to the STEM curriculum.

One of the main advantages of STEAM education is the introduction of soft skills such as creativity, collaboration and communication. “By including the arts in the picture, we offer a holistic multi-disciplinary approach that encourages children to think more critically and creatively about the world around them,” explains Associate Professor Lim Tit Meng, Chief Executive of Science Centre Board (SCB). “This ‘think-outside-the box’ problem-solving technique pushes children to think of solutions in non-linear ways.”



Parents and educators are encouraged to role-model interest in STEAM learning for children

“Injecting drama, theatre and music makes the traditional STEM curriculum much more interesting, engaging and meaningful to young children,” adds Assoc Prof Lim. This fosters their innate curiosity and desire to imagine, investigate, explore and create.

STEAM activities also allow children to develop valuable social and emotional skills. For example, at the Science Centre’s KidsSTOP facility, the “TOTally Science: Fruit for Thought Workshop” teaches children basic engineering principles as they create an electronic piano using fruits and a simple invention kit. “Children go through multiple rounds of trial and error to seek the best solution to perfect their unique inventions,” shares Assoc Prof Lim. In the process, children build confidence and resilience, and gain creative autonomy when they decide how they want to tackle a project or problem. It also encourages them to voice their opinions, practise active listening as well as respect other opinions.

PUTTING THE HE(ART) IN SCIENCE

Recognising that the marriage of arts and science nurtures creative thinkers and future innovators, SCB organised the first STEAM Festival for Young Learners in 2019. A big draw at the event was the CATalysts performance, where creative drama was used to educate children about the science of emotions in different settings.

Besides the annual festival, STEAM learning also takes place all year round at KidsSTOP. Here, children have ample opportunities to learn through interactive play with more

than 20 exhibits and zones themed around astronomy, building and construction, nature, and more.

At the *Planet Warriors* zone, for instance, children can personalise their own forest or marine creatures, which fosters creativity and empathy towards other living things. A gamified component where children help to clean up pollution and save the animals raises awareness of wildlife conservation in a fun way. This increases engagement and promotes a sense of ownership of the natural world.

In addition, SCB runs educational programmes that introduce STEAM concepts to young children through interactive storytelling, puppetry and games, among other activities. They can also take part in experiential workshops and learn science concepts through hands-on activities that integrate acting, singing and dancing.

“Our purpose of adopting STEAM learning at the preschool level is to encourage children to continuously explore, play and try new things from a very young age. While STEM skills are critical in light of technological advancements, the inclusion of the arts is a crucial component towards building lifelong critical and creative thinking for a rapidly evolving world,” says Assoc Prof Lim.



SKILLS FOR LIFE

“STEAM concepts are easy to relate to as we encounter them in our daily lives,” says Mrs Gillian Kong, Executive Principal of NTUC First Campus’ My First Skool at Blk 51 Fernvale Link.

Take the concept of light energy, for example. Children at the preschool see their teachers switching the classroom lights on and off every day and wonder where the light comes from. This kicks off a series of learning activities that starts with letting children tinker with an electricity kit to light up a bulb, then introducing them to other light sources such as the sun. This leads to exploring shadows cast by the sun, followed by studying and tracing the details of leaves that are illuminated by a light table.

Mrs Kong also notes that STEAM education promotes cooperative learning: “Children learn to share tools and take turns during the exploration process. They also exercise their creativity and communication skills when answering open-ended questions such as ‘Why do you think ...?’ or ‘What do you think will happen next?’ Most importantly, they develop a positive disposition towards learning as they enjoy the fun and ‘a-ha’ moments together with their peers.”

There are many opportunities for STEAM learning at home, such as exploring the role of heat when making popcorn, or re-growing vegetables from scraps to teach children where they get their food from. Mrs Kong offers some tips for parents:

- ➔ **Use what is readily available.** Encourage loose parts play with items found inside or outside the home, such as leaves, shells, pots, pans and tissue boxes. Children can tinker with them to create sounds, patterns or structures.
- ➔ **Role-model interest.** Involve your child in the preparation process such as gathering materials. Demonstrate then encourage your child to come up with his own ways of exploring the materials, taking apart or manipulating them.
- ➔ **Listen to your child.** Find out what he is thinking by asking “Why do you think so?” or “What makes you say that?”, and give him time to reflect and share. Encourage him to also ask questions as you explore a solution together.



Experiential workshops at the Science Centre expose children to STEAM concepts through hands-on activities

FULL STEAM AHEAD

In light of the COVID-19 restrictions, this year’s STEAM Festival for Young Learners from 8 to 11 October 2020 went beyond the on-site activities held at KidsSTOP™. Highlights at KidsSTOP™ included the *Amazing Cabbage* science workshop, a sensory trail and a balloon-popping coding challenge. Families can download the Virtual STEAM Library’s electronic resources, watch live streams of shows on the Virtual Stage, and tune in to live vodcasts for parents and children after the four-day event until the end of November.

Visit www.science.edu.sg/visit-us/kidsstop for more details.



Learn

win



- One lucky reader will receive complimentary weekend tickets to KidsSTOP for 2 adults and 2 children, as well as a goodie bag with exclusive items from Science Centre Singapore and KidsSTOP.
- Three readers will each receive a goodie bag with exclusive items from Science Centre Singapore and KidsSTOP.

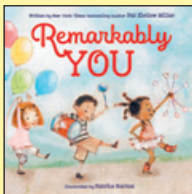
Simply answer this question:
Name one activity in the line-up for this year's STEAM Festival for Young Learners.

Send your answer to beanstalk@mediacorp.com.sg with your name and contact details.
Closing date: **27 November 2020**



Stern Stuff

Help children see what they are made of.

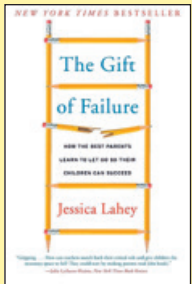


> Remarkably You

By Pat Zietlow Miller

Every child can make a difference, regardless of their size, character or interests. This is an inspiring book that encourages children to appreciate their own unique and remarkable selves, and to believe in themselves and their dreams.

Contributed by *Chen Luoja, Associate Librarian, National Library Board*



> The Gift of Failure: How the Best Parents Learn to Let Go So Their Children Can Succeed

By Jessica Lahey

Written from the perspective of an educator and a parent who had been culpable of overparenting, Jessica Lahey shows how important it is for children to have the space to fail in order to help them succeed. This is an essential resource for parents who want to be equipped with the tools to raise resilient and resourceful children.

Contributed by *Chen Wanying, Librarian, National Library Board*

NLB eReads



Check out these online resources to impart the joy of reading at home.



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