

# INNOVATIVE BY DESIGN

**PRESCHOOL SPACES CAN BECOME A HAVEN FOR LEARNING WHEN EDUCATORS AND ARCHITECTS WORK COLLABORATIVELY.**



Most people would agree that how spaces are designed, organised and arranged makes all the difference to how well children learn. It is a cornerstone of the Reggio Emilia philosophy, which considers the environment the 'third teacher', after parents and educators.

One framework early childhood (EC) educators can use to support this is Universal Design for Learning (UDL). It is about creating an inclusive space where all children — regardless of ability, socioeconomic status or learning style — have access and equitable opportunities for full participation.

Dr Geraldine Teo-Zuzarte, an ECDA Fellow and Vice President (Curriculum & Research) of Pre-school By-The-Park, adds, "UDL recognises that a one-size-fits-all approach to education does not work. It looks at the diversity of needs, strategies and content to facilitate effective learning. And it advocates that all children who attend EC programmes should feel successful as learners."

## THE THREE PRINCIPLES

UDL can be used by educators to drive innovative pedagogies and practices.



- **Provide multiple means of engagement.** Use different strategies to motivate learners and sustain their interest.  
*Example: After reading a story to the class, offer different ways or styles for children to recall it. Provide art materials for them to draw the story's characters to support visual learning. For a kinaesthetic experience, encourage them to dramatise their favourite part of the story. Children can also listen to the story again on headphones to support learning aurally.*
- **Provide multiple means of representation.** Present information in various formats including print, audio, video and concrete objects.  
*Example: When preparing daily schedules, use both pictures and words to describe activities and routines. That way, younger age groups or children with reading difficulties can also have a clear idea of what their day will look like.*
- **Provide multiple means of action and expression.** Make available different avenues for learners to show what they know.  
*Example: Let children choose how to demonstrate their understanding of the lifecycle of a butterfly. They can write a short story about it, make a sculpture of the lifecycle stages, or create a dance with body movements which reflect the metamorphosis.*

## BEYOND AESTHETICS

For a design to be considered effective, it must be relevant, have a purpose and be human-centred, says Ms Dawn Lim, Executive Director of DesignSingapore Council. "Design isn't just about cute chairs or the interiors of places. It is a way of approaching and thinking about the world around us. It is about how we define a problem, ideate and prototype solutions to elevate the user experience. Design is a powerful tool for change that can influence long-lasting, impactful outcomes."

The design of preschool spaces is a case in point. Many preschools are now adopting open-plan learning zones and micro-environments within the classroom to support the dynamic learning process and effective child engagement. In this setting, Ms Lim notes, "Children are encouraged to engage in creative problem-solving as they brainstorm, test ideas out and work through challenges, guided and supported by adults. We can show children that innovative solutions can be found all around us."

These UDL principles encourage the development of divergent thinking, says Dr Teo-Zuzarte, quoting the late educationalist Sir Ken Robinson, who once said that "divergent thinking is an essential capacity for creativity and innovation". She adds, "We need to encourage children to see possibilities for different answers and scenarios, which is a critical skill in a VUCA [volatile, uncertain, complex, ambiguous] world."



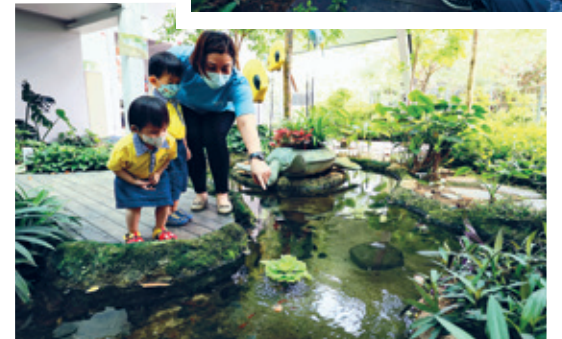
Here's how two preschools — Skool4Kidz @ Sengkang Riverside Park and PCF Sparkletots @ Punggol Shore — have collaborated successfully with local architects to blend sound child development theories and architectural principles. Both centres have received acclaim for the unique and intentional design of their physical spaces that spark creativity and imagination in children and educators.

## BRINGING NATURE IN

Designed by Freight Architects, Skool4Kidz @ Sengkang Riverside Park is the first childcare centre in Singapore to be situated within a public park. With a distinctive cocoon-like structure, the two-storey, 4,000 sqm campus that takes up to 460 children delivers a nature-based curriculum. For this project, the firm clinched the FuturArc Green Leadership Award and the International Architecture Award in 2019.



▲ A "rolling hill" façade helps the preschool blend in with the natural landscape. "The green roof provides a heat barrier for internal spaces, improving cross-ventilation and reducing air-con usage," say Freight Architects' directors, Mr Kee Jing Zhi and Mr Tan Kian Teck. They also worked with the centre and NParks to create a playground and community garden.



▲ Openings and skylights let natural light stream into the building, where an Atrium Garden (with a Butterfly Lodge and Eco Pond) allows children to learn about nature at their own pace. For example, playgroups can get a close-up look at fish in the pond, while the nursery class can scan the QR codes on tablets to find out about indoor plants. Kindergarteners can tend to the plants, which are used to prepare their meals.



◀◀ Wide, sheltered corridors overlooking the park become learning spaces. "The thought-provoking materials in these spaces provide a variety of experiences such as birdwatching (with binoculars), water and sand play, and motor skills activities, for children's holistic as well as creative development," says Senior Principal Ms Darshini. For instance, they can explore and experiment with the different sounds of metal, wood and plastics at the soundscape space.



▲ Open-concept classrooms flank the central Atrium Garden at both ends. There is also a large, dual-purpose Atelier Loft & Reading Space on the second floor, where children can read and express themselves through art.



## HELLO, NEIGHBOUR!

See how Living Sanctuary Kindergarten turned its premises into a "community" with 10 different learning centres.

Harnessing children's love for pretend play, they recreate neighbourhood scenarios from grocery shopping to ordering food at a restaurant. [go.gov.sg/innovative-learning-spaces-classrooms](https://go.gov.sg/innovative-learning-spaces-classrooms)



## IN THE ROUND

Designed by LAUD Architects, PCF Sparkletots @ Punggol Shore is a 8,400 sqm childcare centre that takes up to 1,000 children. The three-storey circular building has an unusual yet purposeful geometry, with spaces for experiential and sensorial learning as well as connection to nature. For these reasons, the firm received the President's Design Award ('Design of the Year') in 2020 and the SIA Architectural Design Award ('Institutional Projects') in 2019.



Simple geometric shapes inspired the preschool's design, which can be summed up as "a triangle in a circle within a square", says Mr Ho Tzu Yin, Managing Director of LAUD Architects. Inside, a three-point bridge on the second storey connects the various classrooms and creates play spaces that are sheltered by a huge Teflon roof.



Sheltered playscapes and greenery to integrate the indoors and outdoors are distributed throughout the building. Teachers often hold lessons at the Central Play Area (with a garden) on the three-point bridge. Overhead, the oculus lets in light, wind and rain, exposing children to the natural elements while helping the plants grow well. The playscapes have open decks, undulating contours and ramps, instead of slides and swings, to encourage children to improvise and invent their own games. They can also showcase their works such as zoo animals made from recyclables.



A total of 36 classrooms lines the outer ring of the building. Taking a cue from Sparkletots' rainbow-coloured logo, mosaic floor tiles in various colours are used to differentiate the classrooms for each age group. This helps children recognise their classrooms more easily (compared to the usual practice of labelling classrooms by numbers or text).



The focal point on the first storey is the multi-purpose Play Arena (Dining Hall-cum-Library-cum-Indoor Theatre). Other shared spaces include the Art Atelier, and Culinary and Music rooms. "We aim to create an inclusive learning environment. Each learning centre has different materials and activities, based on the children's interests," says the centre's Executive Principal, Ms Rabeah Binte Mohter.



### SMALL BUT MIGHTY

Most preschools are smaller than these two centres and many are located in HDB void decks. Both LAUD Architects and Freight Architects offer some ways that these preschools can enhance their spaces:

#### → INDOORS

- Adopt an open-plan concept and create flexible multi-use spaces. Mount childcare furniture on castors so that they can be easily moved.
- Use sound-absorbing ceiling materials and furniture. This reduces noise in a small, confined space.

#### → OUTDOORS

- Create an urban farm by extending the gable end walls of a HDB block. Or collaborate with an existing urban rooftop farm.
- Set up an outdoor trail around the HDB estate with learning play sets.

