

HAPPY WONDERERS

DISCOVERY CENTRES ALLOW CHILDREN TO ACT ON THEIR NATURAL POWERS OF OBSERVATION AND CURIOSITY.



Children using the scientific method and a mirror to explore the concept of distance

One of the key questions that Children's Cove @ Orange Grove asked itself was how to make science more fun and meaningful for young children. The preschool reviewed its processes and observed that children simply went through the motions and did not show curiosity. "The experiments were more teacher-directed, so children's inputs were limited. It is important for children to engage in science-related activities at a young age. It helps them develop a range of skills such as communicating, reasoning and analysing," explains teacher Ms Bahareh Afkhami Naeini.

The centre embarked on a Practitioner Inquiry project to explore strategies that would trigger child-initiated experiments and strengthen their inquisitiveness. Two discovery centres — indoors and outdoors — were set up and stocked



An experiment to see how food colouring reacts in water

with a variety of science tools such as mirrors, binoculars, microscopes, magnets, pulley systems, as well as recycled loose parts contributed by the teachers and parents. The objective was to let children explore freely with the equipment and materials, guided by teachers using the six steps of the scientific method to provoke their thinking.

THINK OUT LOUD

Teachers modelled visible thinking during each step by posing questions such as "What do you see?", "How do you know?", "What are you curious about?" and "When do you think changes will occur?". This helped children think through and verbalise their thought processes, for instance, when they used mirrors to explore the concept of distance.

Helping children verbalise their thought processes made their

“ I love using science toys because they are fun. We did an experiment to find out if we could hear a balloon 'burp' when we mixed baking soda and vinegar. ”

THEODORE TAY, 6

thinking visible. This helped them dig deeper when investigating a hypothesis. Ms Bahareh elaborates, "It requires children to think aloud, while the open-ended questions make them think beyond the first step of any experiment. This provides a clear picture of the child's level of understanding and enables teachers to clarify or encourage the child to elaborate, and extend their thinking."

FUEL SELF-DIRECTED LEARNING

Science experiment books and stories were introduced during morning circle time to spark greater interest in the tools at the discovery centres. The teachers also fixed a weekly schedule for science lessons as they found that consistency was key to children being more proactive in initiating experiments. Ms Bahareh recommends, "Let children spend at least 30 to 45 minutes twice a week at the discovery centres. Encourage them to take the lead and drive experiments to find out the answers to their questions." ●

6 STEPS OF THE SCIENTIFIC METHOD



How to apply the six steps.

- 1. Make an observation:** Bring children's attention to their reflections in the mirror.
- 2. Ask a question:** "If you're small in the mirror, how far are you?"
- 3. Form a hypothesis:** Come up with theories whether their reflections can be seen depending on where they stand.
- 4. Make a prediction:** Ask them to guess if they can see themselves in the mirror and whether their reflections would be the same size if they stand at different distances.
- 5. Test the prediction:** Position them at different spots.
- 6. Use results to make new predictions:** Conduct another experiment to find out if they can see what is on picture cards at different distances to the mirror.