Playing with Maths

Luke has taken down the basket of magnetic building pieces and is joining straight pieces onto balls. He says "I made a spider! I made lots of spiders". The teacher approaches Luke with a container of chalk and suggests that he could use the chalk to make a web for his spiders. Luke draws a spiderweb on the carpet, using large circular motions. He places one spider in the middle. He then proceeds to draw several "webs" placing a spider in the middle of each one. The teacher sits down beside Luke and says, "Look at all your spiders, Luke. Each spider has its own home"

Our intentional teaching decisions rest within our philosophies and beliefs about the nature of education, and effective teaching and learning practice. To consider how we approach young children's mathematical development has to fit within the parameters of our professional understandings.

Beliefs about teaching/learning:
At Ballymore Kindy we have a core focus which underpins all our work with young children and their families. This core focus is on positive relationships within the early childhood setting using our framework titled – "Creating a Caring Community of Learners". It comes from a fundamental belief that a child's social and emotional wellbeing is crucial to the quality of their educational experience and impacts significantly on their level of engagement and learning.

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Within this framework, emphasis is placed on the agency of children and the importance of seeing them as capable and competent learners, generators of ideas and problem solvers across all areas of the curriculum. This approach has a direct influence on how we support children in developing mathematical understandings.

Other beliefs that underpin our approach to teaching and learning include that:

- a significant role for teachers and educators is to provide an environment (social, emotional, physical, psychological and cognitive) that supports and scaffolds children's endeavours as they play, explore and create;
- make believe play is an effective teaching/learning tool facilitating all elements of our relationships framework and engaging children in rich, personally meaningful experiences that support the social nature of learning and contribute to deeper level learning and
- most significantly we can assist children to develop positive dispositions for learning including curiosity, cooperation, confidence, creativity, commitment, enthusiasm, persistence, imagination and reflexivity (EYLF, p 34) as well as skills and processes such as problem solving, inquiry, experimentation, hypothesizing, researching and investigating (p35) thereby providing a strong foundation for more formal learning in the school setting.

The wellbeing and level of involvement of young children are considered measures of the quality of an environment by Professor Ferre Laevers, of the Experiential Education Research Centre in Belgium. According to Professor Laevers, "when these two conditions are fulfilled, we know that both the social-emotional and cognitive development of the child is secured." (2012, p5) These factors should be the first consideration in asking "How is each of the children doing?" rather than focussing initially on what they have, or have not, learned.

Beliefs about maths:

- Maths, like literacy, is all around us. It is a fundamental part of our everyday lives and we need to be aware of opportunities to talk about, and play with maths.
- Maths is a language - it is one way to understand the world in which we live
- There is no one way to solve maths problems or to arrive at an understanding of maths concepts (Berk, 2001, p197)

Beliefs about the teacher's role in fostering children's mathematical understandings:

To capitalise on "maths moments", teachers and educators have to be:

- effective observers of children's play and interests
- mathematically aware
- facilitators of mathematical language
- co-constructors of curriculum with young children, linking children with one another, and with ideas and play within the environment. Both play and group times for planning and reflecting provide opportunities to share with one another the conversations and ideas individuals have engaged in or plan to engage in - "Bill says we need $10 to buy a ticket to his puppet show. How would he write that on the sign?", "I just brought this basket of tiles to show you. Today when I visited Lucy's house, she had used some to cover the floor of her verandah. That might be an idea someone else would like to use."

- players and conversationalists - not inquisitors. Our role is not one of continual questioning of children to assess their maths understandings – a strategy which can so often lead to the child's withdrawal from the experience. The initial scenario of Luke and his spiders could so easily have become a question/answer situation. Instead it was a shared moment in one-to-one correspondence using language to describe a concept: "Each spider has its own home." And sharing the joy of play.

A group of 6 boys including Cameron, have established their game of *airport control station* by the front door. Cameron has moved over to the light table which is set up close to where the boys are playing. Cameron takes some red cellophane strips and places them on the light table. As he does so, he says, "This is the BOM (Bureau of Meteorology) radar screen." (Cameron checks the BOM radar most days with his dad and knows a lot about approaching storms). As he places some red plastic squares on the screen he says" These squares are the storms. They are getting closer. The planes won't be able to fly" The teacher approaches Cameron and asks "What else can you see on the radar Cameron? Will the weather clear so my plane can take off?" "Yes" says Cameron "The blue circles are the fine weather and it's coming. You can go soon."

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