Mathematical moment: Professional learning

The maths display board

For some time, we had been using display space to support practitioners' professional development, while at the same time celebrating the children's achievements. Different areas of learning in turn became the focus for display and dialogue within the staff team. Maths became a renewed focus after a few of the practitioner team read the book, Playful Mathematics. The author had asked us to try out some of the ideas and we had photographed the outcomes for the book. There was a sense of renewed excitement about maths in the unit!

Our maths journey…

The whole staff team had completed the Karen Wilding 'Essential Number Sense' training. The training was inspirational and was implemented in the unit over several years. By having reminders and definitions on the wall, we were able to maintain the level of subject knowledge gained during the training. We found that visible prompts also supported visitors and students on placement and generally increased confidence amongst our staff.

'Playful Mathematics' by Helen Williams added a new dimension to our thinking about mathematical learning and teaching. Interesting quotations from the book were added to the display board to use as starting points for discussion or thought. We were particularly interested in Helen's "preparation rather than planning" chapter. This was

definitely something we did a lot of and it provided an affirmation to us as a team. The idea of being “deliberately playful” appealed to us, as we had seen so many times the wonderful learning and critical thinking skills that came from open-ended opportunities.

Helen talks about children “trying out ideas and making suggestions without fear of failing.” By displaying the children’s marks and thought processes, our hope was that practitioners and parents could see how the children benefited from being given the freedom to pursue their own explorations.

As part of this mathematical play, a wide range of mark-making opportunities were always on offer. Adults modelled different ways of recording their thinking, which motivated the children to do likewise. We began to put examples of children’s mathematical marks on the board. All the examples on the board were from nursery aged children. However, staff from across the whole Foundation Stage accessed the room. Parents were invited to celebrate their budding mathematicians, while practitioners were invited to share their thoughts about the learning that had taken place.

Example 1 by H

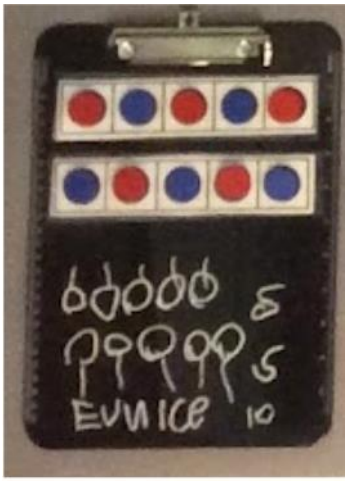
Example 2 by H

Example 3 by H

The first example by H was displayed on the board. The second and third examples by her show the variety of ways in which we responded. H was very motivated by having access to large amounts of counting resources. As a nursery team, we reflected on the learning happening here. She was clearly fascinated with large amounts, arranging the counters in a repeating pattern, one red line followed by a blue line and so on. Her recording showed a spatial awareness of how the counters were arranged and she certainly had a sense of the “largeness” of the amount. H concentrated for long periods of time as she recorded, showing great satisfaction when she had finished the large task she had set herself. This quotation from Helen Williams, which is displayed on the board, seems particularly pertinent here. “Think about how we plan the environment to stimulate mathematics. This leads to talk and teachable

moments.” In other words, what could we “prepare” in the environment to respond to H’s fascination?

As a result of this, over time, different trays, grids, fabric, egg boxes, a squared shower curtain and frames were among the things that were added to the environment to support her interest. Of course, other children joined in! As H was so engrossed in her play and mark-making, we discussed as a team when it would be appropriate to initiate discussion without interrupting her flow. We decided that encouraging her to reflect and talk, perhaps even later in the day or the next day, would be a good idea. Looking at the photo, what did she notice? I wonder why there are two reds together there? These questions enabled H to explain her thinking further. We also encouraged her to talk to her mum about what she had done. Mum was very impressed with the fact that H’s work was on the display!



Child E

As a team, we looked at E’s mark-making and talked about what we noticed. Again, there is a strong sense of repeating patterns as the red and blue counters were alternated. E had clearly noticed that the two five frames, when full, looked like a full ten frame. Her recording was accurate and we were intrigued by the lines added to the counters. The top line of recording had lines pointing up, while the bottom line had lines pointing down. We concluded that this showed a very clear understanding of how two separate and full five frames make ten in total. She had distinguished each five in her own special and unique way. E was asked to comment on what she noticed about her arrangement of counters. She could clearly articulate that there were 2 and 3 and then 3 and 2 on her five frames. As a team, we wondered how we could use the double-sided counters further. As E often chose to work with 5 and 10 frames, we offered her a book showing arrangements of everyday objects to see what she would do. Five and ten frames were placed nearby, along with the counters.

E had covered all the grapefruit halves in one photo with counters. She and I then took turns to say what we each noticed about the photo and about her counters. For example, I noticed 3 and 3 and 3 and 3. She noticed 3 blue at each end and 6 in the middle. What would happen if she transferred the counters onto the frames? Would one ten frame be enough? E filled one frame with the blue counters and the two red ones were placed on a separate frame. She instantly recognised the amount as 12 without counting and could tell me that it was 10 and 2.

As well as children's mark-making, the board contained a mixture of definitions, questions and quotations. For example, there was a definition of the difference between perceptual and conceptual subitising, along with a diagram. Another gave an explanation of what unitising means. Questions such as, "How can we encourage children to record their mathematical thinking?" were added to promote thought and discussion. For the whole team, the quotations provided a starting point for reflection on the teaching and learning of maths in early years. In addition to this, we used a large whiteboard to ask the team questions. Everyone was expected to contribute in some way:

"Why is it important to be able to subitise?"

"What do you do/know now that you didn't before the training?"

"How can we help parents to understand how children learn mathematics?"

The board, with everyone's responses, were photographed and kept as a record of our thoughts and discussions. This worked well for our team as everyone's views could be heard and valued.

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